United States Patent

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[54] **SAND-BLASTING DEVICE**
3 Claims, 6 Drawing Figs.

[52] **U.S. Cl.** **51/8**
[51] **Int. Cl.** **B24c 3/86**
[50] **Field of Search** 51/8

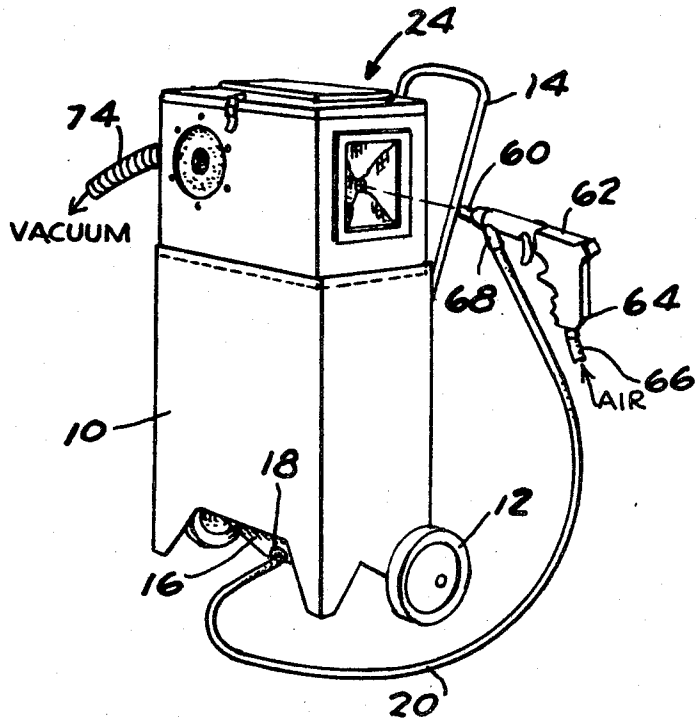
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ABSTRACT: A sandblasting device in the form of a generally rectangular cabinet communicating with a sand hopper at its lower end, the cabinet having a transparent viewing window in its top wall, an arm opening in its front wall, and a flexible panel in either an end wall or at a front corner of the cabinet. The nozzle portion of a sandblasting gun is removably secured in a central opening in the flexible panel and a baffled opening on the opposite end wall is adapted to be connected to a source of vacuum. The top wall of the cabinet is a hinged cover. An operator is adapted to insert one hand through the arm opening in the front wall to manually hold an article to be sand blasted and manipulate the gun with the other hand to direct a stream of sand against the article.



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SHEET 1 OF 2

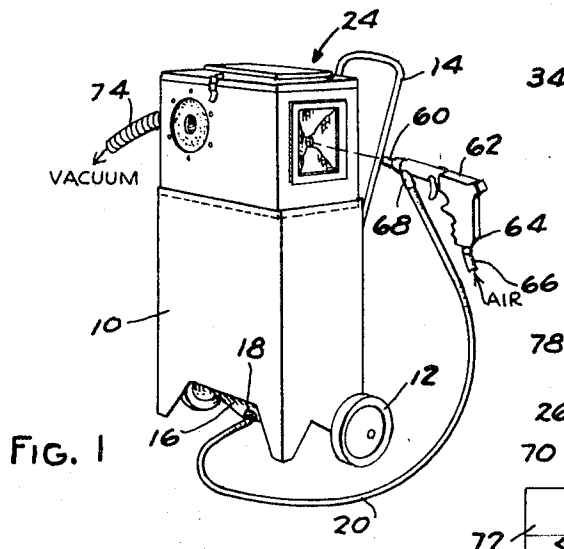


FIG. 1

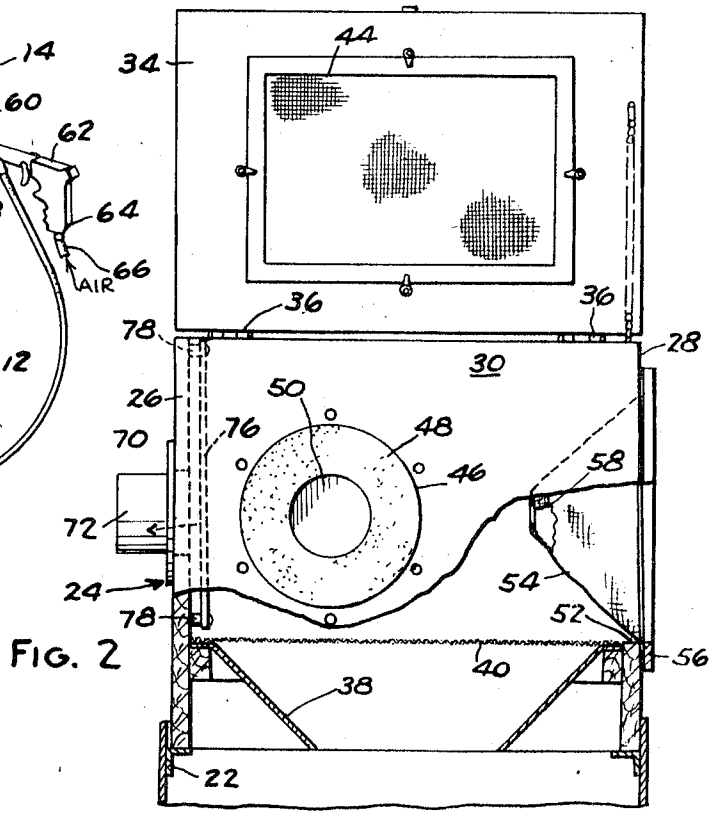


FIG. 2

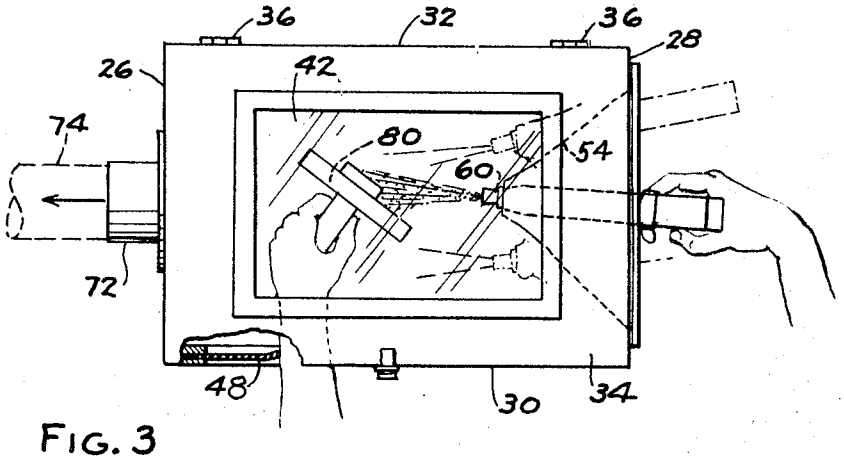


FIG. 3

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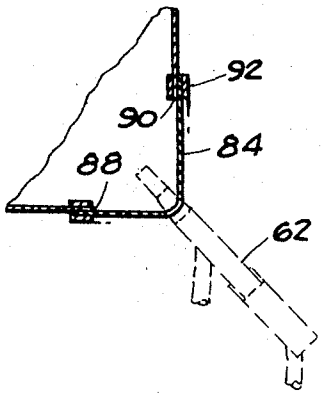


FIG. 6

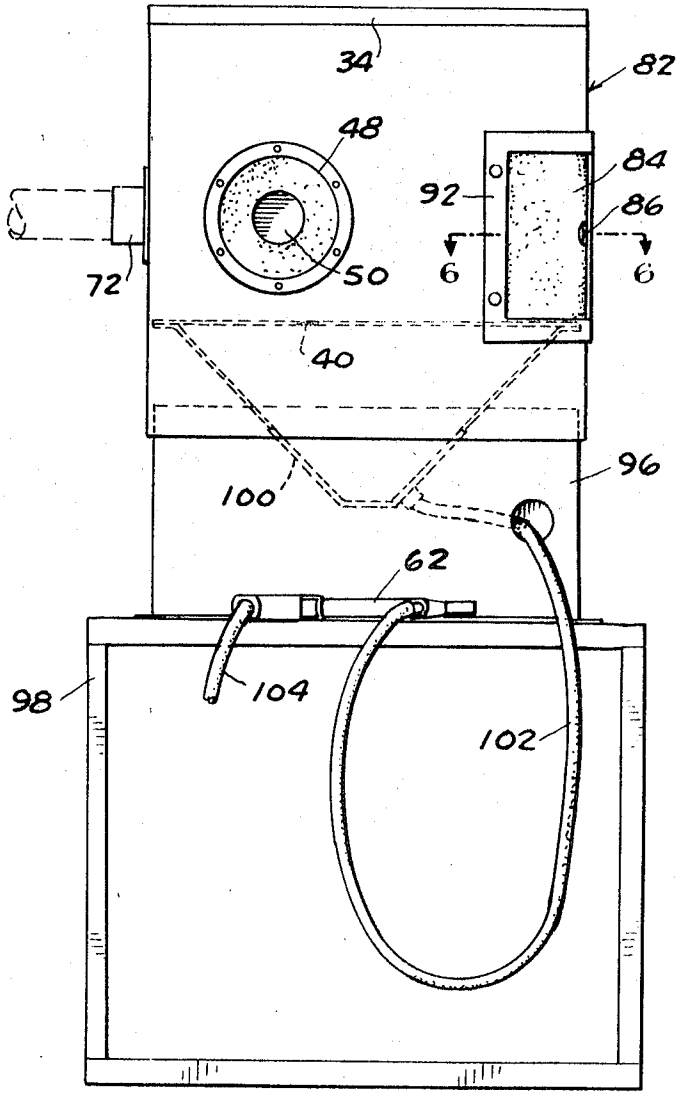


FIG. 4

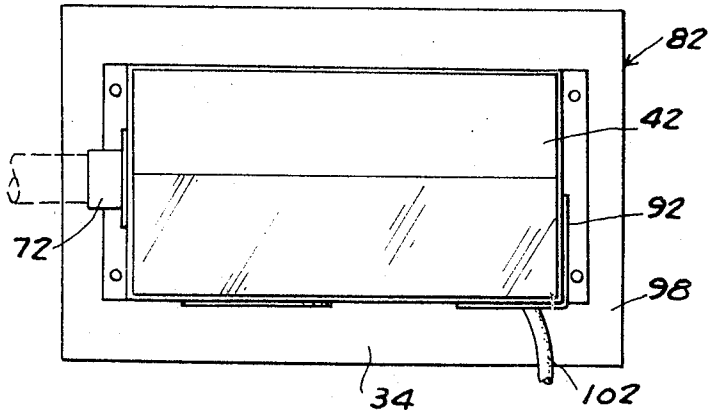


FIG. 5

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SAND-BLASTING DEVICE

This invention relates to a device for sand blasting and more particularly to a sandblasting cabinet which enables articles to be hand held while being sand blasted.

It is an object of this invention to provide a device in the form of a cabinet which enables hand-held articles to be sand blasted within the cabinet by manually manipulating both the hand-held article and the sandblasting gun while confining the sand and dust within the cabinet.

In the drawings:

FIG. 1 is a perspective view of the sand blasting device of the present invention.

FIG. 2 is a fragmentary view of the device, partly in section and with the lid or cover in the open position.

FIG. 3 is a plan view of the device, partly in section, showing the manner in which an article is sand blasted therein.

FIG. 4 is a front elevational view of a modified form of sandblasting device according to the present invention.

FIG. 5 is a top plan view thereof.

FIG. 6 is a sectional view along line 6–6 in FIG. 4.

In the arrangement illustrated in FIGS. 1—3, the arrangement of the present invention includes a tank or hopper 10, preferably mounted on wheels such as at 12, for containing a quantity of sand. If desired, hopper 10 may be provided with a handle 14 for enabling the device to be wheeled about as desired. At its lower end hopper 10 has an inclined bottom wall 16 provided with a fitting 18 to which a sand supply hose 20 is adapted to be connected. The upper end of hopper 10 is open as illustrated and provided with an interior supporting bracket 22 on which a sand blasting cabinet, generally designated 24, is adapted to be supported. Cabinet 24 is generally rectangularly shaped, having opposite end walls 26, 28, and front and back walls 30 and 32, respectively. The upper end of the hopper is adapted to be closed by a top wall or cover 34 which is hinged as at 36. The bottom of cabinet is open and within the lower portion thereof there is arranged a funnel-shaped discharge chute 38. A grid 40 is arranged over the upper end of discharge chute 38.

Cover 34 is provided with a transparent window 42 which is shielded on its underside by a screen 44. The front wall 30 of cabinet 24 is formed with an opening 46 adjacent its left end as illustrated. Within opening 46 there is secured a flexible rubber diaphragm 48 which is apertured as at 50 to enable an operator to insert his arm therethrough as shown in FIG. 3. End wall 28 at the right-hand end of cabinet 24 is provided with a large rectangular opening 52. Within opening 52 there is secured a flexible panel 54. Panel 54 is sealed around opening 52 by an outer frame 56. Panel 54 is preferably formed of a heavy flexible sheet material such as canvas, rubber, plastic or the like and preferably has considerable slack therein. Panel 54 is preferably in the shape of a truncated cone or pyramid as illustrated. At the central portion of panel 54 there is provided a grommet or bushing 58 in which the nozzle portion 60 of a sandblasting gun 62 is adapted to be inserted. Suitable means are provided for removably securing the nozzle portion 60 of gun 62 within grommet 58 so that when the nozzle portion of the gun is attached to grommet 58, as the gun is manipulated the fabric panel flexes as required and remains in frictionally connected relation with the gun.

Gun 62 has a fitting 64 adapted to be connected to a pressurized air line 66. A second fitting 68 on gun 62 is adapted to be connected with sand supply hose 20.

The end wall 26 at the left end of cabinet 24 is provided with a central opening 70 which registers with a collar 72 mounted on the exterior side of wall 30. Collar 72 is adapted to be connected to a flexible conduit 74. Conduit 74 may simply extend to any desired location or may be connected to a source of vacuum. On the inside of end wall 26 there is arranged a baffle 76 which is mounted on wall 26 by means of spacers 78. Baffle 76 is of substantially greater area than opening 70 so that the air escaping from within cabinet 24 through

opening 70 has to travel a circuitous path around the edges of baffle 76 as shown by the arrows in FIGS. 2. This eliminates the dust or fog which would otherwise remain in suspension within the cabinet and thus enables a clear view of the object within the cabinet. The use of a vacuum is not essential.

In operation gun 62 is inserted within grommet 58 so as to be connected with the flexible panel 54. With the cover 34 of the cabinet in the open position the operator inserts his left hand through opening 50 in diaphragm 48. He then grasps the workpiece 80 to be sand blasted with his left hand within the cabinet as shown in FIG. 3. Cover 34 is then closed. With his right hand the operator grasps gun 62 and by actuating the trigger thereon is able to direct a stream of airborne sand against the article. In view of the fact that panel 54 is a pliable member with considerable slack therein in relation to opening 52, the operator can manipulate the nozzle portion 60 of the gun within the cabinet as desired. At the same time, since he is manually holding the workpiece 80, he can also orient the workpiece as desired. Preferably, the operator wears a glove. In any event, the gun is sealed at grommet 58 and the operator's arm is also sealed in the cabinet by the rubber diaphragm 48. The operator is able to view the article 80 as it is being sand blasted through the transparent window 42 in the cover 34 of the cabinet.

Since the pressure in the cabinet is greater than atmospheric, air escapes through opening 70. It has been found that the provision of opening 70 in combination with baffle 76 effectively maintains the inside of the cabinet free of fog produced by sand dust. The light dust particles which are airborne escape with the airstream through opening 70 and conduit 74. The heavier sand particles, after striking the object being sand blasted, simply fall downwardly through chute 38 and into hopper 10 from which the sand is again supplied to the gun through supply hose 20. Although not necessary, conduit 74 may be connected to a source of vacuum.

In the embodiment illustrated in FIGS. 4—6 cabinet 82 is generally the same as the previously described cabinet 24 except that the flexible panel 84, which is centrally apertured as at 86 to accommodate the nozzle of the gun as shown in FIG. 6, is formed at the front right-hand corner of the cabinet. In this arrangement the front and the right sidewalls of the cabinet are cut away at the corner as indicated at 88 and 90 and the flexible panel 84, which may be formed of rubber, canvas or other material, is secured around its edges to the cut out opening by a frame member 92. Cabinet 82 is also formed with a base frame 96 by means of which the cabinet can be supported on a workbench 98. In this arrangement the sand hopper designated 100 can be mounted directly on the cabinet below grid 40. As in the previous embodiment described, a hose 102 extends from the lower end of hopper 100 to the sand supply fitting of the gun 62. An airhose 104 is also connected to gun 62 from a remotely located supply of pressurized air. In other respects cabinet 82 is constructed substantially the same as the previously described cabinet 24.

The arrangement illustrated in FIGS. 4—6 is designed primarily as a stationary, as distinguished from an easily portable, sandblasting unit. In operation this form is the same as the previously described embodiment except that gun 62 is manipulated from the front right corner of the cabinet rather than from an end wall of the cabinet. Under some circumstances the gun location shown in FIGS. 4—6 my be more convenient than that illustrated in FIGS. 1—3 because the operator's right hand does not have to extend around the end of the cabinet in order to manipulate the gun. In this connection it will be appreciated that the cabinet opening for the gun could also be formed exclusively in the front wall in which case the flexible panel would be as an inwardly recessed pocket for facilitating aiming the gun in a direction generally parallel to the front wall.

I claim:

1. A sandblasting device comprising a cabinet having front and rear walls, a pair of end walls and a top wall defining a blasting chamber and having a container at the lower end

thereof comprising a hopper for retaining a supply of abrasive, a flexible conduit extending from said hopper exteriorly of the cabinet, a blaster gun having a handle at one end and an outlet nozzle at the opposite end thereof and also having a hose connection means thereon, said flexible conduit being connected with the hose connection means on the blaster gun for supplying an abrasive from the hopper to the gun for discharge through said nozzle, said cabinet having a single arm opening in said front wall through which an operator may insert his arm for the purpose of holding and manipulating an article to be blasted in the blasting chamber, said cabinet having a second opening formed at least partially in one end wall of the cabinet with its axis extending generally horizontally, a panel in said second opening, said panel having a generally central opening therein in which the outlet nozzle of the gun is adapted to be slideably inserted in generally frictionally sealed relation from exteriorly, of the cabinet while the handle of the gun and the hose connection means thereon remain exterior of the cabinet, said panel being flexible and sufficiently large to enable the nozzle of the gun when frictionally inserted through said central opening to be directed in various positions at the article which is hand held within the cabinet by

manipulating the gun exteriorly of the cabinet by means of its handle while retaining the sealed connection between the outlet nozzle of the gun and said central opening in said flexible panel, whereby the article within the blasting chamber may be blasted when the nozzle of the gun is inserted into the central opening in the panel and a workpiece located exteriorly of the cabinet is adapted to be blasted when the gun is slideably removed from the opening in the panel.

2. A sandblasting device as called for in claim 1 wherein the second opening is disposed entirely in one end wall of the cabinet angularly related to the front wall so that the axes of the arm opening and the second opening are angularly related.

3. A sandblasting device as called for in claim 1 wherein said cabinet is removably mounted on said hopper, said hopper having sidewalls and being closed at the bottom and open at its upper end, said cabinet being open at its lower end such that when it is placed on said hopper the lower open end of the cabinet is in open communication with the open upper end of the hopper, said hopper having wheels thereon enabling the hopper to be readily moved from one location to another.