RECEIPT NUMBER
507710

33 Pgs Exh. A-B

IN THE UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN

NLB Corp.,

Plaintiff,

v.

John W. Mincy, Jr.,

Defendant.

04-40136

ORIGINAL

PAUL V. GADOLA

MAGISTRATE JUDGE CAPEL

CARLSON, GASKEY & OLDS
A PROFESSIONAL CORPORATION
400 WEST MAPLE ROAD
SUITE 350
BIRMINGHAM, MI 48009
Telephone 248.988.8360
Facsimile 248.988.8363

COMPLAINT FOR DECLARATORY JUDGMENT

NLB, Corp (hereinafter "NLB"), for its complaint states and alleges as follows:

Jurisdiction and Venue

1. This is an action for declaratory relief pursuant to the laws as set forth in Title 28 of the United States Code, and particularly, 28 U.S.C. §§ 2201 and 2202. Jurisdiction in this Court is based on 28 U.S.C. §§ 1331 and 1338(a). This Court has personal jurisdiction over Defendant in view of his contacts with the forum. Venue is proper in this judicial district under 28 U.S.C. §§ 1391 and 1400 because NLB resides in this district and activities related to this controversy occurred and are occurring in this District.

The Parties

2. NLB is a Michigan corporation having its principal place of business located at 29830 Beck Road, Wixom, Michigan 48393-2824.

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3. Upon information and belief, Defendant John W. Mincy, Jr. is an individual residing at 11 Buerger Road in Mobile, Alabama 36608.

Cause of Action for Declaratory Judgment

4. NLB seeks a declaratory judgment declaring that United States Patent Nos. 5,638,845 and 6,192,905 (hereinafter the '845 Patent and the '905 Patent, respectively) were not obtained in a manner consistent with the provisions of Title 35, United States Code and is thus invalid and/or unenforceable. More specifically, the '845 Patent and the '905 Patent are invalid and/or unenforceable for failure to comply with one or more of the conditions for patentability set forth in 35 U.S.C. §§101, 102, 103, 112, 132, 253 and 288. A copy of the '845 Patent and the '905 Patent are attached hereto as Exhibit A.

5. NLB seeks a declaratory judgment declaring that NLB does not make, use or sell, and has not made, used or sold in the United States or elsewhere any product which infringes any valid or enforceable claim of the '845 Patent and the '905 Patent, either directly or indirectly, or contributorily, and has not induced any other to infringe the '845 Patent and the '905 Patent

6. Through legal counsel, John W. Mincy, Jr. has given NLB formal written notice of alleged infringement of the '845 Patent and the '905 Patent by letters dated March 29, 2004 and May 13, 2004, copies of which are attached hereto as Exhibit B. As a result, NLB has a reasonable apprehension that suit will be brought against it by John W. Mincy, Jr. under the '845 Patent and the '905 Patent

7. An actual controversy exists between NLB and John W. Mincy, Jr. with respect to the validity, infringement and enforceability of the '845 Patent and the '905

Patent by at least the formal written notice of alleged infringement of the '845 Patent and the '905 Patent by letters dated March 29, 2004 and May 13, 2004.

DEMAND FOR RELIEF

WHEREFORE, NLB requests the following relief:

A. Enter a judgment or decree declaring that the '845 Patent and the '905 Patent are invalid and unenforceable;

B. Enter a judgment or decree declaring that the '845 Patent and the '905 Patent are not infringed by any products currently or previously made, used, or sold by NLB.

C. Enter a judgment or decree that it is the right of NLB and any buyers, sellers, or users of NLB, to continue to make, use, and sell such products, without any threat or other interference whatsoever against them by John W. Mincy, Jr. or any person or entity in privity with John W. Mincy, Jr., based on or arising out of the ownership of the '845 Patent and the '905 Patent or any interest herein;

D. Enjoining John W. Mincy, Jr. and any person or entity in privity with him from prosecuting or bringing or threatening to bring any action against NLB or any buyers, sellers, or users of NLB products for the manufacture, sale, or use of technology covered the '845 Patent and the '905 Patent.

E. Award NLB its reasonable cost, expenses and attorney fees in this action, this being an exceptional case; and

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F. Award NLB such other and further relief as this Court may deem just and equitable.

CARLSON, GASKEY & OLDS, P.C.

By: _____

Theodore W. Olds (P42004)
Anthony P. Cho (P46910)
400 W. Maple, Suite 350
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Dated: May 14, 2004

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A-

US005638845A

United States Patent [19]

Oliver et al.

[11] Patent Number: 5,638,845

[45] Date of Patent: Jun. 17, 1997

[54] SCISSOR JET CLEANING DEVICE

[76] Inventors: Michael A. Oliver, 12643 Potter Tract Rd., Grand Bay, Ala. 36605; John W. Mincy, P.O. Box 81692, Mobile, Ala. 36608

[21] Appl. No.: 555,165

[22] Filed: Nov. 8, 1995

[51] Int. Cl.[6] B08B 3/02; B08B 9/093

[52] U.S. Cl. ..... 134/167 R; 239/227; 239/265

[58] Field of Search ..... 134/167 R, 168 R; 118/306, 317; 239/227, 261, 265

[56] References Cited

U.S. PATENT DOCUMENTS

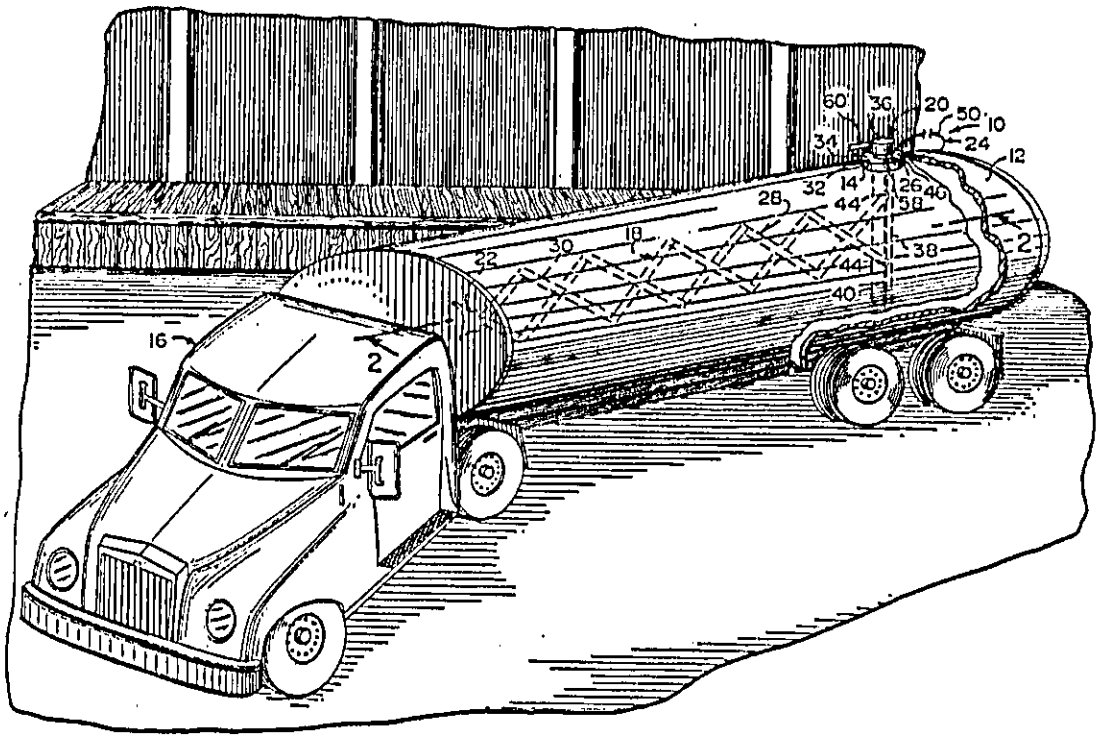
4,163,455	8/1979	Hebert et al.	134/167 R
4,428,985	1/1984	Bertolazzi	118/306 X
5,107,879	4/1992	Harvey	134/167 R
5,352,298	10/1994	Moulder	134/168 R X
5,392,798	2/1995	Hirose et al.	134/167 R
5,518,553	5/1996	Moulder	134/167 R X

Primary Examiner—Philip R. Coe
Attorney, Agent, or Firm—Michael I. Kroll

[57] ABSTRACT

A scissor jet cleaning device (10) for cleaning the interior of a tank (12) through a dome (14) on the tank (12) of a tanker (16). The device (10) comprises a support arm (18) that is adjustable in length. An assembly (20) is mounted to the dome (14) and is connected to a first side of the support arm (18), for extending and retracting the support arm (18) within the tank (12). A double spray nozzle head (22) is mounted in a rotatable manner to a second side of the support arm (18). A facility (24) is for fluidly connecting the double spray nozzle head (22) to pressurized cleaning fluid, so as to clean the interior of the tank (12). A structure (26) is connected to the extending and retracting assembly (20), for rotating the support arm (18) in its retracted position 180 degrees, so that the double spray nozzle head (22) can clean the interior of the tank (12) in an opposite direction.

19 Claims, 3 Drawing Sheets



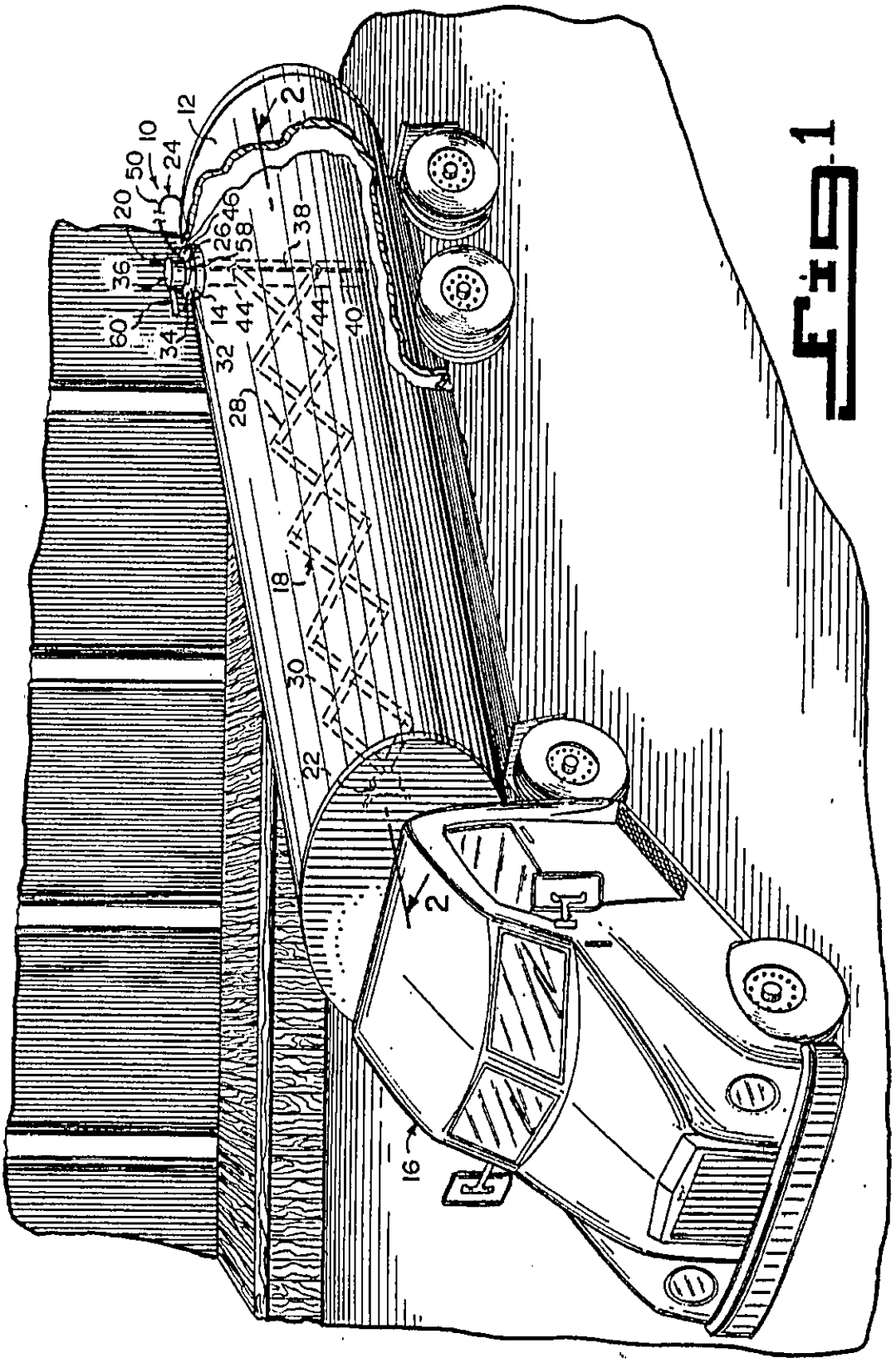


Fig. 1

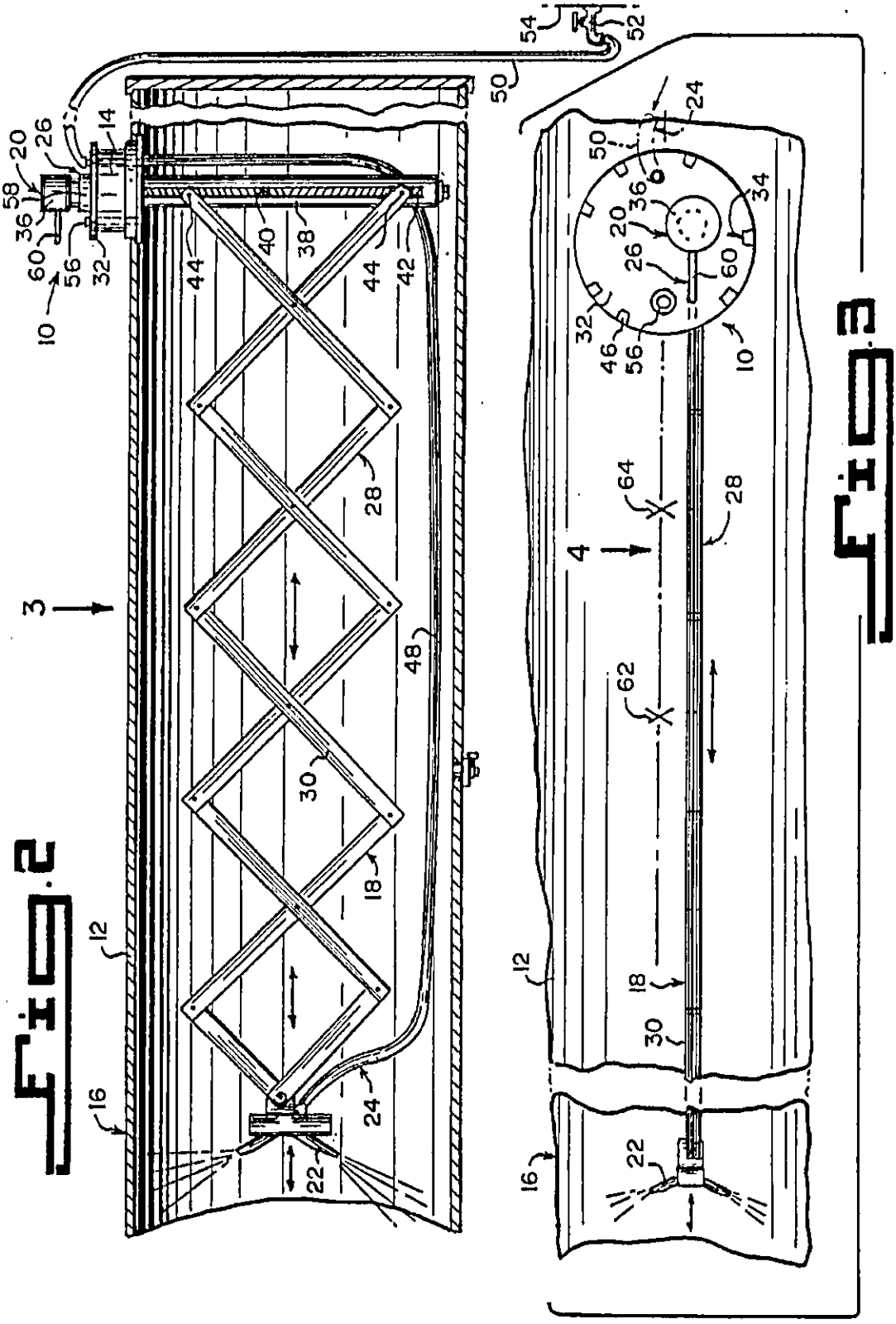

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Fig. 2

Fig. 3

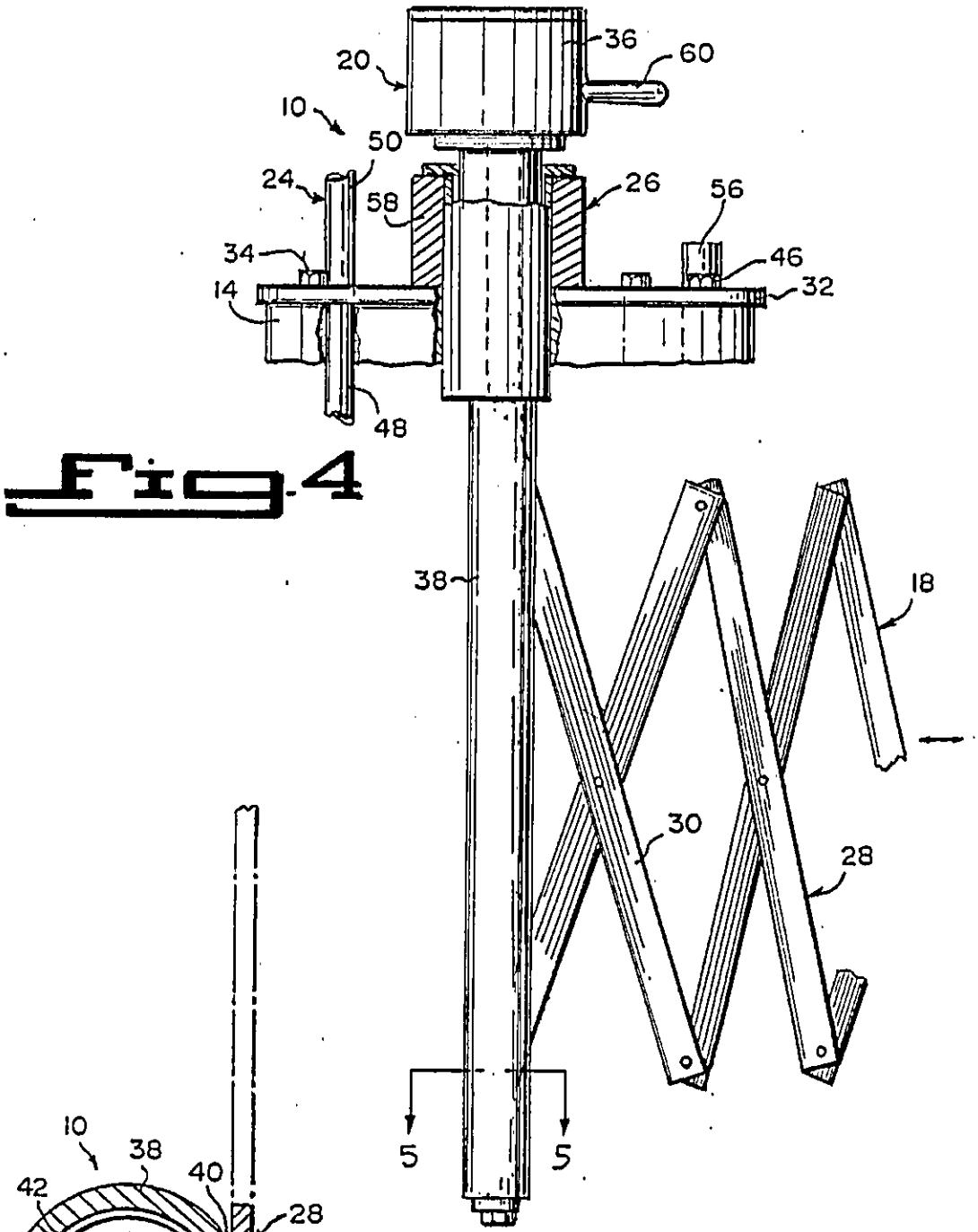
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Fig. 4

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Fig. 5

SCISSOR JET CLEANING DEVICE

BACKGROUND OF THE INVENTION

1. Field of the Invention

The instant invention relates generally to spray wash apparatuses and more specifically it relates to a scissor jet cleaning device.

2. Description of the Prior Art

Numerous spray wash apparatuses have been provided in prior art that are adapted to remove dirt and grime from various articles with water pressure. While these units may be suitable for the particular purpose to which they address, they would not be as suitable for the purposes of the present invention as heretofore described.

SUMMARY OF THE INVENTION

A primary object of the present invention is to provide a scissor jet cleaning device that will overcome the shortcomings of the prior art devices.

Another object is to provide a scissor jet cleaning device that allows safe cleaning, using any cleaning agent or combination of cleaning agents and abrasives, while using a liquid at high pressure or high volume or combination of both to clean tank interiors.

An additional object is to provide a scissor jet cleaning device that operates in the tank interiors of all types of rail cars and transport tankers, so that the entry of a person through the domes to clean the tanks is eliminated.

A further object is to provide a scissor jet cleaning device that is simple and easy to use.

A still further object is to provide a scissor jet cleaning device that is economical in cost to manufacture.

Further objects of the invention will appear as the description proceeds.

To the accomplishment of the above and related objects, this invention may be embodied in the form illustrated in the accompanying drawings, attention being called to the fact, however, that the drawings are illustrative only, and that changes may be made in the specific construction illustrated and described within the scope of the appended claims.

BRIEF DESCRIPTION OF THE DRAWING FIGURES

Various other objects, features and attendant advantages of the present invention will become more fully appreciated as the same becomes better understood when considered in conjunction with the accompanying drawings, in which like reference characters designate the same or similar parts throughout the several views, and wherein;

FIG. 1 is a perspective view with parts broken away, showing the instant invention installed within a tanker truck.

FIG. 2 is a cross sectional view taken along line 2—2 in FIG. 1.

FIG. 3 is a diagrammatic top view with parts broken away, taken in the direction of arrow 3 in FIG. 2.

FIG. 4 is an enlarged elevational view with parts broken away and in section, taken in the direction of arrow 4 in FIG. 3.

FIG. 5 is an enlarged cross sectional view taken along line 5—5 in FIG. 4.

Similar reference characters denote corresponding features consistently throughout the attached drawings.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Turning now descriptively to the drawings, in which similar reference characters denote similar elements

throughout the several views, FIGS. 1 through 5 illustrate a scissor jet cleaning device 10 for cleaning the interior of a tank 12 through a dome 14 on the tank 12 of a tanker 16. The device 10 comprises a support arm 18 that is adjustable in length. An assembly 20 is mounted to the dome 14 and is connected to a first side of the support arm 18, for extending and retracting the support arm 18 within the tank 12.

A double spray nozzle head 22 is mounted in a rotatable manner to a second side of the support arm 18. A facility 24 is for fluidly connecting the double spray nozzle head 22 to pressurized cleaning fluid, so as to clean the interior of the tank 12. A structure 26 is connected to the extending and retracting assembly 20, for rotating the support arm 18 in its retracted position 180 degrees, so that the double spray nozzle head 22 can clean the interior of the tank 12 in an opposite direction.

The support arm 18 is a lazy tongs configuration 28. The lazy tongs configuration 28 includes a plurality of jointed extendable bars 30 that are disposed between the extending and retracting assembly 20 and the double spray nozzle head 22.

The extending and retracting assembly 20 consists of a dome cover plate 32. Components 34 are for fastening the dome cover plate 32 to the dome 14 of the tank 12. A reversible motor 36 is positioned over the dome cover plate 32. A cylindrical casing 38 is provided, having an elongated vertical slot 40. The cylindrical casing 38 is affixed to the reversible motor 36 and extends downwardly therefrom through the dome cover plate 32.

A left and right threaded worm drive shaft 42 extends downwardly in the cylindrical casing 38 and is driven by the reversible motor 36. A pair of followers 44 on the first side of the support arm 18 ride within the vertical slot 40 in the cylindrical casing 38. The followers 44 can be moved towards and away from each other, depending upon direction of rotation by the left and right threaded worm drive shaft 42 that engages with the followers 44. The fastening components 34 are a plurality of bolts 46, which are radially threaded into the dome cover plate 32 adjacent to and about the circumference of the dome cover plate 22 and then into the dome 14 of the tank 12.

The fluidly connecting facility 24 contains a first hose line 48 extending between the double spray nozzle head 22 and the dome cover plate 32. A second hose line 50 extends between the dome cover plate 32 and a faucet 52 on a container 54 holding the pressurized cleaning fluid therein. When the faucet 52 is opened, the pressurized cleaning fluid will flow out of the container 54 to the double spray nozzle head 22. A vent pipe 56 extends through the dome cover plate 32, so as to vent out air from the interior of the tank 12.

The rotating structure 26 includes a thrust bearing 58 mounted through the dome cover plate 32, to allow a top portion of the cylindrical casing 38 to rotate thereabout. A handle pointer 60 extends from one side of the reversible motor 36 in the same direction as the support arm 18 within the tank 12. A hand of a person can grip the handle pointer 60 and move the reversible motor 36, to properly position the support arm 18 within the tank 12.

The thrust bearing 58 is mounted offset from the center in the dome cover plate 32, to allow the support arm 18 to bypass a valve stem 62 and blow leg 64 inside the tank 12 of the tanker 16, shown diagramatically in FIG. 3. The reversible motor 36 could be a hydraulic operated type motor.

The reversible motor 36 could also be an electrical operated type motor. The tank 16 can be a transport tanker,

as shown in FIG. 1. The tanker 16 can also be a rail car, not shown in the drawings.

It will be understood that each of the elements described above, or two or more together may also find a useful application in other types of methods differing from the type described above.

While certain novel features of this invention have been shown and described are pointed out in the annexed claims, it is not intended to be limited to the details above, since it will be understood that various omissions, modifications, substitutions and changes in the forms and details of the device illustrated and in its operation can be made by those skilled in the art without departing in any way from the spirit of the present invention.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can, by applying current knowledge, readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention.

What is claimed is new and desired to be protected by Letters Patent is set forth in the appended claims:

1. A scissor jet cleaning device for cleaning the interior of a tank through a dome on the tank of a tanker, said device comprising:

a) a support arm that is adjustable in length;

b) means mounted to the dome and connected to a first side of said support arm, for extending and retracting said support arm within the tank;

c) a double spray nozzle head mounted in a rotatable manner to a second side of said support arm;

d) means for fluidly connecting said double spray nozzle head to pressurized cleaning fluid, so as to clean the interior of the tank; and

e) means connected to said extending and retracting means, for rotating said support arm in its retracted position 180 degrees, so that said double spray nozzle head can clean the interior of the tank in all directions.

2. A scissor jet cleaning device as recited in claim 1, wherein said support arm is a lazy tongs configuration.

3. A scissor jet cleaning device as recited in claim 2, wherein said lazy tongs configuration includes a plurality of jointed extendable bars that are disposed between said extending and retracting means and said double spray nozzle head.

4. A scissor jet cleaning device as recited in claim 3, wherein said extending and retracting means includes:

a) a dome cover plate;

b) means for fastening said dome cover plate to the dome of the tank;

c) a reversible motor positioned over said dome cover plate;

d) a cylindrical casing having an elongated vertical slot, said cylindrical casing is affixed to said reversible motor and extends downwardly therefrom through said dome cover plate;

e) a left and right threaded worm drive shaft which extends downwardly in said cylindrical casing and driven by said reversible motor; and

f) a pair of followers on the first side of said support arm that ride within the vertical slot in said cylindrical casing, said followers can be moved towards and away from each other depending upon direction of rotation by said left and right threaded worm drive shaft that engages with said followers.

5. A scissor jet cleaning device as recited in claim 4, wherein said fastening means includes a plurality of bolts which are radially threaded into said dome cover plate adjacent to and about the circumference of said dome cover plate and then into the dome of the tank.

6. A scissor jet cleaning device as recited in claim 5, wherein said fluidly connecting means includes:

a) a first hose line extending between said double spray nozzle head and said dome cover plate; and

b) a second hose line extending between the dome cover plate and a faucet on a container holding the pressurized cleaning fluid therein, so that when the faucet is opened, the pressurized cleaning fluid will flow out of the container to said double spray nozzle head.

7. A scissor jet cleaning device as recited in claim 6, further including a vent pipe extending through said dome cover plate, so as to vent out air from the interior of the tank.

8. A scissor jet cleaning device as recited in claim 7, wherein said rotating means includes:

a) a thrust bearing mounted through said dome cover plate, to allow a top portion of said cylindrical casing to rotate thereabout; and

b) a handle pointer extending from one side of said reversible motor in the same direction as said support arm within the tank, so that a hand of a person can grip said handle pointer and move said reversible motor to properly position said support arm within the tank.

9. A scissor jet cleaning device as recited in claim 8, wherein said thrust bearing is mounted offset from the center in said dome cover plate, to allow said support arm to bypass a valve stem and blow leg inside the tank of the tanker.

10. A scissor jet cleaning device as recited in claim 9, wherein said reversible motor is a hydraulic operated type motor.

11. A scissor jet cleaning device as recited in claim 9, wherein said reversible motor is an electrical operated type motor.

12. A scissor jet cleaning device as recited in claim 1, wherein said extending and retracting means includes:

a) a dome cover plate;

b) means for fastening said dome cover plate to the dome of the tank;

c) a reversible motor positioned over said dome cover plate;

d) a cylindrical casing having an elongated vertical slot, said cylindrical casing is affixed to said reversible motor and extends downwardly therefrom through said dome cover plate;

e) a left and right threaded worm drive shaft which extends downwardly in said cylindrical casing and driven by said reversible motor; and

f) a pair of followers on a first side of said support arm that ride within the vertical slot in said cylindrical casing, said followers can be moved towards and away from each other depending upon direction of rotation by said left and right threaded worm drive shaft that engages with said followers.

13. A scissor jet cleaning device as recited in claim 12, wherein said fastening means includes a plurality of bolts which are radially threaded into said dome cover plate adjacent to and about the circumference of said dome cover plate and then into the dome of the tank.

14. A scissor jet cleaning device as recited in claim 12, further including a vent pipe extending through said dome cover plate, so as to vent out air from the interior of the tank.

15. A scissor jet cleaning device as recited in claim 13, wherein said rotating means includes:

a) a thrust bearing mounted through said dome cover plate, to allow a top portion of said cylindrical casing to rotate thereabout; and

b) a handle pointer extending from one side of said reversible motor in the same direction as said support arm within the tank, so that a hand of a person can grip said handle pointer and move said reversible motor to properly position said support arm within the tank.

16. A scissor jet cleaning device as recited in claim 15, wherein said thrust bearing is mounted offset from the center in said dome cover plate, to allow said support arm to bypass a valve stem and blow leg inside the tank of the tanker.

17. A scissor jet cleaning device as recited in claim 12, wherein said reversible motor is a hydraulic operated type motor.

18. A scissor jet cleaning device as recited in claim 12, wherein said reversible motor is an electrical operated type motor.

19. A scissor jet cleaning device as recited in claim 1, wherein said fluidly connecting means includes;

a) a dome cover plate;

b) a first hose line extending between said double spray nozzle head and said dome cover plate; and

c) a second hose line extending between the dome cover plate and a faucet on a container holding the pressurized cleaning fluid therein, so that when the faucet is opened, the pressurized cleaning fluid will flow out of the container to said double spray nozzle head.

* * * * *

US006192905B1

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

(10) Patent No.: **US 6,192,905 B1**
(45) Date of Patent: **Feb. 27, 2001**

(54) SCISSOR JET CLEANING DEVICE WITH HOSE MANAGEMENT SYSTEM

(75) Inventors: John Wade Mincy; John Wayne Mincy, both of Mobile, AL (US)

(73) Assignee: John W. Mincy, Mobile, AL (US)

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

(21) Appl. No.: 09/325,807

(22) Filed: Jun. 4, 1999

(51) Int. Cl.[7] B08B 3/02; B08B 9/093

(52) U.S. Cl. ..... 134/167 R; 239/227; 239/265

(58) Field of Search ..... 134/167 R, 168 R; 118/306, 317; 239/227, 261, 265

(56) References Cited

U.S. PATENT DOCUMENTS

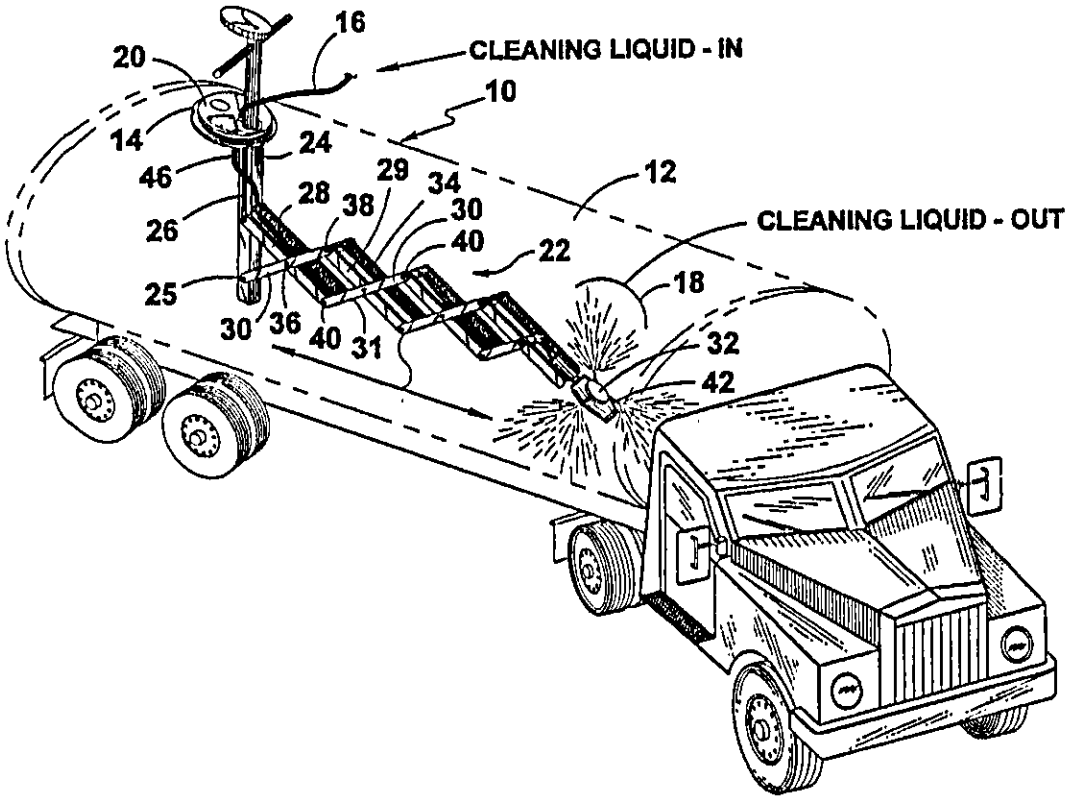
4,163,455	8/1979	Hebert et al.	134/167 R
4,428,985	1/1984	Bertolazzi	118/306 X
5,107,879	4/1992	Harvey	134/167 R
5,352,298	10/1994	Moulder	134/168 R X
5,392,798	2/1995	Hirose et al.	134/167 R
5,518,553	5/1996	Moulder	134/167 R X
5,638,845	6/1997	Oliver et al.	134/167 R

Primary Examiner—Philip R. Coe
(74) *Attorney, Agent, or Firm*—Michael Kroll

(57) ABSTRACT

The present invention 10 discloses an improved device for cleaning the inside of vessels 12 which could include truck tankers or rail car tankers. The present invention discloses a generally vertically standing rotatable support member 24 having mounted thereon a parallel pair of lazy tong assemblies or configurations 22 being a series of jointed and pivoted bars or arms, e.g., 28, capable of being extended over a great distance. Mounted on the distal end of the lazy tong assembly 22 is a spray head 32 having multiple spray outlets 42 and being fluidly connected to a supply of cleaning liquid 18 located on the outside of the vessel 12 which is being cleaned. The fluid connecting means comprises a hose 16, 46 along with connecting members being either a rod or a milled shaft 52 having a pair of pivotal centrally located collars 54 having connection means 50 for a hose on each collar 54 and a conduit 68 within the milled shaft 52 creating a passageway between the collars 54 forming a fluid connection from one collar to the next and the spray head 32.

14 Claims, 7 Drawing Sheets



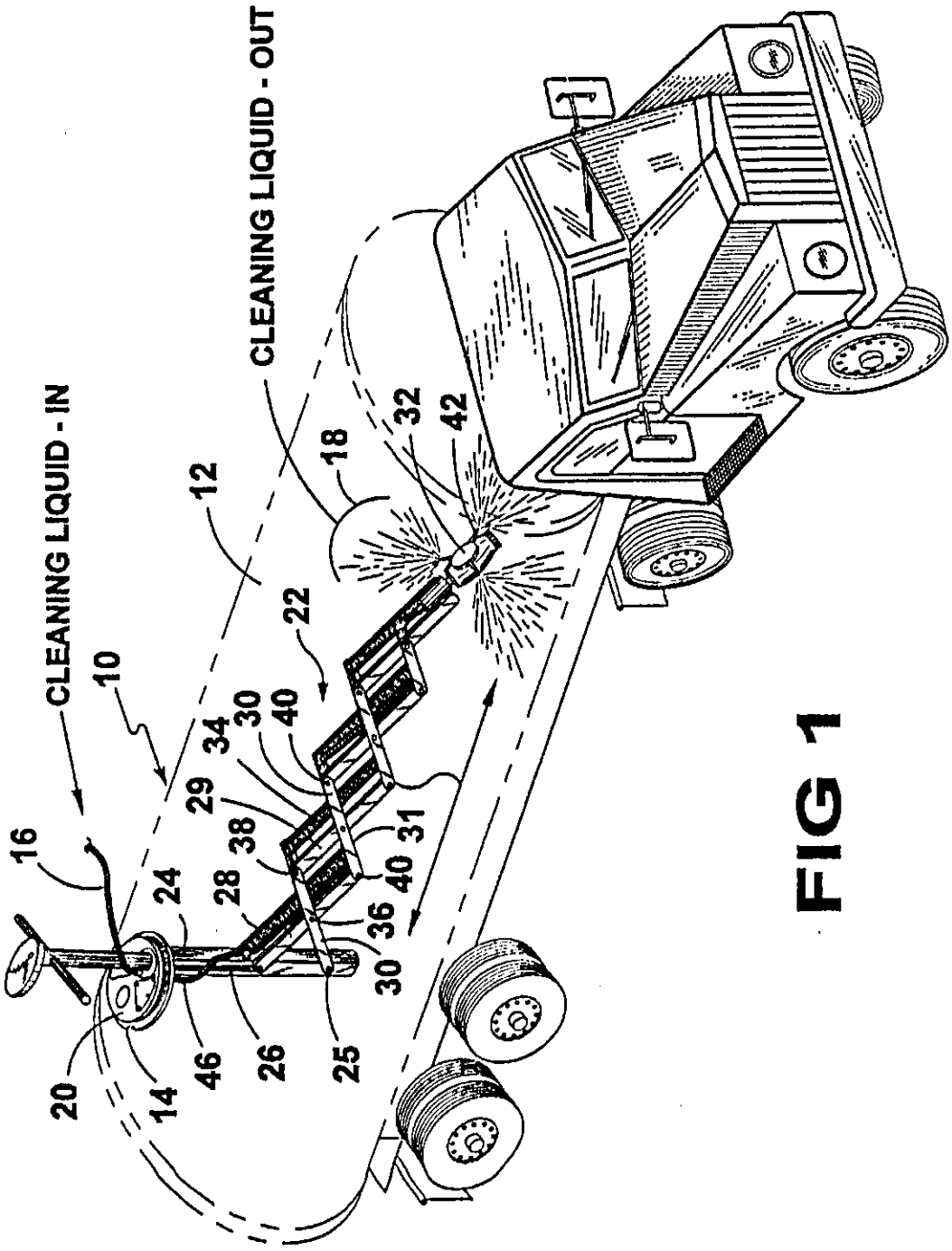

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FIG 1

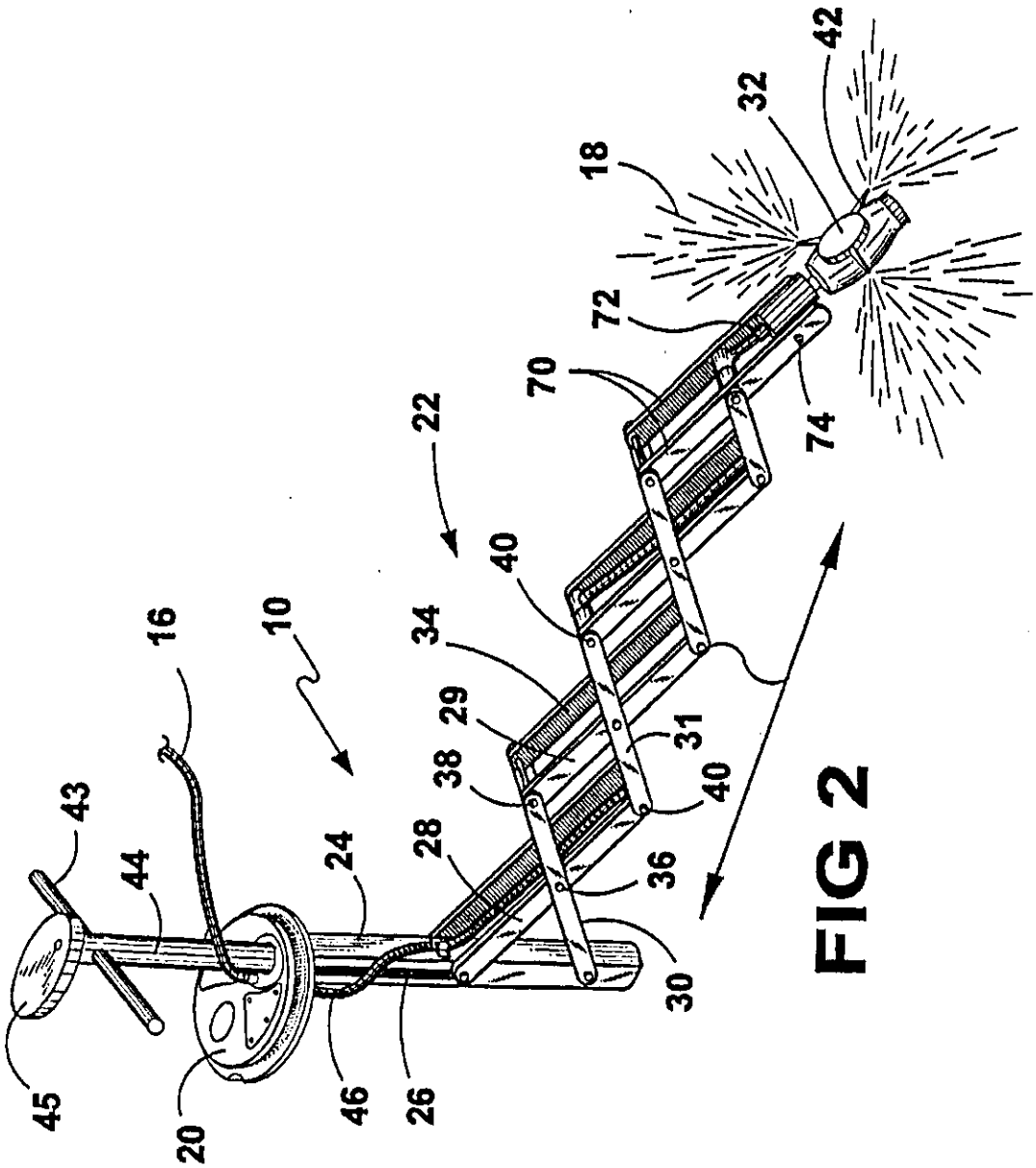
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FIG 2

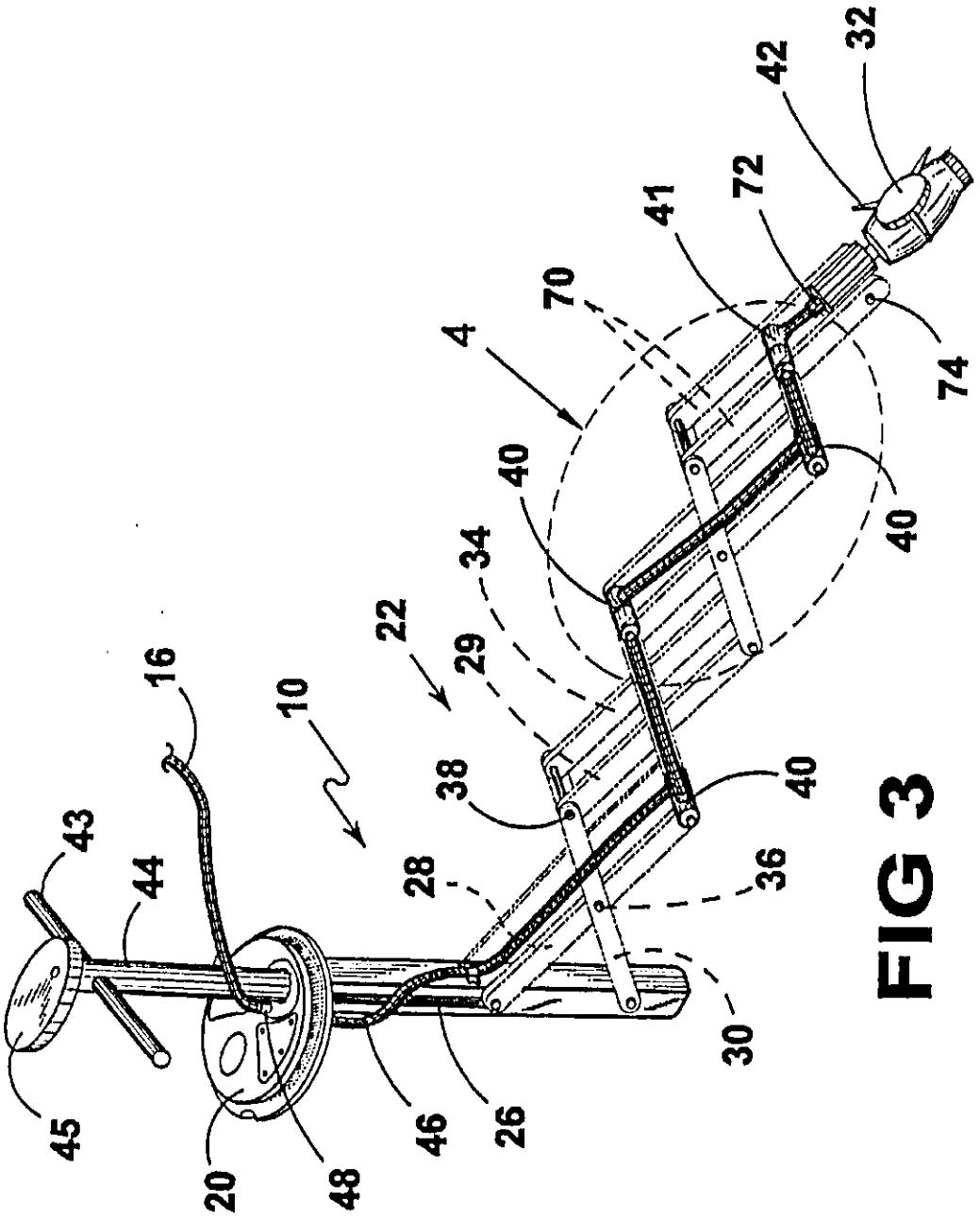
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FIG 3

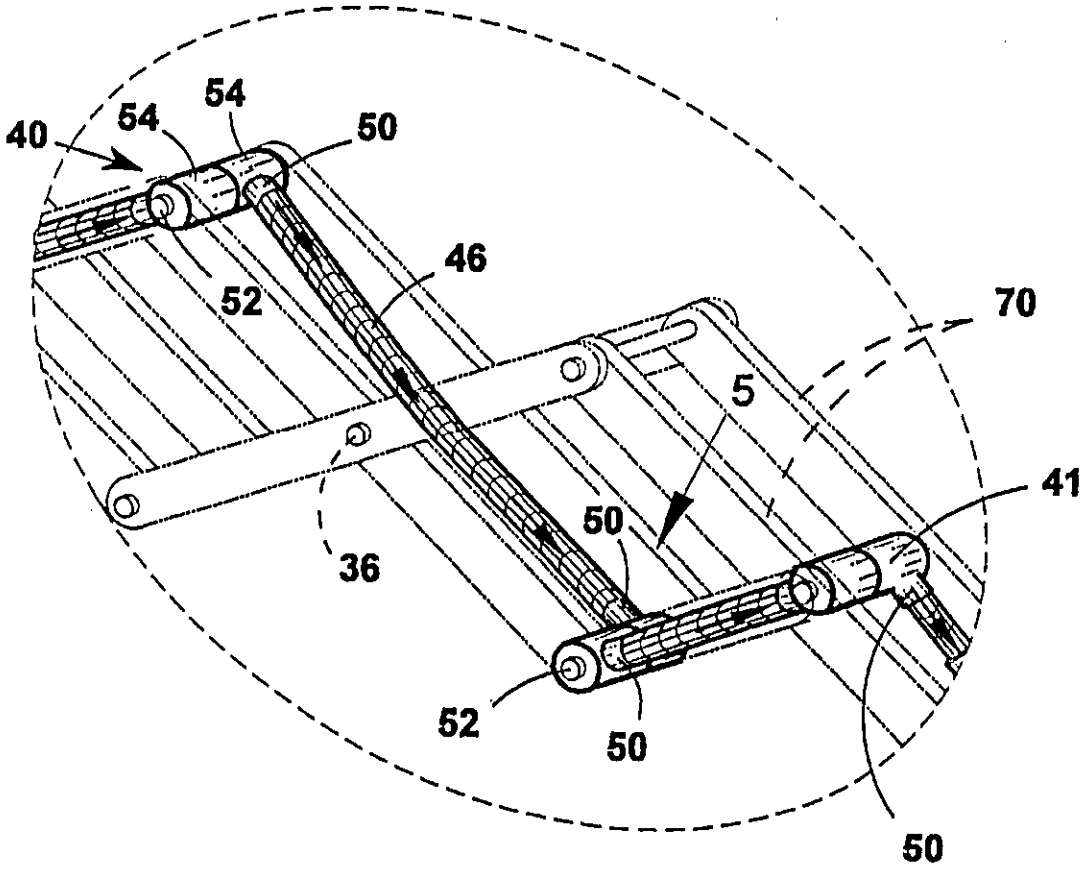


FIG 4

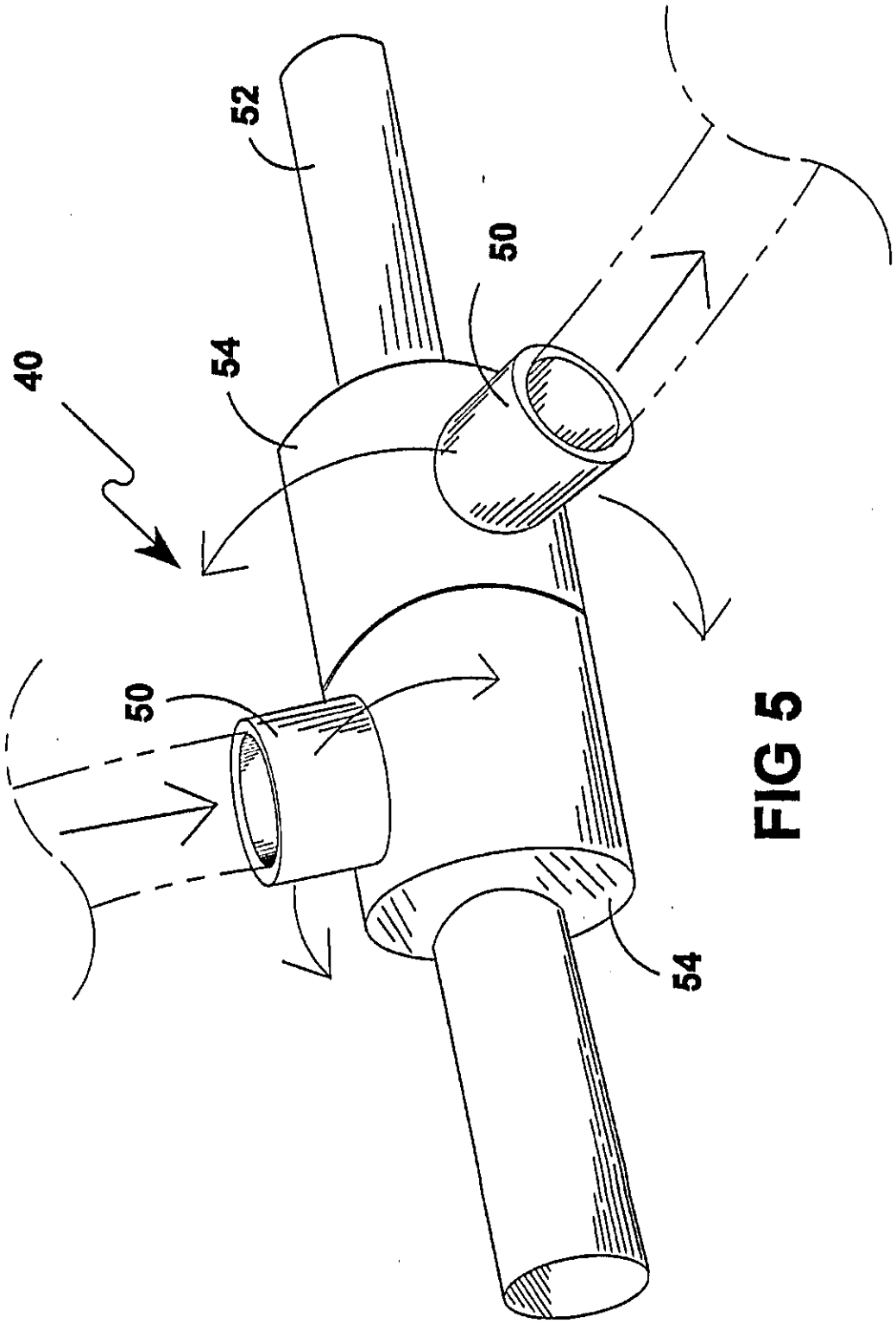


FIG 5

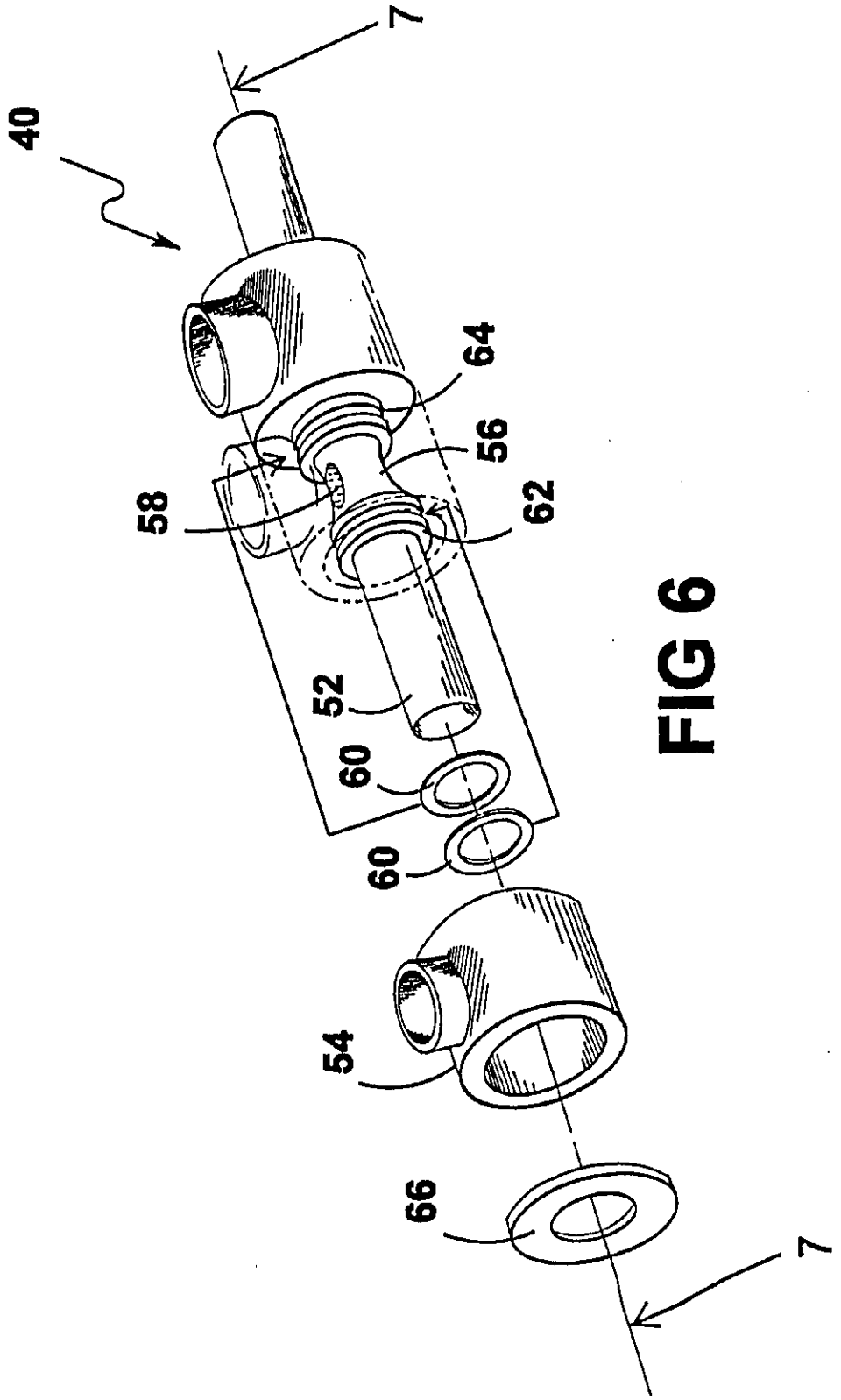


FIG 6

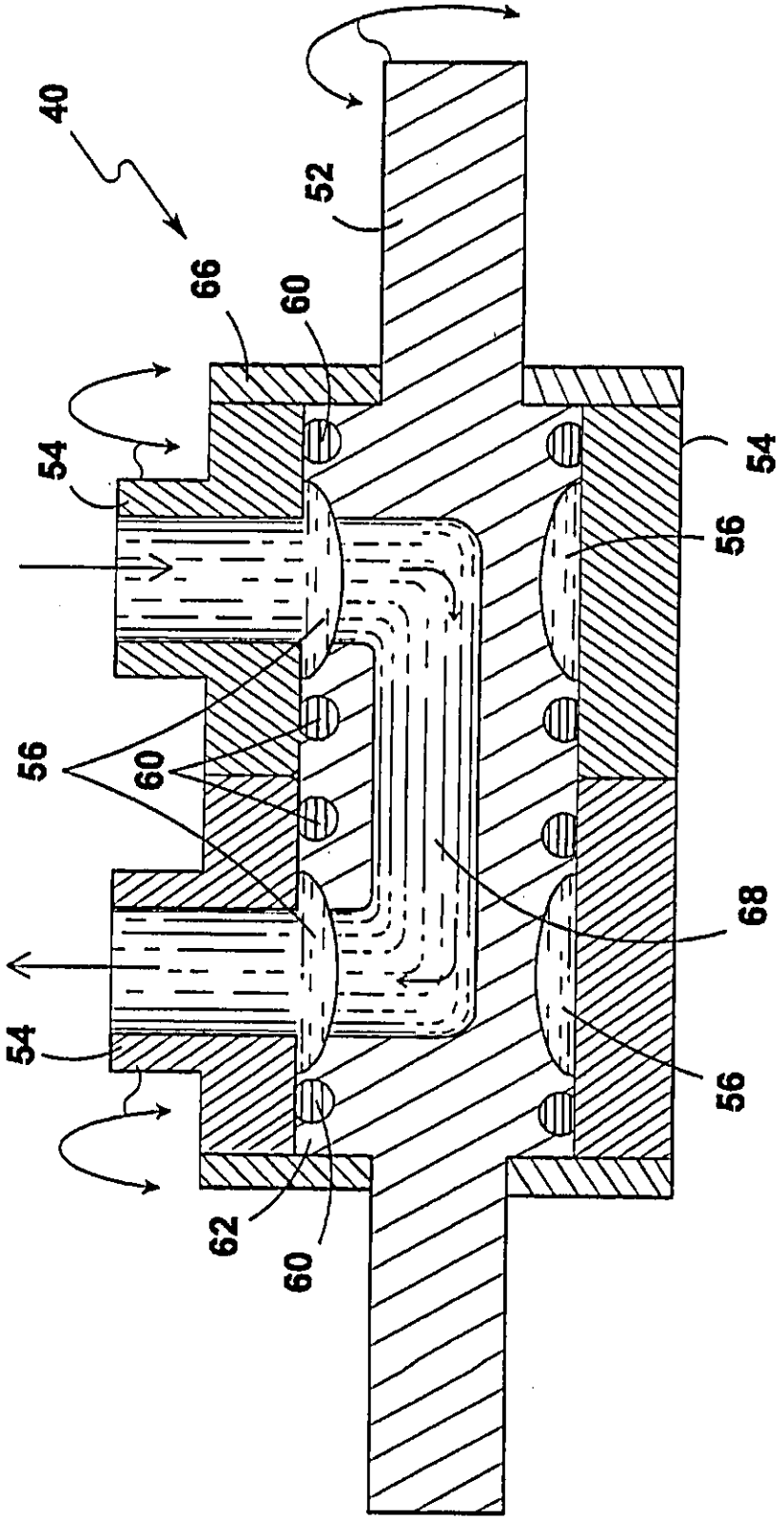


FIG 7

SCISSOR JET CLEANING DEVICE WITH HOSE MANAGEMENT SYSTEM

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to internal extendable devices and, more specifically, to a device which connects to any vessel having an access cover with fasteners wherein said device comprises a cover which is fastened over the vessel access port thereby sealing said access port and wherein said cover has rotatable means for connecting an external hose to a hose management system consisting of one or more scissor-like device(s) composed of a plurality of connected paired members each paired member being pivotally connected at their midpoints and having an oppositely opposed paired member whereby each paired member is connected at each distal end to another paired member and to the oppositely opposed paired member by a connecting member. Said connecting member being either a rod or a milled shaft having pivotal centrally located collars having connection means for a hose on each collar and a conduit within the milled shaft creating a passageway between the collars for the transference of a fluid from one collar to the next.

The present invention comprises a lazy tong assembly which includes a plurality of jointed extendable arms or bars that are disposed between a vertically standing support member and a spray head. The lazy tong assembly is a paired assembly with the tong arms connected intermediately by pivoting means further having the individual arm members pivotally connected at their ends. Each arm has a closely positioned matching parallel arm connected by pivoting means to form a parallel paired assembly.

Each paired member consists of a first member and a second member constructed of a length of round or bar stock, preferably bar stock. The first paired member and its oppositely opposed paired member form a segment in the scissor-like device. The first segment of said device is connected at one distal end to a shaft having means for increasing or decreasing the distance between the distal ends of the first and second members. The other distal ends of said first segment has connection means consisting of bar stock or milled stock. For the purposes of this description the oppositely opposed distal ends of the first and second members of the first segment will be assigned a specific connecting member but it is to be understood that they could be reversed.

The first member of the first segment has an oppositely opposed first member. Both are connected to distal ends of a shaft whereupon the oppositely opposed first members of the second segment are also attached. Said shaft acting as connection means between segments, a bearing for pivotal movement and as a spacer between the oppositely opposed first members.

The second member of the first segment has an oppositely opposed second member. Both are connected to distal ends of a milled shaft whereupon the oppositely opposed second members of the second segment are also attached. Said milled shaft acting as connection means between segments, a bearing for pivotal movement and as a spacer between the oppositely opposed second members. Said milled shaft further having two independent centrally located collars each having connection means for attaching a hose thereto and said milled shaft having a conduit within said shaft between the collars providing means for fluid transference from one collar to the other.

The scissor-like device is comprised of a plurality of segments having consistent connection means between the segments, oppositely opposed first members being attached to distal ends of a shaft acting as a bearing, a spacer and as connection means for the next segments first members, and oppositely opposed second members being attached to distal ends of a milled shaft acting as a bearing, a spacer, and as connection means for the next segments second members. Further said milled shaft having centrally located collars having means for connecting a hose. One collar acting as the hose terminus point for the segment and the other collar acting as the source for the hose connection of the next segment until at the terminus of the scissor-like device the first and second members converge to a milled shaft having one collar serving as the terminus of the hose connections and the other collar serving as the connection means for a device having one or more nozzles.

2. Description of the Prior Art

There are other extendable spraying apparatus designed for the cleaning and coating of large vessels such as railroad tanker cars and ship holds. Typical of these is U.S. Pat. No. 4,163,455 issued to Herbert et al. on Aug. 7, 1979.

Another patent was issued to Bertolazzi on Jan. 31, 1984 as U.S. Pat. No. 4,428,985. Yet another U.S. Pat. No. 5,107,879 was issued to Harvey on Apr. 28, 1992 and still yet another was issued on Oct. 4, 1994 to Moulder as U.S. Pat. No. 5,352,298. Another patent was issued to Hirose on Feb. 28, 1995 as U.S. Pat. No. 5,392,798. Yet another U.S. Pat. No. 5,518,553 was issued to Moulder on May 21, 1996 and still yet another was issued on Jun. 17, 1997 to Oliver et al. as U.S. Pat. No. 5,638,845.

The present invention is an improvement over the prior art as disclosed in U.S. Pat. No. 5,638,845 of which one of the co-applicants was a co-inventor.

U.S. Pat. No. 4,163,455

Inventor: Chris J. Herbert et al.

Issued: Aug. 7, 1979

An apparatus for cleaning cargo or tanker holds of ships is provided having a central support axle extending from the hold floor to the ship deck and on which is a trolley assembly having adjustable spray nozzles which trolley can travel vertically, as well as, rotationally about the support axle.

U.S. Pat. No. 4,428,985

Inventor: Luciano F. Bertolazzi

Issued: Jan. 31, 1984

A method of applying a coating to the inside surface of a double-curved shell circular in horizontal section. Apparatus having a work platform for coating equipment is positioned in the shell. The work platform is displaceable on extendable and retractable legs so that it can move vertically and horizontally so as to be positioned adjacent the shell. As the apparatus is rotated about its vertical axis a coating is applied from the work platform to the shell surface as a horizontal band extending circumferentially around the shell surface. By extending or retracting the legs, the work platform can be positioned adjacent an area of the shell surface which has not been coated and that area coated as described.

U.S. Pat. No. 5,107,879

Inventor: Charles D. Harvey

Issued: Apr. 28, 1992

Tank car cleaning apparatus mountable on a tank car hatch and movable within the car to clean its interior, the apparatus

includes a rotatable mast with a movable arm connected thereto having a high pressure liquid nozzle mounted at its end for applying liquid under pressure to the car's interior to clean it, the arm movable from outside the car into its interior, and in one aspect, the nozzle itself articulable through an arc.

U.S. Pat. No. 5,352,298

Inventor: Jeffrey E. Moulder

Issued: Oct. 4, 1994

An improved apparatus and method for cleaning and stripping residue, contaminants, debris, etc. from all of the interior spaces in a railway tank car and the like. The present invention may be conventionally lowered into a tank car through its manway and, after quick assembly thereof, pneumatically configured to accommodate the physical dimensions of the tank car, and then be preset for automatic cleaning and/or stripping operation. A means is provided which inherently coordinates and synchronizes the cleaning and stripping of virtually every internal surface contained in a tank car. The preferred embodiment comprises a X-frame assembly having a pair of corresponding X-members which are attached by an axle disposed therebetween. Pivotally attached to this X-frame assembly is a swivel support assembly which receives a K-frame assembly comprising a plurality of arm means, linkage means and spray means spraying all of the interior surfaces of a tank car.

U.S. Pat. No. 5,392,798

Inventor: Susumi Hirose et al.

Issued: Feb. 28, 1995

A pair of expansion links each having a rotary jet nozzle are respectively expanded in the opposite two directions in synchronism with each other within a tank. With these link mechanisms capable of expansion and contraction, the link arms forming the links can be closed until the link arms are parallely adjoined to one another. The link mechanisms are driven by a driving shaft from outside the tank. The inner surface of the tank is scanned with streams of water sprayed from the nozzles along with the expansion of the expansion links thereby cleaning the inner surface of the tank.

U.S. Pat. No. 5,518,553

Inventor: Jeffrey E. Moulder

Issued: May 21, 1996

An improved apparatus and method for cleaning and stripping residue, contaminants, and debris from all of the interior surfaces in a storage tank and the like. The present invention may be conveniently inserted into a tank through its manway and after quick assembly thereof, hydraulically positioned vertically and then maneuvered and articulated to clean and strip interior storage tank surfaces. A means is provided which inherently coordinates and synchronizes hydraulically driven rotation of the vertical pole on the tank floor with the hydraulically driven rotation of a spray bar disposed at the remote end of a boon assembly. Close proximity of the spray to the surfaces is controlled by hydraulically operated cylinders contained on a rotor assembly.

U.S. Pat. No. 5,638,845

Inventors: Michael A. Oliver et al.

J. Wade Mincy

Issued: Jun. 17, 1997

A scissor jet cleaning device (10) for cleaning the interior of a tank(12) through a dome (14) on the tank (12) of a

tanker (16). The device (10) comprises a support arm (18) that is adjustable in length. An assembly (20) is mounted to the dome (14) and is connected to a first side of the support arm (18), for extending and retracting the support arm (18) within the tank (12). A double spray nozzle head (22) is mounted in a rotatable manner to a second side of the support arm (18). A facility (24) is for fluidly connecting the double spray nozzle head (22) to pressurized cleaning fluid, so as to clean the interior of the tank (12). a structure (26) is connected to the extending and retracting assembly (20), for rotating the support arm (18) in its retracted position 180 degrees, so that the double spray nozzle head (22) can clean the interior of the tank (12) in an opposite direction.

While these internal extendable devices may be suitable for the purposes for which they were designed, they would not be as suitable for the purposes of the present invention, as hereinafter described.

SUMMARY OF THE PRESENT INVENTION

The present invention discloses an improved device for cleaning the inside of vessels which could include truck tankers or rail car tankers. The present invention discloses a generally vertically standing rotatable support member having mounted thereon a parallel pair of lazy tong assemblies or configurations being a series of jointed and pivoted bars or arms capable of being extended over a great distance. Mounted on the distal end of the lazy tong assembly is a spray head having multiple spray outlets and being fluidly connected to a supply of cleaning liquid located on the outside of the vessel which is being cleaned. The fluid connecting means comprises a hose along with connecting members being either a rod or a milled shaft having, a pair of pivotal centrally located collars having connection means for a hose on each collar and a conduit within the milled shaft creating a passageway between the collars forming a fluid connection from one collar to the next and the spray head.

A primary object of the present invention is to provide a device which seals to a vessel having an access port wherein said device has a cover having rotatable means for connecting an external hose and rotatable connection means for manipulating a hose management system comprising one or more extendable and retractable scissor device(s) having the hose forming an integral part of the extendable members of the device.

Another object of the present invention is to provide a device which seals to a vessel having an access port wherein said device has a cover having rotatable means for connecting an external hose and rotatable connection means for manipulating a hose management system comprising one or more extendable and retractable scissor device(s) having the hose forming an integral part of the extendable members of the device thereby eliminating the need for extending and retracting the hose during the cleaning process.

Yet another object of the present invention is to provide a device which seals to a vessel having an access port wherein said device has a cover having rotatable means for connecting an external hose and rotatable connection means for manipulating a hose management system comprising one or more extendable and retractable scissor device(s) having the hose forming an integral part of the extendable members of the device thereby eliminating the possibility of the hose becoming entangled in the cleaning device.

Additional objects of the present invention will appear as the description proceeds.

The present invention overcomes the shortcomings of the prior art by providing a device which connects to any vessel

having an access cover with fasteners wherein said device comprises an access port sealing cover which is fastened over the vessel access port thereby sealing said access port and wherein said cover has rotatable connection means for attaching an external hose and rotatable control means for extending and retracting an internal hose management system consisting of one or more scissor-like device(s) composed of a plurality of segments wherein each segment has means for connecting a fluid transference conduit forming an integral part of each segment thereby selectively allowing a plurality of segments to be joined to fit the job and eliminating the possibility of the hose becoming entangled in the apparatus and further eliminating the need for extending and retracting the hose during the process.

The foregoing and other objects and advantages will appear from the description to follow. In the description reference is made to the accompanying drawings, which form a part hereof, and in which is shown by way of illustration specific embodiments in which the invention may be practiced. These embodiments will be described in sufficient detail to enable those skilled in the art to practice the invention, and it is to be understood that other embodiments may be utilized and that structural changes may be made without departing from the scope of the invention. In the accompanying drawings, like reference characters designate the same or similar parts throughout the several views.

The following detailed description is, therefore, not to be taken in a limiting sense, and the scope of the present invention is best defined by the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

In order that the invention may be more fully understood, it will now be described, by way of example, with reference to the accompanying drawing in which:

FIG. 1 is a perspective view of one application of the preferred embodiment of the present invention wherein a tanker truck has the device attached to its access port and has a rigid external hose providing a high pressure stream of fluid from an external source connected to the rotatable hose connection means and wherein said device being rotatable and having extendable and retractable segments having fluid transference conduit being an integral part of each segment terminating in a device having one or more nozzles is able to deliver said high pressure fluid to all internal surfaces of the tank;

FIG. 2 is an enlarged view of the preferred embodiment of the present invention. Shown is a device which connects to any vessel having an access cover with fasteners wherein said device comprises a cover which is fastened over the vessel access port thereby sealing said access port and wherein said cover has rotatable means for connecting an external hose to an internal hose management system consisting of one or more scissor-like device(s) having fluid transference fittings and conduit for delivering a continuous supply of fluid to a terminus device having one or more nozzles for dispersing said fluid over all of the internal surfaces and having external means for rotating the device while in the tank, as well as, external means for extending and retracting the scissor-like segments in concert.

FIG. 3 is an enlarged view of the preferred embodiment of the present invention. Shown is a scissor jet cleaning device having external means for rotating the device while in the tank, as well as, external means for extending and retracting the scissor-like segments in concert and external continuous fluid connection means. Also shown are a plurality of extendable retractable segments, shown in outline, having fluid transference fittings and conduit for delivering a continuous supply of cleaning fluid to the terminus device having one or more nozzles for dispersing said cleaning fluid over the surfaces to be cleaned;

FIG. 4 is an enlarged view of one of the scissor-like segments having a first and second member being pivotally connected at their midpoints and having an oppositely opposed paired member wherein the oppositely opposed first members are attached to distal ends of a shaft acting as a bearing, a spacer and as connection means for the next segments first members, and oppositely opposed second members being attached to distal ends of a milled shaft acting as a bearing, a spacer, and as connection means for the next segments second members and said milled shaft having centrally located collars having means for connecting a hose. One collar acting as the hose terminus point for the segment and the other collar acting as the source for the hose connection of the next segment.

FIG. 5 is a perspective view of the milled shaft having centrally located collars providing means for connecting a fluid transference conduit thereto;

FIG. 6 is a partially exploded view of one of the collar members removed from the milled shaft. Shown is a milled shaft having a raised central portion having a milled central cavity having an aperture leading into a conduit providing fluid transference means between the collars. Also shown are two o-rings which are situated on the raised portion of the milled shaft thereby providing sealing means for the conduit. Also shown is a friction washer;

FIG. 7 is cross sectional view, taken from FIG. 6 as indicated, of the milled shaft and collars. Shown is a milled shaft having a raised central portion having a milled central cavity passing circumferentially around said raised portion thereby permitting a cavity for the fluid to travel into therein permitting the collar to be rotated without obstructing fluid flow. Also shown is a conduit within said milled shaft permitting fluid transference between the collars. Also shown is a set of o-rings located on each side of said central cavity providing sealing means between said milled shaft and said cavity.

LIST OF REFERENCE NUMERALS

With regard to the reference numerals used, the following numbering is used throughout the drawings.

10 present invention
12 vessel
14 access port
16 external hose
18 fluid
20 access port cover
22 tong assembly
24 vertical support member
26 internal extension means
28 tong arm
29 tong arm
30 tong arm
31 tong arm
32 spray head
34 parallel tong arm
36 intermediate pivot means
38 pivot means
40 hydraulic pivot means
41 fluid connecting means
42 spray nozzle
43 handle

44 rotatable means
45 external extension means
46 internal hose
48 hose connecting means
50 hose connecting means
52 milled shaft
54 collars
56 cavity
58 aperture
60 O-rings
62 raised central portion
64 o-ring groove
66 friction washer
68 conduit
70 distal arms
72 spray head hose connecting means
74 spray head connecting means

DESCRIPTION OF THE PREFERRED EMBODIMENT(S)

Turning now descriptively to the drawings, in which similar reference characters denote similar elements throughout the several views, FIGS. 1 through 7 illustrate the present invention being a device for cleaning the inside of vessels.

Turning to FIG. 1, therein is shown a perspective view of one application of the preferred embodiment of the present invention generally shown at 10 wherein a tanker truck vessel 12 has the present invention 10 attached internally to its access port 14 having a semi-rigid external hose 16 providing a high-pressure stream of fluid 18 from an external source (not shown) connected to the access port cover 20 and thereafter the hose 46 running through the parallel pair of lazy tong assemblies generally shown at 22 as will be described hereinafter. The lazy tong assembly 22 is mounted on a generally vertically standing support member 24 having elongated rod-like means 26 for vertically moving the first arm or bar 28 of the tong assembly in order to cause the entire lazy tong assembly to be either extended or retracted. Means 26 is connected by pivot means 25 to member 28. The lazy tong assembly 22 includes a plurality of jointed extendable arms or bars, e.g., 28, 29, 30 and 31 and others which are unnumbered, that are disposed between the vertically standing support member 24 and the spray head 32. Note that the lazy tong assembly is a paired assembly with the tong arms, e.g., 28, 29, 30, and 31 connected intermediately by pivoting means 36 further having the individual arm members pivotally connected at the ends 38 and 40. Each arm, e.g., 29, has a closely positioned matching parallel arm, e.g., 34, connected by pivoting means 36, 38 and 40 to form a parallel paired assembly 22. Means 40 is a fluid connecting means being rotatable and has fluid conveyance conduits within being an integral part of each segment. The lazy tong assembly 22 terminates in a spray head device 32 having one or more nozzles 42 which is able to deliver high-pressure fluid 18 to all internal surfaces of the tank or vessel.

Turning to FIG. 2, therein is shown an enlarged view of the preferred embodiment of the present invention 10. Shown therein is a device being the present invention 10 which can be connected to any vessel having an access port and access cover 20 with fastening means to the vessel (not shown) wherein the present invention comprises a cover 20 which is fastened over the vessel access port (not shown) thereby sealing the access port. The cover 20 is further equipped with rotatable means 44 with handle 43 for rotably moving the tong assembly 22. Also shown is an external hose 16 which is connected to an internal hose 46 being an internal hose management system consisting of a pair of scissor-like devices being the lazy tong assemblies having fluid transfer fittings 40 having conduits therein for delivering a continuous supply of fluid 18 to a spray head 32 having nozzles 42 for dispersing fluid 18 over all of the internal surfaces of the vessel and having an external means 44 for rotating the device 22 180 degrees while in its retracted position while in the tank 12. The device also has external means 45 communicating with rod means 26 for extending and retracting the lazy tong assembly having the scissor-like segments therein. The lazy tong assembly 22 includes a plurality of jointed extendible arms or bars, e.g., 28, 29, 30 and 31 and others which are unnumbered, that are disposed between the vertically standing support member 24 and the spray head 32. Note that the lazy tong assembly is a paired assembly with the tong arms, e.g., 28, 29, 30, and 31 connected intermediately by pivoting means 36 further having the individual members pivotally connected at the ends 38 and 40. Each arm, e.g., 29, has a parallel arm, e.g., 34, connected by pivoting means 36, 38 and 40 to form a parallel paired assembly 22. Means 40 is a fluid connecting means being rotatable and has fluid conveyance conduits within being an integral part of each segment terminating in a spray head device 32 having one or more nozzles 42 which is able to deliver high-pressure fluid 18 to all internal surfaces of the tank or vessel. Spray head 32 has means for connection 74 to the distal pair of arms 70.

Turning to FIG. 3, therein is shown an enlarged view of the preferred embodiment of the present invention 10. Shown is the lazy tong assembly generally at 22 having external means for rotating 44 while in the tank as well as external means 45 for being extended and retracted. Also shown is the external hose 16 being connected with the internal hose 46 with connecting means 48. Also shown are a plurality of the extendible retractable segments 28, 29, 30, and 34 shown in outline, having pivot or hinge means 36, 38 and pivot means and fluid transfer fittings and conduits 40 for delivering a continuous supply of cleaning fluid to the terminal nozzle head 32 having one or more nozzles 42 thereon for dispersing the cleaning fluid 18 over the surfaces to be cleaned. Note that the fluidly connecting means 41 nearest the spray head 32 is connected intermediately on the arm pair 70 so as to be positioned for being connected by means 72 to the spray head 32 which is connected by means 74 to the end of arm pair 70.

Turning to FIG. 4, therein is shown an enlarged view of one of the scissor-like segments having its members pivotally connected intermediately at 36. Connecting member 40 is either a rod or milled shaft 52 having a pair of pivotally centrally located collars 54 having inlet and outlet connection means 50 for a hose 46 on each collar and a conduit (not visible) within the milled shaft creating a passage-way between the collars for the transfer of fluid from one collar to the next.

Turning to FIG. 5, therein is shown a perspective view of member 40 showing the milled shaft 52 having a pair of centrally located collars 54 which collars are rotatable having inlet and outlet hose connection means 50 which all together provide a means for creating a fluid transfer conduit therein. Fluid connection member 40 which also serves as a pivot or hinge means for the lazy tong assembly 22, integrates the hose conduit into the extendible members of the lazy tong configuration 22 and prevents the hose from becoming pinched or entangled in the lazy tong configuration 22 as it is extended or retracted.

Turning to FIG. 6, therein is shown a partially exploded view of member 40 showing one of the collar members 54

removed from the milled shaft 52. Shown is a milled shaft 52 having a raised central portion 62 having a milled central cavity 56 having an aperture 58 leading into an internal conduit (not visible but see FIG. 7) providing fluid transfer means between the collars 54. Also shown are two O-rings 60 which mount on a grooved o-ring track or surface 64 on the raised portion 62 of the milled shaft 52 thereby providing fluid sealing means for the collars 54. Also shown is a metal, plastic or like friction washer 66 for placement on shaft 52 between the collar 54 and the arms of the lazy tong assembly (not shown).

Turning to FIG. 7, therein is shown a cross-sectional view, taken from FIG. 6 as indicated, of the member 40 showing the milled shaft 52 and collars 54. Shown is a milled shaft 52 having a raised central portion 62 having a milled central cavity 56 passing circumferentially around said milled shaft 52 thereby permitting a cavity 56 for the fluid to travel therein and permitting the collar 54 to be rotated without obstructing fluid flow. Also shown is a conduit 68 within said milled shaft permitting fluid transfer between the collars 54. Also shown is a set of O-rings 60 located on each side of said cavity 56 providing sealing means between the collars 54 and the cavity 56. Washer 66 is also shown.

What is claimed is:

1. An apparatus for cleaning the interior of vessels mounted on a vertical support member attached to the access port of the vessel, being a lazy tong configuration being rotatable, extendible and retractable, having a spray head mounted distally thereon, having a hose therein being part of a fluid conveyance system fluidly communicating with an external fluid supply and the spray head, the improvement comprising:

a) a matched pair of lazy tong assemblies having a plurality of connected arms;

b) a first means for hingedly connecting said pair of lazy tong assemblies to each other;

c) a second means for hingedly connecting said pair of lazy tong assemblies to each other;

d) said second means for hingedly connecting having a conduit therein for transferring fluid therethrough;

e) a first means for connecting the hose to said second means for hingedly connecting; and,

f) a second means for connecting the hose to the spray head distally positioned on said paired lazy tong assembly.

2. The apparatus of claim 1, said paired lazy tong assembly further comprising a plurality of pivotally connected arms.

3. The apparatus of claim 1, said first means for hingedly connecting said pair of lazy tong assemblies further comprises rods.

4. The apparatus of claim 1, said second means for hingedly connecting further comprises a milled shaft said milled shaft having a conduit therein said conduit having apertures therein whereby fluid can be transferred into and out of said conduit.

5. The apparatus of claim 4, further comprising a pair of collars, said collars rotatably mounted on said milled shaft, said collars having one said collar being a fluid inlet and a second said collar being a fluid outlet, said collars being fluidly connected to each other by said conduit in said milled shaft said fluid inlet and said fluid outlet being fluidly connected to each other.

6. The apparatus of claim 5, said collars further comprising O-rings for sealing said collars to said milled shaft whereby fluid will not escape therefrom.

7. An improved cleaning device for cleaning the interior of a vessel through a dome on the vessel, having a lazy tong configuration that is adjustable in length, having an elongated rod on the support member mounted to the dome and connected to a first end of the lazy tong configuration for extending and retracting the lazy tong configuration within the vessel, having a spray head mounted distally on the opposite end of the lazy tong configuration, having a hose for fluidly connecting the spray head to a source of pressurized cleaning fluid so as to clean the interior of the vessel, the lazy tong configuration being rotatable in its retracted position 180 degrees so that the spray head can clean the interior of the vessel in all directions, the lazy tong configuration including a plurality of jointed extendible bars that are disposed between the support member and the spray head, wherein the improvement comprises:

a) a matched pair of lazy tong assemblies having a plurality of connected arms;

b) a first means for hingedly connecting said pair of lazy tong assemblies to each other;

c) a second means for hingedly connecting said pair of lazy tong assemblies to each other;

d) said second means for hingedly connecting having a conduit therein for transferring fluid therethrough;

e) a first means for connecting the hose to said second means for hingedly connecting; and,

f) a second means for connecting the hose to the spray head distally positioned on said paired lazy tong assembly.

8. The apparatus of claim 7, said second means for hingedly connecting further comprises a milled shaft said milled shaft having a conduit therein said conduit having apertures therein whereby fluid can be transferred into and out of said conduit.

9. The apparatus of claim 8, further comprising a pair of collars, said collars rotatably mounted on said milled shaft, said collars having one said collar being a fluid inlet and a second said collar being a fluid outlet, said collars being fluidly connected to each other by said conduit in said milled shaft said fluid inlet and said fluid outlet being fluidly connected to each other.

10. The apparatus of claim 9, said collars further comprising O-rings for sealing said collars to said milled shaft whereby fluid will not escape therefrom.

11. An apparatus for cleaning the interior of a vessel through a dome on the vessel, comprising:

a) a lazy tong assembly that is adjustable in length;

b) means mounted to the dome and connected to a first end of said lazy tong assembly for extending and retracting said lazy tong assembly within the tank;

c) a spray head mounted to a second distal end of said lazy tong assembly;

d) means for fluidly connecting said spray head to pressurized cleaning fluid so as to clean the interior of said vessel;

e) a hose being part of said means for fluidly connecting said spray head to pressurized cleaning fluid;

f) means connected to said extending and retracting means for rotating said lazy tong assembly in its retracted position 180 degrees so that said spray head can clean the interior of said vessel in all directions;

g) a matched pair of lazy tong assemblies having a plurality of connected arms;

h) a first means for hingedly connecting said pair of lazy tong assemblies to each other whereby said pair of lazy tong assemblies are securely connected to each other;

i) a second means for hingedly connecting said pair of lazy tong assemblies to each other;

j) said second means for hingedly connecting having a conduit therein for transferring fluid therethrough;

k) a first means for connecting said hose to said second means for hingedly connecting; and,

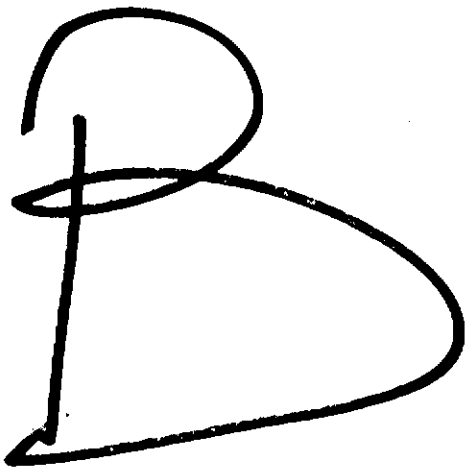
l) a second means for connecting said hose to said spray head distally positioned on said paired lazy tong assembly.

12. The apparatus of claim **11**, said second means for hingedly connecting further comprises a milled shaft said milled shaft having a conduit therein said conduit having apertures therein whereby fluid can be transferred into and out of said conduit.

13. The apparatus of claim **12**, further comprising a pair of collars, said collars rotatably mounted on said milled shaft, said collars having one said collar being a fluid inlet and a second said collar being a fluid outlet, said collars being fluidly connected to each other by said conduit in said milled shaft said fluid inlet and said fluid outlet being fluidly connected to each other.

14. The apparatus of claim **13**, said collars further comprising O-rings for sealing said collars to said milled shaft whereby fluid will not escape therefrom.

* * * * *



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Mr. Forrest Shook, President
NLB Corp.
29830 Beck Road
Wixon, Michigan 48393-2824

RE: John W. Mincy, Jr.
U.S. Patent 5,638,845,Oliver, et al.
U.S. Patent 6,192,905,Mincy, et al.

Dear Mr. Shook:

Please know that this office has the pleasure of representing the interests of Mr. John W. Mincy, Jr. Mr. Mincy is the holder of the two (2) above referenced patents, both of which relate to tank cleaning apparatus which operate by insertion through the access hatch and spraying the inside of a subject tank. This office has been made aware of your knowledge of the existence of my client's product known as the "ScissorJET" as the result of your purchase of one of the very first ScissorJET ever produced. You also purchased the improved model of the ScissorJET which incorporated the dual scissor arms which have now found their way into your product. I am further aware of your intimate knowledge of the product as a result of negotiations which were one time conducted between my client and you concerning the possibility of the purchase of my client's patent interests and his potential employment with your company.

My client has now become aware of your production of a product marketed under the trademark name "The NLB SpanJet" which is clearly covered by my client's patents.

In fact, your company has been brazen enough to recently showcase The NLB SpanJet at the recent Pumper and Cleaner Environmental Expo International Show in Nashville, Tennessee, held on February 18 through 21 of this year. Attached to this correspondence is a photograph of your product on display at this trade show. Furthermore, your literature entitled "High-Pressure Water Jets: the Quick Answer to Cleaner Tanks and Reactors" contains the very drawings displayed in my client's literature and which were part of his original patent application.

You should be aware that my client has significantly more than Two Hundred Thousand and 00/100ths ($200,000.00) Dollars in development costs in connection with this product. Your unauthorized infringement upon my client's patented product has caused, and will continue to cause, my client monetary damage for which this office has been engaged to seek redress.

You may accept this as a single and final offer to resolve this matter short of litigation. At this point, my client is currently willing to assign to your company all of his rights and interests in both patents and his trademark in connection with this product for the sum of Four Hundred Fifty Thousand and 00/100ths ($450,000.00) Dollars.

Unless we are able to come to terms within the next thirty (30) days, I am instructed to immediately proceed with the filing of an action in the U. S. District Court to protect my client's interests. Obviously, we will seek injunctive relief concerning the sale of any of The NLB SpanJet product and will also seek an order requiring the escrow of any profits resulting from sales of The NLB SpanJet made to date.

This is clearly a matter which needs to be resolved expeditiously for everyone's sake. Frankly, our review of your company's history concerning the production of products developed by others leads us to the conclusion that this is not the first time that your company has found itself in this position. I can assure you that my client has the personal resources to see this matter through and to protect his interests in his product. My client has quite literally spent more than ten (10) years of his life and a significant amount of money in producing a product for which there is a significant potential market. We do not intend to stand by and allow your company to profit from my client's work product and patented invention.

I look forward to your immediate reply.

Sincerely,

STEPHEN E. CLEMENTS

SEC/crt

Enclosures

cc: Mr. John W. Mincy, Jr.
Mr. Robert L. Haines, Esq.
SHERMAN & SHALLOWAY

STEPHEN E. CLEMENTS
A PROFESSIONAL CORPORATION
ATTORNEY AND MEDIATOR
POST OFFICE BOX 1724
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CLEMENTSPC@AOL.COM

May 13, 2004

Theodore W. Olds, Esq.
Suite 350
400 West Maple Road
Birmingham, MI 48009

Via Facsimile 248-988-8363
And U. S. Mail

RE: U.S. Patents 5,638,845 and 6,192,905

Dear Mr. Olds:

It is regretful that your client has taken the position it has assumed in this matter. Frankly, we had hoped to resolve this matter without the need for litigation but that is apparently impossible. Consequently, my instructions are to proceed immediately with litigation to protect my clients' interests.

Your client's position concerning U.S. Patent 5,638,845 is an unsupported reading of the claim. The patent clearly reflects that the "primary object of the present invention is to provide a scissor jet cleaning device... ." In fact, the patent states that "the instant invention relates generally to spray wash apparatuses and more specifically it relates to a scissor jet cleaning device." (Emphasis added.)

None of the prior art related to "scissor jet" technology and none involved the crucial element of the instant patent, namely, the "lazy tongs" or "scissor jet" mechanism which makes this product so unique and valuable.

The fact that your client has decided, for its own surreptitious purposes, to create an inferior product which is not as easily rotated attempts to avoid the obvious conclusion that your client's product and my clients' product are both "scissor jet cleaning devices." Only my clients have a patent on this product

It is the "scissor jet" mechanism which distinguishes the patented product from your client's inferior imitation. Your client's product clearly uses the unique technology of the "lazy tongs" or "scissor jet" mechanism which makes the patented product so unique and so valuable.

Your client's president, Forrest Shook, was fully aware of the methodology and design of the "scissor jet" mechanism as the result of their purchase of two (2) of my clients' products. Further, during a telephone conversation which occurred on October 21, 1997, between John Mincy, Sr., and Forrest Shook, your client's president stated: "I can make a few changes and void the patent." He further stated: "We can handle what we have to, but if I can work with John, I would rather do that." Most enlightening, Mr. Shook concluded: "Well, I'm just trying to be honest with you, John. When he [John Mincy, Jr.] started talking about rental units, that's when I decided I might as well start engineering a tank cleaning system for ourselves. We build other types of vessel cleaning systems to go with our pumps and nozzles, but, first, if we want to use John's concept, then we have to design around it. Second, if John wants to work with us on his patent, something realistic, then we would decide to do that instead of designing around it." (Emphasis added.) In a separate, contemporaneous conversation between Mr. Shook and John Mincy, Jr., Mr. Shook made similar threats to infringe upon the patent.

Your client's actions and statements clearly constitute a willful infringement for which we will seek treble damages, attorney's fees and expenses in connection with this matter.

Since your client has decided to be unreasonable, they can expect to receive service of the litigation within the next few weeks. In the interim, you should instruct your client to cease and desist production and sales of its product. Continued sales efforts do nothing but bolster our willful infringement claim.

Sincerely,

STEPHEN E. CLEMENTS

SEC/crt

cc: Mr. John W. Mincy, Jr.
Mr. John W. Mincy, Sr.

40136 Gadola/WC

JS 44 11/99 **CIVIL COVER SHEET** COUNTY IN WHICH THIS ACTION AROSE: Oakland

The JS-44 civil cover sheet and the information contained herein neither replace nor supplement the filing and service of pleadings or other papers as required by law, except as provided by local rules of court. This form, approved by the Judicial Conference of the United States in September 1974, is required for use of the Clerk of Court for the purpose of initiating the civil docket sheet.

I. (a) PLAINTIFFS

NLB Corporation
29830 Beck Road
Wixom, MI 48393-2824

(b) County of Residence of First Listed Oakland
26125

DEFENDANTS 04-40136
John W. Mincy, Jr. PAUL V. GADOLA
11 Buerger Road
Mobile, Alabama 36608

County of Residence of First Listed Mobile
NOTE: IN LAND CONDEMNATION CASES, USE THE LOCATION OF THE LAND INVOLVED.
MAGISTRATE JUDGE CAPEL

(C) Attorney's (Firm Name, Address, and Telephone Number)

Theodore W. Olds (42004); Anthony P. Cho (P46910)
Carlson, Gaskey & Olds, P.C., 400 W. Maple Rd., Ste. 350
Birmingham, MI 48009 (248) 988-8360

Attorneys (If Known)

Stephen E. Clements
P. O. Box 1724
Mobile, AL 36633 (251) 432-7800

II. BASIS OF JURISDICTION (Place an "X" In One Box Only)

- ☐ 1 U.S. Government Plaintiff
- ☒ 3 Federal Question (U.S. Government Not a Party)
- ☐ 2 U.S. Government Defendant
- ☐ 4 Diversity (Indicate Citizenship of Parties in Item III)

III. CITIZENSHIP OF PRINCIPAL PARTIES (Place an "X" In One Box for Plaintiff and One Box for Defendant)
(For Diversity Cases Only)

	PLA	DEF		PLA	DEF
Citizen of This State	☐ 1	☐ 1	Incorporated or Principal Place of Business In This State	☒ 4	☐ 4
Citizen of Another	☐ 2	☒ 2	Incorporated *and* Principal of Business In Another State	☐ 5	☐ 5
Citizen or Subject of a Foreign Country	☐ 3	☐ 3	Foreign Nation	☐ 6	☐ 6

IV. NATURE OF SUIT (Place an "X" In One Box Only)

CONTRACT	TORTS		FORFEITURE/PENALTY	BANKRUPTCY	OTHER STATUTES
☐ 110 Insurance	PERSONAL INJURY	PERSONAL INJURY	☐ 610 Agriculture	☐ 422 Appeal 28 USC 158	☐ 400 State Reapportionment
☐ 120 Marine	☐ 310 Airplane	☐ 362 Personal Injury-Med. Malpractice	☐ 620 Other Food & Drug	☐ 423 Withdrawal 28 USC 157	☐ 410 Antitrust
☐ 130 Miller Act	☐ 315 Airplane Product Liability	☐ 365 Personal Injury - Product Liability	☐ 625 Drug Related Seizure of Property 21: 881		☐ 430 Banks and Banking
☐ 140 Negotiable Instrument	☐ 320 Assault Libel And Slander	☐ 368 Asbestos Personal Injury Product Liability	☐ 630 Liquor Laws	PROPERTY RIGHTS	☐ 450 Commerce/ICC
☐ 150 Recovery of Overpayment and Enforcement of Judgment	☐ 330 Federal Employers' Liability	PERSONAL PROPERTY	☐ 640 R.R. & Truck	☐ 820 Copyrights	☐ 460 Deportation
☐ 151 Medicare Act	☐ 340 Marine	☐ 370 Other Fraud	☐ 650 Airline Regs.	☒ 830 Patent	☐ 470 Racketeer Influenced & Corrupt Organizations
☐ 152 Recovery of Defaulted Student Loans (Excl. Veterans)	☐ 345 Marine Product Liability	☐ 371 Truth In Lending	☐ 660 Occupational Safety/Health	☐ 840 Trademark	☐ 810 Selective Service
☐ 153 Recovery of Overpayment of Veteran's Benefits	☐ 350 Motor Vehicle	☐ 380 Other Personal Property Damage	☐ 690 Other		☐ 850 Securities/Commodities/ Exchange
☐ 160 Stockholders' Suits	☐ 355 Motor Vehicle Product Liability	☐ 385 Property Damage Product Liability	LABOR	SOCIAL SECURITY	☐ 875 Customer Challenge 12 USC 3410
☐ 190 Other Contract	☐ 360 Other Personal Injury		☐ 710 Fair Labor Standards Act	☐ 861 HIA (1395ff)	☐ 891 Agricultural Acts
☐ 195 Contract Product Liability			☐ 720 Labor/Mgmt. Relations	☐ 862 Black Lung (923)	☐ 892 Economic Stabilization Act
REAL PROPERTY	CIVIL RIGHTS	PRISONER PETITIONS	☐ 730 Labor/Mgmt. Reporting & Disclosure Act	☐ 863 DIWC/DIWW (405(g))	☐ 893 Environmental Matters
☐ 210 Land Condemnation	☐ 441 Voting	☐ 510 Motions to Vacate Sentence	☐ 740 Railway Labor Act	☐ 864 SSID Title XVI	☐ 894 Energy Allocation Act
☐ 220 Foreclosure	☐ 442 Employment	Habeas Corpus:	☐ 790 Other Labor Litigation	☐ 865 RSI (405(g))	☐ 895 Freedom of Information Act
☐ 230 Rent Lease & Ejectment	☐ 443 Housing/ Accommodations	☐ 530 General	☐ 791 Empl. Ret. Inc. Security Act	FEDERAL TAX SUITS	☐ 900 Appeal of Fee Determination Under Equal Access to Justice
☐ 240 Torts to Land	☐ 444 Welfare	☐ 535 Death Penalty		☐ 870 Taxes (U.S. Plaintiff or Defendant)	☐ 950 Constitutionality of State Statutes
☐ 245 Tort Product Liability	☐ 440 Other Civil Rights	☐ 540 Mandamus & Other		☐ 871 IRS-Third Party 26 USC 7609	☒ 890 Other Statutory Actions
☐ 290 All Other Real Property		☐ 550 Civil Rights			
		☐ 555 Prison Condition			

V. ORIGIN (PLACE AN "X" IN ONE BOX ONLY)

☒ 1 Original Proceeding ☐ 2 Removed from State Court ☐ 3 Remanded from Appellate Court ☐ 4 Reinstated or Reopened ☐ 5 Transferred from another district (specify) ☐ 6 Multi district Litigation ☐ 7 Appeal to District Judge from Magistrate

VI. CAUSE OF ACTION (Cite the U.S. Civil Statute under which you are filing and write brief statement of cause. Do not cite jurisdictional statutes unless diversity.)

Declaratory Judgment Act, 28 U.S.C. 2201 and 2202 relating to patents.

VII. REQUESTED IN COMPLAINT: ☐ CHECK IF THIS IS A CLASS ACTION UNDER F.R.C.P. 23 $DEMAND

CHECK YES only if demanded in complaint:
JURY DEMAND: ☐ Yes ☒ No

VIII. RELATED CASE(S) (See instructions): IF ANY JUDGE DOCKET NUMBER

DATE 5/14/04

SIGNATURE OF ATTORNEY OF RECORD

PURSUANT TO LOCAL RULE 83.11

1. Is this a case that has been previously dismissed?

☐ Yes
☒ No

If yes, give the following information:

Court: _____

Case No.: _____

Judge: _____

2. Other than stated above, are there any pending or previously discontinued or dismissed companion cases in this or any other court, including state court? (Companion cases are matters in which it appears substantially similar evidence will be offered or the same or related parties are present and the cases arise out of the same transaction or occurrence.)

☐ Yes
☒ No

If yes, give the following information:

Court: _____

Case No.: _____

Judge: _____

Notes :