

**“EXHIBIT 1”**

**IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF TEXAS  
WACO DIVISION**

**MURRAY WALTER PISONY,**  
*Plaintiff,*

v.

**COMMANDO CONSTRUCTION, INC.  
and JAMES MCLEOD HOLDINGS INC.**  
*Defendants.*

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**Civ. A. No. 6:17-cv-00055-RP-JCM**

**JURY DEMAND**

**PLAINTIFF MURRAY WALTER PISONY’S SECOND AMENDED COMPLAINT  
AGAINST DEFENDANTS COMMANDO CONSTRUCTION, INC. AND JAMES  
MCLEOD HOLDINGS INC.**

**TO THE HONORABLE COURT:**

**COMES NOW** Plaintiff Murray Walter Pisony and files this Second Amended Complaint against Defendants Commando Construction, Inc. and James McLeod Holdings Inc. (the “Second Amended Complaint”) and, in support of said Second Amended Complaint, avers the following:

**I. PARTIES**

1. Plaintiff Murray Walter Pisony (“Plaintiff” or “Pisony”) is an individual residing in Streetman, Freestone County, Texas.

2. Defendant Commando Construction, Inc. (“CCI”), a Canadian foreign corporation organized under the Business Corporations Act of the Province of Alberta with its principal place of business in Manitoba, Canada, may be served with process by and through the Manitoba Department of Justice care of the Director of Civil Legal Services, located at Suite 730 – 405 Broadway, Winnipeg, Manitoba R3C 3L6, Canada, pursuant to the Hague Service Convention. Defendant CCI has answered in this case and will receive service of the Second Amended Complaint through its counsel of record pursuant to Federal Rule of Civil Procedure 5(b)(1).

3. Defendant James McLeod Holdings Inc. (“McLeod Holdings”), a Canadian foreign corporation organized under the Business Corporations Act of the Province of Manitoba with its principal place of business in Manitoba, Canada, may be served with process by and through the Manitoba Department of Justice care of the Director of Civil Legal Services, located at Suite 730 – 405 Broadway, Winnipeg, Manitoba R3C 3L6, Canada, pursuant to the Hague Service Convention.

## **II. JURISDICTION & VENUE**

4. This Court has jurisdiction over Plaintiff’s claims pursuant to 28 U.S.C. §§ 1331, 1332, and 1338 in that such claims arise under an Act of Congress relating to patents and are between a citizen of the State of Texas and citizens of a foreign state.

5. Venue is proper in this district with respect to Plaintiff’s claims pursuant to 28 U.S.C. § 1391 in that a substantial part of the events or omissions giving rise to the claims took place in this district and in that Defendants are not residents of the United States.

## **III. FACTUAL BACKGROUND**

6. In October 2004, Plaintiff and James McLeod filed a continuation application with the United States Patent and Trademark Office (“USPTO”) seeking to patent “[a]n apparatus for picking, conveying, stacking and bundling lumber pieces from the ground...” as joint inventors.

7. Said continuation patent was granted on January 28, 2008, and issued as U.S. Patent No. 7,320,202 (the “Joint Patent”). A true and correct copy of the Joint Patent is attached hereto as “Exhibit 1” and is incorporated by reference as if fully set forth herein.

8. In June 2005, Plaintiff filed a non-provisional application with the USPTO to patent “[a]n apparatus for picking up, stacking and bundling lumber,” which referenced the Joint Patent as prior art and claimed novel and innovative features separate and apart from those claimed in the Joint Patent.

9. Said non-provisional application was granted on September 22, 2009, and issued as U.S. Patent No. 7,591,629 (the “Pisony Patent”). A true and correct copy of the Pisony Patent is attached hereto as “Exhibit 2” and is incorporated by reference as if fully set forth herein.

10. Since the issuance of the Pisony Patent, Plaintiff has become aware that CCI and McLeod Holdings have manufactured, used, distributed, sold, and/or offered for sale one or more machines that include elements reading, directly or indirectly, upon one or more claims of the Pisony Patent. By way of illustration, the machine depicted in the images attached hereto as “Exhibit 3,” which is incorporated by reference as if fully set forth herein, includes elements that read, directly or indirectly, upon one or more claims of the Pisony Patent.

11. Upon information and belief, CCI has manufactured, used, distributed, sold, and offered for sale the machine depicted in Exhibit 3, or machines identical or substantially similar thereto, in various places throughout the United States, including in Texas. In addition, upon information and belief, McLeod Holdings has at least manufactured, and possibly used, distributed, sold, and/or offered for sale the machine depicted in Exhibit 3, or machines identical or substantially similar thereto, in various places throughout the United States, including in Texas.

12. By and through his counsel, Plaintiff sent a cease and desist letter to James McLeod on or about October 28, 2016, demanding that James McLeod and/or CCI cease and desist from manufacturing, using, distributing, selling, and/or offering for sale machines containing elements that read upon claims set forth in the Pisony Patent (the “C&D Letter”). A true and correct copy of the C&D Letter is attached hereto as “Exhibit 4” and is incorporated by reference as if fully set forth herein.

13. On or about November 18, 2016, counsel for James McLeod responded to the C&D Letter, making various factual assertions in contradiction of Plaintiff’s claims (the “C&D

Response”). A true and correct copy of the C&D Response is attached hereto as “Exhibit 5” and is incorporated by reference as if fully set forth herein.

**IV. COUNT I: INFRINGEMENT OF U.S. PATENT NO. 7,591,629 AGAINST DEFENDANT COMMANDO CONSTRUCTION, INC.**

14. Plaintiff hereby reincorporates paragraphs 1 through 13 above by reference as if set forth fully herein.

15. Plaintiff owns, and is a proper party to sue for infringement of, the Pisony Patent.

16. Upon information and belief, CCI has manufactured, used, distributed, sold, and/or offered for sale in the United States machines that infringe one or more claims of the Pisony Patent either literally or under the doctrine of equivalents and continues to do so.

17. Specifically, without limitation, Plaintiff asserts that CCI’s machines have previously and presently infringed, either literally or under the doctrine of equivalents, at least Claims 1, 2, 4, and 6 of the Pisony Patent as described in Plaintiff’s March 8, 2018 Preliminary Infringement Contentions and Amended Claim Charts dated April 26, 2018 and any subsequent supplements and/or amendments thereto, a true and correct copy of which is attached hereto as “Exhibit 6” and incorporated by reference as if fully set forth herein.

18. CCI’s aforesaid activities have been without authority and/or license from Plaintiff.

19. Upon information and belief, CCI has known and been aware of the Pisony Patent at some or all of the times during which CCI manufactured, used, distributed, sold, and/or offered for sale CCI’s infringing machines in the United States and, as such, has knowingly, willfully, and intentionally infringed the Pisony Patent.

20. Plaintiff is entitled to recover from CCI the damages sustained by Plaintiff as a result of CCI’s wrongful acts in an amount subject to proof at trial which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C.

§ 284. Plaintiff also seeks to recover lost profits, including the profits Plaintiff would have made absent the infringement, pursuant to *Panduit Corp. v. Stahl Bros. Fibre Works, Inc.*, 575 F.2d 1152 (6th Cir. 1978).

21. CCI's infringement of Plaintiff's rights under the Pisony Patent will continue to damage Plaintiff, causing irreparable harm to Plaintiff for which there is no adequate remedy at law, unless a permanent injunction is granted by this Court.

V. **COUNT II: INFRINGEMENT OF U.S. PATENT NO. 7,591,629 AGAINST DEFENDANT JAMES MCLEOD HOLDINGS INC.**

22. Plaintiff hereby reincorporates paragraphs 1 through 21 above by reference as if set forth fully herein.

23. Plaintiff owns, and is a proper party to sue for infringement of, the Pisony Patent.

24. In addition, upon information and belief, McLeod Holdings has at least manufactured, and possibly used, distributed, sold, and/or offered for sale in the United States machines that infringe one or more claims of the Pisony Patent either literally or under the doctrine of equivalents and continues to do so.

25. In addition or in the alternative, upon information and belief, McLeod Holdings has and is continuing to actively and knowingly induce, with specific intent, infringement of the Pisony Patent under 35 U.S.C. § 271(b) by encouraging CCI to manufacture, use, distribute, sell, and/or offer for sale in the United States machines that infringe one or more claims of the Pisony Patent, either literally or under the doctrine of equivalents. James McLeod is sole shareholder of McLeod Holdings and is also President of CCI. *See* McLeod Decl. 2, ECF No. 19-2. Upon information and belief, James McLeod, and accordingly CCI and McLeod Holdings (as early as the date of its formation), has been aware of Plaintiff's machine since 2004 and was aware of the related application for the Pisony Patent at least as early as October 2008. CCI and McLeod Holdings'

sole corporate officer and/or shareholder knew that the accused machines were copies of a patented machine(s) and nonetheless directed corporate defendants and participated in CCI and McLeod Holdings' manufacture, lease, and/or use of the accused machines.

26. Specifically, without limitation, Plaintiff asserts that McLeod Holdings' machines have previously and presently infringed, either literally or under the doctrine of equivalents, at least Claims 1, 2, 4, and 6 of the Pisony Patent as described in Plaintiff's March 8, 2018 Preliminary Infringement Contentions and Amended Claim Charts dated April 26, 2018 and any subsequent supplements and/or amendments thereto. *See* Ex. 6.

27. McLeod Holdings' aforesaid activities have been without authority and/or license from Plaintiff.

28. Upon information and belief, McLeod Holdings has known and been aware of the Pisony Patent at some or all of the times during which McLeod Holdings at least manufactured, and possibly used, distributed, sold, and/or offered for sale McLeod Holdings' infringing machines in the United States and, as such, has knowingly, willfully, and intentionally infringed the Pisony Patent.

29. Plaintiff is entitled to recover from McLeod Holdings the damages sustained by Plaintiff as a result of McLeod Holdings' wrongful acts in an amount subject to proof at trial which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284. Plaintiff also seeks to recover lost profits, including the profits Plaintiff would have made absent the infringement, pursuant to *Panduit Corp. v. Stahlin Bros. Fibre Works, Inc.*, 575 F.2d 1152 (6th Cir. 1978).

30. McLeod Holdings' infringement of Plaintiff's rights under the Pisony Patent will continue to damage Plaintiff, causing irreparable harm to Plaintiff for which there is no adequate remedy at law, unless a permanent injunction is granted by this Court.

31. In addition or in the alternative, McLeod Holdings controls CCI to such a degree that the Court should disregard CCI's corporate form and impose liability against McLeod Holdings for CCI's infringement. At a minimum, the alleged infringing machines are made in the United States by CCI and/or McLeod Holdings for the benefit of and, in part, ultimate ownership by McLeod Holdings. Likewise, McLeod Holdings is asserting its ownership of the infringing machines throughout the development phase and by incurring expenses associated with said development, as reflected in their financial disclosures. In fact, CCI and McLeod Holdings are operated as alter egos for the purposes of insulating McLeod Holdings from financial liability all while McLeod Holdings indisputably leases the infringement machines to CCI for use in the United States. This sham financial corporate structure and arrangement is designed to circumvent litigation damages and infringement liability.

32. Defendants CCI and McLeod Holdings have used their corporate forms to operate a sophisticated shell game, shuttling assets between entities in an effort to escape the effect of any potentially adverse judgment against CCI. McLeod Holdings owns all of the assets of CCI, including all of its shares and all of the machines accused of infringement. CCI and McLeod Holdings have created a corporate fiction to inflict an injustice upon Plaintiff through manifestly improper conduct. McLeod Holdings allegedly leases the accused machines to CCI by means of an unwritten lease agreement and is paid significant lease revenue by CCI. CCI then leases the accused machines to companies in the United States. At least two of the four accused machines (the 2014 and 2016 machines) are listed as "Work in Progress" and as "expenses paid on behalf of



JM Holding by Commando” on McLeod Holdings’ financial statements. These same expenditures are then listed as Fixed Assets in McLeod Holdings books. At a minimum, CCI was acting as an agent of McLeod Holdings with regard to at least the manufacture of two of the four accused machines. Upon information and belief, CCI transferred a large amount of revenue to McLeod Holdings in 2016, the same year in which Plaintiff sent McLeod a cease and desist letter demanding that he and CCI stop infringing the patent-in-suit. Although title to the accused machines was allegedly transferred from CCI to McLeod Holdings, to date, there have been no documents produced showing transfer of title. In addition, loans by McLeod Holdings to the sole shareholder, James McLeod, are made with no repayment terms and with no interest charged. As such, Plaintiff requests that, for at least these reasons, CCI’s corporate form be disregarded to impute any finding of liability against CCI to McLeod Holdings.

#### **VI. JURY DEMAND**

33. Plaintiff previously demanded a trial by jury on all issues and hereby reasserts such demand.

#### **VII. PRAYER**

**WHEREFORE, PREMISES CONSIDERED,** Plaintiff Murray Walter Pisony prays that this Court enter judgment in his favor against Defendants Commando Construction, Inc. and James McLeod Holdings Inc. for Plaintiff’s actual damages in an amount to be determined at trial, pre- and post-judgment interest at the highest rate permitted at law, costs of court, a permanent injunction, and reasonable attorneys’ fees. Plaintiff prays for such further relief, at law or in equity, to which he may show himself entitled.

**DATED:** June 5, 2018.

Respectfully submitted,  
**WILSON LEGAL GROUP P.C.**

By: /s/ John T. Wilson  
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**ATTORNEYS FOR PLAINTIFF  
MURRAY WALTER PISONY**

**CERTIFICATE OF SERVICE**

On June 5, 2018, a true and correct copy of the foregoing document was electronically submitted to the Clerk of Court for the U.S. District Court for the Western District of Texas using the electronic case filing system of the Court. I hereby certify that I have served all counsel and/or *pro se* parties of record electronically or by another manner authorized by Federal Rule of Civil Procedure 5(b)(2).

*/s/ John T. Wilson*

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John T. Wilson

**“EXHIBIT 1”**

(12) **United States Patent**  
**McLeod et al.**

(10) **Patent No.:** US 7,320,202 B2  
 (45) **Date of Patent:** Jan. 22, 2008

(54) **STACKING OF LUMBER PIECES** 4,399,745 A \* 8/1983 Jorgensen et al. .... 100/2  
 4,467,712 A \* 8/1984 Fincham ..... 100/8  
 (76) Inventors: **James A. McLeod**, Box 6, Vassar,  
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 (CA) T0K 1H0  
 (Continued)

(\* ) Notice: Subject to any disclaimer, the term of this  
 patent is extended or adjusted under 35  
 U.S.C. 154(b) by 0 days.

FOREIGN PATENT DOCUMENTS  
 CA 2241682 2/1999

(21) Appl. No.: **10/969,238**

(22) Filed: **Oct. 21, 2004**

(65) **Prior Publication Data**  
 US 2005/0132667 A1 Jun. 23, 2005

*Primary Examiner*—Rinaldi I. Rada  
*Assistant Examiner*—Gloria R. Weeks  
 (74) *Attorney, Agent, or Firm*—Adrian D. Battison; Michael  
 R. Williams; Ryan W. Dupuis

**Related U.S. Application Data**  
 (63) Continuation of application No. 09/634,833, filed on  
 Aug. 4, 2000, now abandoned.

(51) **Int. Cl.**  
**B65B 27/10** (2006.01)  
**A01D 43/08** (2006.01)

(52) **U.S. Cl.** ..... **53/390**; 53/589; 53/391;  
 53/167; 53/148; 56/341

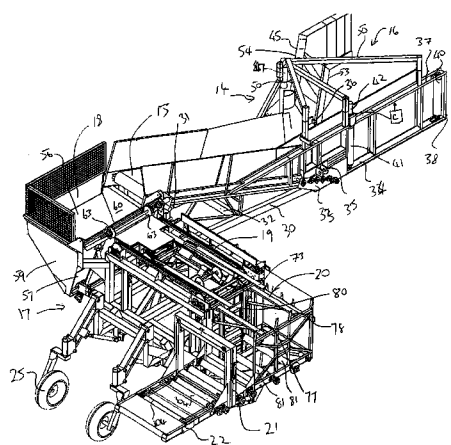
(58) **Field of Classification Search** ..... 53/390–392,  
 53/148, 154, 167, 589; 414/501; 56/341  
 See application file for complete search history.

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(57) **ABSTRACT**

An apparatus for picking, conveying, stacking and bundling  
 lumber pieces from the ground for example for removing  
 stacked support lumber during laying of a pipe line com-  
 prises a tracked vehicle to which is attached a frame carrying  
 a transport conveyer along the side of the vehicle forwardly  
 and downwardly toward the ground. At the forward picking  
 end is provided a picker roller for lifting the lumber pieces  
 from the ground. On one side of the picker roller is provided  
 a drive conveyer which is generally vertical and operable in  
 forward and reverse direction to orient the pieces. On the  
 side opposite to the drive conveyers provided a vertical  
 blade with a rearwardly inclined inner portion which blade  
 can pivot inwardly to push the lumber pieces toward the  
 drive conveyer and to enclose and squeeze the pieces to a  
 position inward of the side of the conveyer. Behind the  
 vehicle is mounted a stacking section which arranges the  
 pieces in a row and then stacks part of the row on top of  
 another part to form the stack. The stack passes through a  
 frame which clamps the pieces together to squeeze the stack  
 and also to wrap the stack with a strapping carried into place  
 by a chain.

**15 Claims, 9 Drawing Sheets**



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U.S. PATENT DOCUMENTS

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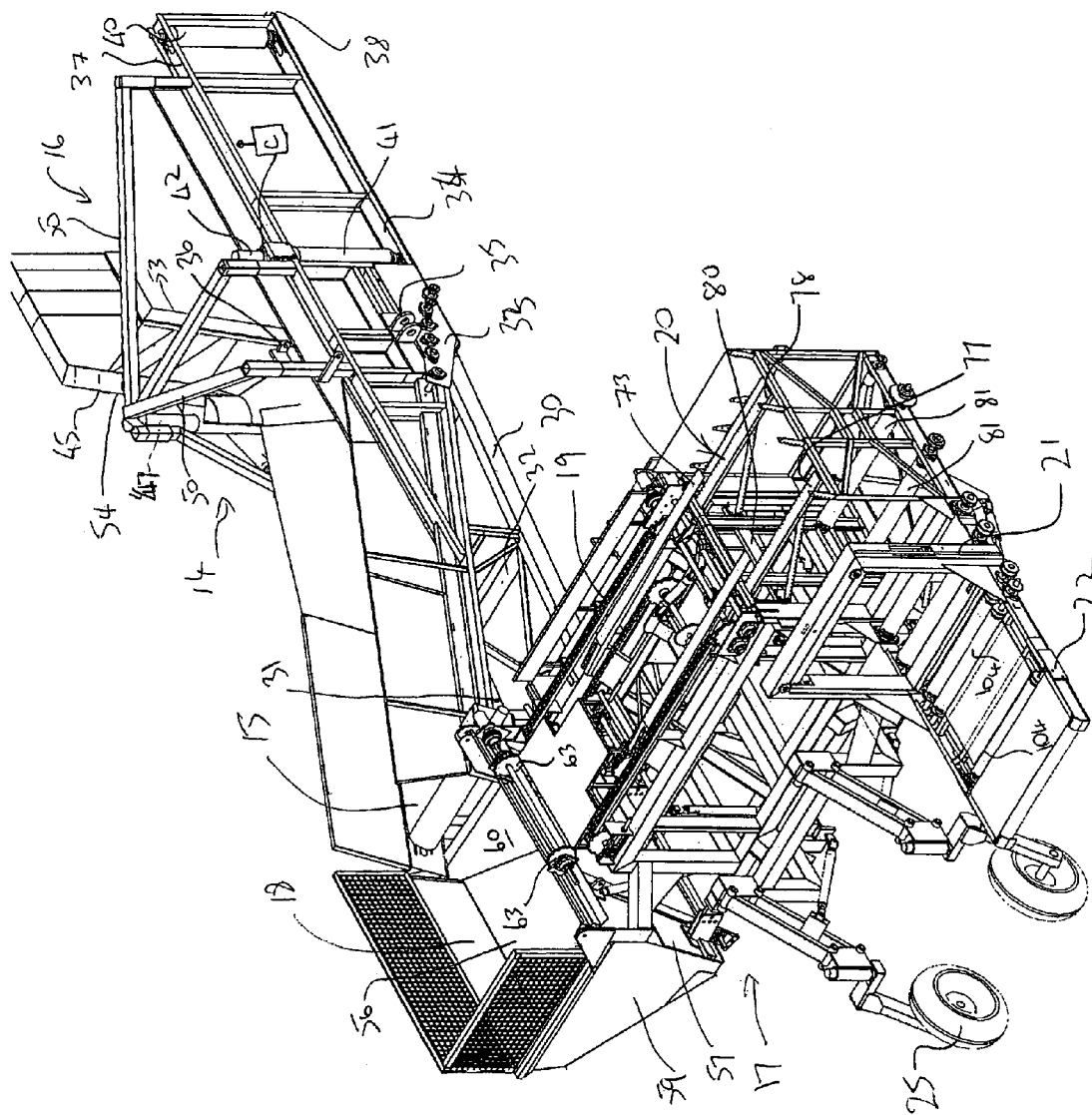
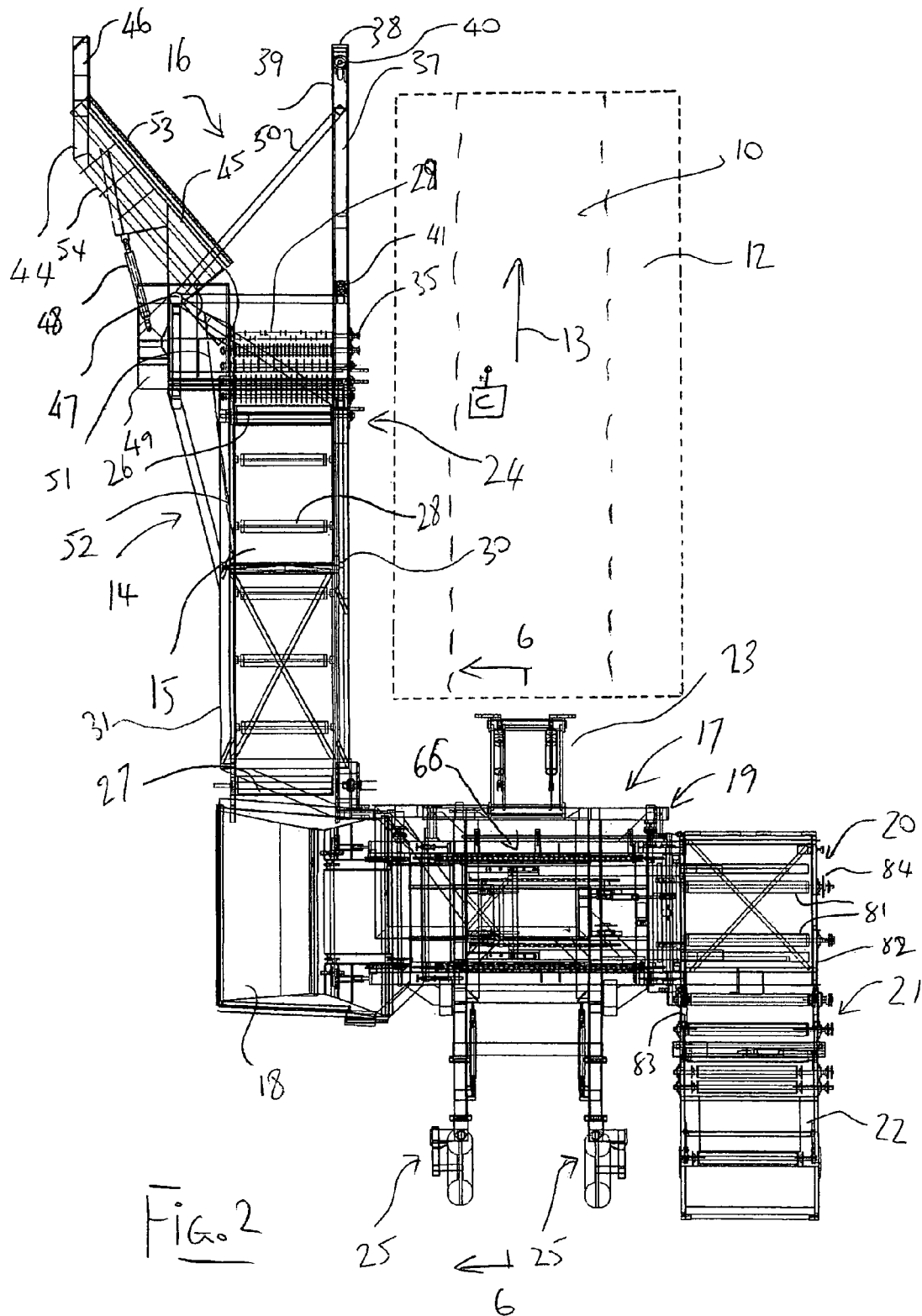
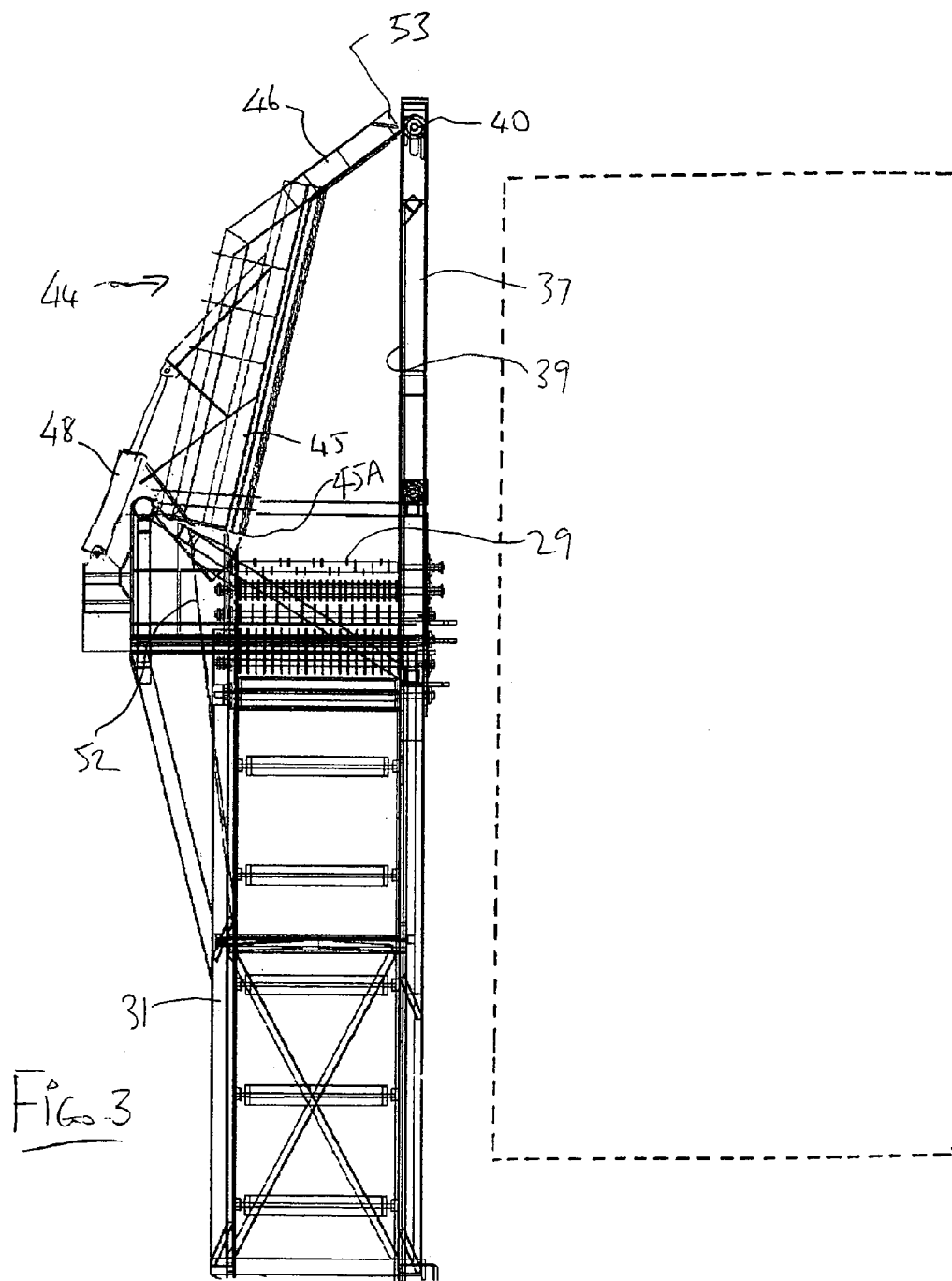


FIG. 1







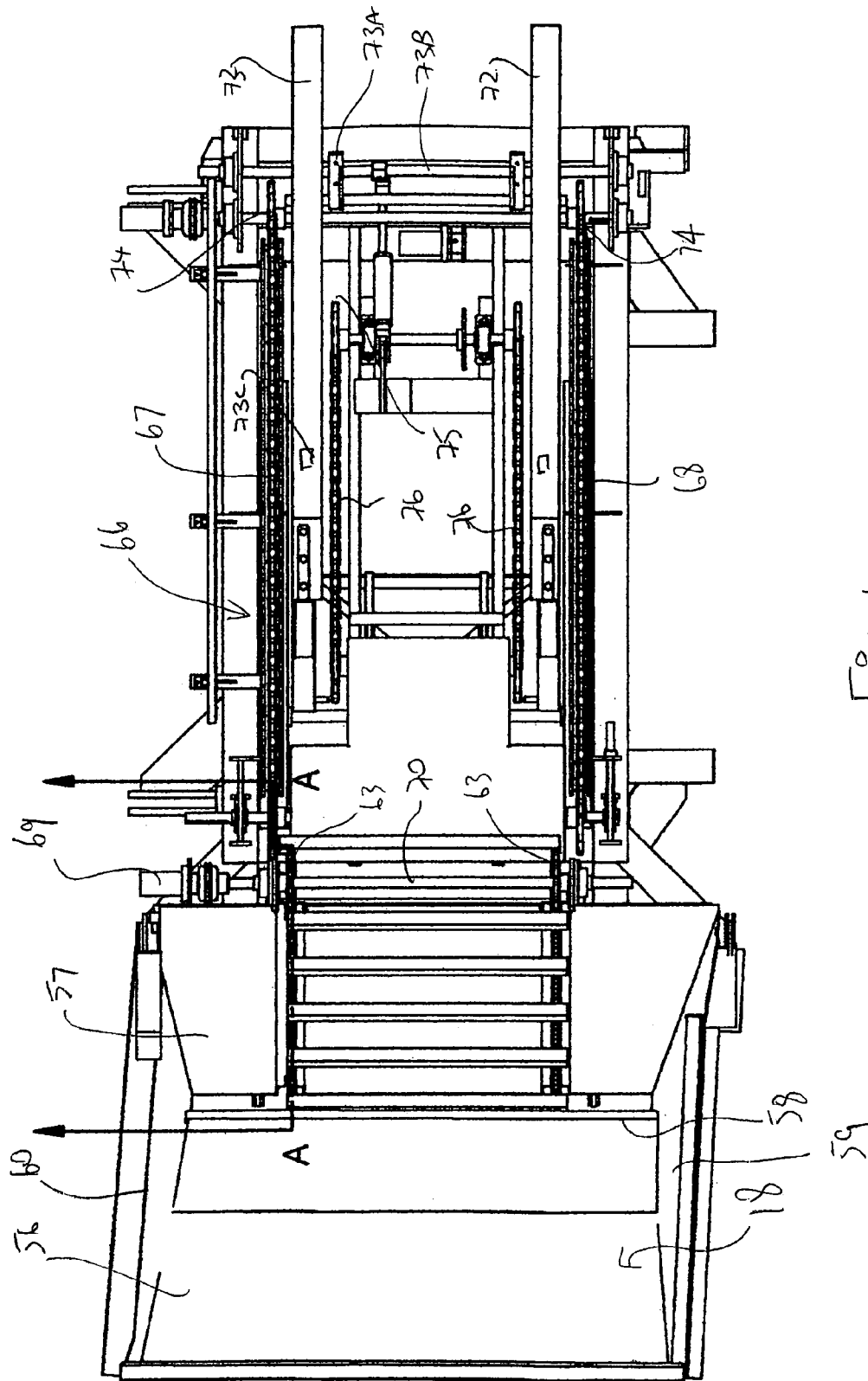


FIG. 4

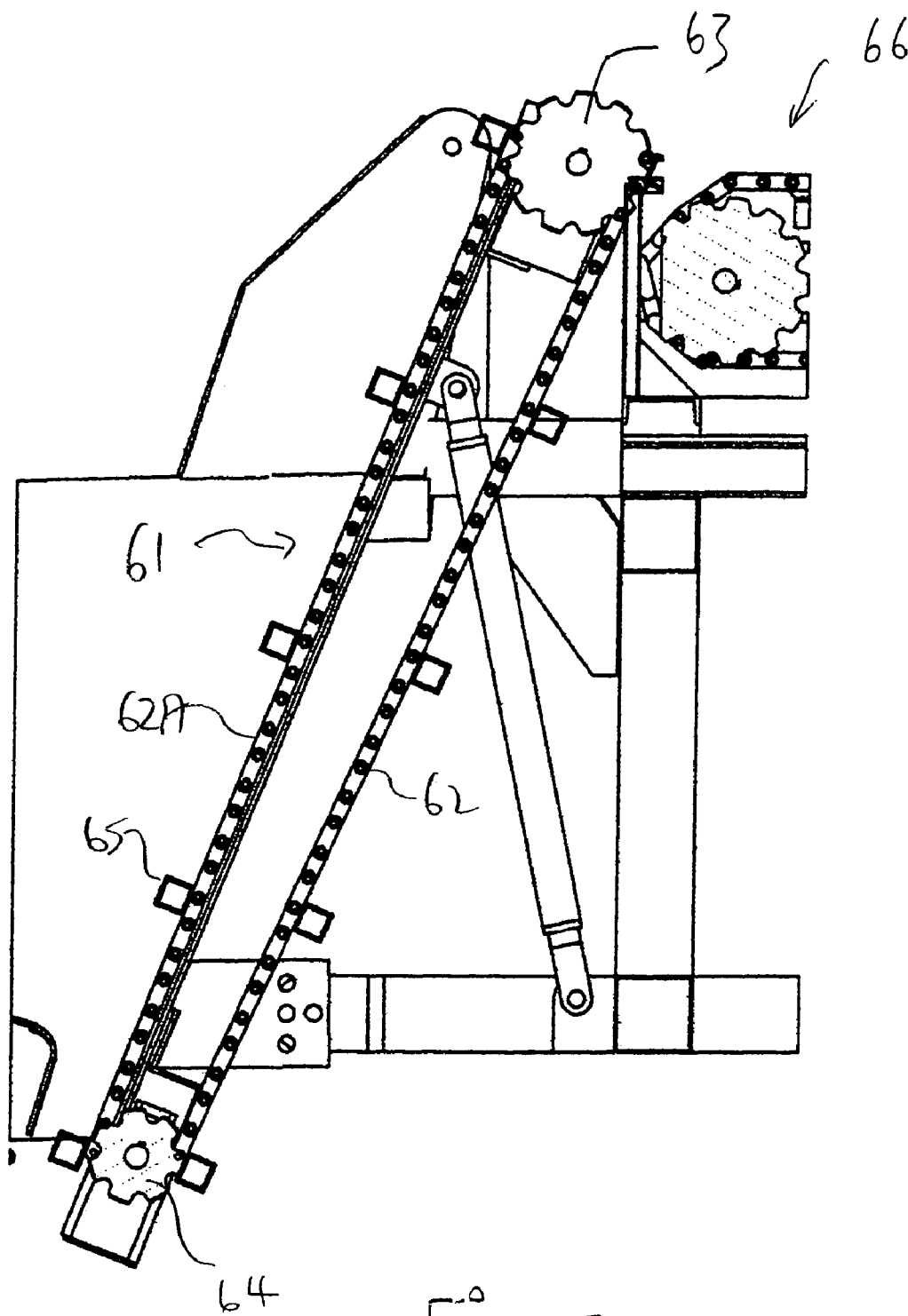


FIG. 5

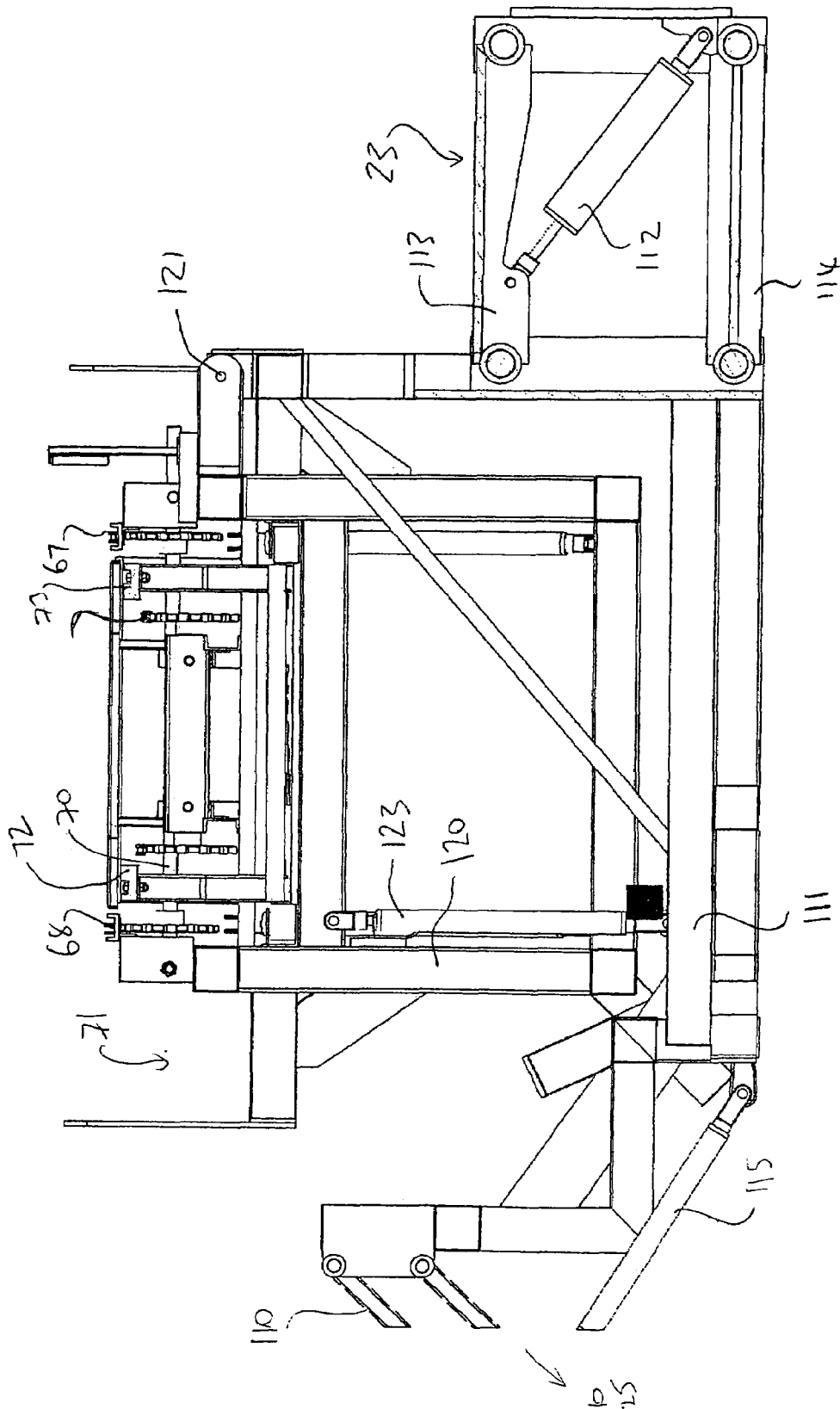


FIG. 6

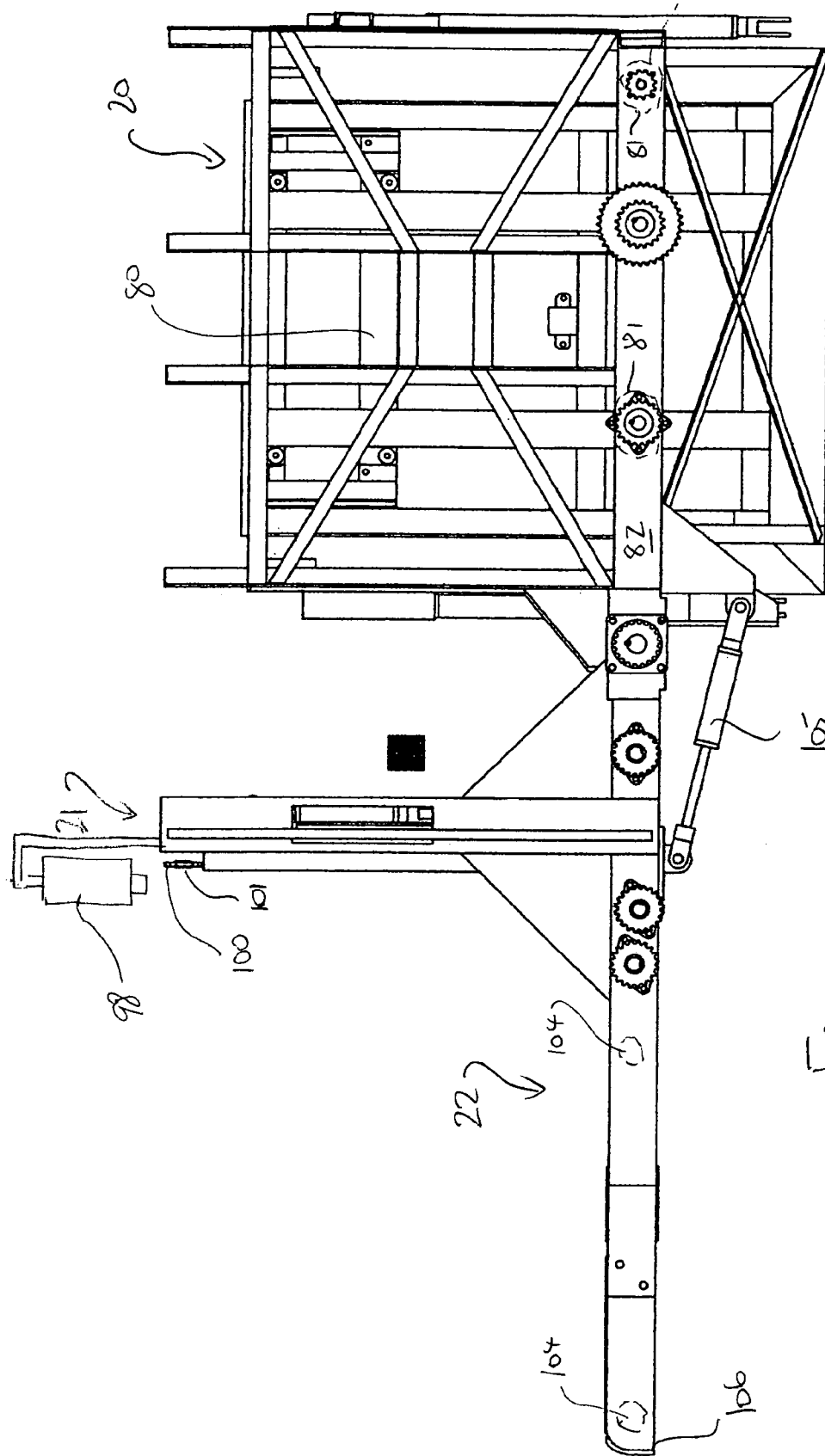
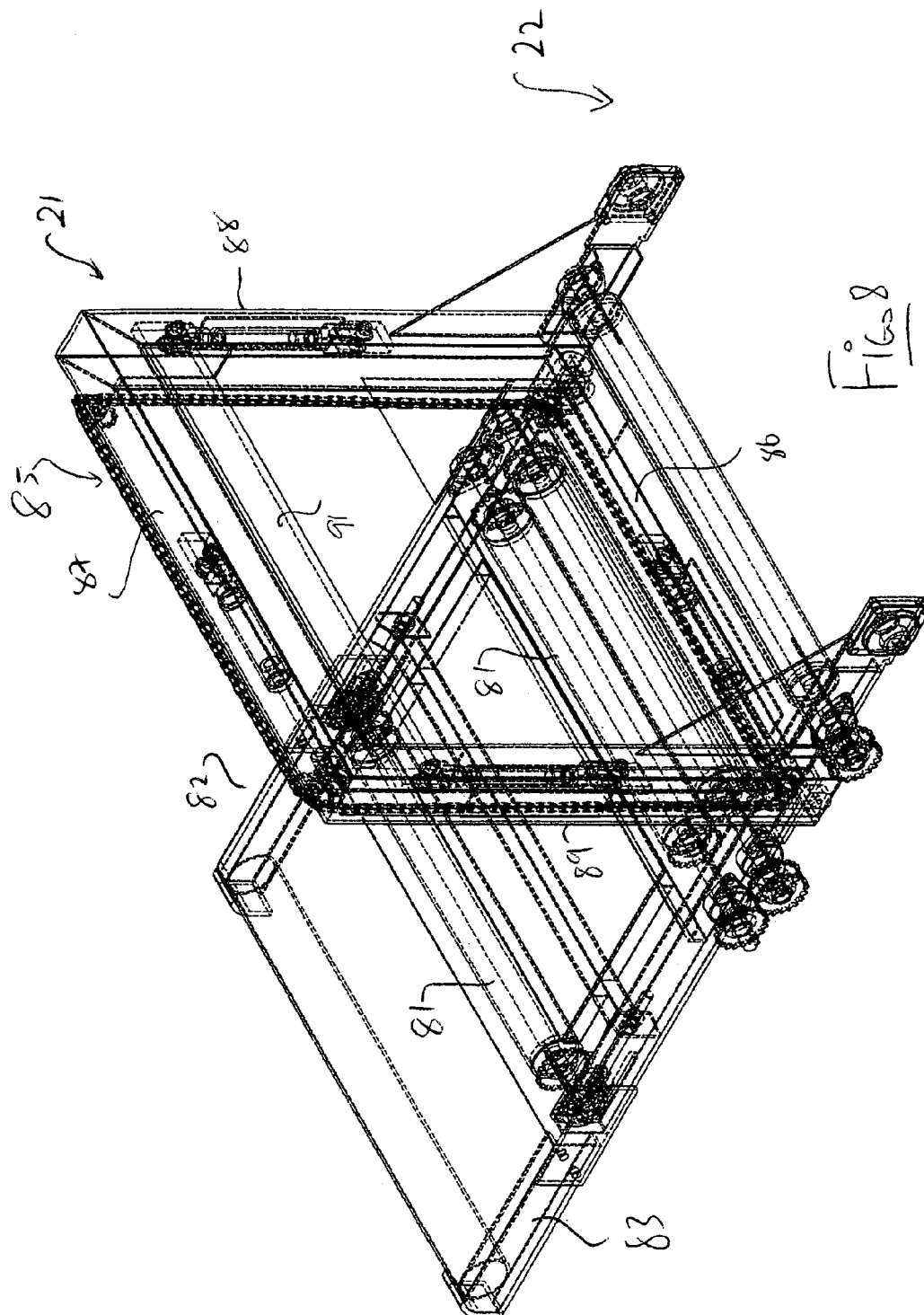


Fig. 7





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**STACKING OF LUMBER PIECES**

This invention is a continuation application of application Ser. No. 09/634,833, filed Aug. 4, 2000 now abandoned.

This invention relates to an apparatus for stacking lumber pieces particularly but not exclusively those known as skids used in laying pipe-line.

**BACKGROUND OF THE INVENTION**

In laying pipe such as in a gas or oil pipe line it is conventional that lengths of the pipe are supported end to end on stack lumber pieces known as "skids" so that the pipe lengths can be held at a required height to be supported and aligned end to end for welding of the lengths prior to feeding of the completed welded length into a trench adjacent to the stacks.

Thus the pipe lengths are initially arranged end to end and are properly aligned by arranging sufficient of the lumber pieces to support the pipe length at the required height. With the pipe lengths so supported, the welding is carried out to form the lengths into a continuous length for laying in the ground.

The pipe is then lifted from the supporting stacks and deposited in a continuous action along its length into the ground by a train of tracked vehicles at spaced positions along the length, each carrying suitable operation elements so that the continuous pipe length can be fed from the supported position into the trench. At some point during laying or after the pipe has been laid, it has been necessary to remove the lumber pieces from the stacks and to collect the lumber pieces into a transport container for removal from the site and preferably for re-use at a further location along the pipeline.

At the present time the lumber pieces which are conventionally either four or five feet in length and 6 inches by 4 inches in cross section are lifted manually and handled manually for stacking onto a transport container. This manual process is expensive and time consuming since it requires a gang of laborers working hard and commanding relatively high wage rates. In many cases that stack has been disturbed so that the pieces are strewn and in some cases the pieces are compressed into the ground by the tracks of the passing vehicles.

While this step relatively minor one in the process of laying the pipe line, it constitutes a significant expense and therefore provides a significant opportunity for manufacturer of an effective machine which will carry out this step while eliminating or reducing the manual labor involved.

In U.S. Pat. No. 5,934,861 issued Aug. 10<sup>th</sup> 1999 to one of the present inventors, which corresponds to Canadian Application 2,241,682 published 26<sup>th</sup> Feb. 1999, a first proposal was made for a machine which picks up the pieces and conveys them to a transport truck to one side of the machine. While this proposal included a number of basic principles which are used herein and which form the basis of this invention, yet further improvements have been made herein to provide a machine with improved operation and ergonomics

**SUMMARY OF THE INVENTION**

It is in accordance with one aspect of the invention one object of the present invention to provide an improved machine for collecting elongate pieces from the ground which can be used for example in collecting the stacks or skids for supporting pipe lengths prior to laying of the pipe.

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According to one aspect of the invention there is provided an apparatus for collecting, stacking and bundling elongate pieces comprising;

a frame arranged for attachment to a vehicle for moving in a direction of working movement across the ground between stacks on the ground of the elongate pieces to be collected;

an unscrambling and stacking assembly on the frame including a row former for receiving the elongate pieces from the conveyer and for unscrambling and aligning the pieces side by side in a row and including a transfer section for stacking rows on top of one another to form a stack of the rows;

and a bundling assembly on the frame for wrapping the stack of the rows with a bundling material;

the unscrambling and stacking assembly and the bundling assembly being mounted on the frame for transportation with the vehicle across the ground such that the collected elongate pieces are discharged behind the vehicle in a bundle.

Preferably the apparatus includes a picking assembly on the frame for lifting the elongate pieces from the ground and a transport conveyer on the frame having a forward end for receiving the elongate pieces from the picking assembly and arranged to transport the elongate pieces rearwardly from the picking assembly to the unscrambling and stacking assembly.

However in an alternative arrangement, the unscrambling, stacking and bundling assemblies without a picking assembly can be provided on a vehicle for transportation to the pieces to be collected. The pieces can then be picked up manually and simply dumped into an unscrambling hopper or can be dropped onto a conveyer for feeding to the hopper. This arrangement can be used where the picking assembly cannot operate due to space or other limitations and thus manual picking by laborers is necessary or where there is a large pile of the pieces which must be reached by a cherry picker type arrangement.

Preferably the stacking assembly and the bundling assembly are mounted on the frame so as to be positioned behind the vehicle and the conveyer extends along one side of the vehicle from the picking assembly forwardly of and to one side of the vehicle to the stacking assembly behind the vehicle.

Preferably the transfer section of the stacking assembly includes a conveyer extending across the vehicle behind the vehicle from the conveyer on the one side to the bundling assembly on the other side and wherein the bundling assembly is arranged to discharge the bundle rearwardly of the vehicle from the other side.

Preferably the row former of the stacking assembly includes a hopper into which the pieces are deposited from the conveyer and an elevator for lifting the pieces one at a time from the conveyer, the hopper having an end wall transverse to the feed direction of the conveyer against which the pieces are fed by the conveyer and two side walls each on a respective side of the end wall with the side walls converging inwardly and downwardly to a bottom apex lying along the feed direction of the conveyer and the elevator being arranged up one side wall with piece engaging members thereon for engaging and lifting one piece at a time for discharging the pieces over the top of said one side wall onto a transfer conveyer.

Preferably the apparatus includes an end guide for engaging ends of the pieces at one side of the transfer conveyer to push the ends into alignment on the transfer conveyer.

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Preferably the transfer section of the stacking assembly includes a transfer conveyer for forwarding the pieces side by side in a row, a transfer rack for lifting a row of a predetermined number of the pieces from the transfer conveyer and moving the row generally horizontally from the transfer conveyer, and a stack support for receiving the moved rows deposited thereon and for moving the received rows downwardly to receive a next row on top of a previous row.

Preferably the transfer rack comprising a pair of parallel horizontal forks which can be raised for engaging the pieces and can be moved horizontally from the transfer conveyer to the stack support for conveying the engaged pieces.

Preferably the stack support comprises a pair of horizontal parallel forks which can be lowered to deposit the stack onto a roller conveyer for discharge.

Preferably the stacking assembly and bundling assembly are mounted on a sub-frame portion of the frame which is arranged for pivotal movement relative to the frame and relative to the conveyer about a horizontal axis transverse to the direction of movement of the vehicle to maintain the stacking assembly and bundling assembly substantially level as the vehicle moves

Preferably the frame is attached to a rear of the vehicle by a four point hitch and is supported relative to the ground on two wheels extending rearwardly from the frame allowing the angle of the whole frame including the picking assembly to the vehicle be adjusted to accommodate changes in ground contour as a rigid forwardly projecting construction by adjustment of the four point hitch. In an alternative arrangement, the pick-up assembly can be connected to the front of the conveyer, by a pivot hinge defining a transverse horizontal pivot axis preferably at the front picking roller thus allowing the picking assembly to be lifted upwardly and downwardly to accommodate changes in ground contour while the front of the conveyer at the picking rollers rolls on or floats over the ground.

It is a further object of the invention in accordance with a second aspect to provide an improved bundling assembly for an apparatus of this type.

According to a second aspect of the invention there is provided an apparatus for stacking and bundling elongate pieces comprising;

a stacking assembly including a row former for receiving the elongate pieces for aligning the pieces side by side in a row and including a transfer section for stacking rows on top of one another to form a stack of the rows;

and a bundling assembly for wrapping the stack of the rows with a strapping material;

the bundling assembly comprising:

a conveyer for forwarding the stack;

a rectangular surrounding frame structure for surrounding and enclosing the stack on the conveyer and including a bottom frame piece, a top frame piece and two side frame pieces;

and a feed member for transporting the strapping material around the compressed stack in the frame for clamping of ends of the strapping material to form a loop, the feed member comprising an endless loop member extending around the frame and drivable along its length around the frame with a coupling member at one point on the loop member for receiving and transporting an end of the strapping material around the stack as the loop member passes around the frame.

Preferably the frame includes a first clamping assembly movable into engagement with one side of the stack for compressing the stack side to side and a second clamping

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assembly movable into engagement with the top or bottom of the stack for compressing the stack top to bottom;

Preferably the endless loop member comprises a chain which is carried on sprockets at the corners of the frame.

Preferably the first clamping assembly comprises a first clamping bar mounted on one side frame member and movable relative thereto by a hydraulic drive between the clamping bar and the frame member and wherein the second clamping assembly comprises a second clamping bar mounted on the top frame member and movable relative thereto by a hydraulic drive between the second clamping bar and the top frame member.

#### BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings, which illustrate an exemplary embodiment of the present invention:

FIG. 1 is an isometric view from the rear and one side of an apparatus according to the present invention.

FIG. 2 is a top plan view of the apparatus of FIG. 1.

FIG. 3 is a top plan view of the apparatus on an enlarged scale relative to that of FIG. 2 and showing only the pick-up and conveyer section in a closed position of the pick-up section.

FIG. 4 is a top plan view of the apparatus on an enlarged scale relative to that of FIG. 2 and showing only the unscrambling hopper and transfer conveyer section.

FIG. 5 is cross sectional view along the lines A-A of FIG. 4 showing the hopper and elevator.

FIG. 6 is a cross sectional view on an enlarged scale along the lines 6-6 of FIG. 2.

FIG. 7 is a side elevational view of the stacking and bundling section of the apparatus of FIG. 1.

FIG. 8 is an isometric view of the bundling section of the apparatus of FIG. 1.

FIG. 9 is a front elevational view of the bundling section of the apparatus of FIG. 1.

#### DETAILED DESCRIPTION

The apparatus comprises a conventional track vehicle 10 having a cab and drive assembly (not shown) and tracks 12 by which the vehicle can move across the ground in a direction of working movement indicated at 13.

The apparatus further includes a picking and conveyer assembly 14 having a main conveyer 15 attached to and arranged rearwardly of a picker 16. At the rear of the conveyer 15 is provided a stacking assembly generally indicated at 17 including an unscrambling hopper 18, a row conveyer 19 and a stacking assembly 20. The apparatus further includes a bundling assembly 21 including a discharge ramp 22. The elements provided by the picking and conveyer assembly 14, the stacking assembly 17 and the bundling assembly 21 are all mounted on a frame for common movement with the vehicle 10 in the working direction 13. The frame carrying these elements is attached to the vehicle by a four point hitch 23 at the rear of the vehicle and by a coupling assembly generally indicated at 24 at the side of the vehicle and inwardly of the picking and conveyer assembly 14. The frame is carried on a pair of rear wheels 25 projecting rearwardly from the frame behind the row conveyer 19 and inwardly of the discharge ramp 22.

The apparatus is arranged to be moved by the vehicle 10 from place to place for picking up pieces of lumber and primarily lumber stacks used as skids for supporting a pipeline during initial welding and prior to insertion of the pipeline into the ground. When a collection of pieces is



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encountered, the picking assembly **16** is operated to collate the pieces so that the pieces can move in groups or sequentially along the conveyer **15** for subsequent unscrambling and stacking into a rectangular stack whereupon the pieces are formed into a bundle, wrapped and discharged on the ground. The vehicle is operated by a driver who moves the vehicle forwardly and operates the picking assembly. The stacking operation is controlled by a second operator standing on the frame behind the stacking assembly who ensures the proper operation of the stacking assembly, the bundling assembly and the discharge.

In an alternative arrangement (not shown), the stacking, bundling and discharge assembly can be used without the picking and conveyer assembly in an arrangement in which the picking is effected manually by a manual laborer or a gang of such laborers who act to pick and lift the pieces, particularly in the arrangement where the pieces are difficult to lift mechanically due to their obstructed location or due to their being embedded in the ground. In such an arrangement the stacking assembly may be turned through 90° and placed upon a trailer behind a vehicle so that the manual laborers simply place the pieces into the unscrambling hopper **18** or alternatively onto a short conveyer conveying the pieces into the unscrambling hopper. Such an arrangement can also be used with a picking assembly in the form of a mechanically operated grapple which lifts the pieces from a large pile of the pieces for formation into stacks which are bundled and discharged. Again therefore this device in combination with a grapple type picking assembly is portable on a suitable trailer or frame carried by a vehicle so that it can be moved to a pile or collection of the pieces for stacking.

The conveyer **15** includes a conveyer belt having a forward end **26** and a rear end **27** and is mounted on a plurality of support rollers **28** so that an upper run of the belt carries the pieces rearwardly and upwardly from the forward end **26** into the unscrambling hopper **18** at the rear end **27**.

In front of the conveyer belt is provided a plurality of picking rollers **28** arranged in a row in front of the front roller of the conveyer. In the embodiment shown there are five picking rollers but it will be appreciated that this number can be increased or decreased in accordance with the aggressiveness of the picking action required. Each picking roller comprises a transverse shaft together with a plurality of longitudinally spaced picking discs. The picking discs have angularly spaced spikes so that reverse rotation of the rollers tends to lift the pieces upwardly and onto the top of the rollers for carrying the pieces rearwardly onto the belt. The discs of each shaft are arranged so that they interleave with the discs of the next adjacent shaft. In this way the shafts and the discs combine to form a grid or grate over which the pieces pass while allowing dirt and other materials to fall through the grid that is between the shafts and in between the discs.

The shafts are arranged so that the diameters increase from the smallest diameter at the front picking roller through to a larger diameter at the rear picking roller. The discs have a substantially common outside diameter so that the spikes of the discs of the first picking roller are larger and therefore more aggressive than the spikes of the last picking roller.

The picking rollers are mounted on the support frame so that they are arranged at or only slightly above ground level so as to prevent the pieces from passing underneath the picking rollers. The front picking rollers therefore act to lift the pieces off the ground or in some cases out of embedded position within the ground by the spikes of the disc engaging into the pieces and lifting them upwardly onto the top of the rollers for movement rearwardly onto the conveyer.

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The conveyer is mounted on a frame section of the main frame having a first side **30** and a second side **31**. The frame sides are interconnected by transverse beams **32** to form a rigid frame structure holding the frame sides at a fixed spacing each on a respective side of the conveyer. The frame sides define support plates **32** for receiving the bearings of the rollers **28** and the picking rollers **29**. The bottom of the side walls is defined by a horizontal skid plate **33** which engages the ground and slides along the ground to locate the side wall and thus the picking section at ground level for engaging the pieces on the ground. The side wall **30** includes mounting lugs **35** and **36** for receiving support elements of a coupling **24** which connects the side of the vehicle to the sidewall **30**. The coupling element **24** includes a link which allows the frame to pivot inwardly and outwardly about a horizontal axis parallel to the direction **13** so that the picking section can pivot outwardly and upwardly or outwardly and downwardly to accommodate changes in ground contour. In addition the angle of the bottom skid **34** about a horizontal pivot axis transverse to the direction **13** can be changed by actuating the four point hitch connection **23** and/or by lifting the linkage **24**.

The pickup section **16** includes a first fixed side wall **37** which forms an extension of the side wall **30** of a conveyer and projects directly forwardly therefrom to a front edge **38**. Thus the side wall **37** of the pickup is directed along the line of motion **13** so that it can be moved by forward movement of the vehicle to a position along one side of a pile of the pieces to be collected

An inside face of the side wall **37** is defined by a belt **39** carried on rollers **40** and **41** and driven by a motor **42**. The rollers stand vertical within the side wall **37** thus defining the belt **39** as the inside surface of the wall which can thus face and contact pieces within the pickup **16**. The motor **42** is actuated by a control **C** shown schematically so that the motor can be driven in a forward direction and reverse direction thus causing movement of the belt in a direction forwardly and rearwardly respectively of the direction **13**. The belt can thus be actuated by the driver of the vehicle who can see the pieces within the pickup area and can see how those pieces are oriented thus selecting a direction of movement of the belt to reorient the pieces to best move them to a position for lifting by the pickup rollers **29** for forwarding along the conveyer. In some cases the pieces are overlying and disorganized so that they can tend to jam within the opening area of the conveyer and thus a selection of one of the direction of movements or indeed operation in both forward and rearward movements alternately can cause the pieces to become reoriented so that one end is clearly in advance of the other to allow that piece to enter onto the conveyer.

On the other side of the pickup **16** is provided a movable side wall **44**. This includes a first wall portion **45** and a second wall portion **46** at the forward outer end of the portion **45**. The portions **45** and **46** are connected rigidly and both are pivotable about a vertical post **47** operated by a cylinder **48**. The post **47** is mounted on a support element **49** carried on the side wall **31** at the forward end thereof. The mounting **49** includes a series of transverse braces **50** which extend across from posts on the side wall **30** so as to maintain the post **47** vertical and in fixed position. The post is located at a position spaced outwardly and forwardly from the forward end of the side wall **31** that is at the first pickup roller **29**.

The forward most part of the side wall **31** includes a top edge **51** which is located outwardly of the bottom edge so that the forward most part is inclined upwardly and out-

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wardly toward the top edge **51**. This top edge extends rearwardly to a point **52** where it intersects with the vertical side wall **31** at a position partway along the conveyer.

The first portion **45** of the side wall **44** is also inclined upwardly and outwardly so that it has a bottom edge **53** which is in advance of the top edge **54**. This forms in effect a blade arrangement similar to that of a bulldozer with a leading front edge which scrapes over the ground surface in the forward movement of the pickup section.

In the open position of the pickup shown in FIG. **2**, the first portion **45** is thus inclined forwardly and outwardly to act in effect as a blade projecting to one side of the conveyer and scraping material toward the conveyer for picking up by the pickup rollers onto the conveyer. Thus any individual pieces can simply enter the mouth defined by the pickup section and are diverted inwardly and rearwardly by the inclined blade **45** to the conveyer. The outer portion **46** in this outer position extends directly forwardly parallel to the side wall **40**.

In a situation where a number of pieces have simultaneously entered the pickup section, for example, in a disorganized pile of the pieces, in some cases the pieces become oriented simply by their cooperation with the inclined blade **45**. However in other cases the pile is sufficiently disorganized and tangled that it cannot simply become reoriented by the engagement with the blade **45**. In this situation the movable side wall **44** is moved to a position shown in FIG. **3** in which the side wall **44** is moved inwardly by actuation of the cylinder **48** to a position in which a front edge **53** of the outer portion **46** is located at or adjacent the front roller **40** of the side wall **37**. This acts to enclose the pieces between the blade **45** and the belt **39**. This squeezing action, which may take a number of strokes of the cylinder to be completed as the pieces become more organized, reduces the volume within which the pile is located thus tending to push the ends of the pieces forwardly and rearwardly acting to tend to align the pieces within the smaller volume between the closed sidewalls. At the same time the closing action tends to lift the pieces since they slide up the inclined wall **45**. The volume of the pile is squeezed so that it has a width slightly less than that of the conveyer thus allowing the squeezed and more oriented pile to enter onto the conveyer over the pickup rollers **29**. It will be noted that as shown in FIG. **3**, the bottom edge of the blade **45** is located inwardly of the side of the conveyer so that it tends to squeeze the pieces inwardly to a position inward of the side wall **31** of the conveyer. The rearmost edge **45A** of the side wall blade **44** is spaced slightly inwardly from the adjacent bottom edge of the side wall portion of the side wall **31**. The inclination of the forward portion of the side wall to the top edge **52** is at as similar angle to the inclination of the blade so that any lifted pieces can slide from the blade **45** onto the side wall **31** at the inclined portion so that they can be moved rearwardly and then drop onto the conveyer by sliding down the inclined portion of the side wall.

While the pieces are enclosed within the smaller volume shown in FIG. **3**, the belt **39** can be operated forwardly and/or rearwardly to assist in aligning the pieces while squeezed into the pile within the smaller volume. In this way substantially any pile of pieces, regardless of their tangled and transverse orientations can be reoriented into a small enough and narrow enough volume so that they can be transported either one at a time or as a part or complete pile rearwardly along the conveyer.

In practice, therefore, in some cases the pieces are somewhat separated along the conveyer and in other cases, the

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pieces are arranged in overlying tangled pattern on the conveyer as they move rearwardly along the conveyer.

Turning now to FIGS. **4** and **5** there is shown the unscrambling hopper **18** into which the pieces from the conveyer **15** are discharged. As set forth above the pieces can arrive one at a time or can arrive with a number of pieces overlying and transverse to one another. In general the length of the pieces is greater than the width of the conveyer since the pieces tend to be either 4 feet or 5 feet in length and the width of the conveyer is of the order of 2.5 to 3 feet. The pieces therefore are generally longitudinal of the conveyer but of course can be diagonal to the conveyer. The pieces as they arrive at the top end **27** of the conveyer are thrown from the conveyer into the unscrambling hopper **18**.

The unscrambling hopper includes two side walls **56** and **57** which are inclined to an apex **58** which is longitudinal of the hopper and thus longitudinal of the conveyer. The hopper further includes a front end wall **59** and a rear end wall **60** which are parallel and generally at right angles to the walls **56** and **57**. The end walls **59** and **60** are vertical and define a length of the hopper which is slightly longer than the longest pieces which are to be accommodated so that the pieces can be aligned lengthwise along the hopper. The pieces arriving at the hopper are therefore thrown into the hopper with one end in advance of the other so that the first end hits the end wall **59** allowing the pieces to fall into the hopper and slide down one or the other of the side walls **56** **57** to the apex **58**. This arrangement therefore aligns the pieces so that each piece has its longitudinal direction longitudinal of the hopper and parallel to the apex **58**. If the pieces are well spaced, the pieces will end up at the apex. If a collection of pieces simultaneously enters the hopper from a pile, the pieces will form a stack at the bottom of the hopper but all oriented with their longitudinal axis parallel to the apex **58**.

A conveyer **61** includes two chains **62** each carried on an upper drive sprocket **63** and a bottom idler sprocket **64** so that a lifting run **62A** of the chains moves in a direction generally parallel to the side wall **59**. The chains carry transverse abutment bars **65** which project outwardly that is forwardly of the runs **62A** and inwardly of the side wall **57** thus acting to grasp the pieces from the pile at the bottom of the hopper and tending to lift those pieces out of the hopper along the sidewall **57** for discharge over a top edge of the side wall **57** onto the row forming section **19**. The abutment bars **65** bridge between the two chains **62** and thus pass over the two sprockets **63** as best shown in FIG. **1** where the pieces are discharged from the top of the conveyer **61** onto a row forming conveyer **66**.

The row forming conveyer **66** comprises a pair of conveyer chains **67** and **68** onto which the pieces are deposited so that they lie transverse to the chain generally at right angles to the chain as they are dropped off from the conveyer **61**. An end alignment belt can be provided on one side of the conveyer **66** for engaging the ends of the pieces and pushing those ends in a direction at right angles to the conveyer chain **67** and **68** thus acting to align all of the ends of the pieces. This alignment belt is not shown for convenience of illustration and is preferably positioned at the beginning of the chain **67** adjacent the motor **69** for driving the sprockets **63** on the shaft **70**.

Thus the pieces are fed generally in a row side by side with all of the pieces sitting on the conveyer chain **67** and **68**. In the event that more than one pieces is carried on a respective one of the abutment **65**, the pieces may end up with one on top of another on the conveyer **66** and this problem is overcome manually by the operator standing on

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a frame **71** behind the chain **68** to ensure that the stacking process operates effectively. The pieces thus are fed along the conveyer **66** on the chain **67** and **68** over a pair of lifting plates **72** and **73** which are normally positioned below the chains thus lying the pieces to be carried across the plates toward the forward end of the chains **67** and **68** at sprockets **74** of those chains. At the forward end of the plate **72** and **73** is provided a pair of stoppers **73A** which halt forward movement of the pieces so that the pieces which are being carried by the chains back up against these stoppers to form a row of the pieces side by side extending back toward the unscrambling hopper.

When sufficient of the pieces have been accumulated to form a complete row of the pieces, the plates **72** and **73** are lifted by an actuating mechanism **73B** which simultaneously lifts the plates and lowers the stoppers. The plates **72** and **73** are then carried forwardly on a carriage system **75** driven by chains **76**. Thus the support plates **72** and **73** lift the accumulated pieces off the conveyer chains and a rear dog **73C** on each of the plates acts to engage a rearmost one of the accumulated row and separate that from the pieces remaining on the chains to carry those pieces forwardly beyond the chains into the stacker **20**.

The stacker **20** includes a pair of horizontal spaced supports **77** and **78** mounted on a carriage **80** carried underneath the row conveyer. Thus the stacker arms **77** and **78** can be moved vertically downwardly as each row of pieces is carried forwardly by the plates **72** and **73**.

The stacker arrangement therefore is located at the end of the conveyer **66** so that each row of pieces is carried beyond the conveyer **66** by the plate **72** and **73** which are lifted and moved forwardly carrying the required accumulated pieces of the row over the stacker. When the carriage carrying the plates is moved to its forward most position, the end most piece of the row is aligned with those pieces previously stacked. In this position the actuating mechanism previously operating the lifting of the plates is lowered thus simultaneously raising the stop members to prevent the pieces from being retracted with the retracting plates as they move back to their position underneath the conveyer **66**. This leaves the row of pieces on top of the previously stacked pieces sitting on the arms **77** and **78**.

The stacking action continues by carrying each row in turn onto the stacking arms **77** and **78** until those arms reach the bottom of the stacking assembly to a position at which they are lowered below conveyer rollers **81** of the stacking assembly thus leaving the stack sitting on the conveyer rollers **81** at the bottom of the stacking assembly.

The rollers **81** bridge a pair of side rails **82** and **83** of the stacking assembly and discharge ramp **22**. The rollers **81** are driven by a chain connected across chain wheels **84** at the side rail **82** so as to forward the completed stack from its position aligned with the conveyer **66** into the bundling assembly **21** and onto a first part of the discharge ramp **22**. In this way the completed stack is moved away from its initial position allowing the stacking arms **77** and **78** to be immediately raised back to the uppermost position for receiving the next row of pieces from the conveyer **66**.

The bundling assembly **21** comprises a rectangular frame **85** including a bottom horizontal rail **86**, a top horizontal rail **87** and two side posts **88** and **89**. The top and bottom rails are spaced by a distance sufficient to receive the height of the stack and the posts are spaced by a distance sufficient to receive the width of the stack. Thus the elements are spaced slightly greater than the compressed dimensions of the stack so as to allow the stack to pass through the rectangular frame

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even the event that it is slightly loose or expanded in dimension by distorted or slightly twisted pieces.

The bottom rail **86** has an upper surface **90** positioned at or slightly below the top surface of the rollers **81** so as to allow the stack to be carried over the top surface **90** and into the area defined by the posts and rails.

A top clamping arm **91** lies parallel to the top rail **87** and extends across between ends **92** and **93** at the posts **89** and **88** respectively. The clamping bar **91** is movable from a position in which it is retracted within a slot within the top rail **87** downwardly into engagement with a top surface of the stack. The clamping bar **91** is moved by a pair of cylinders **94** and **95** each arranged in a respective one of the posts **89**, **88**. The amount of movement of the clamping bar is sufficient to effect squeezing of the pieces within the stack so that the pieces are pressed together thus eliminating the spaces between the pieces and ensuring that they are fully aligned and in contact.

A second clamping bar **96** is arranged at right angles to clamping bar **91** but operates in a symmetrical manner in that it is movable from a position as shown retracted within the post **89** to a clamping position shown at dash line **96A** in which it is pulled toward the post **88** to effect a similar clamping action on the sides of the stack. The vertical clamping bar **96** is operated by cylinders **97** in the top and bottom rails and slides in a slot in those rails at a position alongside but slightly offset from the clamping bar **91**. In this way the two clamping bars act simultaneously and symmetrically to clamp the stack thus squeezing it between the clamping bar and the opposed element of the bundling frame.

With the stack thus clamped, the stack is wrapped by a length of strapping which is wrapped around the stack to form a loop and the two ends of the loop crimped by a manually operable strapping system schematically indicated at **98**. Such strapping arrangements are commercially available in the form of a crimping head which acts to tighten the loop and simultaneously crimp or lock the two ends of the loop together so that the strapping is maintained fixed around the stack. The head **98** is operated by the operator standing on the operator frame.

The strapping material is carried around the stack by a chain **100**. The chain extends around four sprockets **101** each mounted at a corner of the frame **85** so that the chain has four lengths each extending along a respective one of the frame members. One of the sprockets **101** is driven and the others are idlers so that the chain can be rotated around the frame so as to complete a single loop around the frame. The chain carries on one link a gripping member **103** around which an end of the strapping material can be engaged so that that end is carried with the chain as it moves around the frame thus carrying the end around the complete stack which is supported on the rollers **81** until the first end attached to the clamp **103** reaches the trailing end of the strapping material for engagement by the head **98**. The operator can thus forward the end of the strapping material from a supply **S** carried on the frame **85**. The chain **100** and the sprockets **101** is mounted on either the front face or the rear face of the frame so that the sprockets and the chain are alongside the frame and do not interfere with the movement of the stack through the frame and do not provide a dangerous projection outwardly beyond the frame.

When the stack is clamped and wrapped with the strapping material, the clamps are retracted into their respective frame member thus releasing the stack while maintaining the stack in tight bundled condition by the strapping material. The rollers **81** are then driven forwardly by the chain so as

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to move the stack from its position within the bundling frame onto the discharge ramp 22 where it can be held in position until it is required to be discharged onto the ground. The discharge ramp 22 includes idler rollers 104 on which the stack sits while the ramp is held in a horizontal position shown in FIG. 7. The ramp can then be lowered by actuating a cylinder 105 so that the rear end of the ramp 106 moves downwardly into contact with the ground thus allowing the stack to roll from the idler rollers 104 onto the ground for discharge and receipt of a further stack from the stacking assembly. As shown in FIG. 6, the rear wheels 25 are carried on a parallel linkage 110 attached to a rear of the main frame 111 on which the assembly sits. The frame section 111 of the main frame 24 is attached to the four point hitch 23. The hitch 23 includes a cylinder 112 operable between two parallel links 113 and 114 to raise and lower the frame section 111 on the wheels 25. The linkage 110 to the wheels 25 includes a spring coupling 115 which allows some suspension and floating action of the wheels relative to the frame section 111.

As previously explained the frame section 111 is a rigidly connected part of the frame 24 which attaches to the pickup and conveyer section. However the stacking section included in the conveyer 66 and the stacking arms on the vertical conveyer of the stacking assembly is mounted on a subframe section 120 separate from the frame section 111 and pivotally connected to the frame section 111 on a pivot pin 121. The height of the stacking section relative to the frame section 111 can be adjusted by a cylinder 123 under control of the operator standing on the frame 71. Thus the stacking section can be maintained substantially horizontal relative to a front to rear direction by pivoting action about the horizontal transverse pivot pin 121. Thus the driver of the vehicle controls the pickup assembly and the attitude of the main frame including the pickup assembly attached thereto. The driver thus controls the picking up, reorientation and feeding of the pieces along the conveyer. The rear operator standing on the frame 71 controls the stacking action by adjusting the height of the stacking frame to maintain it in an orientation which avoids the possibility of toppling of the pieces. In addition the stacking operator controls the feeding of the row of pieces of conveyer 66 and ensures that the pieces are properly carried onto the existing stack on the stacking arms. The operator then controls the feed of the finished stack through the bundling assembly and discharge.

While one embodiment of the present invention has been described in the foregoing, it is to be understood that other embodiments are possible within the scope of the invention. The invention is to be considered limited solely by the scope of the appended claims.

The invention claimed is:

1. Apparatus for collecting, stacking and bundling elongate pieces comprising:

a vehicle for moving in a direction of working movement across ground between stacks on the ground of the elongate pieces to be collected;

a frame arranged for attachment to the vehicle;

an unscrambling and stacking assembly mounted on the frame including a row former for receiving the elongate pieces and for unscrambling and aligning the pieces side by side in a row and including a transfer section for stacking rows on top of one another to form a stack of the rows;

and a bundling assembly mounted on the frame for wrapping the stack of the rows with a bundling material;

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the unscrambling and stacking assembly and the bundling assembly being mounted on the frame for transportation with the vehicle across the ground;

the unscrambling and stacking assembly including a receiving section for the pieces which is mounted on the frame so as to be located on a first side of the vehicle;

the bundling assembly being mounted on the frame so as to be located on a second side of the vehicle opposite to the first side and arranged to discharge the bundle rearwardly of the vehicle from the second side;

wherein the transfer section of the unscrambling and stacking assembly includes a transfer conveyer extending across the vehicle from the receiving section on the first side to the bundling assembly on the second side;

and wherein the transfer section of the unscrambling and stacking assembly includes a transfer rack for lifting a row of a predetermined number of the pieces from the transfer conveyer and moving the row generally horizontally from the transfer conveyer, and a stack support for receiving the moved rows deposited thereon and for moving the received rows downwardly to receive a next row on top of a previous row.

2. The apparatus according to claim 1 wherein the receiving section of the unscrambling and stacking assembly includes a feed conveyer and wherein there is provided a picking assembly on the frame for lifting the elongate pieces from the ground for deposit on the feed conveyer which is arranged to transport the elongate pieces rearwardly from the picking assembly to the unscrambling and stacking assembly.

3. The apparatus according claim 2 wherein the unscrambling and stacking assembly and the bundling assembly are mounted on the frame so as to be positioned behind the vehicle and the feed conveyer extends along one side of the vehicle from the picking assembly to the unscrambling and stacking assembly behind the vehicle.

4. The apparatus according claim 2 wherein the row former of the unscrambling and stacking assembly includes an unscrambling hopper into which the pieces are deposited and an elevator for lifting the pieces one at a time, the unscrambling hopper having an end wall against which the pieces are fed and two side walls each on a respective side of the end wall with the side walls converging inwardly and downwardly to a bottom apex and the elevator being arranged up one side wall with piece engaging members thereon for engaging and lifting one piece at a time for discharging the pieces over the top of said one side wall onto said transfer conveyer, the unscrambling hopper being arranged such that the side walls are parallel to the longitudinal direction of the feed conveyer and the end wall is transverse to the longitudinal direction such that the pieces are fed with one end first along the longitudinal direction of the feed conveyer for the end of the pieces to engage the end wall when discharged from the feed conveyer.

5. The apparatus according to claim 4 including an end guide for engaging ends of the pieces at one side of the transfer conveyer to push the ends into alignment on the transfer conveyer.

6. The apparatus according claim 2 wherein the unscrambling and stacking assembly and the bundling assembly are mounted on a sub-frame portion of the frame which is arranged for pivotal movement relative to a forward portion of the frame and relative to the feed conveyer about a horizontal axis transverse to the direction of movement of

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the vehicle to maintain the unscrambling and stacking assembly and the bundling assembly substantially level as the vehicle moves.

7. The apparatus according to claim 6 wherein the sub-frame portion of the frame is attached to a rear of the vehicle by a four point hitch and is supported relative to the ground on two wheels extending rearwardly from the forward frame portion the frame allowing the angle of the picking assembly to the vehicle be adjusted by adjustment of the four point hitch to accommodate changes in ground contour.

8. The apparatus according to claim 1 wherein the transfer rack comprising a pair of parallel horizontal forks which can be raised for engaging the pieces and can be moved horizontally from the transfer conveyer to the stack support for conveying the engaged pieces.

9. The apparatus according to claim 1 wherein the stack support comprises a pair of horizontal parallel forks which can be lowered to deposit the stack onto a roller conveyer for discharge.

10. Apparatus for collecting, stacking and bundling elongate pieces comprising:

a vehicle for moving in a direction of working movement across ground between stacks on the ground of the elongate pieces to be collected;

a frame arranged for attachment to the vehicle;

a receiving section on the frame for receiving the pieces thereon;

an unscrambling and stacking assembly mounted on the frame including a row former for receiving the elongate pieces from the receiving section and for unscrambling and aligning the pieces side by side in a row and including a transfer section for stacking rows on top of one another to form a stack of the rows;

the unscrambling and stacking assembly including a row former for receiving the elongate pieces for aligning the pieces side by side in a row and including a transfer section for stacking rows on top of one another to form a stack of the rows;

and a bundling assembly for wrapping the stack of the rows with a strapping material;

the receiving section, the unscrambling and stacking assembly and the bundling assembly being mounted on the frame for transportation with the vehicle across the ground;

the bundling assembly comprising:

a roller discharge conveyer for forwarding the stack from the unscrambling and stacking assembly;

the roller discharge conveyer being arranged to move in a direction along the direction of working movement of the vehicle to a discharge end for discharging the stack when wrapped from the rear of the bundling assembly onto the ground;

a rectangular surrounding frame structure for surrounding and enclosing the stack on the roller discharge conveyer and including a bottom frame piece, a top frame piece and two side frame pieces;

a feed member for transporting the strapping material around the compressed stack in the frame structure for clamping of ends of the strapping material to form a loop, the feed member comprising an endless loop member extending around the frame and drivable along its length around the frame with a coupling member at one point on the loop member for receiving and transporting an end of the strapping material around the stack as the loop member passes around the frame;

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a first clamping assembly movable into engagement with one side of the stack for compressing the stack side to side;

and a second clamping assembly movable into engagement with the top or bottom of the stack for compressing the stack top to bottom.

11. The apparatus according to claim 10 wherein the frame includes a first clamping assembly movable into engagement with one side of the stack for compressing the stack side to side and a second clamping assembly movable into engagement with the top or bottom of the stack for compressing the stack top to bottom.

12. The apparatus according to claim 10 wherein the endless loop member comprises a chain which is carried on sprockets at the corners of the frame.

13. The apparatus according to claim 10 wherein the first clamping assembly comprises a first clamping bar mounted on one side frame member and movable relative thereto by a hydraulic drive between the clamping bar and the frame member and wherein the second clamping assembly comprises a second clamping bar mounted on the top frame member and movable relative thereto by a hydraulic drive between the second clamping bar and the top frame member.

14. Apparatus for collecting, stacking and bundling elongate pieces comprising:

a vehicle for moving in a direction of working movement across ground between stacks on the ground of the elongate pieces to be collected;

a frame arranged for attachment to the vehicle;

a feed conveyer mounted on the frame for receiving the pieces thereon and carrying the pieces in a longitudinal direction of the feed conveyer;

an unscrambling and stacking assembly mounted on the frame including a row former for receiving the elongate pieces from the feed conveyer and for unscrambling and aligning the pieces side by side in a row and including a transfer section for stacking rows on top of one another to form a stack of the rows;

and a bundling assembly mounted on the frame for wrapping the stack of the rows with a bundling material;

the feed conveyer, the unscrambling and stacking assembly and the bundling assembly being mounted on the frame for transportation with the vehicle across the ground;

the row former of the unscrambling and stacking assembly includes an unscrambling hopper into which the pieces are deposited and an elevator for lifting the pieces one at a time, the unscrambling hopper having an end wall against which the pieces are fed and two side walls each on a respective side of the end wall with the side walls converging inwardly and downwardly to a bottom apex and the elevator being arranged up one side wall with piece engaging members thereon for engaging and lifting one piece at a time for discharging the pieces over the top of said one side wall onto said transfer conveyer, the unscrambling hopper being arranged such that the side walls are parallel to the longitudinal direction of the feed conveyer and the end wall is transverse to the longitudinal direction such that the pieces are fed with one end first along the longitudinal direction of the feed conveyer for the end of the pieces to engage the end wall when discharged from the feed conveyer.

15. Apparatus for collecting, stacking and bundling elongate pieces comprising:

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a vehicle for moving in a direction of working movement across ground between stacks on the ground of the elongate pieces to be collected;  
a frame arranged for attachment to the vehicle;  
a piece picking assembly for picking the pieces from the ground;  
a feed conveyer mounted on the frame for receiving the pieces thereon from the picking assembly;  
an unscrambling and stacking assembly mounted on the frame including a row former for receiving the elongate pieces from the feed conveyer and for unscrambling and aligning the pieces side by side in a row and including a transfer section for stacking rows on top of one another to form a stack of the rows;  
wherein the transfer section of the unscrambling and stacking assembly includes a transfer conveyer extending across the vehicle from the receiving section on the first side to the bundling assembly on the second side; and wherein the transfer section of the unscrambling and stacking assembly includes a transfer rack for lifting a row of a predetermined number of the pieces from the transfer conveyer and moving the row generally hori-

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zontally from the transfer conveyer, and a stack support for receiving the moved rows deposited thereon and for moving the received rows downwardly to receive a next row on top of a previous row  
and a bundling assembly mounted on the frame for wrapping the stack of the rows with a bundling material;  
the feed conveyer, the unscrambling and stacking assembly and the bundling assembly being mounted on the frame for transportation with the vehicle across the ground;  
the bundling assembly including a roller discharge conveyer for forwarding the stack from the unscrambling and stacking assembly;  
the roller discharge conveyer being arranged to move in a direction along the direction of working movement of the vehicle to a discharge end for discharging the stack when wrapped from the rear of the bundling assembly onto the ground.

\* \* \* \* \*

**“EXHIBIT 2”**

(12) **United States Patent**  
**Pisony**

(10) **Patent No.:** **US 7,591,629 B2**  
 (45) **Date of Patent:** **Sep. 22, 2009**

(54) **ALL TERRAIN LUMBER COLLECTION AND STACKING APPARATUS**

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(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 214 days.

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(21) Appl. No.: **11/160,060**

(22) Filed: **Jun. 7, 2005**

(65) **Prior Publication Data**

US 2006/0285956 A1 Dec. 21, 2006

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(51) **Int. Cl.**

- B65G 57/02** (2006.01)
- B65B 43/24** (2006.01)
- B60P 1/00** (2006.01)
- B65B 57/10** (2006.01)
- B65G 67/24** (2006.01)

Primary Examiner—Gregory W Adams  
 (74) Attorney, Agent, or Firm—Bennett Jones LLP

(52) **U.S. Cl.** ..... **414/792.9**; 53/589; 414/501;  
 414/789.7; 414/523; 100/4

(58) **Field of Classification Search** ..... 414/501–507,  
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 414/745.7, 745.9, 746.1, 746.4, 746.7, 746.8,  
 414/523; 53/531, 589; 144/4.1, 335; 100/4  
 See application file for complete search history.

(57) **ABSTRACT**

An apparatus for picking up, stacking and bundling lumber, that comprises: a drive means, a conveyor assembly having a receiving bin and a conveyor, a stacking assembly operatively connected to the conveyor assembly, and having an unscrambling hopper, a row conveyor, a stacking bin and a bundling assembly a discharge platform, and a grapple assembly that picks up lumber pieces from the ground and deposits them into the receiving bin, and that also picks up bundles of lumber produced by the stacking assembly, for movement to a secondary location. The apparatus can be used on a variety of different terrains, including inclines and declines and can pick up lumber from a wide radius around the apparatus and from a number of ground conditions including rocky, muddy and wet ground.

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**13 Claims, 9 Drawing Sheets**

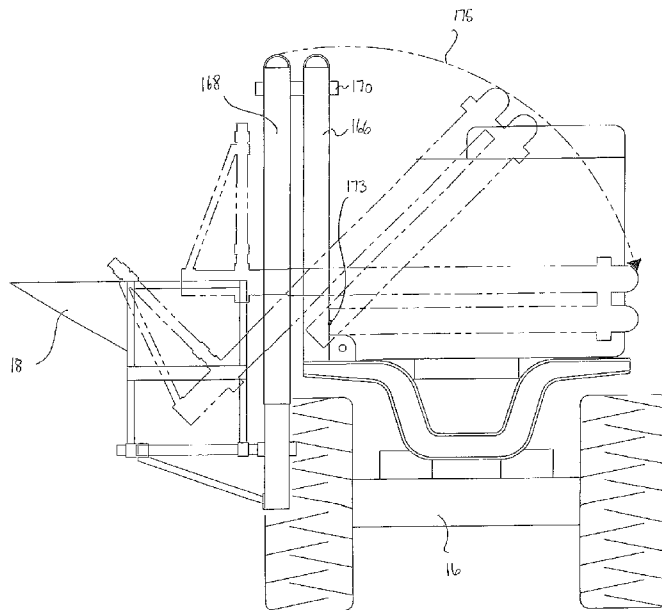




FIGURE 1

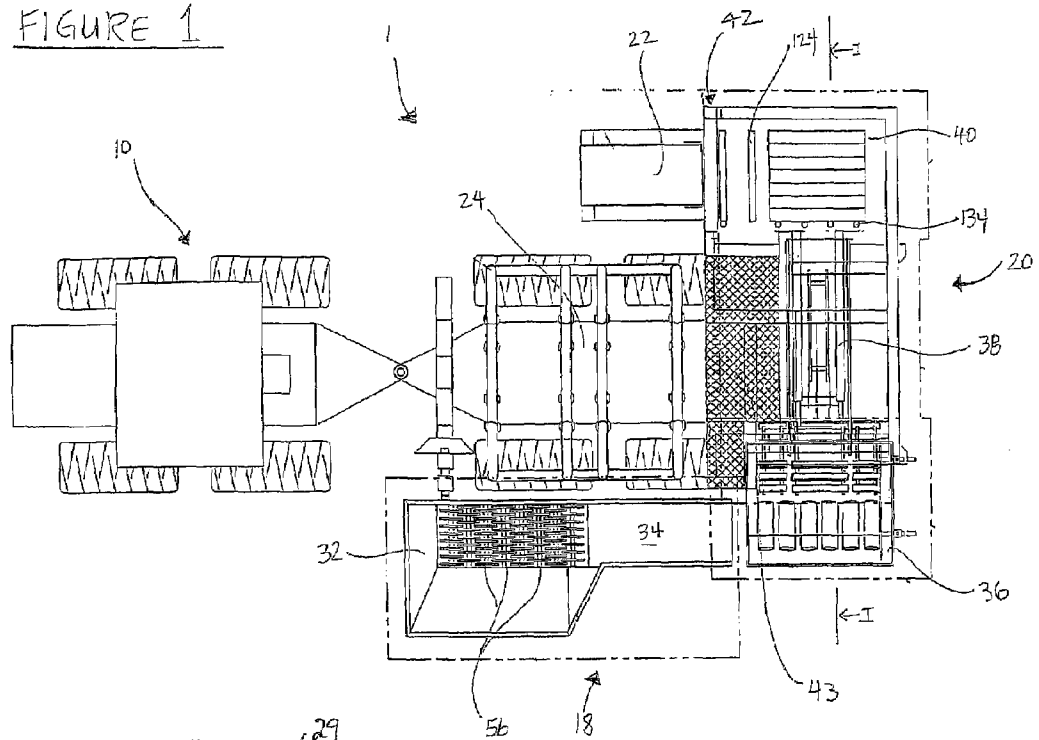


FIGURE 2

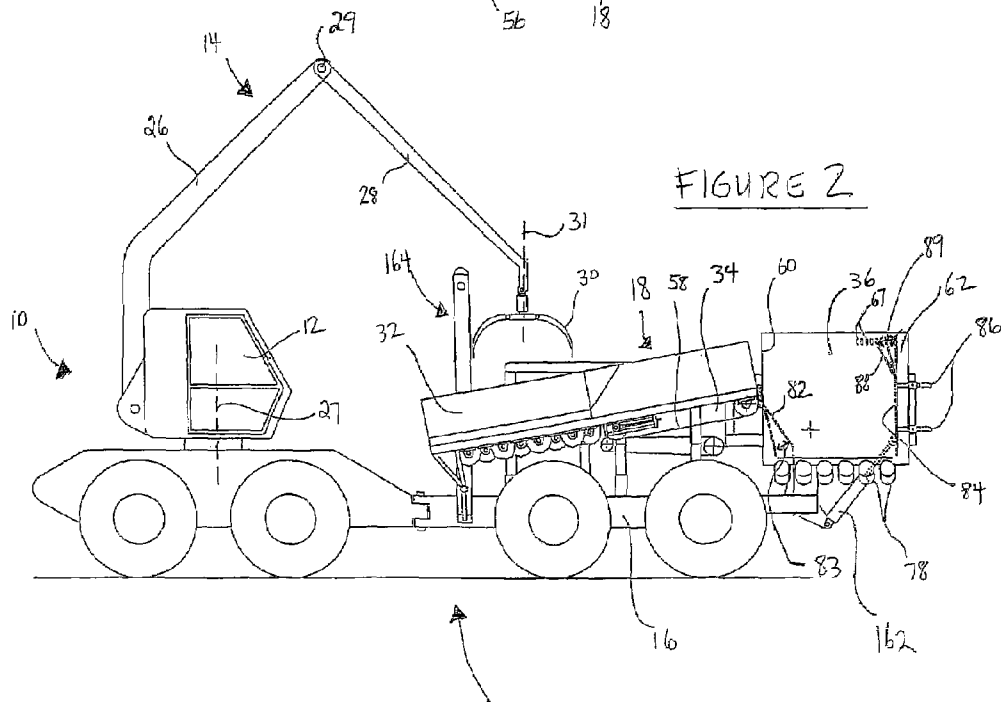


FIGURE 3

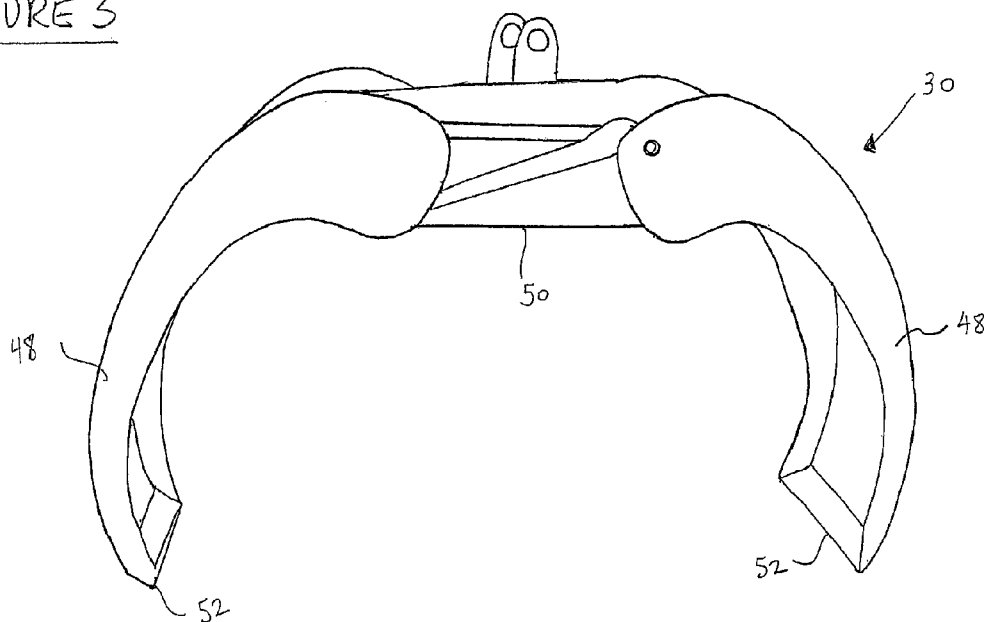


FIGURE 4

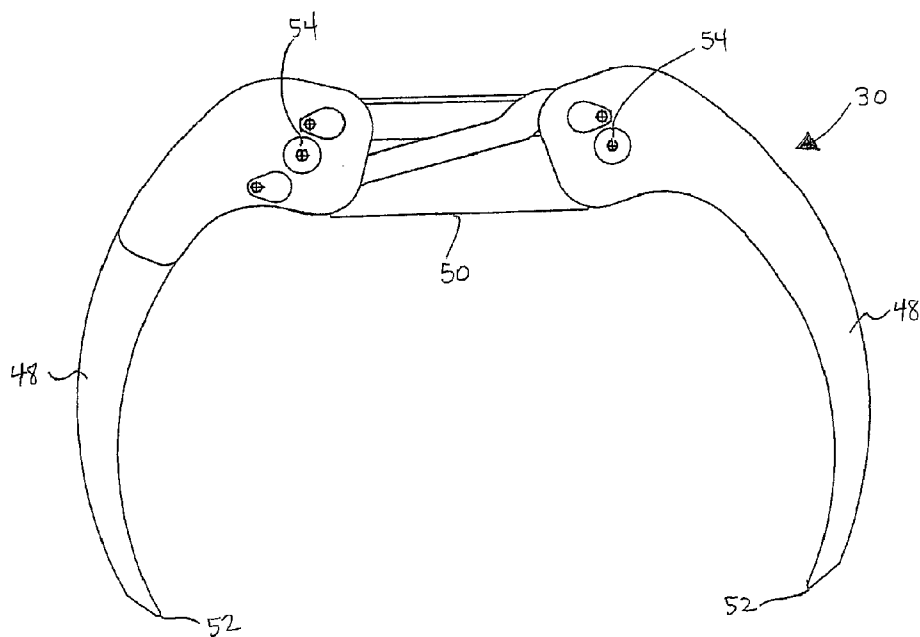




FIGURE 6

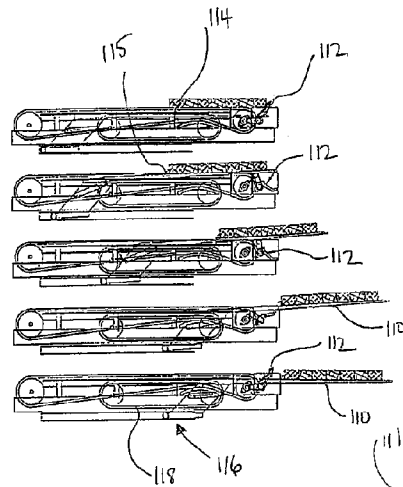


FIGURE 7

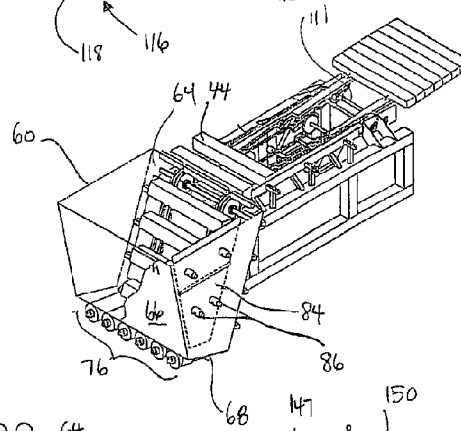


FIGURE 8

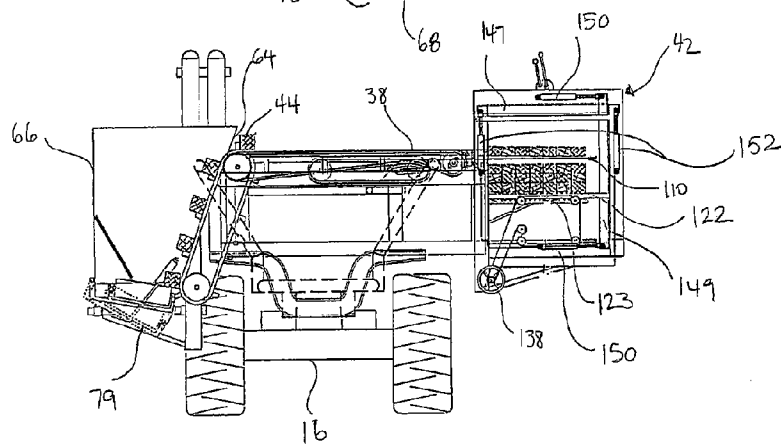


FIGURE 9

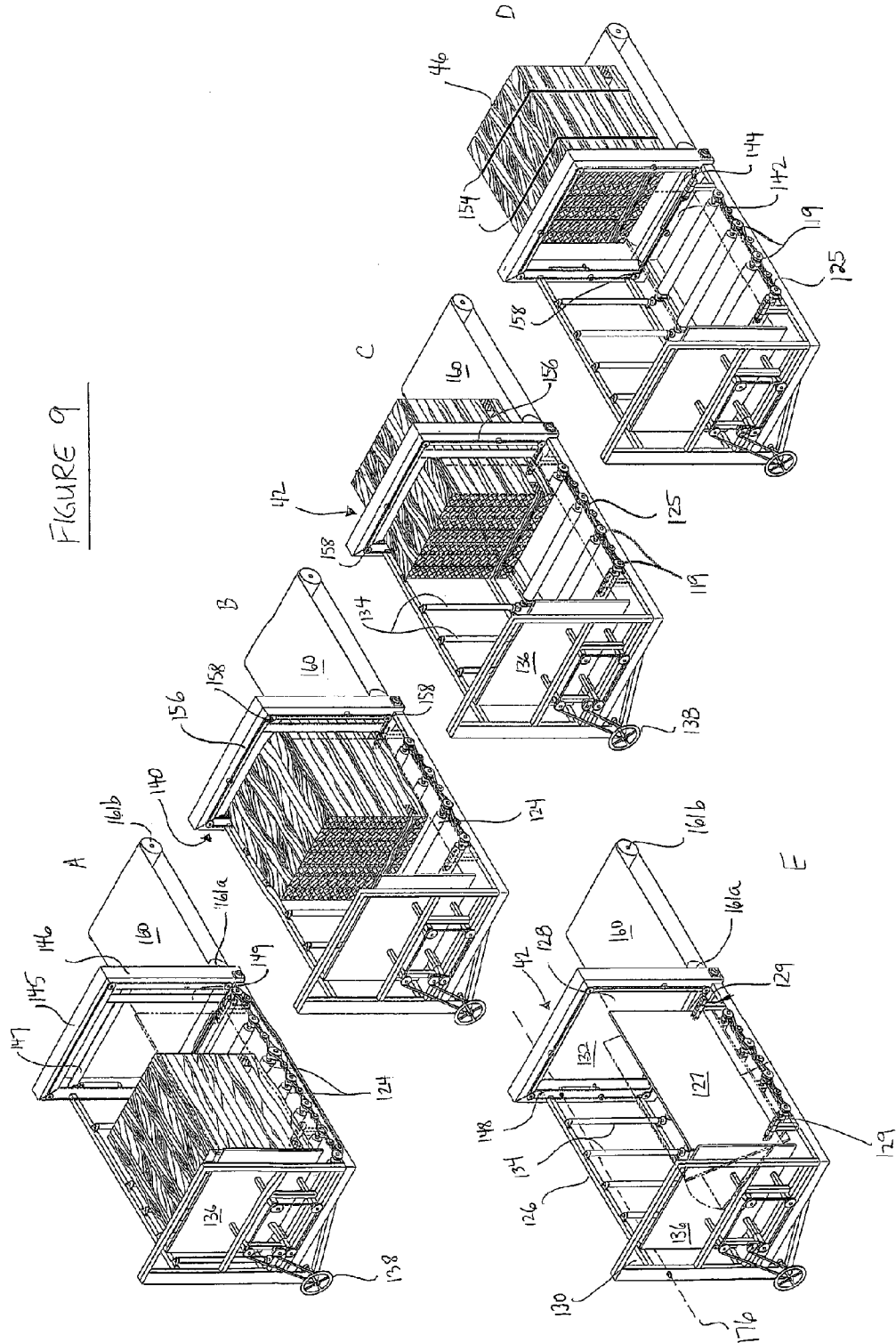


FIGURE 10A

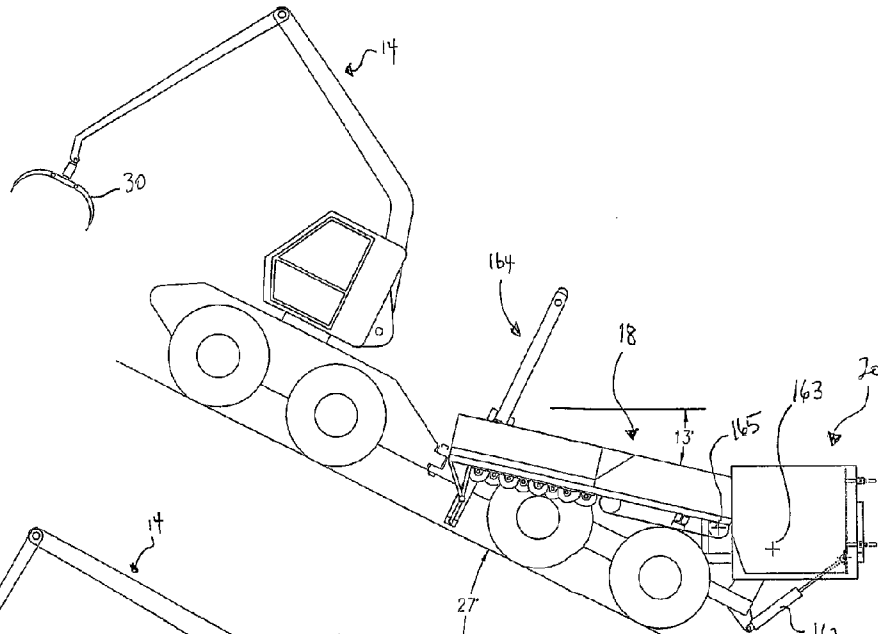


FIGURE 10B

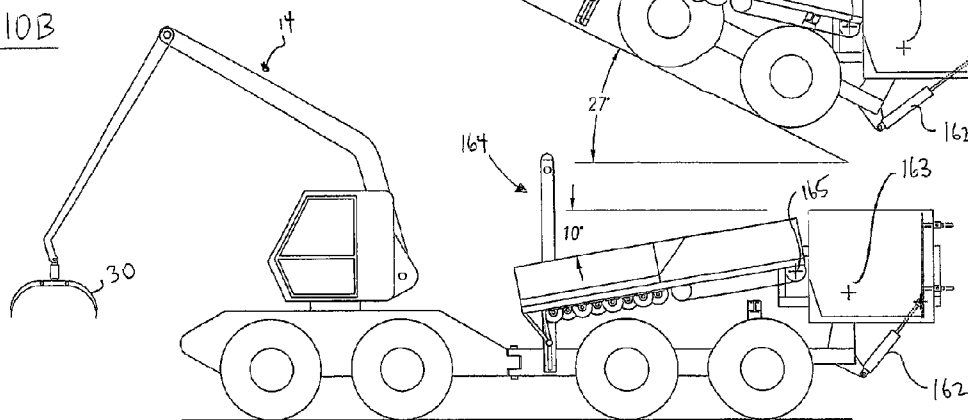


FIGURE 10C

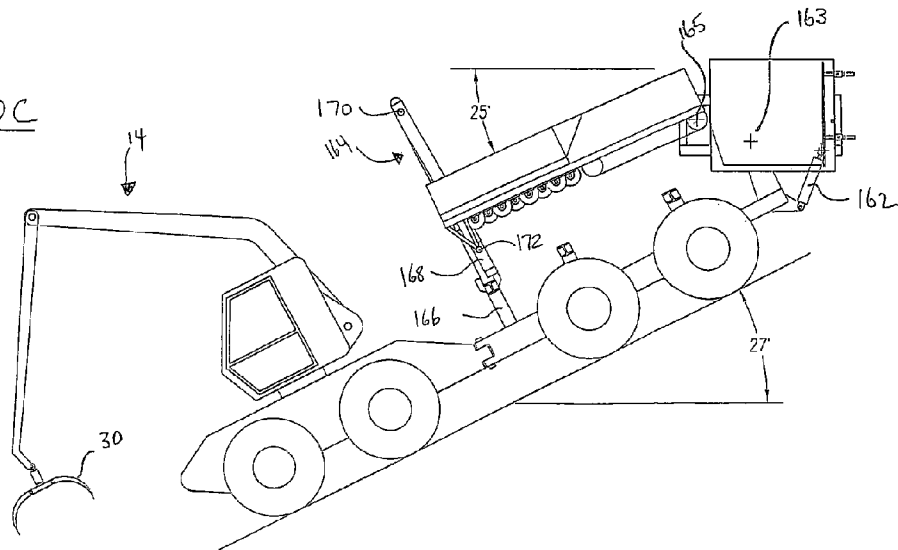


FIGURE 11B

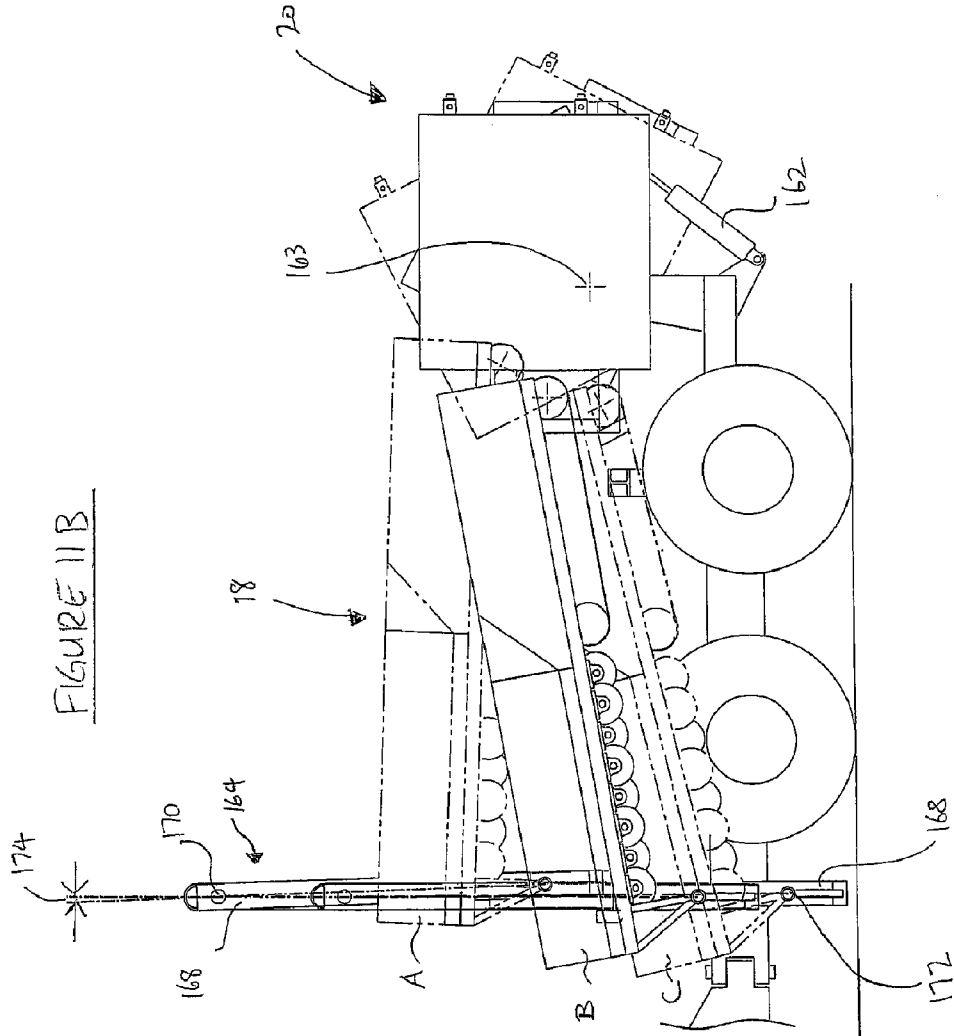
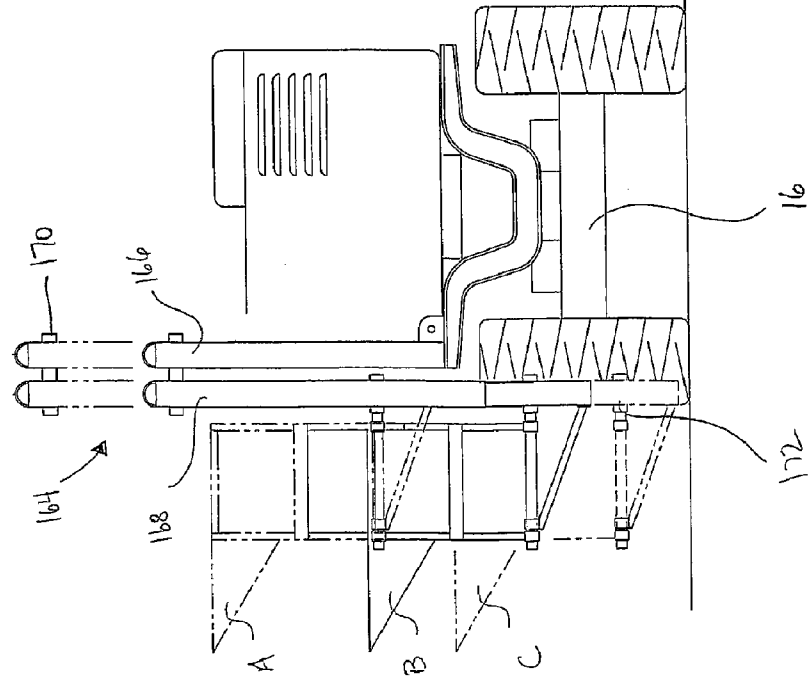


FIGURE 11A



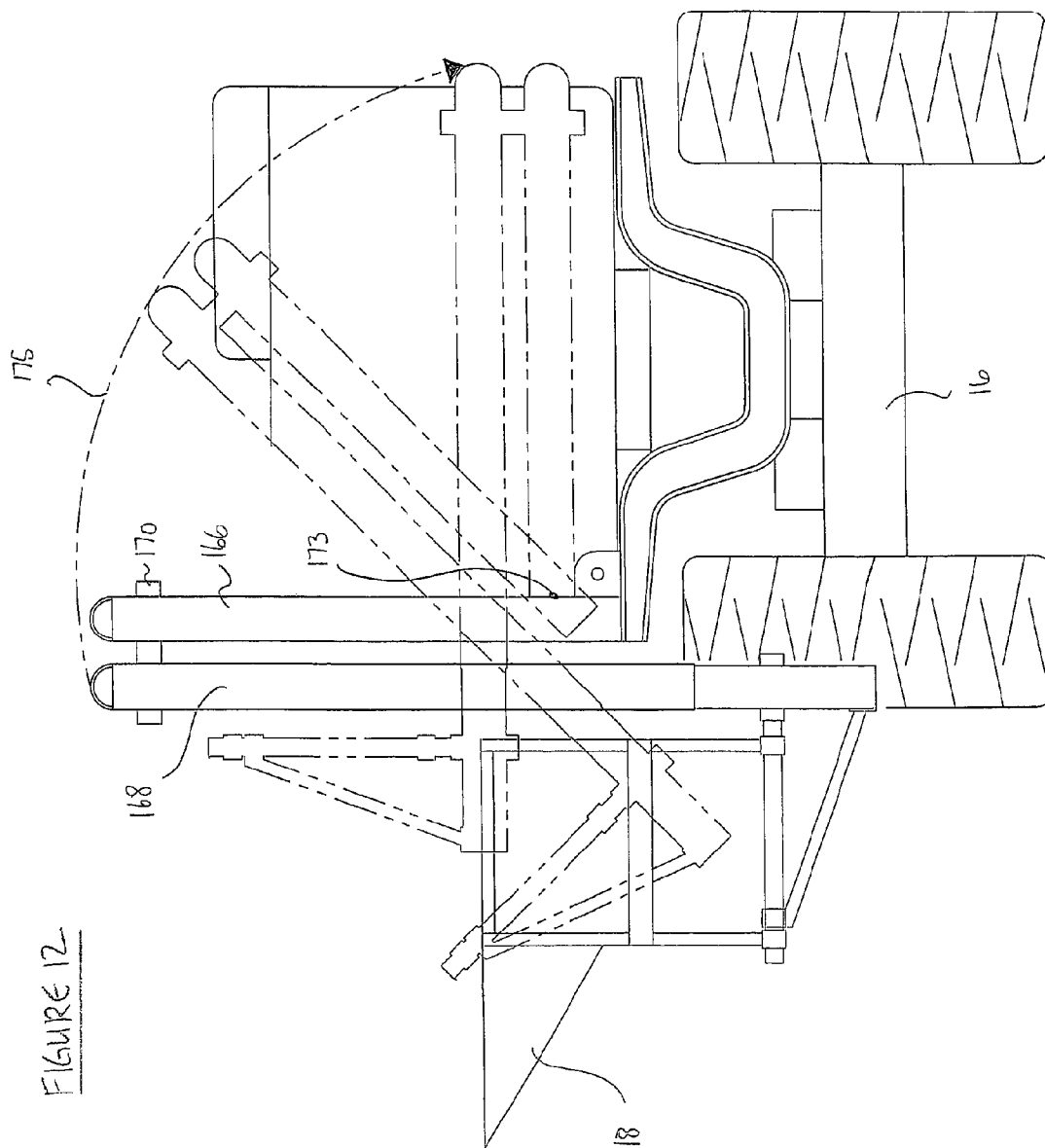
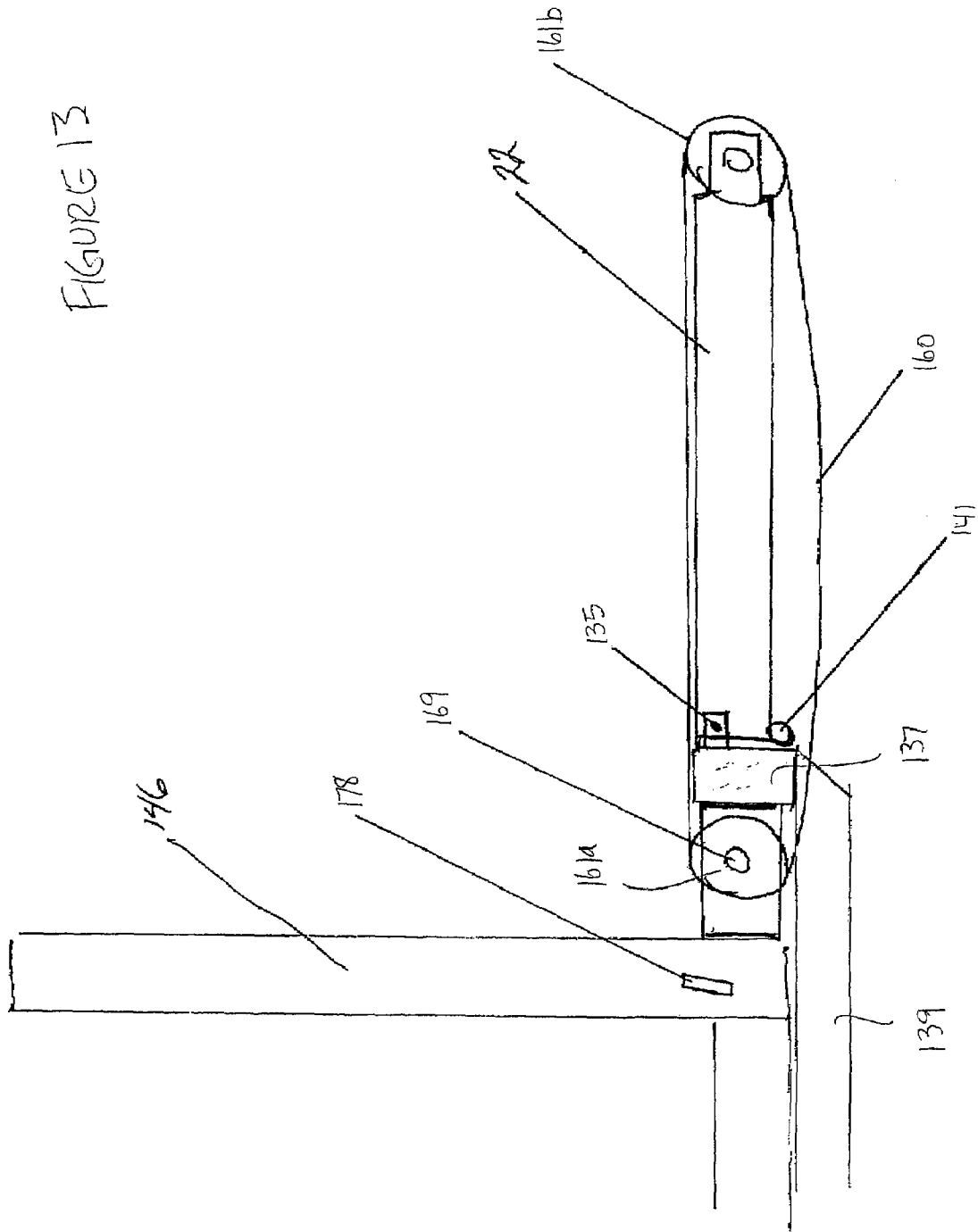


FIGURE 12



FIGURE 13



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**ALL TERRAIN LUMBER COLLECTION AND  
STACKING APPARATUS**

## FIELD

The present invention relates to an all terrain apparatus for collecting and stacking lumber pieces.

## BACKGROUND

In laying pipe, such as in gas or oil pipeline, it is conventional that lengths of pipe are supported end to end on stacked lumber pieces known as "skids" so that the pipe lengths can be held at a required height to be supported and aligned end to end for welding of the lengths, prior to feeding of the completed welded length into a trench adjacent to the stacks. After the pipe lengths are welded into a continuous length, the pipe is lifted from the skids and deposited in a continuous action along its length into the trench.

At some point, usually after the pipe has been laid into the trench, it is necessary to collect the lumber pieces from the skids and to transport them to a new site, preferably to be used again, for example at a further location along the pipeline.

The lumber pieces, which are conventionally either four or five feet in length and six by four inches in cross section are lifted and handled manually for stacking onto a transport container. This manual process is expensive and time consuming, since it requires a gang of laborers working hard and commanding high wages. In many cases the stack has been disturbed, and the pieces are strewn about, or even compressed in the ground by the tracks of passing vehicles, making the work even more labor intensive.

While this step is a relatively minor one in the process of laying the pipeline, it constitutes a significant expense and therefore provides a significant opportunity for a manufacturer of an effective machine which will carry out this step while eliminating or reducing the manual labor involved.

In U.S. Pat. No. 5,934,861 issued Aug. 10, 1999, which corresponds to Canadian patent application no. 2,241,682 published February 1999, discloses an apparatus for picking up pieces of lumber and conveying them to a transport truck. Canadian patent application no. 2,315,046 published Feb. 3, 2002 discloses an apparatus for picking up, stacking and bundling pieces of lumber.

Both of these prior art apparatuses are limited in application, in that they require smooth, flat and dry ground conditions in order to pick up lumber pieces from the ground. Further, they cannot pick up lumber pieces from a ground surface that is more than 30 cm above or below the tractor that is powering the apparatus. They are also limited in that the area in which lumber can be picked up is restricted to the width of the opening of the pick up section of the apparatus.

## SUMMARY

The present apparatus uses a grapple to pick up and deposit lumber pieces from the ground into a conveyor assembly, which cleans and orients the lumber for deposition into a stacking and bundling assembly. The bundled lumber that is prepared by the stacking and bundling assembly can be deposited to the ground, or it can be stored in a storage area on the apparatus itself, where it may be carried to a secondary location for transfer to another vehicle. The grapple may be used to move the bundles of lumber that are prepared by the stacking and bundling assembly, either to the ground or to the storage area on the apparatus.

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One advantage of the apparatus described herein, as compared to prior art apparatus disclosed in Canadian patent application no. 2,315,046, is that it does not have to be moving in a forward direction, in order to pick up lumber pieces from the ground. Therefore it may be used for stationary yard work. Another advantage is that the apparatus can pick up and bundle lumber from many different types of uneven ground surfaces (e.g., muddy, rocky, wet), or from water. Another advantage is that it may pick up lumber over a wide area surrounding the apparatus, for example in front of or on both sides of the apparatus, or on either side of the pipeline or the trench in which the pipeline has been laid. In one embodiment the apparatus comprises leveling means, so that it is able to function on inclines and declines. In one embodiment the apparatus can store bundled lumber for transport to a secondary location, avoiding the need to have a second vehicle pick up and transport the bundled lumber produced by the apparatus.

In one aspect, the invention is an apparatus for picking up, stacking and bundling lumber, comprising:

- (a) a drive means,
- (b) a conveyor assembly that comprises a receiving bin and a conveyor,
- (c) a stacking assembly operatively connected to the conveyor assembly, and that comprises an unscrambling hopper, a row conveyor, a stacking bin and a bundling assembly,
- (d) a discharge platform, and
- (e) a grapple assembly sized to pick up lumber pieces and deposit the lumber pieces into the receiving bin.

In one embodiment, the grapple assembly is further sized to pick up a bundle of lumber produced by the stacking assembly, for movement to a secondary location. In another embodiment, the drive means is a vehicle and the grapple assembly is mounted to the vehicle. In another embodiment the conveyor assembly, stacking assembly and discharge platform are on a trailer that is pulled by the vehicle. In another embodiment the grapple assembly is mounted to the trailer. In another embodiment, the apparatus further comprises a storage area. In yet another embodiment, the apparatus further comprises a means of raising and lowering the conveyor assembly.

In another aspect, the invention is a method of picking up, stacking and bundling lumber, comprising:

- (a) providing an apparatus that comprises:
  - (i) a conveyor assembly that comprises a receiving bin and a conveyor;
  - (ii) a stacking assembly operatively connected to the conveyor assembly, and that comprises an unscrambling hopper, a row conveyor, a stacking bin and a bundling assembly;
  - (iii) a discharge platform, and
  - (vi) a grapple assembly,
- (b) picking up loose lumber with the grapple and depositing it into the receiving bin, and
- (c) conveying the loose lumber along the conveyor to the stacking assembly, where the lumber is stacked and bundled into a bundle of lumber and deposited onto the discharge platform.

The method may further comprise the step of picking up the bundle of lumber from the discharge platform with the grapple and transferring it to a secondary location, such as a storage area provided on the apparatus.

In yet another aspect, the invention is an apparatus for picking up, stacking and bundling lumber, comprising:

- (a) a drive vehicle comprising a grapple assembly,
- (b) a trailer pulled by the drive vehicle that comprises:

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- (i) a conveyor assembly further comprising a receiving bin and a conveyor,
- (ii) a stacking assembly operatively connected to the conveyor assembly, further comprising an unscrambling hopper, a row conveyor, a stacking bin and a bundling assembly, and
- (iii) a discharge platform,

wherein the grapple assembly comprises a grapple that is sized to pick up lumber and a bundle of lumber,

and wherein the grapple assembly is sized to pick up lumber from a ground surface, to deposit said lumber into the receiving bin, and to pick up a bundle of lumber deposited onto the discharge platform.

The apparatus may further comprise a storage area on the trailer, and the grapple assembly may further be sized to pick up a bundle of lumber from the discharge platform and deposit the bundle of lumber in the storage area. The apparatus may further comprise a mast assembly for raising and lowering the conveyor assembly.

The apparatus may further comprise a means for adjusting the length of the unscrambling hopper or the stacking bin. The apparatus may further comprise a means for adjusting the width of the stacking bin.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top plan view of one embodiment of the apparatus of the invention.

FIG. 2 is a side elevation view of one embodiment of the apparatus of the invention.

FIG. 3 is a side perspective view of one embodiment of the grapple.

FIG. 4 is a side elevation view of one embodiment of the grapple.

FIG. 5 is a side perspective view of one embodiment of the elevating chain assembly and row conveyor.

FIG. 6 is a side elevation view of one embodiment of the row conveyor.

FIG. 7 is a side perspective view of one embodiment of the unscrambling hopper and row conveyor.

FIG. 8 is a sectional view taken along line I-I of the apparatus shown in FIG. 1.

FIG. 9 A-E is side perspective views of one embodiment of the stacking bin, bundling assembly and discharge platform. FIGS. 9A-D demonstrates the process of moving the stack through the bundling assembly to the discharge platform. FIG. 9E shows various features of the stacking bin.

FIG. 10 A-C is side elevation views of an embodiment of the apparatus of this invention traveling up a hill with a 27 degree incline (A), on relatively level ground (B) and down a hill with a 27 degree decline.

FIG. 11A is an end elevation view of an embodiment of the apparatus of the invention showing the position of the mast assembly and conveyor assembly relative to the trailer, when the apparatus is on an incline (C), level ground (B) or decline (A). FIG. 11B is a side elevation view of an embodiment of the apparatus of the invention showing the position of the conveyor assembly relative to the stacking assembly, when the apparatus is on an incline (C), level ground (B) or decline (A).

FIG. 12 is an end elevation view of an embodiment of the apparatus of the invention demonstrating how the mast assembly is positioned, after removal of the conveyor assembly, for transport.

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FIG. 13 is a side elevation view of the bundling assembly and discharge platform.

## DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Reference will now be made to FIGS. 1-13, which show exemplary embodiments of the apparatus of the invention.

The apparatus 1, as shown in FIGS. 1 and 2, comprises a drive means 10, a grapple assembly generally indicated at 14, a conveyor assembly generally indicated at 18, a stacking assembly generally indicated at 20, a discharge platform 22 and optionally, a storage area 24. The grapple assembly 14 comprises a working arm 26, a grapple 30, and an optional extension arm 28. The conveyor assembly 18 comprises a receiving bin 32 and a conveyor 34. The stacking assembly 20 comprises an unscrambling hopper 36, a row conveyor 38, a stacking bin 40 and a bundling assembly 42.

The apparatus is moved by drive means 10, such as a vehicle (i.e., excavator), which may be operated by a driver who may sit in a cab 12. The driver may also operate grapple assembly 14 and conveyor assembly 18. The apparatus is used to pick up, stack and bundle, lumber or timber. In one embodiment the lumber has been used to make skids for supporting a pipeline, but other types of lumber, such as that used in railway operations, could be picked up by this apparatus. A rear operator standing near the stacking assembly generally at position 43, controls the stacking operation and various other aspects of the stacking and bundling process, as will be described in more detail below.

In one embodiment, shown in FIGS. 1 and 2, conveyor assembly 18, stacking assembly 20, discharge platform 22 and storage area 24 may be mounted to a trailer or frame 16 that may be attached to and pulled by drive means 10. In another embodiment, drive means 10, conveyor assembly 18, stacking assembly 20, discharge platform 22 and optional storage area 24 may be of unitary construction (i.e., the drive means may not be a separate entity from the remainder of the apparatus).

The grapple assembly 14 comprises working arm 26 and grapple 30, and optionally an extension arm 28, the movement of which may be controlled by hydraulic cylinders, as is known in the art. Working arm 26 may be pivotally mounted to drive means 10 in such a manner that it may be capable of rotating vertically through a range of 360 degrees. In an alternative embodiment, working arm 26 may be mounted to trailer 16 in such a manner that it may be capable of rotating vertically through a range of 360 degrees. The driver is able to view grapple 30 in all of its orientations, in order to control the picking up of lumber pieces 44.

In one embodiment, shown in FIG. 2, working arm 26 may be mounted onto cab 12, which may be pivotally mounted to drive means 10. Cab 12 and therefore working arm 26, may rotate vertically around axis 27 through a range of 360 degrees rotation. Extension arm 28 may be pivotally mounted and extend between working arm 26 and grapple 30. Grapple 30 may be capable of rotating vertically around axis 31 through a range of 360 degrees and therefore may be rotated fully to pick up lumber pieces 44, regardless of the orientation of the lumber on the ground. In another embodiment, grapple 30 may be attached to working arm 26 at end 29, and may be able to rotate vertically through a range of 360 degrees.

Grapple 30 may be used to grasp one, two or several pieces of lumber 44. As shown in FIGS. 3 and 4, grapple 30 has two grapple arms 48, each of which may be curved. The curvature causes loose lumber pieces to slide down into the grasp of the grapple as the grapple is being closed, to be carried therein.

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The grapple arms may also pivot upwards towards top section 50, to hold the lumber pieces between the arms 48, or between the top section 50 and grapple arms 48.

Grapple 30 may also be used to pick up a bundle 46 of lumber, which may in some embodiments be rectangular (e.g., square) in cross section. To this end, the curvature of each of the grapple arms 48 may taper gently from the tip 52 to pivot point 54, where there may then be a sharp turn towards top section 50. Top section 50 may be sized to accommodate the full width of a side of the bundle of lumber that is to be picked up, and may be relatively flat. This enables top section 50 of grapple 30 to engage the full side of the bundle 46 of lumber. The grapple arms 48 may then close around the bundle to squeeze the bundle from the bottom and push it up against top section 50. By gripping the bundle 46 in this way, the corner edges of the bundle and the sides of the bundle may not be distorted, and the shape of the bundle of lumber may be maintained. Grapple 30 may be opened and closed using a hydraulic cylinder assembly, as is known in the art.

The conveyor assembly 18 receives the lumber pieces from the grapple and transports the pieces to unscrambling hopper 36. The conveyor assembly comprises receiving bin 32 to receive the lumber pieces that are deposited therein by grapple 30 and conveyor 34, which transports the lumber pieces to unscrambling hopper 36, as best seen in FIG. 1. In one embodiment, receiving bin 32 may comprise a series of rollers 56 along its bottom. These rollers may each comprise a shaft and a plurality of disks—i.e., they may be “knobbed”. Knobbed rollers 56 remove and filter mud and other debris from the lumber pieces. Conveyor 34 conveys lumber pieces from receiving bin 32 to unscrambling hopper 36. Conveyor 34 may also function to orient the lumber pieces, because it may be narrower in width than the length of the lumber pieces being conveyed, and therefore the lumber pieces would generally be oriented longitudinal of the conveyor 34 before deposition into unscrambling hopper 36. In one embodiment conveyor 34 may comprise a conveyor belt 58 mounted on a plurality of rollers (not shown) so that an upper run of the belt carries the lumber pieces towards unscrambling hopper 36. In another embodiment conveyor 34 may comprise a series of rollers, in addition to the rollers 56 along the bottom of bin 32, that transport lumber pieces from bin 32 into hopper 36. In yet another embodiment, these additional rollers may be knobbed, for further cleaning of the lumber pieces. Conveyor 34 may be a part of, or integral to, bin 32.

The lumber pieces are discharged from conveyor 34 into unscrambling hopper 36, which is the first component of stacking assembly 20. Stacking assembly 20 functions to assemble the loose lumber pieces into a stack of predetermined shape and size, and to bundle the pieces of that stack securely together. Stacking assembly 20 need not be mounted in a subframe.

Unscrambling hopper 36 functions to receive the scrambled lumber pieces from conveyor 34, and to orient them all into the same direction, for formation of the stack. Unscrambling hopper 36 comprises a front wall 60, a back wall 62 and two side walls 64 and 66 that form at their base an apex 68 longitudinal of unscrambling hopper 36 and thus longitudinal of conveyor 34. Side wall 64 may be inclined and may comprise an elevating chain assembly 70 that may be made of three parts, a center chain 72 and two side chains 74.

At apex 68 may be a roller assembly 76 comprising a plurality of unscrambling rollers 78 that may be spaced apart to permit debris to fall therebetween onto the ground surface. Unscrambling rollers 78 may be oriented at approximately right angles to the direction from which the lumber is received (i.e., approximately parallel to the front and back walls 60 and

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62), and they may be sloped so that the ends closest to side wall 64 may be lower than the ends closest to side wall 66. Rollers 78 rotate in unison and in the same direction, which rotation may be controlled by the rear operator, using a variable hydraulic valve. In a preferred embodiment, rollers 78 rotate in a direction that causes the lumber pieces to be moved towards back wall 62. The rotation and sloping of the unscrambling rollers 78 displaces lumber pieces 44 towards elevating chain assembly 70, and in a preferred embodiment towards back wall 62. Spiral fighting 80 on one or more of the unscrambling rollers 78 may also be used, to facilitate the movement of lumber pieces 44 towards elevating chain assembly 70.

The roller assembly 76 may be lowered by the driver or rear operator, for example by unlatching the assembly and activating one or more hydraulic cylinders, to lower the roller assembly. FIG. 8 shows the roller assembly 76 at lowered position 79 (which is a partially opened position). This will permit, for example, the removal of large rocks or debris from unscrambling hopper 36.

Front wall 60 may further comprise an additional panel 82 that enables the driver or rear operator to make adjustments to vary the length of the apex 68, as shown in FIG. 2. The top edge of panel 82 may be attached to front wall 60, for example to a slotted track, to permit the top edge to slide vertically when the bottom edge of panel 82 is moved towards and away from back wall 62. Arrow 83 in FIG. 2 shows how the bottom edge of panel 82 may be moved towards and away from front wall 60. At the bottom edge of panel 82, tubular supports may be used to secure the bottom edge in a selected position. This panel feature facilitates the use of unscrambling hopper 36 with lumber pieces of varying lengths—for example 4 feet or 5 feet in length.

Disposed inside back wall 62 may be an adjustable panel 84 that may be moved towards and away from front wall 60, as seen in FIG. 2. The position of panel 84 may be determined by adjustment, in increments, of telescoping tubular supports 86 mounted to stationary back wall 62. This permits the driver or rear operator to adjust the length of apex 68 or hopper 36, to facilitate use with lumber pieces of varying lengths—for example 4 feet or 5 feet in length.

Supports 86 may be independently adjustable. Therefore, panel 84 may be adjusted to tilt from top to bottom, so that the top edge of the panel may be closer to front wall 60 than the bottom edge of the panel. By tilting panel 84 in this way the lumber pieces, as they are raised upwards by elevating chain assembly 70, may be forced flush at one end for bundling. When combined with a preferred embodiment, mentioned above, in which rollers 78 rotate in a direction that causes the lumber pieces to be moved towards back wall 62, this feature eliminates the need for an end alignment belt to align the lumber pieces in the stack.

Panel 84 may also be adjusted to tilt from side to side, so that one side edge may be closer to front wall 60 than the other side edge, more specifically, so that the edge running along side wall 64 may be further from front wall 60 than the edge running along side wall 66. By tilting panel 84 in this way, lumber pieces 44 may move with less friction towards elevating chain assembly 70, located on side wall 64.

The top portion of adjustable panel 84, or of back wall 62, may comprise an additional plate 88 that may be attached to panel 84 or to back wall 62, at the bottom edge, for example with a hinge or by a slotted track. Thus, the top edge of plate 88 may be moved toward and away from back wall 62. The top edge of plate 88 may be secured by a horizontal sliding and locking pin assembly that inserts into spaced vertical slots 67 on wall 66. Arrow 89 in FIG. 2 shows how the top edge of

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plate **88** may be moved towards and away from back wall **86**. When plate **88** is in a lowered position, as shown in FIG. 2, the alignment of lumber pieces onto elevating chain assembly **70** may be assisted by causing a piece of lumber that may be vertically oriented at the back wall **62**, when it contacts plate **88**, to be forced to fall back into the unscrambling hopper **36** in a horizontal orientation.

Elevating chain assembly **70** comprises, in this embodiment, center chain **72** and two side chains **74**, one on either side of the center chain **72**. A plurality of substantially horizontal abutment bars **90** project outwardly, in order to engage lumber pieces **44**. The elevating chain assembly and abutment bars preferably extend across the entire width of side wall **64** rather than only part of side wall **64** as known in the prior art, and therefore debris build up in the bottom of unscrambling hopper **36** may be avoided. The abutment bars also facilitate unscrambling of lumber pieces as they are received in unscrambling hopper **36**, as lumber pieces that become positioned vertically in the unscrambling bin may be dislodged by the abutment bars. As is apparent, elevating chain assembly **70** may also be made of one or two elevating chains, or more than three elevating chains. The same advantages (i.e., avoiding build up of debris and dislodging lumber pieces) can be achieved using any assembly of elevating chains wherein the abutment bars extend substantially from side to side of wall **64**.

Elevating chain assembly drive sprockets **92** may be mounted on an upper shaft **94** and idler sprockets **96** may be mounted on shaft **98**, with chains **100** carried thereon. As shafts **94** and **98** rotate, lumber pieces in unscrambling hopper **36** are engaged by abutment bars **90**, lifted upwards along inclined side wall **64** over the top edge of the side wall and deposited onto row conveyor **38**.

Row conveyor **38** functions to assemble a row of lumber pieces **44** and to transfer that row into stacking bin **40**, to form a stack of lumber pieces. Row conveyor **38** may comprise idler sprockets **102**, drive sprockets **104** and chains **106**. Idler sprockets **102** may be mounted on upper shaft **94**. The use of upper shaft **94** with both elevating chain assembly drive sprockets **92** and idler sprockets **102** provides for a smooth transition of lumber pieces **44** from the elevating chain assembly **70** to the row conveyor **38**. The lumber pieces may be deposited onto chains **106**, and may be moved on chains **106** towards stacking bin **40**. Row conveyor **38** may additionally comprise an adjustable alignment fence **108**, to help ensure that the ends of the lumber pieces are flush with one another for bundling.

Lumber pieces **44** are fed up the elevating chain assembly **70** generally side by side onto conveyor chains **106**. If more than one lumber piece is carried on any particular abutment bar **90**, the pieces may end up on top of one another on the row conveyor and this problem may be overcome manually by the rear operator standing on the apparatus near the row conveyor **38**, generally at area **43**, to ensure that the stacking process proceeds effectively.

Lumber pieces **44** may be fed along row conveyor **38** over top of a pair of lifting arms **110**, which may normally be positioned below the level of chains **106** (in "home position"), so that lumber pieces **44** will clear rear dog **115** as they move on the row conveyor. The lumber pieces progress towards stacking bin **40** until they abut stops **112**, which halt the forward movement of the lumber pieces. The pieces that follow back up against the previously stopped pieces to form a row of lumber pieces arranged side-by-side and extending back towards unscrambling hopper **36**. When a lumber piece is positioned and stopped overtop of sensor **114**, the approximate location of which is shown in FIG. 6, lifting arms **110**

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may be lifted up by an actuating mechanism **111**, activated for example by a hydraulic cylinder, that simultaneously lowers stops **112**. The lifting arms **110** lift up the row of lumber and rear dog **115** on each of the arms engages the rearmost lumber piece of the accumulated row. The row is carried forward on a carriage system **116** driven by chains **118**, to bundle elevator in stacking bin **40**, which may comprise horizontal spaced supports **122** mounted onto a carriage **123**, that may be an independent roller assembly that moves vertically in a track (not shown). When lifting arms **110** are extended over the horizontal spaced supports, actuating mechanism **111** retracts, thus lowering arms **110** to home position and simultaneously raising stops **112**. The lumber pieces abut end **120** (FIG. 5), as the lifting arms **110** being to retract towards hopper **36**, and may thus be deposited onto supports **122**.

The bundle elevator may already have one or more rows of lumber loaded thereon, and/or the rear operator may have manually adjusted a tier of lumber in order to later assist with the handling and transfer of bundle **46**, for example with a forklift. FIG. 9A-D shows a stack of lumber in which lumber in the second from bottom tier has been reoriented manually to facilitate future movement and storage of bundle **46**. The stacking of additional rows of lumber continues until horizontal spaced supports **122** are lowered to a point where they are below stacking rollers **124**, thus leaving the stack of lumber sitting on the stacking rollers **124** at the bottom of the stacking bin **40**. The rollers **124** may then be driven by a chain **125**, connected across chain wheels **119**, so as to forward the stack into bundling assembly **42**.

Stacking bin **40** assembles the rows of lumber pieces into a stack and transmits that stack to bundling assembly **42**. The stacking bin has a front **126**, a back **128** and sides **130** and **132**. Rollers **134** extend vertically on the front of the stacking bin. In one embodiment, rollers **134** extend from the ends of rollers **124** and may be driven by a gear assembly from the end of rollers **124**. These rollers reduce the probability that the stack of lumber pieces will snag the stacking bin **40**, as the bundle moves horizontally into bundling assembly **42**.

Several other features of stacking bin **40** represent improvements over the stacking bin disclosed in CA patent application no. 2,315,046. Back **128** may comprise a plate **127** that may be adjustable to move substantially horizontally towards and away from front **126**, to accommodate lumber of varying widths. For example, a standard width of lumber is six inches, however this width may be more or less than six inches. If plate **127** does not fit snugly up against the lumber stack, the outer lumber pieces **44** may fall into the gap between the wall and the stack, and therefore distort the shape of the stack before it moves horizontally into bundling assembly **42**. The position of plate **127** may be determined by adjustment, in increments, for example by a threaded rod inside tubular supports **129** mounted to the frame of stacking bin **40**.

Plate **127** may also be hinged at the bottom to allow the wall to fold inwards and downwards, which may be accomplished, for example, with hydraulic cylinders. This feature may be used during transport of the apparatus, as the stacking bin and bundling assembly may be rotated 180 degrees for transport, to rest over top of row conveyor **38**.

Side **130** may comprise a plate **136** that may be adjustable to move towards and away from side **130**, in order that the stacking bin **40** may accommodate lumber pieces of varying length, such as 4 feet or 5 feet. In one embodiment plate **136** may be adjusted by six inches. Adjustment of plate **136** may be accomplished by a wheel and pulley mechanism **138**, as shown in FIG. 9.

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Bundling assembly **42** comprises a substantially rectangular frame **140** sized to receive the stack of lumber therein, even in the event that the stack may be slightly loose or expanded in dimension by distorted or slightly twisted pieces. The bottom rail **142** of frame **140** may comprise a horizontal drive roller **144** disposed in the frame, to reduce the probability that the bottom row of lumber in the stack will become snagged by bottom rail **142** as it is advanced through the opening in the frame, and thereby hinder bundling of the stack.

Bundling of the stack occurs essentially as described in CA patent application no. 2,315,046, which is incorporated by reference herein, and which is best shown in FIGS. **8** and **9**. In addition to bottom rail **142**, frame **140** comprises a top rail **145** and two side rails **146** and **148**. A first clamping arm **147** may be disposed substantially parallel to a first rail, preferably retracted into a slot of the rail. The first clamping arm is preferably retracted into top rail **145**. A second clamping arm **149** may be disposed substantially parallel to another rail that is substantially perpendicular to the first rail, preferably retracted into a slot in the rail. The second clamping arm is preferably retracted into side rail **146**. Each of these clamping arms may be actuated with a pair of hydraulic cylinders **150** or **152** (see FIG. **8**), into engagement with a surface of the stack of lumber, to thereby squeeze the lumber pieces within the stack so that they may be pressed together to eliminate spaces between the pieces and the ensure that they are fully aligned and in contact.

With the stack thus clamped, a length of strapping material **154** may be used to hold the lumber pieces in the stack securely together. Strapping material **154** may be carried around the stack by a chain **156**, which extends around four sprockets **158** each mounted at a corner of frame **140**. One of the sprockets may be driven and the others may be idlers, so that the chain can be rotated around the frame so as to complete a single loop around the frame. The chain **156** and sprockets **158** may be mounted on either the front or rear face of frame **140**, so that they are alongside the frame and do not interfere with the movement of the stack through the frame **140**. The chain carries, at one end, a gripping member (not shown) around which an end of strapping material **154** can be engaged so that the end may be carried with the chain as it moves around the frame, thus carrying the end completely around the stack to a position where it may be crimped manually with another end of the strapping material. The two ends of the loop of strapping material **154** may be crimped by a manually operable strapping system known in the art. For example, a crimping head that acts to tighten the loop and simultaneously crimp or lock the two ends of the loop together so the strapping is maintained fixed around the stack, may be used.

Clamping arms may then be released and the bundle **46** may then be advanced by stacking rollers **124** and/or discharge platform **22**, and positioned to apply one more strap thereabout. When the desired number of straps is applied, the stacking rollers **124** and/or discharge platform **22**, may be activated to move the stack from its position in bundling assembly **42** onto discharge platform **22**.

Discharge platform **22** is an area where bundle **46** may be deposited, so that it can be picked up by grapple assembly **14**. Alternatively, discharge platform may be designed to deposit bundle **46** directly onto the ground. In one embodiment, the discharge platform includes a conveyor belt **160** and rollers **161a** and **161b** to advance bundle **46** out of the bundling assembly **42** on an upper run of the belt. Grapple assembly **14** may then pick up bundle **46** and deposit it in storage area **24**, onto another vehicle nearby or onto the ground.

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Discharge platform **22** may be fixed to trailer **16** with shear bolts **135** which may be attached to support frame **137** that rests on a bracing member **139**, as shown in FIG. **13**. The shear bolt is a safety mechanism to protect the stacking assembly from damage that might result from operator error when attempting to lift bundle **46** with grapple assembly **14**. If, for example, the entire weight of the grapple is placed onto platform **22**, shear bolts **135** will break and platform **22** will pivot at point **141**, and swing downwards.

Storage area **24** may be sized to accommodate several bundles **46** of lumber, beside one another and/or stacked on top of one another. Bundles of lumber may be deposited in storage area **24** and transported to a second location, avoiding the need for a second vehicle, such as a Skidsteer, to follow the apparatus and pick up the bundles. In one embodiment the apparatus can carry 10 bundles of lumber. The bundles of lumber thus stored may be picked up by the grapple assembly **30** and moved to a secondary location, such as a storage yard or a second vehicle.

The apparatus of the present invention may be used on terrain that is not level, as indicated in FIG. **10A-C**. Therefore, in some embodiments, also provided is a means of maintaining stacking assembly **20** level which may be coupled with a means of leveling conveyor assembly **18**, in response to varying terrains, so that it will efficiently deposit lumber pieces into unscrambling hopper **36**. This feature, in addition to the use of a grapple, provides even greater flexibility with regard to terrain, than the prior art device disclosed in Canadian patent application no. 2,315,046, or the use of a grapple alone. FIG. **10** demonstrates the relative movement of conveyor assembly **18** and stacking assembly **20**, when an embodiment of the apparatus comprising both a means for leveling the conveyor assembly **18** and stacking assembly **20**, is proceeding up a hill with an incline of 27 degrees (**10A**), on a level surface (**10B**), and down a hill with a decline of 27 degrees (**10C**). As noted, stacking assembly **20** remains relatively level in all situations. This may be accomplished by pivoting stacking assembly **20** about pivot point **163** by actuating hydraulic cylinders **162**. As stacking assembly **20** pivots about **163**, the end of conveyor assembly **18** may also pivot about pivot point **165**.

The apparatus may also comprise a mast assembly **164**, to raise and lower the conveyor assembly **18**, to accommodate for the slope of the land on which the apparatus is being used. Therefore, conveyor assembly **18** may be moved up or down along mast assembly **164**, which may comprise an inner mast **166** and an outer mast **168**, each of which may comprise a hydraulic cylinder disposed therein to provide means of moving the mast vertically. FIGS. **11A** and **B** shows the position of outer mast **168** and inner mast **166** at three different positions or heights, A, B and C, of conveyor assembly **18**, corresponding to FIG. **10C**, FIG. **10B** and FIG. **10A**, respectively.

Inner mast **166** may be mounted relatively perpendicular to the chassis of the trailer **16**, as shown in FIG. **11A**, and may be pivotally connected to outer mast **168** at pivot point **170**. Conveyor assembly **18** may be attached to outer mast **168** at pivot point **172**, and moves up and down with outer mast **168**. Inner mast **166** telescopes upwardly to achieve position A in FIG. **10C**. Outer mast **168** pivots about point **170** on inner mast **166**, as conveyor assembly **18** moves up and down pivoting about point **172**. The angular displacement of outer mast **168** relative to inner mast **166** can best be seen in FIG. **11B** at arrows **174**. As the mast assembly **164** is raised and lowered, the other end of conveyor assembly **18** may also pivot about pivot point **165**.

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In preparation for transport of the apparatus, conveyor assembly 18 may be removed from mast 168, and mast assembly 164 may be lowered into a prone position for transport, by pivoting about point 173, in the direction of arrow 175, as shown in FIG. 12. Additionally, unscrambling hopper 36 may be pivoted about shaft 94 by 180 degrees, to rest on top of row conveyor 38. At the other end of row conveyor 38, plate 127 of stacking bin 40 may be lowered onto stacking rollers 124, and discharge platform 22 may be pivoted upwards by about 90 degrees about the shaft 169 of roller 161a, and latched to bundling assembly 42 (see FIG. 13). The stacking bin 40, bundling assembly 42 and discharge platform may then be rotated 180 degrees about axis 176 (see FIG. 9E), to rest on top of the unscrambling hopper 38. The stacking bin and attached bundling assembly/discharge platform may be lifted and flipped over by using grapple assembly 14 to grasp a sling that may be connected to a lifting lug 178, shown in FIG. 13. A similar lug/sling assembly may be used to lift and flip over unscrambling hopper 36. In this manner, the width of the apparatus may be reduced to facilitate transport.

The driver of drive means 10, therefore, preferably controls the picking up and feeding of lumber pieces 44 into conveyor assembly 18, the conveyor assembly 18, and the removal of bundle 46 from discharge platform 22. The rear operator standing near the stacking assembly 20 preferably controls the stacking action by controlling the feeding of the row of lumber pieces, ensuring that the pieces are properly oriented and carried onto the bundle elevator, and controlling the feeding of the bundling through the bundling assembly and bundling thereof.

Having thus described apparatus 1 of the present invention, a method of picking up and bundling lumber pieces 44, will now be described. A driver, who preferably also controls the drive means 10 of the apparatus, operates grapple assembly 14, to pick up one or more pieces of lumber 44 from the ground. The lumber piece or pieces are deposited into receiving bin 32 by positioning grapple 30 above the receiving bin, and opening grapple arms 48 to drop the lumber pieces into the bin. Rollers 56 turn, to move the lumber pieces towards conveyor 34, which transports the lumber pieces into unscrambling hopper 36. In unscrambling hopper 36 the elevating chain assembly sequentially lifts the lumber pieces 44 up and deposits them one at a time onto row conveyor 38. On row conveyor 38 the lumber pieces 44 are assembled into rows, and the rows are assembled one on top of another into a stack of lumber, in stacking bin 40. The stack may then be moved into bundling assembly 42, where it is bundled into a bundle 46, and deposited onto discharge platform 22. A rear operator, preferably standing near the stacking assembly ensures that the stacking and bundling process proceeds smoothly.

Bundle 46 may then be picked up by grapple assembly 14 and deposited in storage area 24, onto a waiting vehicle, or onto the ground. Alternatively, the discharge platform 22 may deposit the bundle directly onto the ground.

While the apparatus has been described in conjunction with the disclosed embodiments, it will be understood that the apparatus is not intended to be limited to these embodiments. On the contrary, the apparatus is intended to cover alternatives, modifications and equivalents, which may be included within the spirit and scope of the invention as defined by the appended claims. Various modifications will remain readily apparent to those skilled in the art.

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What is claimed is:

1. An apparatus for picking up, stacking and bundling lumber, comprising:

- (a) a chassis,
- (b) a grapple carried with the chassis,
- (c) a conveyor assembly supported on the chassis,
- (d) a stacking assembly operatively connected adjacent the conveyor assembly, the stacking assembly including an unscrambling hopper, a row conveyor, a stacking bin and a bundling assembly, and,
- (e) a discharge platform operatively connected adjacent the bundling assembly,

wherein the conveyor assembly includes a frame, a pivotal connection for the frame to permit angular adjustment of the frame relative to the chassis, an extendible mast connected between the frame and the chassis to drive the frame about the pivotal connection and a receiving bin and a conveyor carried on the frame, the conveyor positioned between the receiving bin and the stacking assembly and being operable to move lumber from the receiving bin to the stacking assembly and the mast being operable to drive adjustment of the angle of the frame relative to the chassis to select the approach angle for the conveyor relative to the stacking assembly.

2. The apparatus of claim 1 wherein the mast drives the frame adjacent the receiving bin to select a spacing between the frame and the chassis.

3. The apparatus of claim 1 wherein the pivotal connection connects between the frame and the stacking assembly.

4. The apparatus of claim 1 wherein the stacking assembly further includes a pivoting arrangement for tilting the stacking assembly relative to the chassis to provide for substantial leveling of the stacking assembly when operating on uneven ground surfaces.

5. The apparatus of claim 1 further comprising a pivot point on the mast through which the mast can be pivoted down over the frame to an inactive position for transport.

6. The apparatus of claim 1 wherein the mast includes a hydraulic cylinder drivable to telescope to various lengths.

7. The apparatus of claim 1 wherein the mast includes an inner mast and an outer mast, the inner mast being mounted to the chassis to extend substantially perpendicularly upwardly therefrom, the outer mast being pivotally connected to the inner mast and being pivotally connected to the frame, at least one of the inner mast and the outer mast having an adjustable length to move the frame to a selected height relative to the chassis to select the spacing therebetween.

8. An apparatus for picking up, stacking and bundling lumber, comprising:

- (a) a chassis,
- (b) a grapple carried with the chassis,
- (c) a conveyor assembly supported on the chassis,
- (d) a stacking assembly operatively connected adjacent the conveyor assembly, the stacking assembly including an unscrambling hopper, a row conveyor, a stacking bin and a bundling assembly, and,
- (e) a discharge platform operatively connected adjacent the bundling assembly, wherein the unscrambling hopper includes a front wall adjacent the conveyor assembly, a back wall opposite the front wall, a first side wall extending between the front wall and the back wall along which a lumber elevating assembly operates, a second side wall extending between the front wall and the back wall and spaced from the first side wall, a bottom, an adjustable front panel positioned adjacent the front wall in an open space defined between the front wall and the back wall and moveable towards and away from the front wall to

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adjust the length of the open space and an adjustable back panel positioned adjacent the back wall in the open space and moveable towards and away from the back wall to adjust the length of the open space.

9. The apparatus of claim 8 wherein the adjustable back panel is moveable to tilt from side to side and from top to bottom.

10. The apparatus of claim 9 wherein the adjustable back panel is positionable to be closer at its bottom edge to the back wall than at its upper edge and closer to the back wall at a first side edge adjacent the first side wall than at its opposite side edge.

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11. The apparatus of claim 8 wherein the unscrambling hopper further includes a latching mechanism through which the bottom is openable for cleaning debris from the unscrambling hopper.

12. The apparatus of claim 8 wherein the bottom includes a plurality of rollers driveable to rotate in a direction toward the back wall.

13. The apparatus of claim 8 further comprising openings between the rollers.

\* \* \* \* \*



**“EXHIBIT 3”**

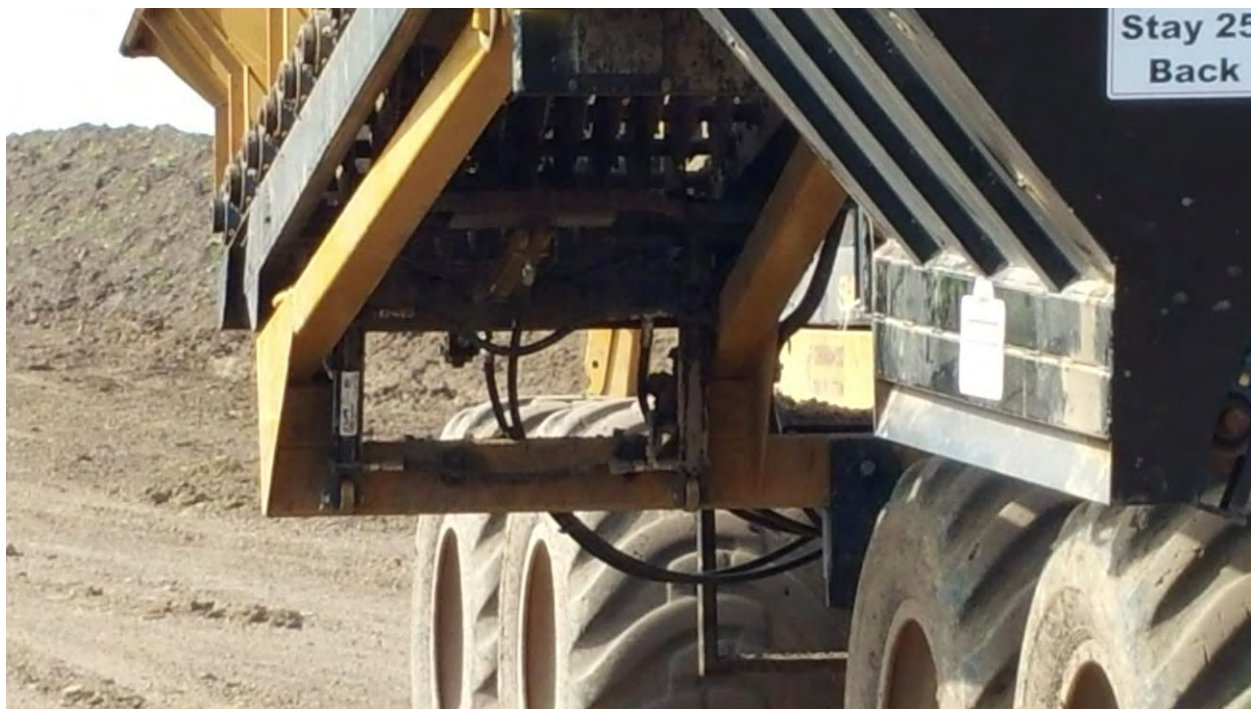












**“EXHIBIT 4”**





# WILSON LEGAL GROUP P.C.



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October 28, 2016

*Via First Class Regular Mail,  
CMRRR No. 7015-0920-0001-7016-6052  
and Electronic Correspondence*

**FOR SETTLEMENT PURPOSES ONLY**

James A. McLeod  
Box 6  
Vassar, Manitoba R0A 2J0 Canada  
hunt@headwateroutfitting.com

**Re: CEASE AND DESIST NOTICE**

Mr. McLeod,

Please be advised that our firm represents Mr. Murray Pisony with regard to his ownership of and rights in various intellectual properties, including certain patents pertaining to the bundling and conveying of lumber pieces. We have been retained to investigate, attempt to settle, and potentially litigate you and/or your company's violation of Mr. Pisony's intellectual property rights in and to U.S. Patent No. 7,591,629.

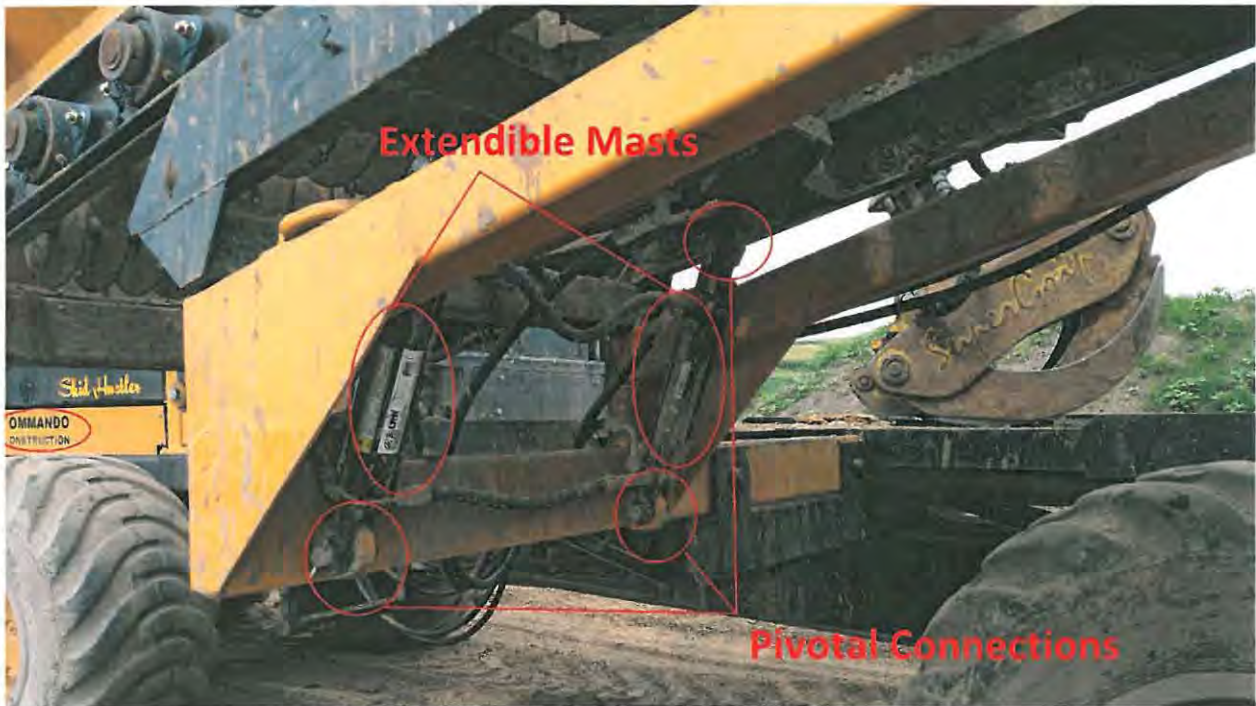
We are aware that, in October 2004, you and Mr. Pisony filed a continuation application to patent, as joint inventors, "[a]n apparatus for picking, conveying, stacking and bundling lumber pieces from the ground..." which application was granted on January 22, 2008 and issued as U.S. Patent No. 7,320,202 (the "Joint Patent"). However, as you may be aware, Mr. Pisony also filed a separate non-provisional application on June 7, 2005 to patent "[a]n apparatus for picking up, stack and bundling lumber..." having certain novel and innovative features separate and apart from those claimed in the Joint Patent, which application was granted on September 22, 2009 and issued as U.S. Patent No. 7,591,629 (the "Pisony Patent"). The prosecution history of the Pisony Patent specifically cited the Joint Patent as prior art; accordingly, the examiner for the Pisony Patent specifically determined that the claims of the Pisony Patent were not encompassed in or anticipated by the Joint Patent and were novel and innovative beyond the claims of the Joint Patent.

It has come to our attention that you, either individually, doing business as Commando Construction, and/or through a business entity doing business as Commando Construction, (collectively hereinafter "Commando Construction") have manufactured, sold, and/or distributed apparatuses, colloquially known as "skid hustlers," which apparatuses include elements that infringe, either directly or indirectly, claims of the Pisony Patent (the "Infringing Skid Hustlers"). By way of example only and without limitation, Claim 1 of the Pisony Patent specifically claims:

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[A] conveyor assembly supported on chassis...wherein the conveyor assembly includes a frame, a pivotal connection for the frame to permit angular adjustment of the frame relative to the chassis, an extendible mast connected between the frame and the chassis to drive the frame about the pivotal connection and a receiving bin and a conveyor carried on the frame, the conveyor positioned between the receiving bin and the stacking assembly and being operable to move lumber from the receiving bin to the stacking assembly and the mast being operable to drive adjustment of the angle of the frame relative to the chassis to select the approach angle for the conveyor relative to the stacking assembly.

As the examiner determined, the foregoing claim is neither included within nor anticipated by the claims of the Joint Patent. Nonetheless, we have reason to believe that the Infringing Skid Hustlers manufactured, sold, and/or distributed by Commando Construction incorporate elements that either literally infringe the foregoing claim or indirectly infringe under the doctrine of equivalents. Specifically, as evidenced in Fig. 1 below, at least one skid hustler, bearing the Commando Construction name, appears to incorporate a conveyor assembly with a pivotal connection to permit angular adjustment of the assembly frame relative to the chassis through an extendible mast, as encompassed within Claim 1 of the Pisony Patent above.



*Fig. 1*

Accordingly, the above-shown skid hustler reads upon at least one claim of the Pisony Patent. Because the above-shown skid hustler was manufactured, used, sold, and/or distributed without license or other authority from Mr. Pisony as holder of the Pisony Patent, the above-shown skid hustler infringes upon the Pisony Patent. As stated above, the infringement described herein is by illustration only, and we would assert, upon information and belief, that the above-shown skid hustler infringes multiple claims of the Pisony Patent and is typical of the skid hustlers

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manufactured, used, sold, and/or distributed by Commando Construction. Mr. Pisony has suffered actual damages in lost revenues as a result of Commando Construction's infringement of the Pisony Patent. Additionally, Mr. Pisony has suffered damage to his reputation in the marketplace as a result of customer's mistaking Commando Construction's infringing, but inferior, skid hustlers for Mr. Pisony's and/or due to Commando Construction intentionally passing off its skid hustlers as being Mr. Pisony's and/or of similar quality.

**BASED UPON THE FOREGOING, DEMAND IS HEREBY MADE UPON COMMANDO CONSTRUCTION AND ALL PERSONS AND ALL ENTITIES ACTING ON BEHALF OR AT THE DIRECTION OF COMMANDO CONSTRUCTION TO IMMEDIATELY CEASE AND DESIST MANUFACTURING, USING, SELLING, OFFERING FOR SALE, AND/OR DISTRIBUTING ANY SKID HUSTLERS THAT INFRINGE UPON THE PISONY PATENT AND/OR OTHERWISE INFRINGING UPON MR. PISONY'S RIGHTS IN AND TO THE PISONY PATENT. ADDITIONALLY, DEMAND IS HEREBY MADE UPON COMMANDO CONSTRUCTION AND ALL ENTITIES ACTING ON BEHALF OR AT THE DIRECTION OF COMMANDO CONSTRUCTION TO CEASE AND DESIST FROM MAKING ANY REPRESENTATION INTEND TO, OR WHICH REASONABLY MAY BE EXPECTED TO, CREATE AN IMPRESSION IN CONSUMERS THAT COMMANDO CONSTRUCTION'S SKID HUSTLERS ARE IDENTICAL WITH, FUNCTIONALLY EQUIVALENT TO, OR OF THE SAME QUALITY AND CALIBER AS SKID HUSTLERS MANUFACTURED, USED, SOLD, OFFERED FOR SALE, OR DISTRIBUTED BY MR. PISONY OR ANY ENTITY ACTING ON HIS BEHALF OR AT HIS DIRECTION.**

**ADDITIONALLY, COMMANDO CONSTRUCTION IS HEREBY DEMANDED TO PRODUCE, WITHIN THIRTY (30) DAYS OF THE DATE OF THIS LETTER, RECORDS SHOWING THE TOTAL NUMBER OF INFRINGING SKID HUSTLERS MANUFACTURED, USED, SOLD, OFFERED FOR SALE, AND/OR DISTRIBUTED BY COMMANDO CONSTRUCTION AND/OR ANY PERSON OR ENTITY ACTING ON ITS BEHALF OR AT ITS DIRECTION.**

We wish to receive your assurances, in writing, by noon on **November 4, 2016**, that you will comply with the above demands. If you fail to advise us by then that you will comply with the above demand, our client may, without further notice, take such steps as may be necessary to enforce his intellectual property rights and initiate proceedings to recover his actual damages, costs of court, and attorney's fees and to otherwise protect his intellectual property interests. Additionally, be advised that continued unlawful use, sale, or offer for sale of the Infringing Skid Hustlers will be regarded as willful infringement of the Pisony Patent, potentially entitling Mr. Pisony to enhanced damages.

Nothing contained in or omitted from this letter shall be deemed a waiver of any of Mr. Pisony's rights or remedies with respect to this matter. Additionally, Mr. Pisony respectfully reserves and retains all of his rights and remedies with respect to the matters discussed herein. This letter is not intended as a complete recitation of the facts or issues. It is intended for settlement purposes only and shall not be deemed admissible in any legal proceeding.

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This is a serious matter that requires your immediate attention. We urge you to handle this matter accordingly. If you are represented by counsel, please advise us accordingly so that we may direct further communication to your attorney.

Sincerely yours,

**WILSON LEGAL GROUP P.C.**

By: 

John T. Wilson

**“EXHIBIT 5”**

# ADE & COMPANY INC.

## PATENT AGENTS

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November 18, 2016

Wilson Legal Group P.C.  
Bent Tree Plaza  
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Attention: John T. Wilson

Dear Sirs:

RE: Cease and Desist Notice

We refer to your letter of October 28, 2016 directed to James McLeod. We act for Mr. McLeod in patent matters and have done so since at least 2000.

Our client is very surprised to receive your letter at this time, bearing in mind that the patentee Mr Pisony has been fully aware of the construction of the machine to which you refer since 2008. Our client observed the patentee inspecting the first machine manufactured by our client in 2008 and it is believed that the patentee obtained and presumably currently still has in his possession photographs of the machine concerned.

Since that time our client has quite properly assumed that the inspection carried out in 2008 by the patentee resolved any issues arising and confirmed to the patentee that no infringement issues were present. The patentee therefore has no justification for any delay in taking action on this matter subsequent to the date of grant of the patent in 2009. It is our position therefore that the patentee is estopped from any litigation on this patent at this time due to Laches.

Furthermore we believe that the absence of any infringement was fully clear to the patentee in 2008 and is properly based upon an analysis of the matter which we will explain as follows.

Firstly claim 1 includes as one of the limitations the feature of "an expandable mast". This feature was clearly added during examination of the application and hence the patentee is estopped from alleging that any component of the client's machine is a mechanical equivalent of this feature.

It is fully clear that the term "mast" is not the same as a hydraulic cylinder. A mast is an upstanding structural member used in many different situations such as a ship, antenna, forklift, where the mast acts to support another structure from a base support such as the ground. The mast may include an operating device for lifting components along the mast, again such as in a ship or forklift. A hydraulic cylinder is not a mast but is an actuating device for moving one component relative to another.

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In your allegation as set forth in your letter, the components that you point to are simple hydraulic cylinders. There is no sustainable argument that these components constitute a mast.

Yet further we note the wording of claim 6 of the patent which makes fully clear that the hydraulic cylinder concerned forms a component of the mast and therefore cannot be the mast itself.

It should be pointed out in this regard about the operation of the client's machine is entirely different from that of the patent. In the patent the conveyor frame is pivoted on the unscrambling bin so that, as the bin pivots, the mast also tilts back and forth to accommodate the movement of the conveyor with the unscrambling bin. In the client's machine, there is no connection between the conveyor and the unscrambling bin but instead the conveyor is carried on a slide with an actuator (cylinder) which moves the conveyor longitudinally toward and away from the unscrambling bin as required. The machine of the client therefore has no need of a mast and no mast is provided.

As set forth above, any hydraulic cylinder used to move the components of the machine is not a mast and cannot be in any reasonable sense considered to be a mast.

Based upon this analysis alone, it is fully clear that there is no infringement of the patent and it is assumed that the patentee has been well aware of this position since 2008.

Yet further the conveyor of the client's machine is mounted on a frame which frame is fixed relative to the base chassis of the machine. The conveyor itself may in some rare circumstances pivot relative to the conveyor frame so as to lift the forward end of the conveyor and the hopper attached thereto relative to horizontal. The client's machine therefore does not include a pivotal connection of the conveyor frame relative to the chassis.

Yet further any rare pivoting movement of the conveyor occurs relative to horizontal. In some cases where the machine is on a descending slope, the angle of inclination of the conveyor becomes too steep relative to the horizontal so it becomes more difficult for the lumber pieces to be carried along the steep incline of the conveyor. In order to assist the transfer of the pieces along the conveyor, therefore, in some cases the front end of the conveyor is raised to reduce the angle relative to the horizontal. This has nothing to do with the angle of approach to the unscrambling bin which can vary independently of this adjustment. In the client's machine the cooperation between the conveyor and the unscrambling bin is controlled by firstly the longitudinal adjustment of the conveyor as discussed above and secondly by the speed of the conveyor belt.

It is fully clear therefore that the client's machine does not infringe any of the above features and it is assumed that the patentee reached the same conclusion in 2008.

In regard to claim 8, we note that you have not made any allegation in respect of this claim and it is believed that this is fully correct since the client's machine does not include any adjustable panels within the unscrambling bin.

In addition to the above absence of any infringement, it is our position that both claims 1 and 8 are in valid for reasons well known to the patentee.

We note that the patentee raised with the patent office the prior art of the jointly owned patent application so that this published application has been taken into account in the examination.

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However the patentee will be fully aware that the machine built by our client and the patentee in 2000 included components and arrangements which were not fully described in detail in the published patent application. As the patentee was involved in the construction and operation of this machine he was of course well aware of its construction.

In particular, that machine included, in the unscrambling bin, reducer plates at the front and back wall which could be replaced to provide an adjustment of the space referred to in claim 8 within the unscrambling bin. The purpose of these reducer plates was to convert the bin to accommodate different lengths of lumber pieces. This is exactly the same purpose and arrangement which is the subject of claim 8. We attach photographs of these components which undoubtedly will be fully familiar to the patentee. These components were not described in the published application but were clearly used in public in USA on the machine concerned by the patentee for at least five years prior to June 2005. The arrangement set forth in this patent claim merely therefore provides pivotal adjustment for an adjustment which has always been necessary and was well known in the prior art.

It is fully clear that the patentee wilfully and improperly failed to inform the patent office of the prior art constituted by this machine.

With regard to claim 1, the above the prior art machine included a conveyor feeding to an unscrambling bin. That conveyor was pivotally mounted relative to the chassis of the machine by way of a four point hitch which is described in the above published application. If one takes the position, for sake of argument, that a mast can be defined by a hydraulic cylinder, it is clear that the above prior art machine and that the above prior art published application both show a conveyor on a frame where the conveyor frame is pivotal relative to the chassis and this pivotal movement is driven by a cylinder. That is, on the above machine, depending upon the inclination of the ground, the rear end of the conveyor was raised and lowered so as to change the angle of the conveyor frame relative to the chassis. Claim 1 is therefore anticipated by this construction in the above machine

Again, the patentee has wilfully and improperly failed to draw attention to these features of the above machine to the patent office during examination.

It is noted that the Canadian patent application corresponding to the above the patent was abandoned by the patentee in 2012 in response to a negative report from the Canadian patent office. This further supports the position, stated above, that the patentee was fully aware of the non-infringement of the patent claims by the client's machine thus leading to a conclusion that the Canadian patent was of no value.

Our client remains confident for all the reasons stated above that he will prevail in any litigation and that there is the possibility to claim significant damages for the willful failure of the patentee to disclose the prior art details of the above machine to the patent office.

As you may be aware, our client and that the patentee have previously endured extensive and extensive litigation in Canada concerning these subjects. That litigation was settled on the basis that both parties would go their own way and compete in a proper and businesslike manner in the marketplace. Our client has properly adhered to this settlement and will continue to do so. While we have not studied the matter in detail at this time, it may well be that the settlement previously obtained also included a stated or implied resolution of the presently alleged patent matter.



ADE & COMPANY INC.

It is clear that that litigation on the present matter would be highly undesirable and would again lead to considerable expense on behalf of both parties for no discernible advantage.

We will be happy to provide any further explanations or documents that you need to review this matter.

Yours truly,  
ADE & COMPANY INC.  
PER:

  
**ADRIAN D. BATTISON**  
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ADB/lb

**“EXHIBIT 6”**

IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF TEXAS  
WACO DIVISION

MURRAY WALTER PISONY,  
*Plaintiff,*

§  
§  
§  
§  
§  
§  
§

v.

Civ. A. No. 6:17-cv-00055-RP-JCM

COMMANDO CONSTRUCTION, INC.,  
*Defendant.*

JURY DEMANDED

**PLAINTIFF MURRAY WALTER PISONY’S PRELIMINARY INFRINGEMENT  
CONTENTIONS**

Plaintiff Murray Walter Pisony (“Plaintiff” or “Pisony”) hereby submits the following Preliminary Infringement Contentions as to Defendant Commando Construction, Inc. (“Defendant” or “CCI”) in accordance with the January 18, 2018 Scheduling Order entered by the Court. ECF No. 32.

**I. Preliminary Statement**

Plaintiff provides these preliminary infringement contentions, which contain the following information: an identification of each claim of the each patent in suit that is allegedly infringed by defendant; an identification of each accused apparatus, product, device, method, or act (“Accused Instrumentality”) of which the plaintiff is aware, and a chart identifying where and how each limitation of each asserted claim is found within each Accused Instrumentality. Scheduling Order, ECF No. 32. Because fact discovery has only recently commenced and Defendant has not yet provided Plaintiff with documents or other information including permitting inspection of the Accused Instrumentalities, Plaintiff reserves the right to supplement or alter his responses herein based on information produced by Defendant or material otherwise located and/or produced in the course of discovery in this case.

**II. Each Claim of United States Patent No. 7,591,629 (the “’629 Patent”) that is Allegedly Infringed by Defendant**

Based on available information obtained to date, Plaintiff claims that Defendant has infringed and is infringing, either literally and/or under the doctrine of equivalents at least claims 1, 2, 4, and 6 of the ’629 Patent (the “Asserted Claims”).

**III. The Identity of Defendant’s Accused Instrumentalities of Which Plaintiff is Aware**

In making these contentions, Plaintiff has not yet received any discovery from Defendant regarding the Accused Instrumentalities. Further, Defendant operates the Accused Instrumentalities on private property to which Plaintiff does not have free access. Plaintiff has requested inspection of any and all Accused Instrumentalities developed from 2004 to present, including but not limited to the ability to conduct a visual inspection, take measurements and photographs, and test the operation of the Accused Instrumentalities. As of the time of service of these preliminary contentions, Plaintiff has not yet been granted access to such inspections.

Based on available information obtained to date, Defendant’s Accused Instrumentalities of which Plaintiff is aware are skid hustler machines manufactured, used, leased, and/or distributed by CCI, including but not limited to the machines depicted in the images attached to the First Amended Complaint in Exhibit 3 and in the claim charts served herewith.

Plaintiff reserves the right to supplement or alter this response based on information produced and/or inspection permitted by Defendant or material otherwise located and/or produced in the course of discovery in this case.

**IV. Chart Identifying Where and How Each Limitation of Each Asserted Claim is Found Within Each Accused Instrumentality**

The claim charts attached as Exhibits 1 and 2 identify where and how each limitation of each asserted claim is found within each Accused Instrumentality.

**V. Document Production**

Plaintiff has already produced a copy of the certified file history for the '629 Patent at PISONY003229 and PISONY003230-003468. Plaintiff further states that the only non-U.S. patent related document of which he is aware that claims priority to the filing date of the '629 Patent is an Australian patent application produced at PISONY005465-005501. Plaintiff also filed a Canadian patent application produced at PISONY005502-005535. Plaintiff is unaware of any other non-U.S. patents or patent applications claiming a common priority with the '629 Patent.

**VI. Priority Date**

At this time, Plaintiff asserts that the '629 Patent is entitled to a priority date of August 1, 2004. Plaintiff has produced and is contemporaneously serving an additional production including documents evidencing the conception, reduction to practice, design, and development of each claimed invention which was created on or before the application date of the '629 Patent, including but not limited to Bates numbers PISONY000227-000238; PISONY000579-000580; PISONY000581-000582; PISONY000883-000920; PISONY001002; PISONY001004-001005; PISONY001835-001838; PISONY002770-002793; PISONY002866-002944; PISONY003101-003182; PISONY003183-003204; PISONY003980; PISONY005537-005855; PISONY005856-006176; PISONY006186-006206; PISONY006207-006220; PISONY006221-006304; PISONY006305-006378; PISONY006379-006545; and PISONY006596-006648.

**DATED:** March 8, 2018

Respectfully submitted,

**WILSON LEGAL GROUP P.C.**

By: /s/ John T. Wilson

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\* *Notice of Appearance* to be filed

*Attorneys for Plaintiff, Murray Walter  
Pisony*

**CERTIFICATE OF SERVICE**

I hereby certify that on March 8, 2018, a true and correct copy of the foregoing was served on all counsel of record via electronic mail.

/s/ John T. Wilson

John T. Wilson

**Amended Exhibit 1 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| <b>Claim 1</b>  | <b>Commando Construction, Inc.'s Skid Hustler Machine – Missouri 2008</b>   |
|---|---|
| <p>An apparatus for picking up, stacking and bundling lumber, comprising:</p> |  <p>The photograph shows a yellow and black Commando Construction Skid Hustler machine, model number 1158, equipped with a hydraulic crane arm. The machine is positioned on a dirt surface, lifting a bundle of lumber from the ground and placing it onto the bed of a yellow dump truck. The machine's body features the text 'COMMANDO CONSTRUCTION' and the number '1158'. The crane arm has 'DUESS' written on it. In the background, there are trees and a clear blue sky. Two people are visible near the truck, and a large green pipe lies on the ground to the right.</p> |

**Amended Exhibit 1 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for  
United States Patent No. 7,591,629**

| Claim 1        | Commando Construction, Inc.'s Skid Hustler Machine – Missouri 2008                  |
|----------------|---|
| (a) a chassis, |  |



**Amended Exhibit 1 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for  
United States Patent No. 7,591,629**

| Claim 1   | Commando Construction, Inc.'s Skid Hustler Machine – Missouri 2008                  |
|---|---|
| <p>(b) a <b>grapple</b> carried with the chassis,</p> |  |

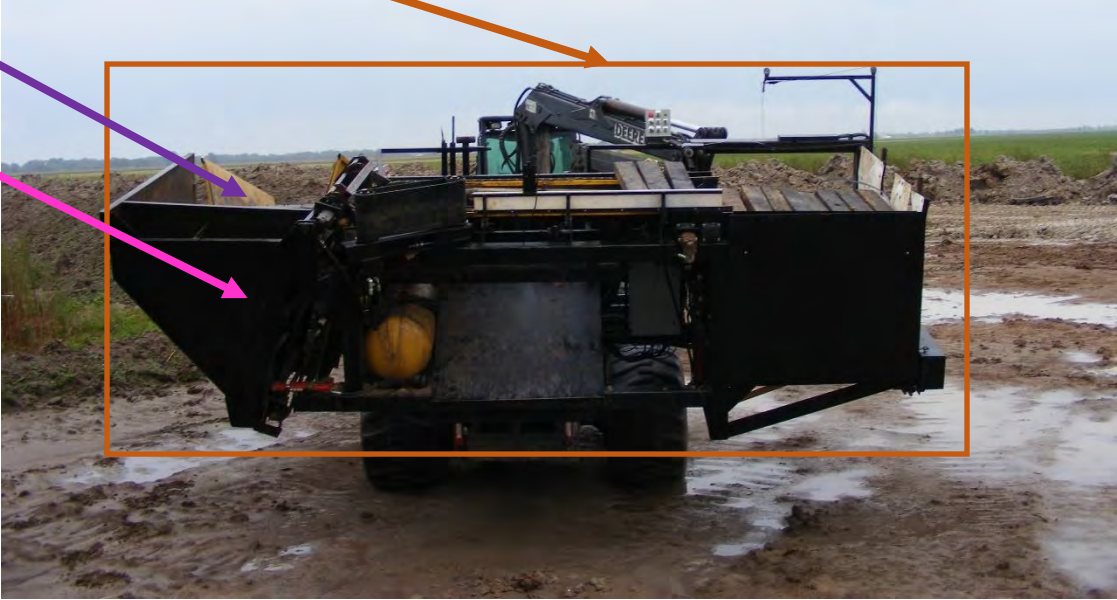
**Amended Exhibit 1 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| Claim 1  | Commando Construction, Inc.'s Skid Hustler Machine – Missouri 2008                 |
|--|--|
| <p>(b) a grapple carried with the chassis,</p> |  |


**Amended Exhibit 1 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for  
United States Patent No. 7,591,629**

| Claim 1  | Commando Construction, Inc.'s Skid Hustler Machine – Missouri 2008                  |
|--|---|
| <p>(c) a conveyor assembly supported on the chassis,</p> |  |

**Amended Exhibit 1 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| Claim 1   | Commando Construction, Inc.'s Skid Hustler Machine – Missouri 2008   |
|---|--|
| <p>(d) a <b>stacking assembly</b> operatively connected adjacent the <b>conveyor assembly</b>, the stacking assembly including an <b>unscrambling hopper</b>,</p> | <p>The stacking assembly is operatively connected to the conveyor assembly as shown below in that both are connected via chassis such that the conveyor assembly is able to deposit the skids into the unscrambling bin, which is part of the stacking assembly.</p>  |

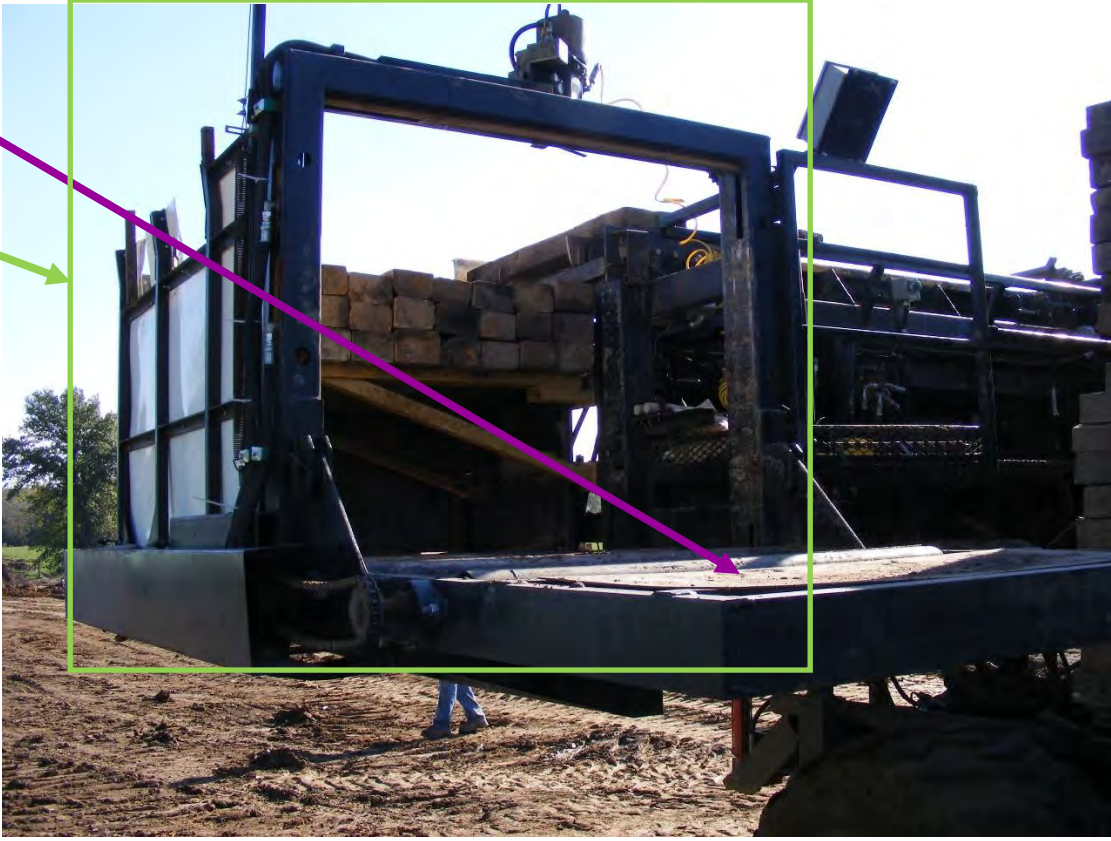
**Amended Exhibit 1 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for  
United States Patent No. 7,591,629**

| Claim 1   | Commando Construction, Inc.'s Skid Hustler Machine – Missouri 2008                  |
|---|---|
| a <b>row conveyor</b> ,<br>a <b>stacking bin</b><br>and |  |

**Amended Exhibit 1 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for  
United States Patent No. 7,591,629**

| Claim 1                           | Commando Construction, Inc.'s Skid Hustler Machine – Missouri 2008                  |
|-----------------------------------|---|
| a <b>bundling assembly</b> , and, |  |

**Amended Exhibit 1 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for  
United States Patent No. 7,591,629**

| Claim 1   | Commando Construction, Inc.'s Skid Hustler Machine – Missouri 2008                  |
|---|---|
| <p>(e) a discharge platform operatively connected adjacent the bundling assembly,</p> |  |

**Amended Exhibit 1 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for  
United States Patent No. 7,591,629**

| Claim 1   | Commando Construction, Inc.'s Skid Hustler Machine – Missouri 2008                  |
|---|---|
| wherein the conveyor assembly includes a frame, |  |



**Amended Exhibit 1 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for  
United States Patent No. 7,591,629**

| Claim 1   | Commando Construction, Inc.'s Skid Hustler Machine – Missouri 2008                  |
|---|---|
| <p>a <b>pivotal connection</b> for the frame to permit angular adjustment of the frame relative to the chassis,</p> |  |

**Amended Exhibit 1 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| Claim 1   | Commando Construction, Inc.'s Skid Hustler Machine – Missouri 2008                  |
|---|---|
| <p>an <b>extendible mast</b> connected between the <b>frame</b> and the <b>chassis</b> to drive the frame about the <b>pivotal connection</b></p> |  |

**Amended Exhibit 1 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for  
United States Patent No. 7,591,629**

| Claim 1   | Commando Construction, Inc.'s Skid Hustler Machine – Missouri 2008   |
|---|--|
| and a receiving bin<br>and a conveyor<br>carried on the<br>frame, |  <p>The photograph shows a yellow and black skid loader with a conveyor and receiving bin attachment. The machine is labeled '1158' and 'COMMANDO CONSTRUCTION'. Three colored arrows point from the text in the left column to the corresponding parts of the machine in the photograph: an orange arrow points to the receiving bin, a purple arrow points to the conveyor, and a cyan arrow points to the frame.</p> |


**Amended Exhibit 1 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for  
United States Patent No. 7,591,629**

| Claim 1 | Commando Construction, Inc.'s Skid Hustler Machine – Missouri 2008  |
|---------|---|
|         | <p data-bbox="474 297 611 329">Conveyor</p> <p data-bbox="877 297 1066 329">Receiving bin</p>  |

**Amended Exhibit 1 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| Claim 1  | Commando Construction, Inc.'s Skid Hustler Machine – Missouri 2008                  |
|--|---|
| <p>the <b>conveyor</b></p> <p>positioned between the <b>receiving bin</b></p> <p>and the <b>stacking assembly</b></p> <p>and being operable to move lumber from the receiving bin to the stacking assembly</p> |  |

**Amended Exhibit 1 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for  
United States Patent No. 7,591,629**

| Claim 1   | Commando Construction, Inc.'s Skid Hustler Machine – Missouri 2008   |
|---|--|
| <p>the conveyor positioned between the receiving bin and the <b>stacking assembly</b> and being operable to move lumber from the receiving bin to the stacking assembly</p> |  <p>The photograph shows a skid loader equipped with a conveyor system. A yellow box highlights the conveyor and its connection to the receiving bin and stacking assembly. The machine is operating in a muddy, outdoor environment.</p> |

**Amended Exhibit 1 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| Claim 1   | Commando Construction, Inc.'s Skid Hustler Machine – Missouri 2008                 |
|---|--|
| <p>and the <b>mast</b> being operable to drive adjustment of the angle of the <b>frame</b> relative to the <b>chassis</b> to select the <b>approach angle</b> for the conveyor relative to the stacking assembly.</p> |  |

**Amended Exhibit 1 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| Claim 2  | Accused Instrumentalities – Skid Hustler Machine - Missouri 2008                    |
|--|---|
| <p>The apparatus of claim 1 wherein the <b>mast</b> drives the <b>frame</b> adjacent the <b>receiving bin</b> to select a spacing between the frame and the chassis.</p> |  |

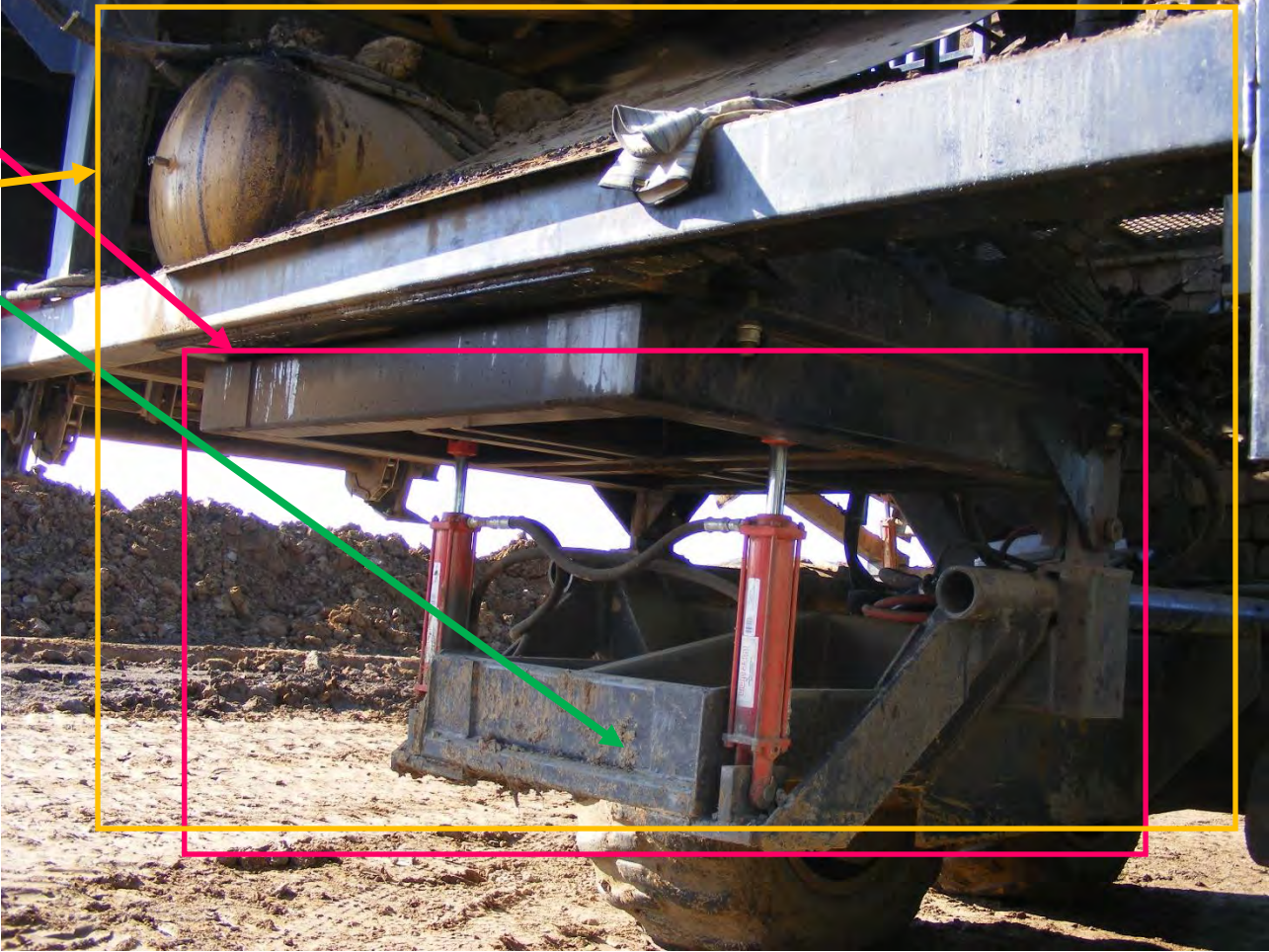


**Amended Exhibit 1 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for  
United States Patent No. 7,591,629**

The apparatus of claim 1 wherein the mast drives the frame adjacent the **receiving bin** to select a spacing between the frame and the chassis



**Amended Exhibit 1 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| <b>Claim 4</b>   | <b>Accused Instrumentalities – Skid Hustler Machine – Missouri 2008</b>   |
|--|---|
| <p>The apparatus of claim 1 wherein the stacking assembly further includes a <b>pivoting arrangement</b> for tilting the <b>stacking assembly</b> relative to the <b>chassis</b></p> |  <p>The photograph shows the underside of a large industrial machine, likely a skid steer loader, with a large cylindrical tank and a metal frame. A yellow rectangular box highlights the upper portion of the machine, including the tank and the top of the frame. A pink rectangular box highlights the lower portion, including the chassis and the base of the tank. A yellow arrow points from the text 'stacking assembly' to the top of the yellow box. A pink arrow points from the text 'pivoting arrangement' to the joint between the tank and the frame. A green arrow points from the text 'chassis' to the bottom of the pink box.</p> |

**Amended Exhibit 1 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| <b>Claim 4</b>   | <b>Accused Instrumentalities – Skid Hustler Machine – Missouri 2008</b>  |
|--|--|
| <p>to provide for <b>substantial leveling of the stacking assembly</b> when operating on uneven ground surfaces.</p> | <p>The stacking assembly can be tilted and leveled using the pivoting arrangement shown above.</p>  |

**Amended Exhibit 1 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| <b>Claim 6</b>   | <b>Accused Instrumentalities – Skid Hustler Machine – Missouri 2008</b>             |
|--|---|
| <p>The apparatus of claim 1 wherein the <b>mast</b> includes a <b>hydraulic cylinder</b> drivable to telescope to various lengths.</p> |  |

**Amended Exhibit 2 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| <b>Claim 1</b>   | <b>Commando Construction, Inc.'s Skid Hustler Machine – Iowa 2016</b>               |
|--|---|
| An apparatus for picking up, stacking and bundling lumber, comprising: |  |

**Amended Exhibit 2 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| Claim 1        | Commando Construction, Inc.'s Skid Hustler Machine – Iowa 2016                      |
|----------------|---|
| (a) a chassis, |  |

**Amended Exhibit 2 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for  
United States Patent No. 7,591,629**

| Claim 1                                 | Commando Construction, Inc.'s Skid Hustler Machine – Iowa 2016                      |
|---|---|
| (b) a grapple carried with the chassis, |  |

**Amended Exhibit 2 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| Claim 1  | Commando Construction, Inc.'s Skid Hustler Machine – Iowa 2016                      |
|--|---|
| <p>(c) a conveyor assembly supported on the chassis,</p> |  |



**Amended Exhibit 2 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| Claim 1   | Commando Construction, Inc.'s Skid Hustler Machine – Iowa 2016   |
|---|--|
| <p>(d) a <b>stacking assembly</b> operatively connected adjacent the <b>conveyor assembly</b>, the stacking assembly including an <b>unscrambling hopper</b>,</p> | <p>The stacking assembly is operatively connected to the conveyor assembly as shown below in that both are connected via chassis such that the conveyor assembly is able to deposit the skids into the unscrambling bin, which is part of the stacking assembly.</p>  |

**Amended Exhibit 2 to Plaintiff’s Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| Claim 1   | Commando Construction, Inc.’s Skid Hustler Machine – Iowa 2016   |
|---|--|
| <p>(d) a <b>stacking assembly</b> operatively connected adjacent the <b>conveyor assembly</b>, the stacking assembly including an <b>unscrambling hopper</b>,</p> | <p>The stacking assembly is operatively connected to the conveyor assembly as shown below in that both are connected via chassis such that the conveyor assembly is able to deposit the skids into the unscrambling bin, which is part of the stacking assembly.</p>  |

**Amended Exhibit 2 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for  
United States Patent No. 7,591,629**

| Claim 1   | Commando Construction, Inc.'s Skid Hustler Machine – Iowa 2016                      |
|---|---|
| a <b>row conveyor</b> ,<br>a <b>stacking bin</b><br>and |  |

**Amended Exhibit 2 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for  
United States Patent No. 7,591,629**

| Claim 1   | Commando Construction, Inc.'s Skid Hustler Machine – Iowa 2016                      |
|---|---|
| <p>a <b>row conveyor</b>,<br/>a <b>stacking bin</b><br/>and</p> |  |

**Amended Exhibit 2 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for  
United States Patent No. 7,591,629**

| Claim 1                                | Commando Construction, Inc.'s Skid Hustler Machine – Iowa 2016                      |
|--|---|
| <p>bundling<br/>assembly,<br/>and,</p> |  |

**Amended Exhibit 2 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| Claim 1   | Commando Construction, Inc.'s Skid Hustler Machine – Iowa 2016                      |
|---|---|
| <p>(e) a discharge platform operatively connected adjacent the bundling assembly,</p> |  |

**Amended Exhibit 2 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| Claim 1  | Commando Construction, Inc.'s Skid Hustler Machine – Iowa 2016                      |
|--|---|
| <p>wherein the <b>conveyor assembly</b> includes a <b>frame,</b></p> |  |

**Amended Exhibit 2 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| Claim 1   | Commando Construction, Inc.'s Skid Hustler Machine – Iowa 2016  |
|---|---|
| <p>a <b>pivotal connection</b> for the frame to permit angular adjustment of the frame relative to the chassis,</p> |  <p>The photograph shows a yellow John Deere Skid Hustler machine with a yellow dump body. A red box highlights the pivot point where the dump body meets the chassis, and a red arrow points to this connection. The machine is parked on a dirt surface, and the background shows a construction site with a hillside.</p> |



**Amended Exhibit 2 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| Claim 1  | Commando Construction, Inc.'s Skid Hustler Machine – Iowa 2016                      |
|--|---|
| <p>an <b>extendible mast</b> connected between the <b>frame</b> and the <b>chassis</b></p> |  |

**Amended Exhibit 2 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| <b>Claim 1</b>   | <b>Commando Construction, Inc.'s Skid Hustler Machine – Iowa 2016</b>  |
|--|--|
| to drive the frame about the <b>pivotal connection</b> |  A photograph of a yellow and black skid steer loader with a dump bucket. The machine is shown from a side-rear perspective. The cab is on the left, and the dump bucket is on the right. A red box highlights the pivot point between the cab and the frame. A red arrow points to the pivot connection on the frame. The machine has "JOHN DEERE" and "Skid Hustler" written on it. The background shows a dirt area and some vegetation. |

**Amended Exhibit 2 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for  
United States Patent No. 7,591,629**

| Claim 1   | Commando Construction, Inc.'s Skid Hustler Machine – Iowa 2016                      |
|---|---|
| <p>and a <b>receiving bin</b><br/>and a <b>conveyor</b><br/>carried on the<br/>frame,</p> |  |

**Amended Exhibit 2 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| Claim 1   | Commando Construction, Inc.'s Skid Hustler Machine – Iowa 2016                      |
|---|---|
| and a <b>receiving bin</b><br>and a <b>conveyor</b><br>carried on the<br>frame, |  |

**Amended Exhibit 2 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| Claim 1   | Commando Construction, Inc.'s Skid Hustler Machine – Iowa 2016                      |
|---|---|
| <p>the conveyor</p> <p>positioned between the receiving bin</p> <p>and the stacking assembly</p> <p>and being operable to move lumber from the receiving bin to the stacking assembly</p> |  |


**Amended Exhibit 2 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| <b>Claim 1</b>  | <b>Commando Construction, Inc.'s Skid Hustler Machine – Iowa 2016</b>  |
|---|--|
| <p>and the <b>mast</b></p> <p>being operable to drive adjustment of the angle of the <b>frame</b> relative to the <b>chassis</b></p> <p>to select the <b>approach angle</b> for the conveyor relative to the stacking assembly.</p> |  <p>The table contains two photographs of a yellow Skid Hustler machine. The left photograph shows the machine from a side view, featuring a yellow umbrella on top and a worker in a high-visibility vest. The right photograph is a close-up of the conveyor and frame assembly. Colored arrows point from text in the left column to specific parts of the machine: a purple arrow points from 'mast' to the top structure; a blue arrow points from 'frame' to the conveyor's frame; a green arrow points from 'chassis' to the base; and a pink arrow points from 'approach angle' to the conveyor's angle.</p> |

**Amended Exhibit 2 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| Claim 2  | Accused Instrumentalities – Skid Hustler Machine – Iowa 2016                        |
|--|---|
| <p>The apparatus of claim 1 wherein the <b>mast</b> drives the <b>frame</b> adjacent the <b>receiving bin</b> to select a spacing between the <b>frame</b> and the <b>chassis</b>.</p> |  |

**Amended Exhibit 2 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| Claim 4  | Accused Instrumentalities – Skid Hustler Machine – Iowa 2016  |
|--|---|
| <p>The apparatus of claim 1 wherein the stacking assembly further includes a <b>pivoting arrangement</b> for tilting the <b>stacking assembly</b> relative to the <b>chassis</b></p> |  <p>The photograph shows a Skid Hustler skid steer loader equipped with a large, black, funnel-shaped stacking assembly. The machine is positioned on a dirt surface. A yellow arrow points to the pivot point where the stacking assembly is attached to the chassis. A pink arrow points to the chassis. A pink box highlights the engine compartment. The machine features the 'Skid Hustler' logo and 'OMMANDO CONSTRUCTION' branding. A warning sign on the side reads 'WARNING Stay 25' Back'.</p> |



**Amended Exhibit 2 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| <b>Claim 4</b>   | <b>Accused Instrumentalities – Skid Hustler Machine – Iowa 2016</b>  |
|--|--|
| <p>to provide for <b>substantial leveling of the stacking assembly</b> when operating on uneven ground surfaces.</p> | <p>The stacking assembly can be tilted and leveled using the pivoting arrangement shown above.</p>  |

**Amended Exhibit 2 to Plaintiff's Disclosure of Asserted Claims and Preliminary Infringement Contentions for United States Patent No. 7,591,629**

| <b>Claim 6</b>   | <b>Accused Instrumentalities – Skid Hustler Machine – Iowa 2016</b>                 |
|--|---|
| <p>The apparatus of claim 1 wherein the <b>mast</b> includes a <b>hydraulic cylinder</b> drivable to telescope to various lengths.</p> |  |