

RECEIPT NUMBER

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UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF MICHIGAN  
SOUTHERN DIVISION

04-72797

T.D. INDUSTRIAL COVERINGS, INC., )  
a Michigan corporation, )  
)  
)  
Plaintiff, )  
)  
vs. )  
)  
DOUGLAS CONLIN and CONLIN )  
CORPORATION, a Delaware corporation, )  
)  
Defendants. )

GEORGE WOODS

Civil Action No.

Honorable  
MAGISTRATE JUDGE CAPEL,

FILED

JUL 23 2004

COMPLAINT

CLERK'S OFFICE, DETROIT-PSG  
U.S. DISTRICT COURT

NOW COME the Plaintiff, T.D. Industrial Coverings, Inc. ("Plaintiff"), by and through its attorneys, and complains against the Defendants, Douglas Conlin and Conlin Corporation ("Defendants"), as follows:

1. This is an action for Declaratory Judgment pursuant to 28 U.S.C. §§ 2201 and 2202, for the purpose of determining an actual controversy between the parties as hereinafter more fully appears.

PARTIES

2. Plaintiff, T.D. Industrial Coverings, Inc. is a Michigan corporation with a place of business at 6220 18.5 Mile Road, Sterling Heights, Michigan, 48314. Plaintiff has been in the business of manufacturing cut-and-sew protective covers for various industrial applications since the 1980's.

3. Upon information and belief, Defendant, Douglas Conlin , is an individual residing

at 7 Ball Farm Way, Wilmington, Delaware 19808. Upon information and belief, Douglas Conlin is the president and founder of Conlin Corporation.

4. Upon information and belief, Defendant Conlin Corporation is a Delaware corporation with a principal place of business located at 3 Germay Drive, Suite 5, Wilmington, Delaware 19804.

#### **JURISDICTIONAL ALLEGATION**

5. This Court has jurisdiction over this matter pursuant to 28 U.S.C. §§ 1331 and 1338 since this action arises under Title 35 of the United States Code.

6. Venue is proper in this District pursuant to 28 U.S.C. § 1391(b)(1) and (c) inasmuch as Plaintiff resides in this district and the place of business is located in this district.

#### **FACTUAL BACKGROUND**

7. Plaintiff has been and are currently engaged in the manufacture and sale of cut-and-sew protective covers for various industrial applications, among other things.

8. On February 19, 2004, Scott J. Fields ("Fields"), counsel for Defendants, sent correspondence to Plaintiffs, stating that a "Federal Complaint for patent infringement and other causes of action" was filed in the U.S. District Court in Philadelphia, Pennsylvania on February 17, 2004. The Complaint asserts that Plaintiff manufactures and offers for sale semi-rigid robot cover members, which allegedly infringe U.S. Patent No. 6,082,290 ("the '290 patent"), U.S. Patent No. 6,346,150 ("the '150 patent") and U.S. Design Patent No. D459,260 S ("the Shield Design Patent" or "the '260 patent"). Attorney Fields proposed that the parties attempt to amicably resolve the matter prior to formal service of the Complaint.

9. The '290 patent, the '150 patent and the Shield Design Patent are attached to this

Declaratory Judgment Complaint as Exhibits A, B and C, respectively.

10. On March 5, 2004, counsel for Defendants forwarded a Pretrial Conference Notice to Plaintiff's counsel, which was scheduled for April 19, 2004 at 10:00 a.m.

11. On March 26, 2004, counsel for Defendants sent correspondence to Plaintiff's counsel demanding that Plaintiffs "cease and desist from all infringement" of Defendants' patents, with broad based allegations concerning damages.

12. On April 13, 2004, counsel for Plaintiffs sent correspondence to Defendants' counsel requesting that Defendants clarify which of Plaintiff's products were being accused. The correspondence also outlined the misrepresentations in Defendants' Complaint, which had not yet been formally served.

13. On June 11, 2004, counsel for Defendants sent correspondence to Plaintiff's counsel stating his conclusion that Plaintiffs infringed the '150 patent and the '260 patent.

14. On or about June 16, 2004, the summons that was issued in Defendant's suit on February 17, 2004 in the U.S. District Court in the Eastern District of Pennsylvania expired.

15. On or about July 9, 2004, over one month after expiration of the Summons, Defendants' "served" the expired Summons and Complaint.

16. As a result of the above-described events, a case of actual controversy within this Court's declaratory judgment jurisdiction exists between Plaintiff and Defendants with respect to the '290 patent, '150 patent and the Shield Design Patent.

**COUNT I – NON-INFRINGEMENT OF THE '290 PATENT**

17. Plaintiff incorporates by reference all of the averments contained in Paragraphs 1 through 16 as though fully rewritten herein.

18. Plaintiff's products and/or manufacturing methods do not infringe any claim of Defendants '290 patent.

**COUNT II – NON-INFRINGEMENT OF THE '150 PATENT**

19. Plaintiff incorporates by reference all of the averments contained in Paragraphs 1 through 18 as though fully rewritten herein.

20. Plaintiff's products and/or manufacturing methods do not infringe any claim of Defendants '150 patent.

**COUNT III – NON-INFRINGEMENT OF THE SHIELD DESIGN PATENT**

21. Plaintiff incorporates by reference all of the averments contained in Paragraphs 1 through 20 as though fully rewritten herein.

22. Plaintiff's products and/or manufacturing methods do not infringe any claim of Defendants Shield Design Patent.

**COUNT IV – INVALIDITY AND UNENFORCEABILITY**

23. Plaintiff incorporates by reference all of the averments contained in Paragraphs 1 through 22 as though fully rewritten herein.

24. The Patents in Suit 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, 111, 112, 115, 116, 132, 253, 287 and 288.

**WHEREFORE** Plaintiff submits that it is entitled to judgment that:

A. Plaintiff's products and/or manufacturing methods do not infringe Defendants' 290 patent, '150 patent or Shield Design patent;

B. Defendants '290 patent, '150 patent and Shield Design Patent are invalid and/or unenforceable;

C. Defendants, their officers, agents, employees, attorneys, and all persons in active concert or participation with them, are forever enjoined from asserting such patents against Plaintiff's products and/or manufacturing methods;

D. Plaintiff shall recover from Defendants its costs, including attorneys' fees, pursuant to 35 U.S.C. §285; and

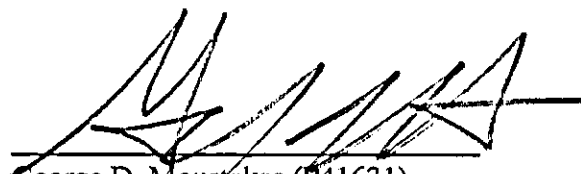
E. Plaintiff shall recover such other relief as the Court may deem just and equitable.

**Jury Demand**

Pursuant to Federal Rule of Civil Procedure 38(b), Plaintiff hereby demands a trial by jury on all issues triable of right by jury.

Dated: July 23, 2004

Respectfully Submitted,



George D. Moustakas (P41631)  
David A. McLaughry (P48816)  
Harness, Dickey & Pierce, P.L.C.  
5445 Corporate Drive, Ste. 400  
Troy, MI 48098  
(248) 641-1600

*Attorneys for Plaintiff T.D. Industrial Coverings, Inc.*



A<sub>r</sub>



US006082290A

**United States Patent** [19]

[11] **Patent Number:** 6,082,290

Conlin

[45] **Date of Patent:** Jul. 4, 2000

[54] **PAINT SPRAY BOOTH WITH ROBOT**

4,484,772 11/1984 Ross, Sr. et al. .... 285/226

[76] **Inventor:** Douglas Conlin, 737 Ambleside Dr.,  
Wilmington, Del. 19808

4,630,567 12/1986 Bambousek et al. .... 118/323

4,762,455 8/1988 Coughlan et al. .... 424/4

5,025,836 6/1991 Botsolas ..... 138/110

5,769,703 6/1998 Conlin ..... 454/50

[21] **Appl. No.:** 09/100,534

[22] **Filed:** Jun. 19, 1998

*Primary Examiner*—Shrive Beck

*Assistant Examiner*—Jennifer Calcagni

*Attorney, Agent, or Firm*—Connolly Bove Lodge & Hutz

**Related U.S. Application Data**

[60] **Provisional application No.** 60/058,846, Sep. 15, 1997.

[51] **Int. Cl.<sup>7</sup>** ..... B65D 65/02

[52] **U.S. Cl.** ..... 118/326; 150/154; 901/49;  
403/293; 403/341

[58] **Field of Search** ..... 118/326, DIG. 7;  
150/161, 154; 901/49; 403/293, 292, 315,  
338, 341

[57] **ABSTRACT**

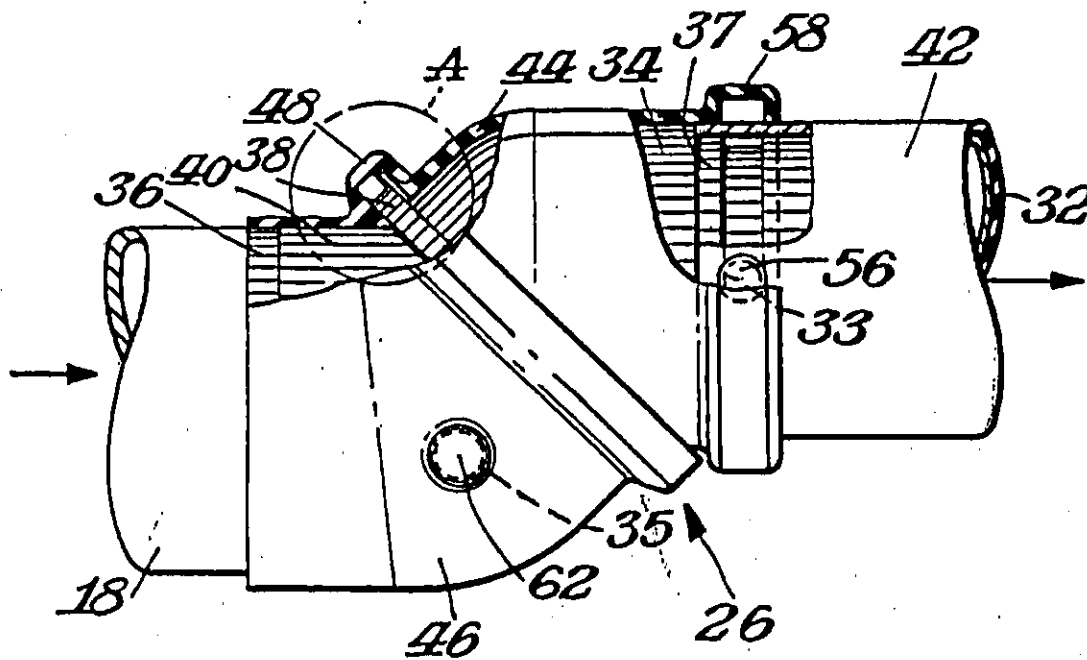
A paint spray booth includes a robot having a cover member assembly at its wrist joint. The cover members interlock at the robot's axes to seal out paint while allowing a full range of motion. The cover members are made of semi-rigid material. Protective curtains may be detachably mounted to the walls of the booth.

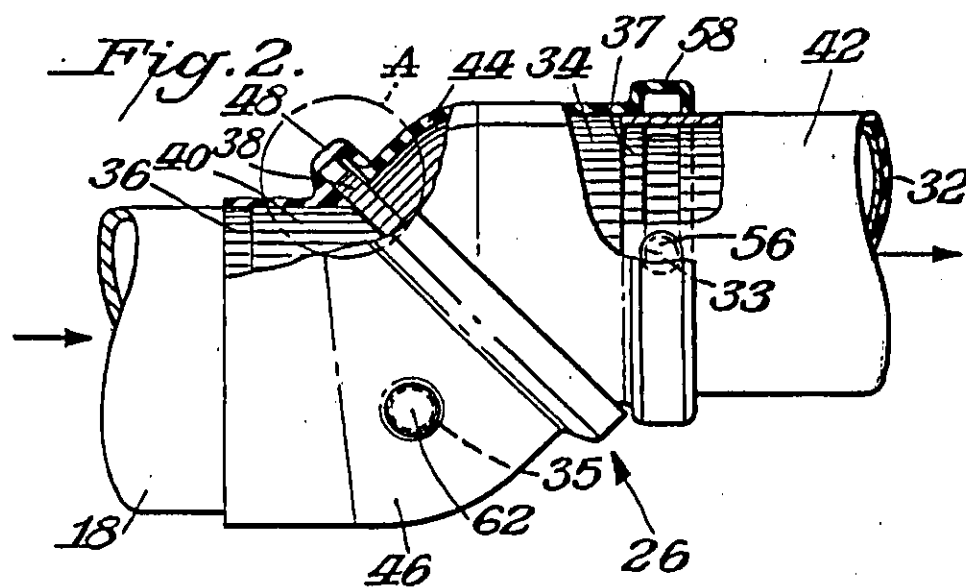
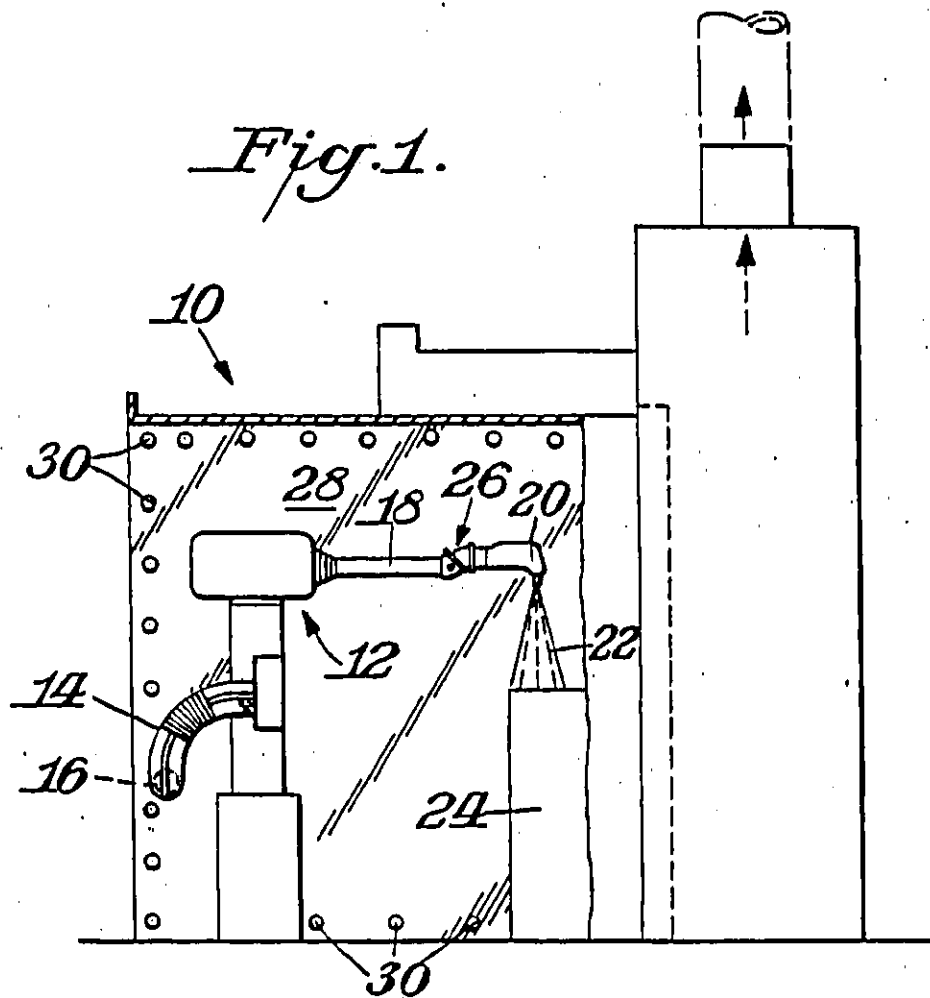
[56] **References Cited**

**U.S. PATENT DOCUMENTS**

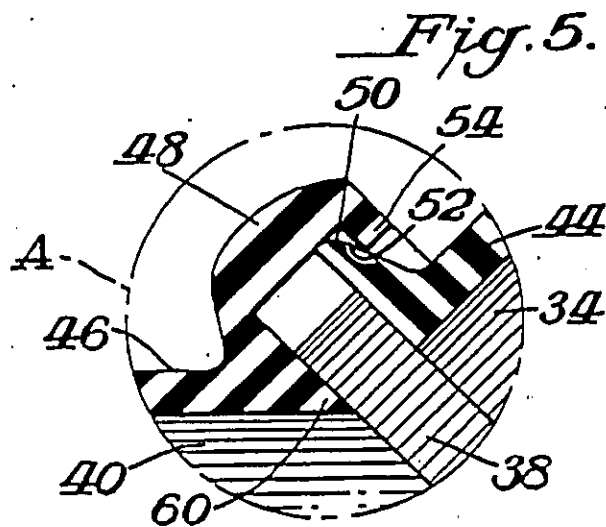
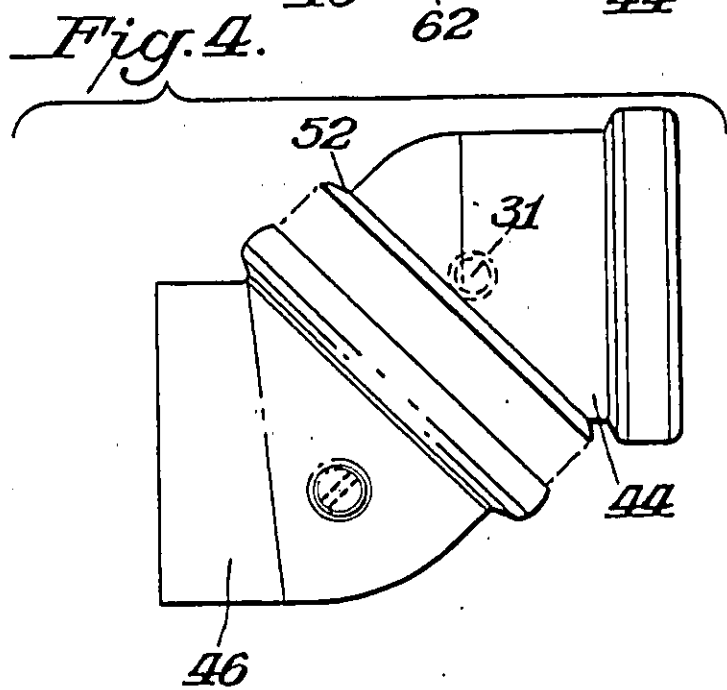
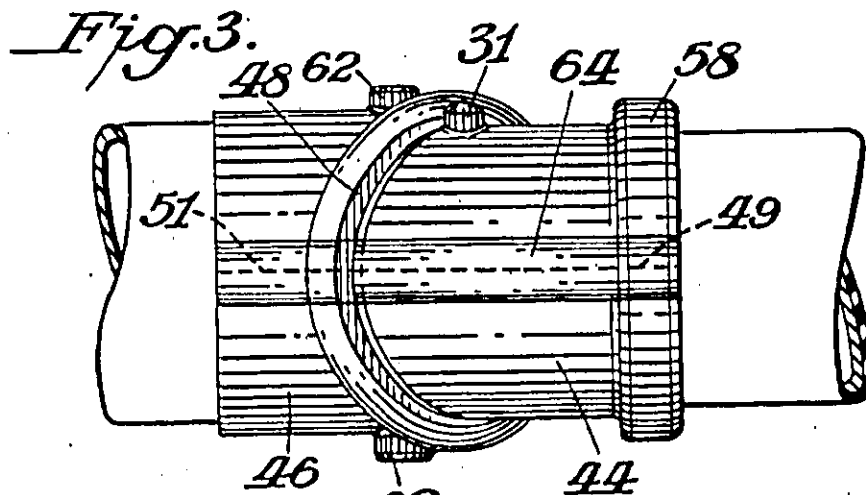
3,921,576 11/1975 Vertue .

20 Claims, 2 Drawing Sheets









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## PAINT SPRAY BOOTH WITH ROBOT

CROSS-REFERENCE TO RELATED  
APPLICATION

This application is based upon provisional application  
Ser. No. 60/058,846, filed Sep. 15, 1997.

## BACKGROUND OF THE INVENTION

The present invention relates to paint spray booths and  
particularly to paint spray booths having robots.

Paint spray booths are used for painting various objects.  
A common use of such type of booth is in the automotive  
industry. Frequently, such booths incorporate robots as a  
means for applying the paint. Because the paint becomes  
airborne, the paint is deposited on various parts of the robot  
such as the wrist joint and the compressed air delivery hose.  
This presents a problem in particular with regard to the joint  
or wrist connecting the spray nozzle or gun to the robot arm.  
For example, at such location the movement takes place  
about different axes. When dry paint has accumulated on the  
robot, robot movement causes the dry paint to shed. The dry  
paint contaminates the object being painted. A further prob-  
lem is that the paint mist can get into the joint at each axis  
and dry. When the robot twists, particles of paint are  
dropped.

A prior art attempt at addressing the above problem  
involves providing loose cloth shrouds over the two inter-  
locking parts which form the robot wrist. While this arrange-  
ment seals each axis, it still has the problem of shedding dry  
paint. A further disadvantage of cloth covers is that the  
covers can not be cleaned. Additionally, such cloth gives off  
lint.

A further problem in such paint booths is the accumula-  
tion of paint on the walls of the booth. If measures are not  
taken, such problem results in the requirement to spend time  
in cleaning the walls.

## SUMMARY OF THE INVENTION

An object of this invention is to provide a paint spray  
booth with protective members to address the above indi-  
cated problem.

A further object of this invention is to provide semirigid  
covers from axis to covering the entire robot.

A further object of this invention is to provide a protective  
covering for a robot in the booth.

A still further object of this invention is to provide such  
a protective covering which is located at the wrist of the  
nozzle arm and robot arm.

A still further object of this invention is to provide a  
detachable covering for the walls of the booth.

In accordance with one aspect of this invention a semi-  
rigid cover of multi-piece construction is located at the robot  
wrist joint. The cover includes connecting structure on  
adjacent cover members to interlock the cover members, yet  
permit relative rotation of one cover member with respect to  
the other. Thus, the joint is protected without impeding the  
rotational movement of the arm. The semi-rigid material is  
preferably made of a non-porous plastic such as PVC which  
lends itself to numerous desirable characteristics for such a  
cover.

In accordance with a further feature of this invention a  
protective curtain is detachably mounted to at least one of  
the walls of the booth to readily permit a fresh curtain to  
replace a previously used curtain. In the preferred practice of

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this aspect of the invention, the detachable fastening mem-  
bers are provided only along the periphery of the curtain  
thereby leaving the central portion unsecured. This facili-  
tates a quick mounting and removal of the cover or curtain  
while effectively preventing air flow from blowing the  
curtain away from the wall.

## THE DRAWINGS

FIG. 1 is a side elevational view of a paint spray booth  
partly broken away in accordance with this invention;

FIG. 2 is a side elevational view partly broken away and  
in section showing the wrist joint of a robot in the booth of  
FIG. 1;

FIG. 3 is a top plan view of the wrist joint shown in FIG.  
2;

FIG. 4 is an exploded side elevational view showing the  
assembly of the wrist joint cover component of FIGS. 2-3;  
and

FIG. 5 is an enlarged cross-sectional view of the portion  
of FIG. 2 designated by the letter A.

## DETAILED DESCRIPTION

The present invention is directed to improvements in paint  
spray booths and is intended to be adapted for use in any  
type of paint spray booth. Thus, the details of the booth itself  
are not novel but set forth the preferred environment for use  
of the invention. Since such booth structure is known in the  
art, a detailed description of the booth structure is not  
necessary. Reference is made to U.S. Pat. Nos. 4,207,833,  
4,231,289, 4,469,595, 4,484,513, 4,693,048, 5,201,954,  
5,236,504, and 5,240,504 for exemplary paint booth struc-  
ture. The details of those patents are incorporated herein by  
reference thereto.

FIG. 1 illustrates a paint spray booth 10 which may  
incorporate the present invention. As shown therein the paint  
spray booth 10 is provided with a conventional robot 12.  
Robot 12 includes a paint delivery hose 14 which extends  
through an opening 16 in the side wall of booth 10.  
Additionally, robot 12 includes a robot arm 18 having a  
spray nozzle or gun 20 at its outer end. Nozzle 20 applies a  
paint spray pattern 22 on the object 24 being painted. The  
spray nozzle 20 is connected to arm 18 by a wrist joint 26  
which is shown in greater detail in FIGS. 2-4.

In accordance with one aspect of the invention, one or  
more of the walls of booth 10 is provided with a detachable  
protective curtain or barrier 28. Protective curtain 28 is  
detachably secured to its wall at the periphery of one or more  
of and preferably all four sides by means of any suitable  
fasteners 30. The central area of each curtain 28, however,  
is left unsecured. This provides for a quick mounting and  
removal of the curtain 28 when it is desired to remove an old  
curtain and replace it with a new curtain. This manner of  
fastening also effectively prevents air flow from blowing the  
curtain away from the wall particularly by having all four  
sides of curtain 28 secured.

Curtain 28 may take any suitable form and may be  
attached in any suitable manner. Reference is made to  
co-pending application Ser. No. 08/764,993 filed Dec. 16,  
1996, now U.S. Pat. No. 5,769,703, all of the details of  
which are incorporated herein by reference thereto. As  
pointed out therein, curtain 28 may be made of any suitable  
material such as being an adsorbent material made of PFP  
foam with a liquid impermeable barrier layer made, for  
example, from polyethylene. A particularly advantageous  
material is TEFLON® or PTFE to take advantage of the

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non-sticking characteristics as well as the fire proof characteristics of such material.

In one aspect of the invention a TEFLON® coating or other suitable material such as KAPTON (polyimide) or PFP which is knitted polyester cloth impermeable to liquids may be applied to the wall itself without an additional protective curtain. By using such material on the wall or the curtain the paint will tend to slide off or be easily washed off the exposed surface. Where a curtain itself is used made of material such as TEFLON® the curtain could last indefinitely by being readily cleaned where necessary in cases where there has been some adherence of the paint to the curtain since the paint could easily be removed from the curtain.

Preferably, curtain 28 is made of a fireproof or nonflammable material or a material having self-extinguishing flammability characteristics. Thus curtain 28 is preferably made of some form of fire retarding or fire-proof material.

Any suitable fasteners 30 may be used for detachably securing curtain 28 to its wall of booth 10. Examples of such fasteners include pressure sensitive adhesive, hooks, looping the top of the curtain and hanging it from a curtain rod, covering the walls with adhesive and in turn covering with the curtain with adhesive strips, magnets, snaps, adhesive tape, VELCRO, spring clips, strings, nylon ties, twist ties, air pressure, suction, and static electricity.

As can be appreciated the present invention overcomes problems that have long plagued the prior art. In this regard, for years the overspray of paint in a spray booth has caused concern for automotive manufacturers without any real alternative solution. By providing a suitable curtain mounting arrangement, such as VELCRO or snap fasteners or the various other mounting means noted above, around the perimeter of the walls with complementary fastening members affixed to the curtain, it is possible to provide sheets of plastic material (which may be transparent) acting as shields for the walls. This concept can be accomplished by cutting the sheets or curtains to fit any installation and can be cut to accommodate doors, shelves, hoses or virtually anything within the paint spray booth while allowing visual reference to the paint booth operation. The invention is easy to use, cost effective and environmentally friendly. With the present invention, when there has been a sufficient paint residue accumulated on the curtain, the curtain is simply removed and readily replaced by a new curtain without any toxic material causing danger to the environment.

In accordance with another aspect of this invention protective covering is also provided for the robot 12. Such protective covering may be located along all or various parts of the robot such as over the paint delivery hose 14 and over the arm 18 and nozzle 20. In particular, however, the invention advantageously includes covering members over the wrist joint 26.

FIGS. 2-5 illustrate the wrist joint 26 in greater detail. As shown therein the spray nozzle is mounted on arm 32 forms part of the wrist joint and is connected to the robot arm 18. The central axis of arm 32 which is attached to the spray gun or spray nozzle forms one axis of rotation of the joint 26 with regard to co-axial joint member 34. Robot arm 18 has its central axis as an axis of rotation with respect to coaxial joint member 40. As illustrated each joint member 34,40 has a bend and is thus elbow shaped. The two joint members 34,40 in turn may rotate with respect to each other by means of bearing race 38. The joint 26 may also rotate around each arm 18,32 by means of bearing races 36,37. The relative movement of arms 32 and 18 about their axes through use

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of the wrist joint 26 is of known construction. The location where the various parts fit together are locations which create problems due to the mist getting into the joint of axis rotations.

In accordance with this invention a multi-part cover assembly is provided at the joint 26 to cover the locations where arms 18 and 32 are mounted to the joint 26 and to cover the joint itself at each axis of rotation.

The cover assembly comprises a nozzle arm cover member 44 and a robot arm cover member 46. As later described each of these members is made of a material which is particularly advantageous for use in the spray booth.

As later described, each of the cover members has a longitudinal slit 49,51 to permit the cover members 44,46 to be spread apart for being mounted over their respective joint member 34,40. As shown in FIG. 5 the cover members are also interlocked or mounted to each other to permit relative rotational movement. For example, robot arm cover member 46 includes a U-shaped peripheral protrusion 48 having a channel 50 which receives the peripheral flange or lip 52 of cover member 44 leaving room for the bearing race 38. The overlap of the leg 54 of protrusion 48 and lip 52 provides an effective shield completely around the joint between joint members 34 and 40.

As shown in FIG. 2 a generally cylindrical protective sleeve 42 is slid onto gun or nozzle arm 32. Sleeve 42 extends directly over bearing 37 to thereby shield the bearing. Joint 26 includes conventional outwardly extending screws 31,33,35. Sleeve 42 includes a hollow protuberance 56 which fits over screw 31. Protective sleeve or cover 44 is fit over wrist joint member 34 and over cover or sleeve 42.

Because wrist joint member 34 is not of pure cylindrical shape, as is arm 32, it is necessary to provide a particular manner of securing cover 44 around wrist joint member 34. This is easily accomplished by having the longitudinal slit 49 extend completely across member 44 thereby permitting the semi-rigid member 44 to be spread apart and mounted in place. As best shown in FIG. 2 cover member 44 includes a peripheral outwardly extending U-shaped channel 58 at its outer end which fits over the end of sleeve 42 and accommodates screw 33 and the screw accommodating protuberance 56 of sleeve 42. In this manner, race 37 is completely shielded and thereby sealed against the entry of foreign objects, such as paint spray.

As best shown in FIG. 5 cover member 44 and cover member 46 have structure to accommodate the eccentric race 38 where wrist joint members 34 and 40 meet. Specifically, in the illustrated embodiment cover member 44 terminates in an eccentric tapered lip 52 which is disposed toward and parallel to race 38. Cover member 46 includes an outwardly extending channel 48 which fits over race 38 and over lip 52. As illustrated in FIG. 5 the terminal edge or leg 54 of channel 48 fits against flange or lip 52 which is disposed within the channel 50 of extension 48. The lower portion of extension 48 has a generally V-shaped extension 60 which has an outer surface parallel to the outer surface of flange 52 and parallel to race 38. In this manner, race 38 is enveloped by the overlapping interlocking relationship at the ends of cover members 44 and 46.

As also shown in FIG. 2 cover member 46 extends a sufficient distance to overlap race 36 thereby shielding that race. As with cover member 44 the cover member 46 also has a longitudinal slit 51 to facilitate the cover member 44 being spread apart and being mounted in place. Similarly, cover member 46 includes protuberances 62 which fit over outwardly extending screws 35.

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As shown in FIG. 3 the slits 49,51 of cover members 44,46 are covered in any suitable manner and in the illustrated embodiment are covered by tape 64. Any suitable tape may be used. In a preferred practice of this invention the tape 64 is a solvent resistant tape to withstand conditions in a paint spray booth. Commercially available tape 3M(#222) is suitable.

As illustrated, in particular in FIGS. 2-4, the cover members 44,46 have a smooth continuous outer surface except for the portions of the cover members which include protuberances to accommodate fasteners on the robot, the bearing races of the robot and the overlapping structure with respect to adjacent cover members. Thus, as illustrated the cover members are of non-bellows form without any repetitive pattern of hills and valleys.

Thus, in the preferred practice of this invention, the paint spray booth includes a robot which has its wrist or joint covered by the two piece assembly of cover members 44,46. Preferably, a third piece, sleeve 42 is also provided. Other portions of the robot may likewise be covered with suitable removable covers such as the hose 14. Where the portions of the robot are of cylindrical or uniform shape any suitable cover member may be used which may vary from being completely flexible to being completely rigid. At the wrist, however, the invention is preferably practiced where the cover members are made of semi-rigid material. The term semi-rigid is used to mean a material which permits the members to be spread apart thus facilitating their mounting on the irregularly shaped joint, yet, having sufficient rigidity to hold their own shape. The preferred semi-rigid material is PVC which preferably is dip molded, rather than injection molded. The PVC can vary in resistivity since it is preferred that a completely resistive material not be used in a paint spray booth. Other materials may also be used such as various injection molded plastics or even rubber where the materials are semi-rigid. The material is preferably non-porous. It is preferred that the material should not contain silicon since silicon is a paint contaminant. It is also preferred that the material be self-flame extinguishing to minimize any danger from fires.

The cover members preferably have a hardness of 40-95 Shore A durometer with a tensile strength up to 2500 psi and a tear strength up to 450 psi. The material preferably has an elongation up to 350% and is heat resistant up to 105° C. with low temperature flexing down to -40° F. The material preferably has a di-electric strength up to 600 volts/mil and is chemically resistant to acid, salts and alkalies.

The invention provides a number of distinct advantages. For example, the cover members at the wrist joint provide a more precise fit and are easy and quick to install and remove. The materials for the cover members can be conductive or insulative and should resist overspray reaction to the robot. The degree of rigidity allows the cover members to overlap and interlock so as to form seals around the various axes of rotation of the robot while keeping out contaminants. Unlike cloth covers, the preferred material for the cover members contains no fibers which can shed to cause contamination. A further advantage with the cover members for the wrist joint is that they are more economical because their production could be automated as compared to conventional cloth covers which are sewn together. The semi-rigid nature of the cover members avoid flapping or flexing when the cover moves which would otherwise shake loose contaminants. Additionally, the semi-rigid member permits the cover members to be perforated and inflated thus expelling compressed air to repel overspray and last longer than conventional covers. A further advantage is that the cover members

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can be washed by hand while on the robot rather than requiring their removal and sending these covers to a launderer as with conventional cloth covers.

The cover members thus provide an assembly that is molded to closely fit the robot allowing the cover members to interlock around the robot axis while sealing out paint and allowing a full range of motion.

Although the invention has been particularly described with respect to paint spray booths, the invention may be practiced with other devices particularly with regard to providing cover members which shield a moveable joint to prevent contamination from entering the joint.

What is claimed is:

1. A combination robot and cover assembly comprising a robot having a plurality of spaced sets of adjacent members, said adjacent members in each set being connected together by a joint which permits said adjacent members to rotate with respect to each other, a cover assembly snugly mounted over and around said joint for at least one of a plurality of said sets of adjacent members, each cover assembly including at least two cover members made of shape retaining material having a stiffness of being at least semi-rigid and being of a form having a fixed non-variable length which maintains its shape in both the length and cross-sectional directions, and said cover members being interlocked to form a seal around said joint while permitting said adjacent members to rotate.

2. The combination of claim 1 wherein said cover members are made of non-porous material.

3. The combination of claim 1 wherein said cover members are molded of semi-rigid material.

4. The combination of claim 1 wherein said robot includes outwardly extending fasteners, said cover members include protuberances mounted over said fasteners, and said protuberances having a shape corresponding in shape to said fasteners.

5. The combination of claim 1 wherein said cover members have an outer surface which is smooth except for any protuberances to accommodate fasteners and bearing races of said robot and to provide overlapping structure with respect to adjacent cover members.

6. The combination of claim 5 wherein said robot includes outwardly extending fasteners, said cover members include protuberances mounted over said fasteners, and said protuberances having a shape corresponding in shape to said fasteners.

7. The combination of claim 1 wherein each of said cover members has a longitudinal slit to facilitate the mounting and detachment of said cover members on said robot.

8. The combination of claim 1 wherein said robot is housed in a paint spray booth having a plurality of walls and having a robot for applying paint, the improvement being in that at least one of said walls includes a curtain detachably mounted to said wall by fastening elements located along the periphery of said curtain, the central portion of said curtain being free of attachment to said wall, and wherein said robot comprises an arm and a spray nozzle connected together by said joint.

9. The combination of claim 8 wherein said curtain is made of fire resistant material.

10. The combination of claim 1 wherein said cover members comprise a first cover member and a second cover member, said first cover member having an elbow shape with a first one end concentric about its longitudinal axis with a second end at an angle to its longitudinal axis, said second cover member having an elbow shape with a first end concentric to its longitudinal axis and a second end at an

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angle to its longitudinal axis, and second end of said first cover member and said second end of said second cover member being in overlapping relationship to shield an angled race located at the junction of the first joint member and second joint member.

11. The combination of claim 10 wherein said second end of said first member terminates an outwardly extending lip, said second end of said second member terminating in a U-shaped peripheral extension which includes a downwardly extending wall disposed over said lip to interlock said first cover member and said second cover member.

12. The combination of claim 10 wherein said first end of said first cover member terminates in an outwardly extending peripheral channel.

13. The combination of claim 12 including a sleeve telescoped into said first end of said first cover member under said peripheral channel.

14. The combination of claim 13 wherein each of said first cover member and said second cover member includes at least one protuberance for accommodating a member extending outwardly from the first and second joint members.

15. The combination of claim 10 wherein said robot has an arm, said robot having a spray nozzle, and said spray

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nozzle being connected to said arm by said adjacent members of said joint.

16. The combination of claim 15 wherein said robot has a delivery hose, and a protective sleeve detachably mounted around said delivery hose.

17. The combination of claim 15 in further combination with a paint spray booth having said robot therein, and said paint spray booth having a protective curtain detachably mounted to at least one of its walls.

18. The combination of claim 17 wherein said curtain is mounted to said wall by fastening members along its periphery with the central portion of said curtain being unsecured to said wall.

19. The combination of claim 10 wherein each of said cover members has a longitudinal slit to facilitate the mounting and detachment of said cover members on a robot.

20. The combination of claim 10 wherein each of said cover members has an outer surface which is smooth except for any protuberances to accommodate fasteners and bearing races of a robot and to provide overlapping structure with respect to adjacent cover members.

\* \* \* \* \*

B



US006346150B1

(12) **United States Patent**  
Conlin

(10) Patent No.: **US 6,346,150 B1**  
(45) Date of Patent: **\*Feb. 12, 2002**

(54) **PAINT SPRAY BOOTH WITH ROBOT**

(76) Inventor: Douglas Conlin, 737 Ambleside Dr.,  
Wilmington, DE (US) 19808

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

This patent is subject to a terminal dis-  
claimer.

(21) Appl. No.: 09/307,237

(22) Filed: May 7, 1999

**Related U.S. Application Data**

(63) Continuation-in-part of application No. 09/100,534, filed on  
Jun. 19, 1998, now Pat. No. 6,082,290.

(51) Int. Cl.<sup>7</sup> ..... B05B 15/12; B65D 65/02

(52) U.S. Cl. .... 118/326; 118/323

(58) Field of Search ..... 118/309, 323,  
118/326, 324, 634; 427/156; 403/292, 293,  
315, 338, 341; 137/377; 150/154

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*Primary Examiner*—Richard Crispino

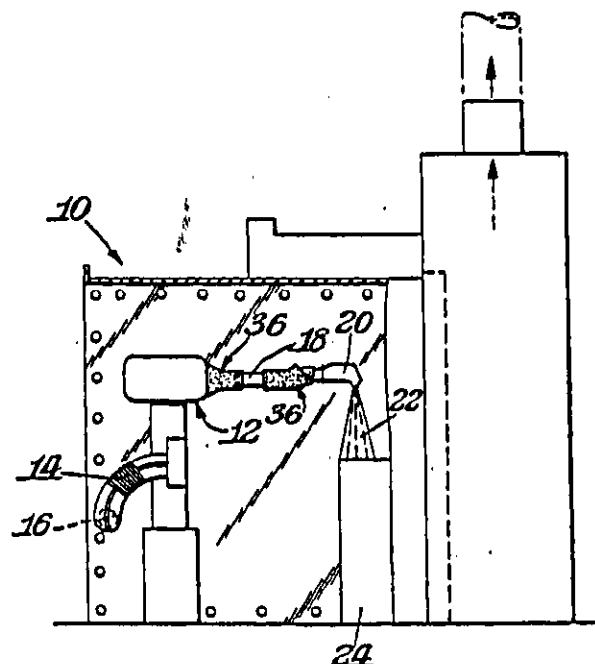
*Assistant Examiner*—Yewebdar T Tadesse

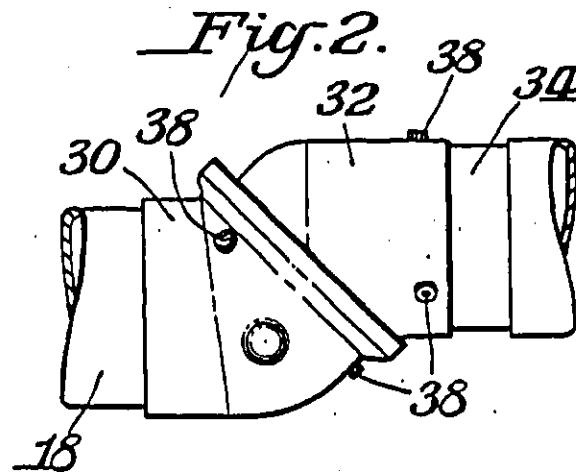
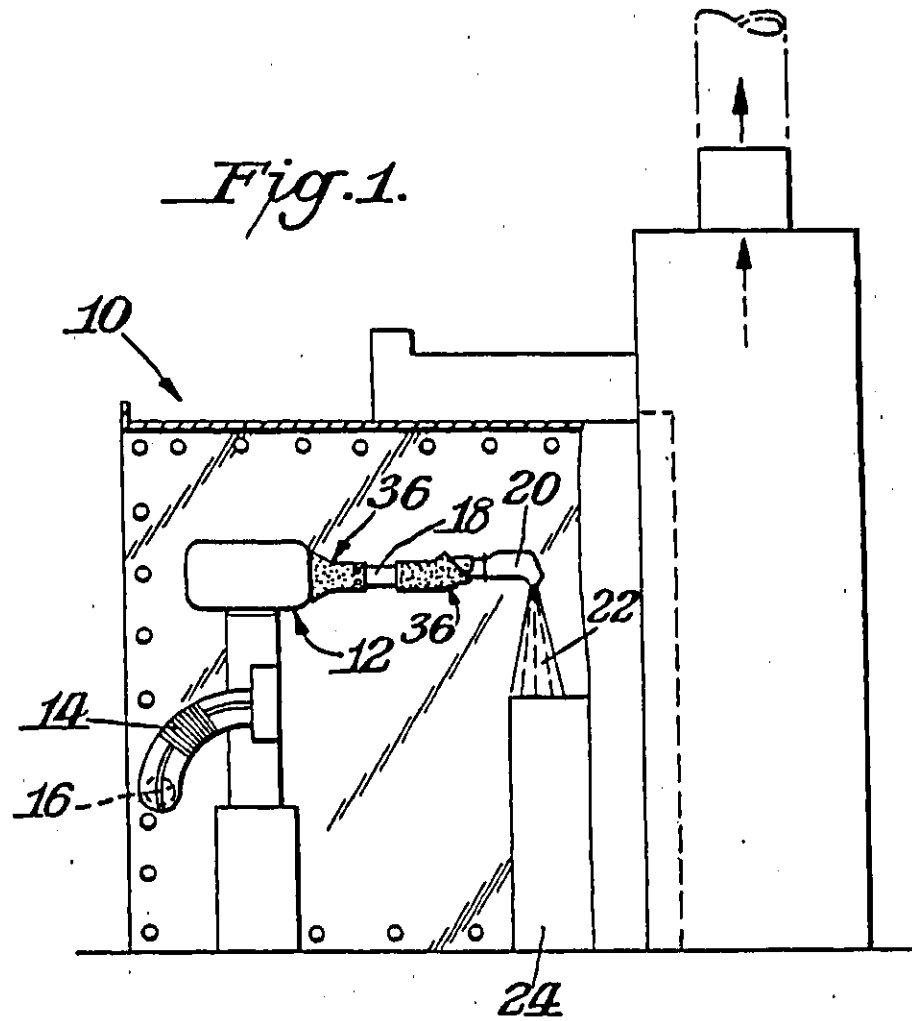
(74) *Attorney, Agent, or Firm*—Connolly Dove Lodge &  
Hutz LLP

(57) **ABSTRACT**

A paint spray booth includes a robot having a shape retaining  
cover member assembly with members which interlock at  
the robot's axes to seal out paint while allowing a full range  
of motion. A flexible outer cover or shield is detachably  
mounted over the cover members so that after use of the  
paint spray booth, the outer covers may be detached and  
laundered for reuse.

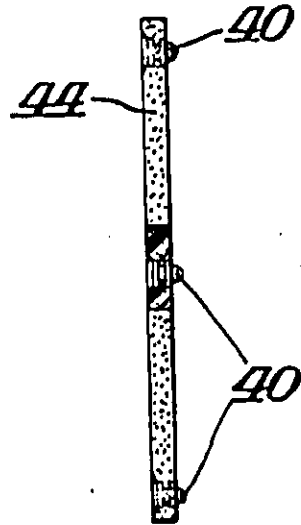
**20 Claims, 3 Drawing Sheets**



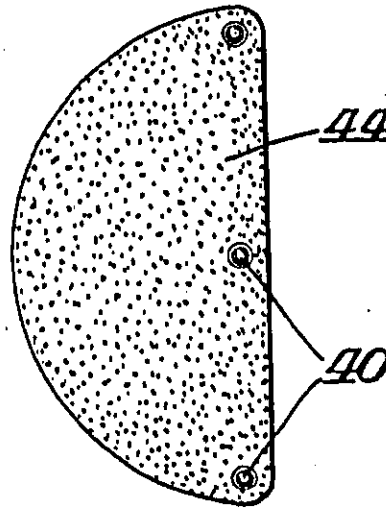




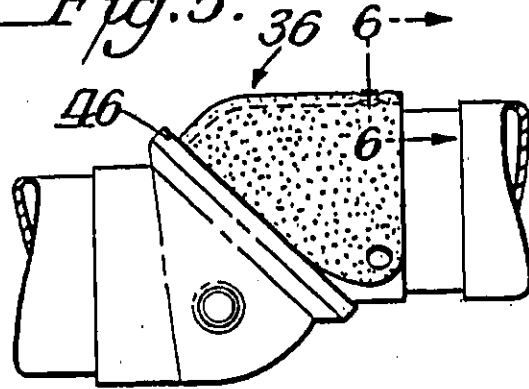
*Fig. 4.*



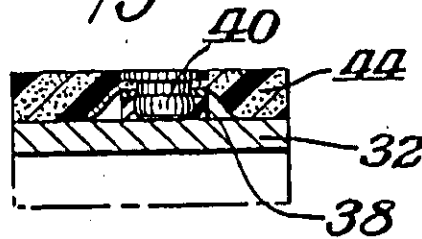
*Fig. 3.*



*Fig. 5.*



*Fig. 6.*



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Fig. 8.

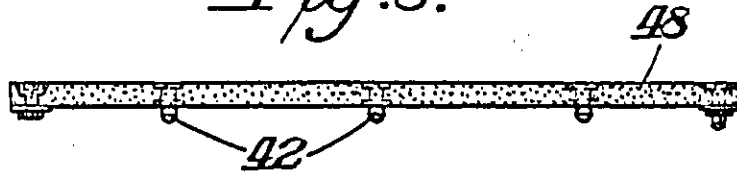


Fig. 7.

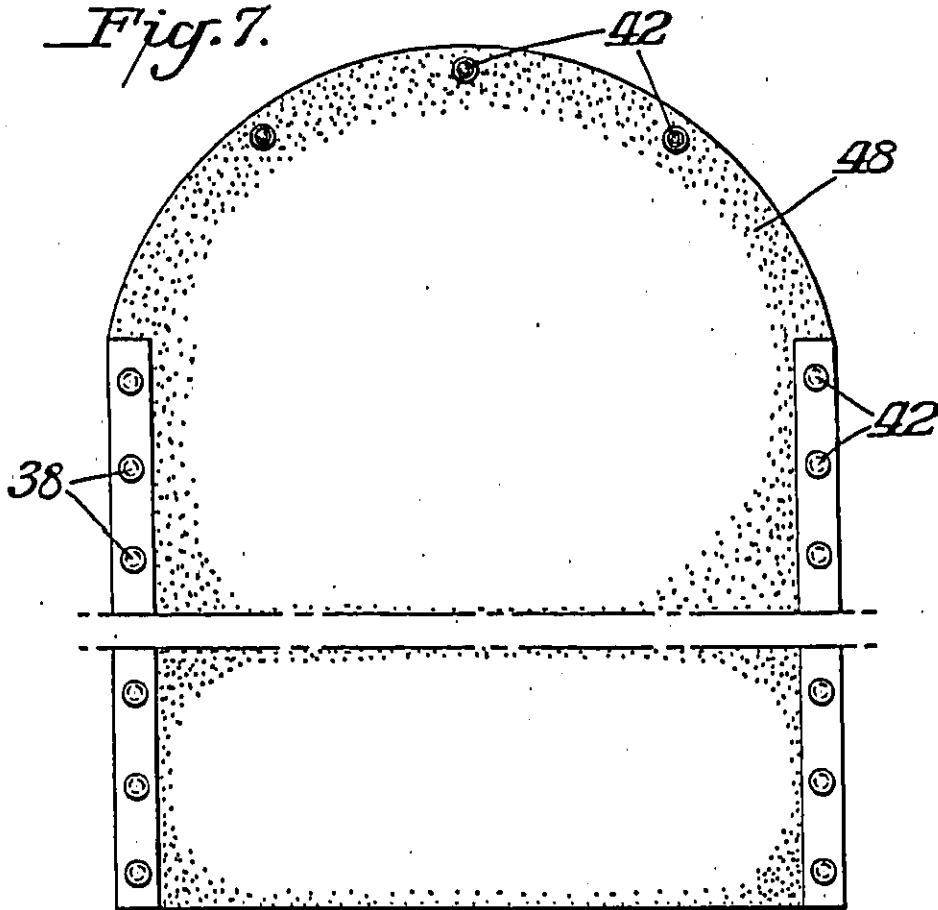


Fig. 9.

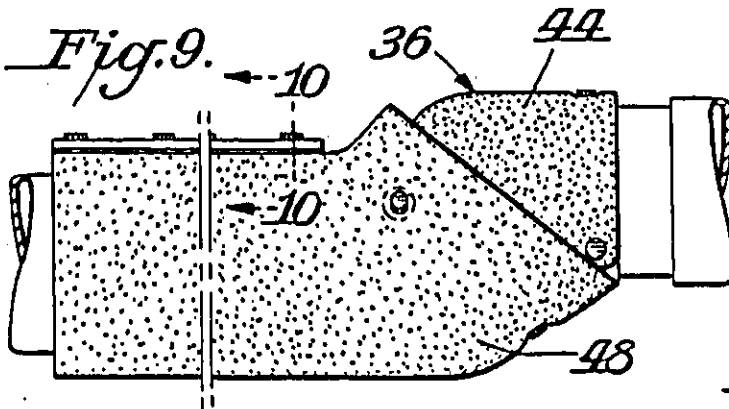
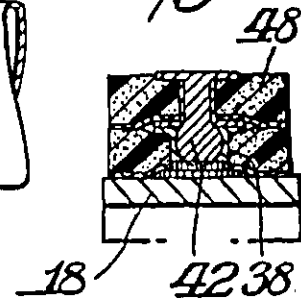


Fig. 10.



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**PAINT SPRAY BOOTH WITH ROBOT****Cross-Reference to Related Application**

This application is a continuation in part of application Ser. No. 09/100,534, filed Jun. 19, 1998 now, U.S. Pat. No. 6,082,290.

**BACKGROUND OF THE INVENTION**

The present invention relates to paint spray booths and particularly to paint spray booths having robots.

Parent application Ser. No. 09/100,534 relates to improvements in paint spray booths.

Paint spray booths are used for painting various objects. A common use of such type of booth is in the automotive industry. Frequently, such booths incorporate robots as a means for applying the paint. Because the paint becomes airborne, the paint is deposited on various parts of the robot such as the wrist joint and the compressed air delivery hose. This presents a problem in particular with regard to the joint or wrist connecting the spray nozzle or gun to the robot arm. For example, at such location the movement takes place about different axes. When dry paint has accumulated on the robot, robot movement causes the dry paint to shed. The dry paint contaminates the object being painted. A further problem is that the paint mist can get into the joint at each axis and dry. When the robot twists, particles of paint are dropped.

A prior art attempt at addressing the above problem involves providing loose cloth shrouds over the two interlocking parts which form the robot wrist. While this arrangement seals each axis, it still has the problem of shedding dry paint. A further disadvantage of cloth covers is that the covers can not be cleaned while on the robot. Additionally, such cloth gives off lint.

Parent application Ser. No. 09/100,534 discloses techniques for avoiding the above problems. In general, the techniques involve providing a semi-rigid cover of multipiece construction located at various parts of the robot, such as the robot wrist joint. The cover includes connecting structure on adjacent cover members to interlock the cover members, yet permit relative rotation of one cover member with respect to the other. Thus, the joint is protected without impeding the rotational movement of the arm. The semi-rigid material is preferably made of a non-porous plastic such as PVC which lends itself to numerous desirable characteristics for such a cover.

**SUMMARY OF THE INVENTION**

An object of this invention is to provide improvements in paint spray booths utilizing robots.

A further object of this invention is to provide techniques which may be used with one or more robot covers as disclosed in the parent application.

In accordance with this invention an outer shield assembly is detachably mounted over and distinct from at least one of the cover assemblies which comprise the cover members for the robot.

**THE DRAWINGS**

FIG. 1 is a side elevational view partly broken away showing a paint spray booth having a robot which incorporates the protective cover structure of this invention;

FIG. 2 is a side elevational view of a robot arm rotator joint shown in FIG. 1;

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FIG. 3 is a top plan view of the inside of a joint cover or shield which may be secured to the robot arm of FIG. 2;

FIG. 4 is an end elevational view partly broken away of the joint cover or shield shown in FIG. 3;

FIG. 5 is a side elevational view showing the joint cover or shield mounted on the robot arm of FIG. 2;

FIG. 6 is a cross-sectional view taken through FIG. 5 along the line 6—6;

FIG. 7 is a plan view of an outside cover member or shield mountable on the robot arm of FIG. 2 in combination with the shield of FIG. 5;

FIG. 8 is an end elevational view of the cover or shield of FIG. 7;

FIG. 9 is a side elevational view showing the shield or cover of FIGS. 7-8 mounted on the robot arm; and

FIG. 10 is a cross-sectional view taken through FIG. 9 along the line 10—10.

**DETAILED DESCRIPTION**

The present invention is directed to improvements in paint spray booths and is intended to be adapted for use in any type of paint spray booth. Thus, the details of the booth itself are not novel but set forth the preferred environment for use of the invention. Since such booth structure is known in the art, a detailed description of the booth structure is not necessary. Reference is made to U.S. Pat. Nos. 4,207,833, 4,231,289, 4,469,595, 4,484,513, 4,693,048, 5,201,954, 5,236,504, and 5,240,504 for exemplary paint booth structure. The details of those patents are incorporated herein by reference thereto.

FIG. 1 illustrates a paint spray booth 10 which may incorporate the present invention. As shown therein the paint spray booth 10 is provided with a conventional robot 12. Robot 12 includes a paint delivery hose 14 which extends through an opening 16 in the side wall of booth 10. Additionally, robot 12 includes a robot arm 18 having a spray nozzle or gun 20 at its outer end. Nozzle 20 applies a paint spray pattern 22 on the object 24 being painted. The spray nozzle 20 is connected to arm 18 by a wrist joint which is shown in greater detail in FIGS. 2, 5 and 9.

Parent application Ser. No. 09/100,534, all of the details of which are incorporated herein by reference thereto, discloses the use of a cover assembly which may be mounted at selected locations around the robot. FIG. 2, for example, illustrates the cover assembly to include a pair of cover members 30,32 mounted over a wrist joint formed by arm 18 and nozzle extension 34. The wrist joint members 18,34 are connected to rotate with respect to each other. The cover members 30,32 are made of shape retaining material and are interlocked to form a seal around the joint while permitting the adjacent members 18,34 to rotate in the manner described in the parent application.

The wrist joint is in the form of an off-set elbow having a race at an axis of rotation of the offset members. As disclosed in the parent application, preferably the cover members are made of semi-rigid material. The term semi-rigid is used to mean a material which permits the members to be spread apart thus facilitating their mounting on the irregularly shaped joint, yet, having sufficient rigidity to hold their own shape. The preferred semi-rigid material is PVC which preferably is dip molded, rather than injection molded. The PVC can vary in resistivity since it is preferred that a completely resistive material not be used in a paint spray booth. Other materials may also be used such as various injection molded plastics or even rubber where the

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materials are semi-rigid. Rigid or flexible materials could also be used, but shape retaining material is preferred. The material is preferably non-porous. It is preferred that the material should not contain silicon, since silicon is a paint contaminant. It is also preferred that the material be self-flame extinguishing to minimize any danger from fires.

The cover members preferably have a hardness of 40-95 Shore A durometer with a tensile strength up to 2500 psi and a tear strength up to 450 psi. The material preferably has an elongation up to 350% and is heat resistant up to 105° C. with low temperature flexing down to -40° F. The material preferably has a dielectric strength up to 600 volts/mil and is chemically resistant to acid, salts and alkalis.

The invention provides a number of distinct advantages. For example, the cover members at the wrist joint provide a more precise fit and are easy and quick to install and remove. The materials for the cover members can be conductive or insulative and should resist overspray reaction to the robot. The degree of rigidity allows the cover members to overlap and interlock so as to form seals around the various axes of rotation of the robot while keeping out contaminants. Unlike cloth covers, the preferred material for the cover members contains no fibers which can shed to cause contamination. A further advantage with the cover members for the wrist joint is that they are more economical because their production could be automated as compared to conventional cloth covers which are sewn together. The shape retaining nature of the cover members avoid flapping or flexing when the cover moves which would otherwise shake loose contaminants. Additionally, the shape retaining material permits the cover members to be perforated and inflated thus expelling compressed air to repel overspray and last longer than conventional covers. A further advantage is that the cover members can be washed by hand while on the robot, rather than requiring their removal and sending these covers to a launderer as with conventional cloth covers.

While the use of such cover members greatly enhances the use of robots in paint spray booths and the like it would also be desirable if some techniques could be provided to permit robot cover members to be removed and laundered. The present invention is particularly directed to that aspect of modifying the cover members described in the parent application. In general, the variation of the present invention involves the provision of an outer cover or shield which is secured over the cover members but which can be removed after use of the paint spray booth and then the removed outer cover or shield can be laundered. These outer cover members or shields would thus be detachably mounted to the cover members and could be provided at any suitable locations on the robot, not simply the wrist joint. Similarly, the outer cover members could be secured to and over a single inner cover member. If desired the outer shields can even be provided on portions of the robot having no cover members. Conversely, not all cover members need be provided with outer cover members or shields. FIG. 1 illustrates a plurality of exemplary locations 36 where the outer cover members are applied.

In the preferred practice of this invention the cover members and the outer covers or shields contain detachably mounted complementary locking members. FIG. 2, for example, shows the provision of a plurality of female snap members 38 on the cover members 30,32. The female snaps 38 would be engaged by male snap members 40,42 as shown in FIGS. 3-10. Although the figures illustrate snap fasteners as the detachable mounting structure it is to be understood that other types of the detachable fastening structure may be used. Examples include, VELCRO®.

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FIGS. 3-4 illustrate an outer cover or shield 44 which is of a structure designed to be detachably engaged with cover member 32. As shown therein, shield 44 is generally semi-circular in shape so that it may be placed directly over cover member 32 and abut against protrusion 46 of the joint. Rotation is achieved at protrusion 46 by means of a race located under the protrusion. FIGS. 5-6 show shield 44 mounted to cover member 32 by engagement of fasteners 38,40.

FIGS. 7-8 illustrate a further outer cover or shield 48 which is designed to snugly fit over cover member 30 and protrusion 46. As shown therein shield 48 is generally rectangular in shape and then terminates in a semi-circular extension clearly illustrated in FIG. 7. With this shape the shield 48 may be detachably secured to cover member 30.

It is to be understood that the outer covers or shields may be dimensioned so as to extend outwardly beyond the underlying cover members thereby assuring the complete covering of the underlying cover members. The outer covers may also be dimensioned to overlap at their junction. If desired, the outer covers may be slidably detachably secured together in any suitable manner which would not hamper wrist rotation.

In the preferred practice of this invention the shields or outer covers 44,48 are preferably made of an absorbent material which can be easily removed and laundered. The shields or outer covers are also preferably made of a flexible material that can readily conform to the shape of the underlying cover member and/or robot and also overlap without rubbing against other covers. This results in the formation of an absorbent seal. The outer cover assembly preferably surrounds a joint even when its underlying cover member is located displaced from the joint.

Any suitable material may be used for the flexible outer covers such as an absorbent foam. Although an absorbent material is preferred, the invention may be broadly practiced where the flexible outer covers are made of non-absorbent material such as polyethylene or the various materials referred to in the parent application as being usable for the protective curtains or barriers.

Although the invention has been particularly described with respect to paint spray booths, the invention may be practiced with other devices particularly with regard to providing cover members which shield a moveable joint to prevent contamination from entering the joint. While the normal movement addressed by the present invention is rotational movement, the invention may also be practiced with other types of movements such as longitudinal telescopic movement where a shielding is desired at the joint of the moving parts. Such shielding could be achieved from the inner shape retaining covers and/or the outer flexible covers. Securement to the moving members would preferably be by suitable longitudinal sliding seals such as from a downward projection into an elongated slot.

What is claimed is:

1. A combination robot and cover assembly comprising a robot having a plurality of spaced sets of adjacent members, said adjacent members in each set being connected together by a joint which permits said adjacent members to move with respect to each other, a cover assembly located over and around said joint for at least one of said sets of adjacent members, each cover assembly including at least two cover members made of shape retaining material, said cover members being of non-bellows formation and made of a material which is semi-rigid or rigid to minimize collection of paint on and flaking of paint off said cover members when

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said robot is used in a paint spray booth, said cover members being interlocked to form a seal around said joint while permitting said adjacent members to move with respect to each other, and an outer shield assembly detachably mounted over and distinct from said cover assembly.

2. The assembly of claim 1 wherein said outer shield assembly is made of flexible material.

3. The assembly of claim 2 wherein said outer shield assembly is made of absorbent material.

4. The assembly of claim 3 wherein said outer shield assembly includes a plurality of outer cover members.

5. The assembly of claim 4 wherein there are a plurality of said cover assemblies with an outer shield assembly detachably mounted over each of said cover assemblies.

6. The assembly member of claim 1 wherein said cover assembly is located at an offset elbow joint of said robot having rotatable adjacent members, and said outer shield assembly comprising a pair of outer shield members.

7. A combination robot and cover assembly comprising a robot having a plurality of spaced sets of adjacent members, said adjacent members in each set being connected together by a joint which permits said adjacent members to move with respect to each other, a cover assembly located over and around said joint for at least one of said sets of adjacent members, each cover assembly including at least two cover members made of shape retaining material, said cover members being interlocked to form a seal around said joint while permitting said adjacent members to move with respect to each other, an outer shield assembly detachably mounted over and distinct from said cover assembly, said cover assembly being located at an offset elbow joint of said robot having rotatable adjacent members, and said outer shield assembly comprising a pair of outer shield members, and said pair of outer shield members comprising a semi-circular member and a rectangular member having a semi-circular extension.

8. The assembly member of claim 1 wherein said cover members are made of non-porous and non-perforated material.

9. The assembly member of claim 8 wherein said cover members are molded of semi-rigid material.

10. A combination robot and cover assembly comprising a robot having a plurality of spaced sets of adjacent members, said adjacent members in each set being connected together by a joint which permits said adjacent members to move with respect to each other, a cover assembly located over and around at least one of said adjacent members, each cover assembly including at least

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one cover member made of shape retaining material, said cover members being of non-bellows formation and made of a material which is semi-rigid or rigid to minimize collection of paint on and flaking of paint off said cover members when said robot is used in a paint spray booth, an outer shield assembly, and said outer shield assembly is made of an absorbent material.

11. The assembly of claim 10 wherein said outer shield assembly is made of flexible material.

12. The assembly of claim 11 wherein said outer shield assembly includes a plurality of outer cover members.

13. The assembly of claim 12 wherein there are a plurality of said cover assemblies with an outer shield assembly detachably mounted over each of said cover assemblies.

14. The assembly member of claim 10 wherein said cover assembly is located at an offset elbow joint of said robot having rotatable adjacent members, and said outer shield assembly comprising a pair of outer shield members.

15. A combination robot and cover assembly comprising a robot having a plurality of spaced sets of adjacent members, said adjacent members in each set being connected together by a joint which permits said adjacent members to move with respect to each other, a cover assembly located over and around at least one of said adjacent members, each cover assembly including at least one cover member made of shape retaining material, and an outer shield assembly, and said outer shield assembly is made of an absorbent material said cover assembly being located at an offset elbow joint of said robot having rotatable adjacent members, and said outer shield assembly comprising a pair of outer shield members, and said pair of outer shield members comprising a semi-circular member and a rectangular member having a semi-circular extension.

16. The assembly member of claim 10 wherein said cover members are made of non-porous and non-perforated material.

17. The assembly member of claim 16 wherein said cover members are molded of semi-rigid material.

18. The assembly of claim 10 wherein said outer shield assembly is located around said joint.

19. The assembly of claim 14 wherein said robot and cover assembly are mounted in a paint spray booth, and said robot including a paint delivery hose and a spray gun.

20. The assembly of claim 1 wherein said robot and cover assembly are mounted in a paint spray booth, and said robot including a paint delivery hose and a spray gun.

\* \* \* \* \*

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US00D459260S

(12) **United States Design Patent** (10) Patent No.: **US D459,260 S**  
Christian et al. (45) Date of Patent: **\*\* Jun. 25, 2002**

(54) **SHIELD FOR A ROBOT ARM IN A PAINT SPRAY BOOTH**

(75) Inventors: Joann F. C. Christian, New Castle, DE (US); Douglas Conlin, 2911 Crossfork Dr., Wilmington, DE (US) 19808

(73) Assignee: Douglas Conlin, Wilmington, DE (US)

(\*\*) Term: 14 Years

(21) Appl. No.: 29/148,573

(22) Filed: Sep. 21, 2001

(51) LOC (7) Cl. .... 10-04

(52) U.S. Cl. .... D10/103; D15/199

(58) Field of Search ..... D10/103; D15/199;  
74/608-610; 150/161; 454/50, 51; 239/112,  
288, 288.3, 570, 288.5

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\* cited by examiner

*Primary Examiner*—Antoine Duval Davis  
(74) *Attorney, Agent, or Firm*—Connolly Bove Lodge & Hutz LLP

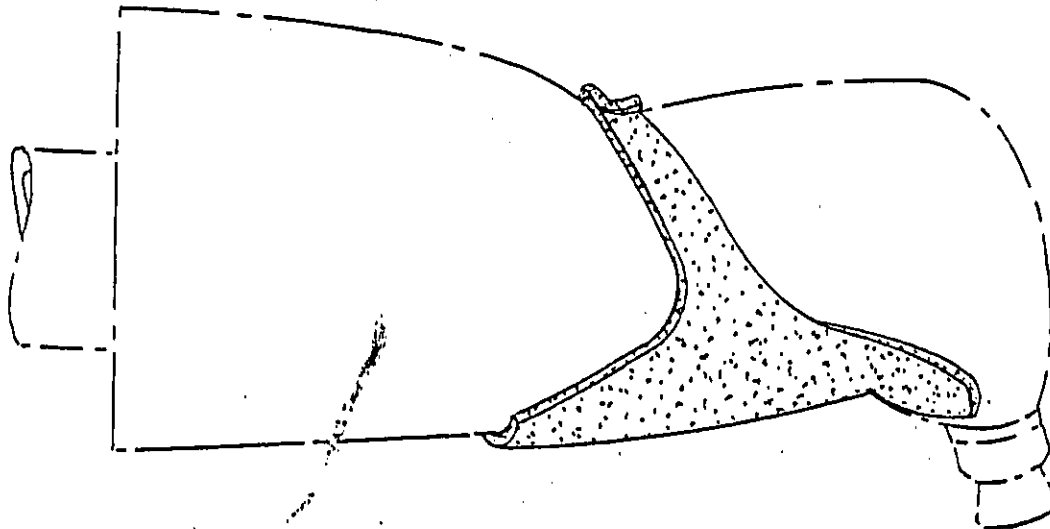
(57) **CLAIM**

The ornamental design for a shield for a robot arm in a paint spray booth, as shown and described.

**DESCRIPTION**

FIG. 1 is a top plan view of a shield for a robot arm in a paint spray booth in its open position in accordance with this invention, the bottom plan view being identical; FIG. 2 is a right side elevational view thereof, the left side elevational view being identical; FIG. 3 is a rear elevational view thereof; FIG. 4 is a front elevational view thereof; FIG. 5 is a side elevational view showing the shield in its mounted condition with the robot arm shown in phantom for environment purposes; FIG. 6 is a left end elevational view of the assembled shield; and, FIG. 7 is a bottom plan view thereof. The broken line showing is for illustrative purposes only and forms no part of the claimed design.

1 Claim, 2 Drawing Sheets



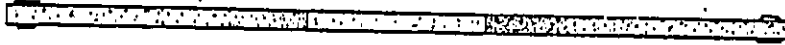
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Jun. 25, 2002

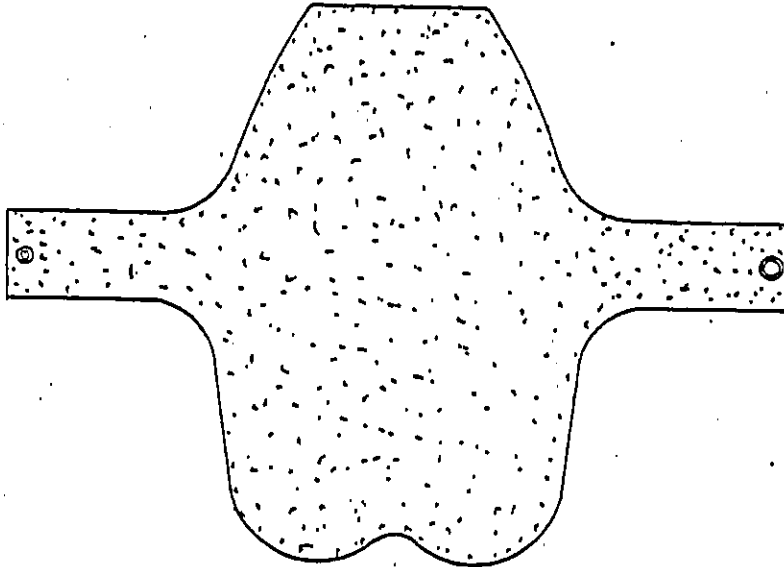
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*Fig. 3.*



*Fig. 1.*



*Fig. 2.*



*Fig. 4.*





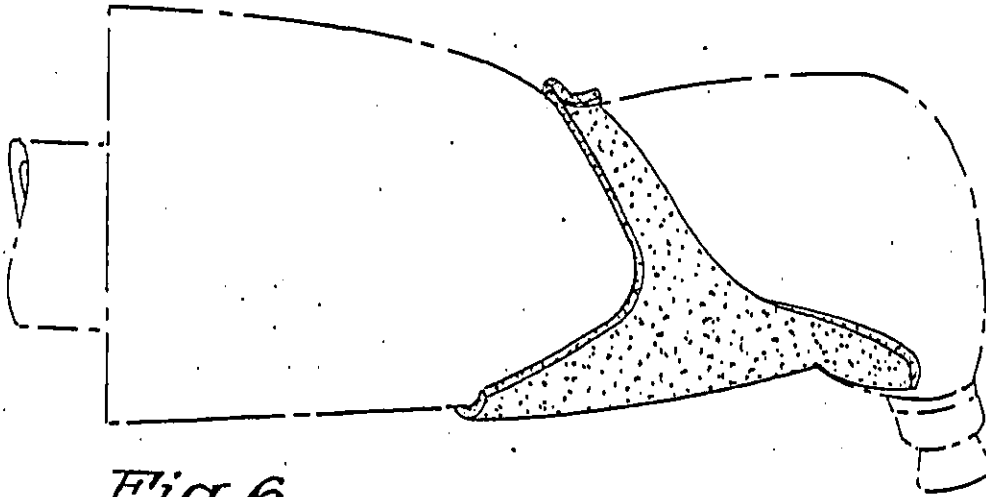
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Jun. 25, 2002

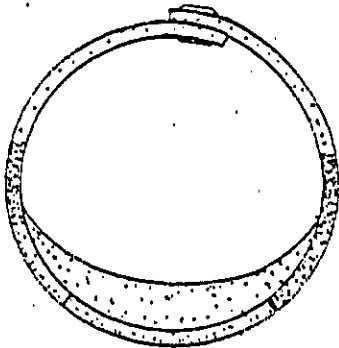
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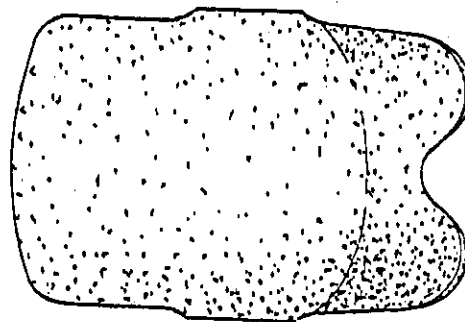
*Fig. 5.*



*Fig. 6*



*Fig. 7.*



**CIVIL COVER SHEET** COUNTY IN WHICH THIS ACTION AROSE: Macomb

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 the use of the Clerk of Court for the purpose of initiating the civil docket sheet.

**I. (a) PLAINTIFFS**

T.D. Industrial Coverings, Inc.  
6220 18.5 Mile Road  
Sterling Hts., MI 48314

**DEFENDANTS**

Douglas Conlin and Conlin Corporation  
3 Germay Drive, Ste. 5  
Wilmington, DE 19804

**ORIGINAL**  
**04-72797**

(b) County of Residence of First Listed:

County of Residence of First Listed

NOTE: IN LAND CONDEMNATION CASES, USE THE LOCATION OF THE LAND INVOLVED.

(c) Attorneys (Name, Address and Telephone Number)

George D. Moustakas  
5445 Corporate Drive, Ste. 400  
Troy, MI 48098 (248) 641-1600

Attorneys (If Known)

**GEORGE WOODS**  
**MAGISTRATE JUDGE CAPEL**

**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 and "X" in One Box for Plaintiff and One Box for Defendant)

	PLA	DEF		PLA	DEF
Citizen of This State	<input type="checkbox"/> 1	<input type="checkbox"/> 1	Incorporated or Principal of Business in This State	<input type="checkbox"/> 4	<input type="checkbox"/> 4
Citizen of Another	<input type="checkbox"/> 2	<input type="checkbox"/> 2	Incorporated and Principal of Business in Another State	<input type="checkbox"/> 5	<input type="checkbox"/> 5
Citizen or Subject of Foreign Country	<input type="checkbox"/> 3	<input type="checkbox"/> 3	Foreign Nation	<input type="checkbox"/> 6	<input type="checkbox"/> 6

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

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

**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 Multidistrict Litigation
- 7 Appeal to District Judge from Magistrate Judgement

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

Declaratory Judgment pursuant to 28 USC §§2201 and 2202

**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

**VII. RELATED CASE(S) IF ANY** (See Instructions)

JUDGE: DOCKET NUMBER

DATE: SIGNATURE OF ATTORNEY OF RECORD

7/23/04

X

1. Is this a case that has been previously discontinued or 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: \_\_\_\_\_

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Notes: