Oct. 10, 1961 D. WEISS 3,003,579

BOOM

Filed July 13, 1959 2 Sheets-Sheet 1

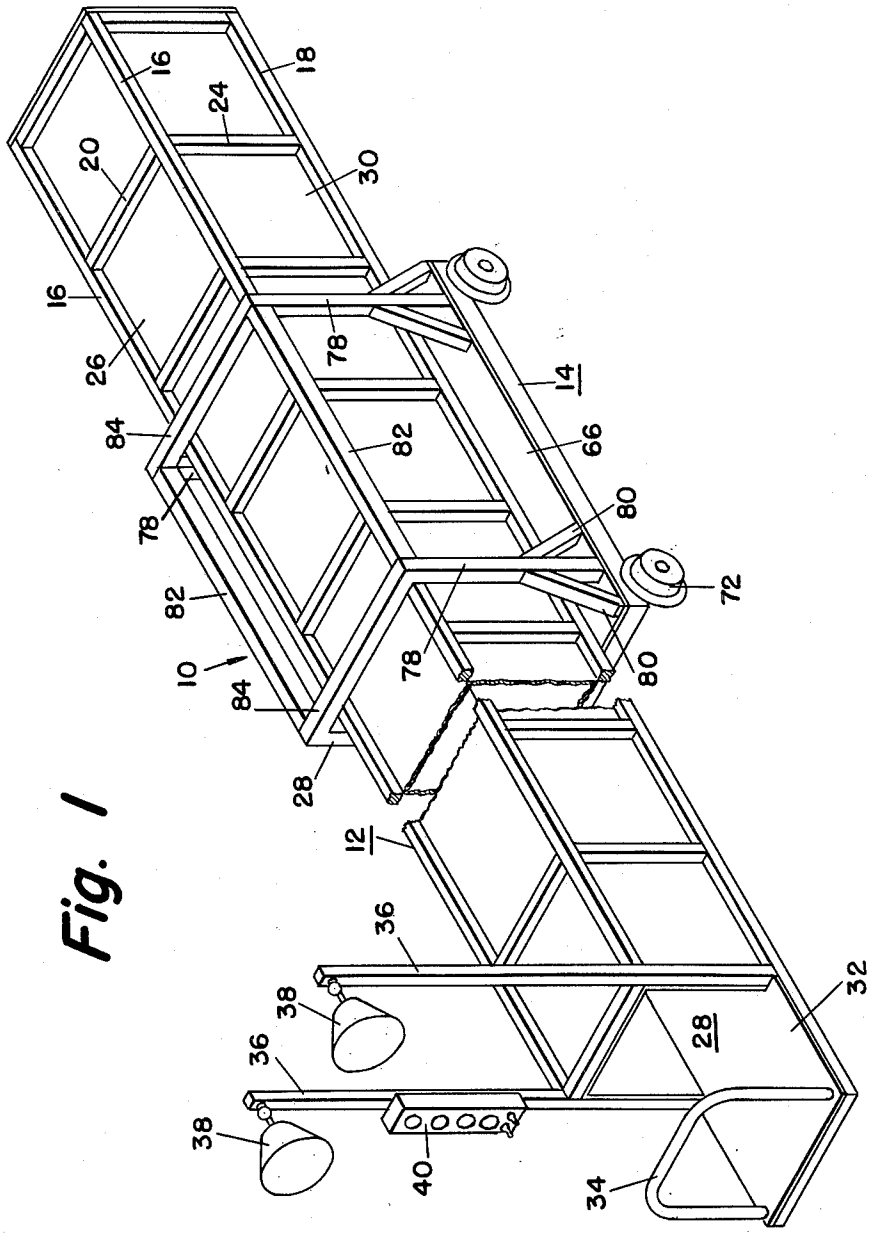


Fig. 1

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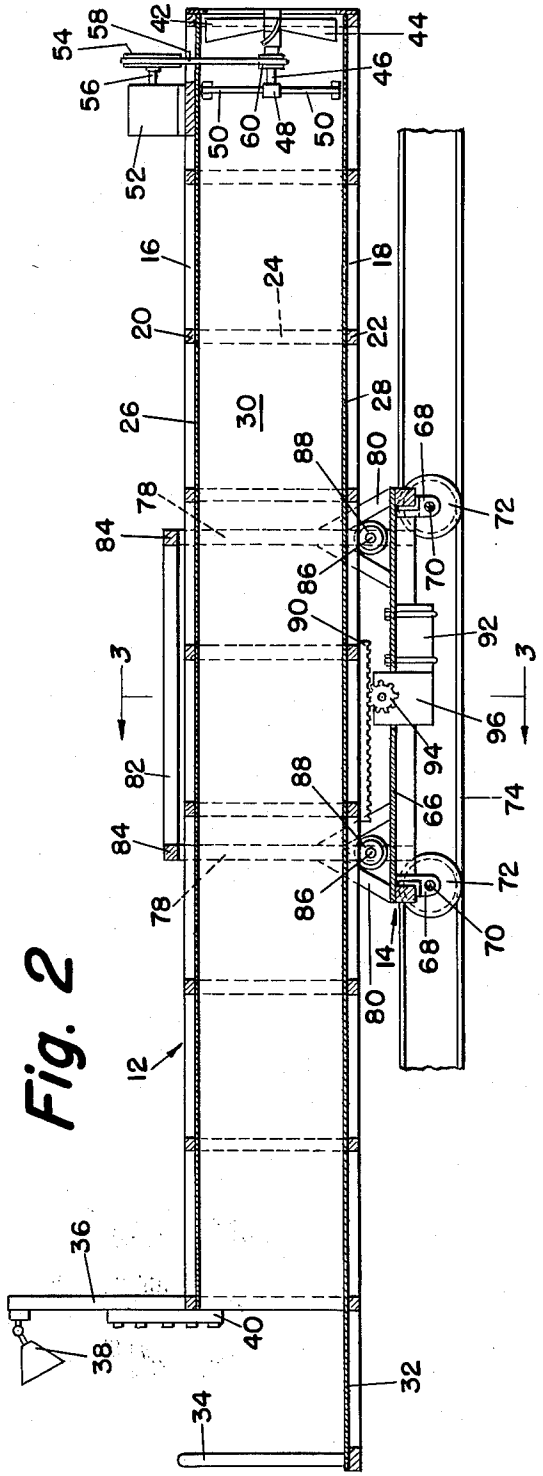


Fig. 2

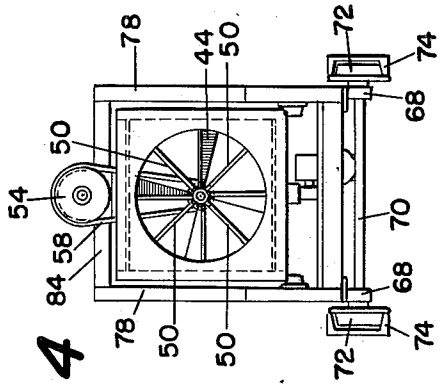


Fig. 4

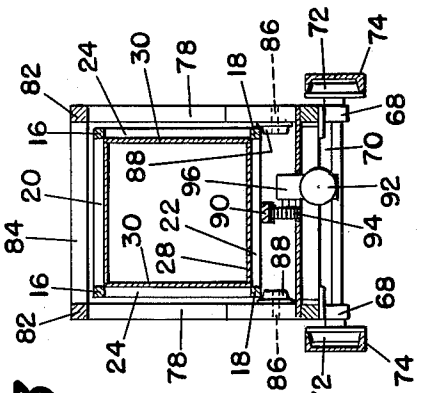


Fig. 3

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3,003,579
BOOM

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2 Claims. (Cl. 182—13)

This invention relates to a boom, and more particularly to a movable boom for carrying a person.

There are many operations which require an operator to move through an enclosure to carry out the operation. Such operations may be in a tunnel, a mine, a large furnace, or in a large conduit or pipe. Another operation of this type is disclosed in my copending application for United States Letters Patent Serial No. 826,856, filed on even date herewith, entitled "Apparatus and Method for Making Large Plastic Article." The apparatus described in my copending application comprises a mold having a plurality of walls in the form of an enclosure. In the use of the mold, the inside surface of the walls of the mold are coated with a plastic, such as by spraying, to form a plastic article of the shape of the mold. Thus the operator must move throughout the mold in order to coat the entire area of the surfaces of the mold.

For such operations it is desirable that the operator be carried through the enclosure. This is particularly desirable when the operator must carry equipment for carrying out the operation or where the operator cannot walk on the wall of the enclosure. Also it is often necessary to provide the operator with ventilation. Such ventilation may be in the form of fresh air blown to the operator. However, if the operation gives off obnoxious fumes, the ventilation may be in the form of an exhaust system to draw the fumes away from the operator or operators.

It is an object of the present invention to provide a boom for carrying a person or persons.

It is another object of the present invention to provide a movable boom for carrying a person or persons.

It is a further object of the present invention to provide a boom for carrying a person or persons which includes a ventilating system.

Other objects will appear hereinafter.

For the purpose of illustrating the invention there is shown in the drawings a form which is presently preferred; it being understood, however, that this invention is not limited to the precise arrangements and instrumentalities shown.

FIGURE 1 is a perspective view of the boom of the present invention.

FIGURE 2 is a longitudinal cross-sectional view of the boom of the present invention.

FIGURE 3 is a sectional view taken along line 3—3 of FIGURE 2.

FIGURE 4 is an elevational view of the exhaust end of the boom of the present invention.

Referring to FIGURES 1 and 2 of the drawing, the boom of the present invention is generally designated as 10. Boom 10 comprises a hollow, elongated duct 12 supported in a horizontal position on a dolly 14.

Duct 12 comprises a pair of elongated, horizontally extending upper rods 16, and a pair of elongated, horizontally extending lower rods 18. Upper rods 16 are connected in spaced, parallel relation by horizontal ribs 20. Lower rods 18 are connected together in spaced, parallel relation by horizontal ribs 22. Each of the upper rods 16 is connected in spaced, parallel relation to one of the lower rods 18 by vertical ribs 24. Thus the rods 16 and 18, and the ribs 20, 22 and 24 form a hollow tube of rectangular transverse cross-section.

An elongated, rectangular top wall 26 extends across

the upper ribs 20 and between the upper rods 16. An elongated, rectangular bottom wall 28 extends across the lower ribs 22 and between the lower rods 18. A pair of spaced, parallel side walls 30 extend across the vertical ribs 24 and between the upper rods 16 and the lower rods 18. The walls 26, 28, and 30 enclose the duct 12 leaving only the ends of the duct 12 open.

Lower rods 18 project longitudinally beyond the front end of the duct 12, and a platform 32 is mounted on the projecting ends of the rods 18. A railing 34 is mounted across the front end of the platform 32. A pair of upright posts 36 are secured to the rods 16 and 18 at the rear of the platform 32. Posts 36 extend upwardly from the platform 32 for a distance greater than the height of a man, and an electric flood light 38 is secured to the top of each of the posts 36. A control panel 40 is mounted on one of the posts 36.

Referring to FIGURES 2 and 4, a ventilating fan, generally designated as 42, is mounted within the duct 12 at the rear end of the duct 12. The blades 44 of the ventilating fan 42 are mounted on a shaft 46 which is rotatably supported in a bearing 48. Bearing 48 is supported from the rods 16 and 18 of the duct 12 by supports 50. A reversible electric motor 52 is mounted on the top wall 26 of the duct 12. A pulley 54 is mounted on the shaft 56 of motor 52 and is drivingly connected by an endless belt 58 to a pulley 60 mounted on the fan shaft 46. Rotation of motor 52 in one direction will rotate fan 42 to blow fresh air from the rear end of boom 10 through the duct 12 to the platform 32. Rotation of motor 52 in the opposite direction will operate fan 42 as an exhaust fan to draw air through the duct 12 away from the platform 32. Thus fan 42 can be rotated to provide the desired type of ventilation required by the operator standing on the platform 32. Control panel 40 contains a switch for operating the motor 52.

Although the ventilating fan 42 is shown mounted directly in the duct 12, the ventilating fan can be separate from the duct 12 and connected to the duct 12 by a flexible tubing. Also, the duct 12 can be divided longitudinally into two separate passageways with an exhaust fan connected to one of the passageways and a separate fan for blowing fresh air connected to the other passageway.

Dolly 14 comprises a rectangular base 66 having a pair of opposed downwardly extending legs 68 at each end thereof. An axle 70 extends through and is supported by each pair of opposed legs 68, and a wheel 72 is rotatably mounted on each end of each of the axles 70. Wheels 72 ride on a pair of spaced parallel tracks 74. Tracks 74 are each U-shaped channels and the wheels 72 ride between the flanges of the tracks 74. The top flanges of the tracks 74 prevent the boom 10 from tipping.

A pair of spaced, upright posts 78 are mounted on each side of the base 66 of dolly 14 adjacent the ends of the base 66. Braces 80 support the posts 78 in the upright position. Side rails 82 are connected between the tops of each pair of posts 78, and end rails 84 are connected between the tops of the posts 78 on opposite sides of the base 66. As shown in FIGURES 2, and 3, a pin 86 projects inwardly from each of the posts 78 adjacent the bottom of the posts 78, and a roller 88 is rotatably mounted on each of the pins 86. Duct 12 is mounted on the dolly 14 with the lower rods 18 of the duct 12 riding on the rollers 88. Duct 12 extends under the end rails 84 of the dolly 14. The end rails 84 help prevent tipping of the duct 12 with respect to the dolly 14.

A toothed rack 90 is secured to and extends longitudinally along the bottom of the duct 12. A reversible electric motor 92 is secured to the base 66 of the dolly 14. Motor 92 drives a gear 94 through a speed reducing

mechanism **96**. Gear **94** meshes with the teeth of rack **90** so that rotation of the gear **94** moves the duct **12** longitudinally with respect to the dolly **14**. Control panel **40** contains a switch for operating the motor **92**. Instead of the gear and rack drive for moving the duct **12** with respect to the dolly **14**, a chain can be secured to the duct **12** which passes over a sprocket wheel driven by motor **92**.

The boom **10** of the present invention is used in the following manner:

An operator stands on the platform **32** and can support himself by the railing **34**. The operator is moved into and through the enclosure by moving the dolly **14** along the tracks **74**. Movement of the dolly **14** along the tracks **74** can be accomplished either manually by another operator, or by a power means, not shown, connected to one or more of the wheels **72** of the dolly **14**. The operator can obtain small movements of the platform **32** by operating motor **92** which rotates gear **94** and thereby moves the duct **12** longitudinally with respect to the dolly **14**. If the operator requires ventilation, he operates the fan motor **52** to rotate the ventilating fan **42**. Rotation of the fan blades **44** in one direction will blow fresh air through the duct **12** to the platform **32**. Rotation of the fan blades **44** in the opposite direction will draw air and any obnoxious fumes through the duct from the platform **32**. Flood lights **38** will illuminate the enclosure so that the operator can properly carry out his work.

The present invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof and, accordingly, reference should be made to the appended claims, rather than to the foregoing specification as indicating the scope of the invention.

I claim:

1. A boom comprising an elongated hollow duct, said duct being closed at one end, a platform means on the other end of said duct for carrying a person, a ventilating fan in said closed and for forcing air through said duct toward said platform, motor means electrically connected to said fan, movable supporting means for moving said duct with respect to a supporting surface, illuminating means carried by said duct above said platform means, and a control means on said duct above said platform for selectively operating said illuminating means and said motor means.

2. A boom comprising an elongated hollow duct, said duct being closed at one end, platform means on the other end of said duct for carrying a person, a ventilating fan in said closed end for forcing air through said duct toward said platform, motor means electrically connected to said fan, movable supporting means for moving said duct with respect to a supporting surface, elements mechanically interconnecting said duct and said movable supporting means so that said duct is capable of having relative movement with respect to said movable supporting means, and a control means on said duct adjacent the platform means for selectively initiating said relative movement between said duct and said movable supporting means.

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