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SPRAY BOOTHS

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Fig. 1

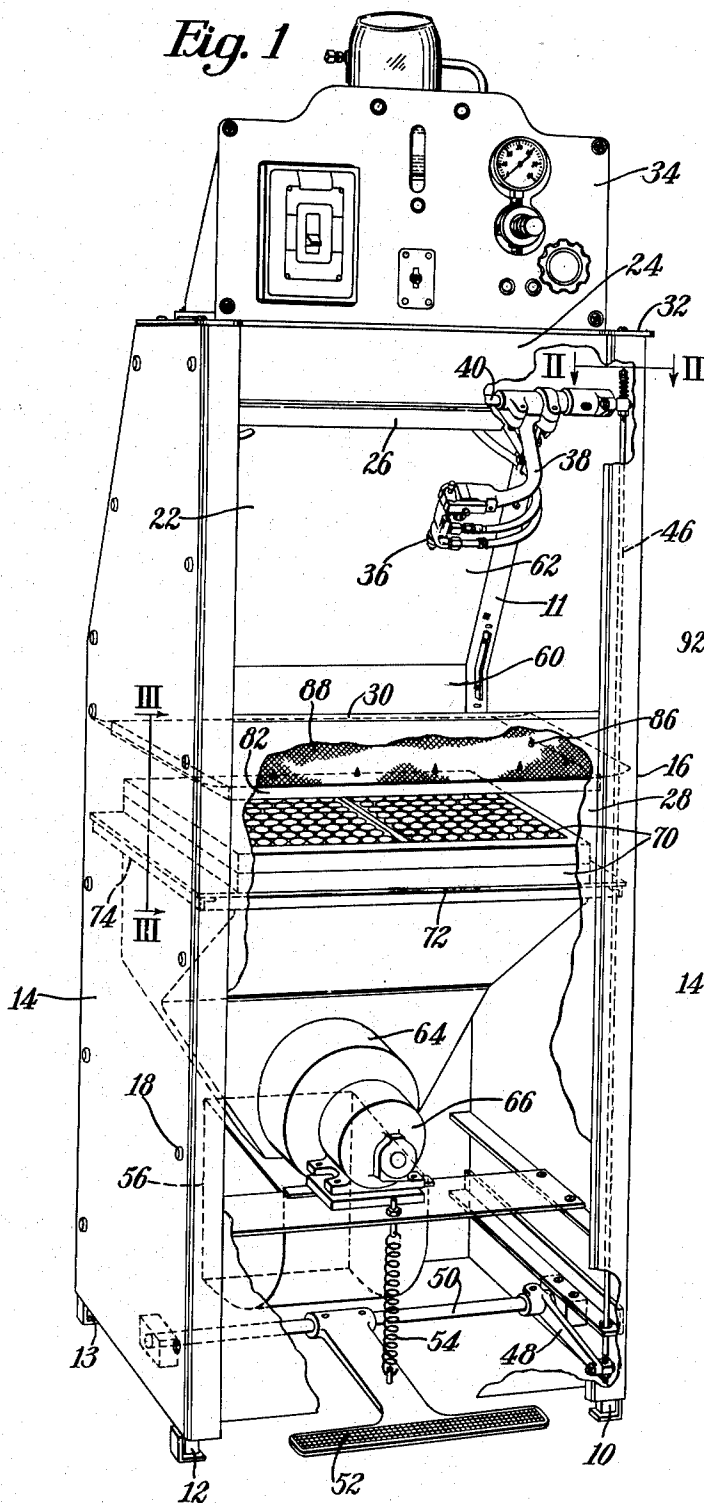


Fig. 2

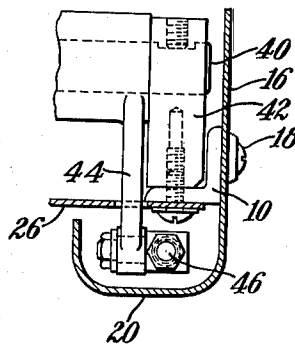
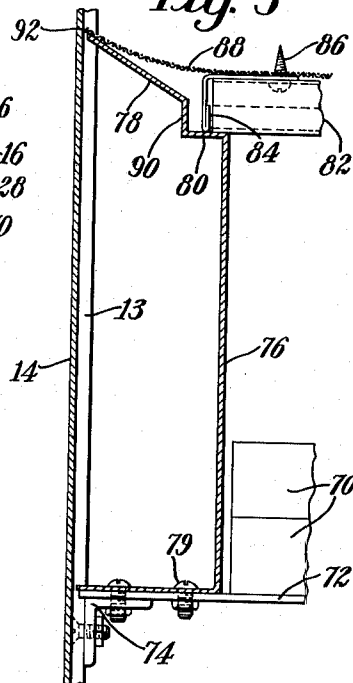


Fig. 3



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2,730,033

SPRAY BOOTHS

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2 Claims. (Cl. 98—115)

This invention relates to a spray booth having a work receiving opening through which pieces of work may be presented for treatment by means of a spray gun, and to filter means positioned in the exhaust passage of the booth to prevent the unused spray from being scattered through the room.

Spray booths of the type shown in Letters Patent of the United States No. 2,310,205, granted February 9, 1943, on the application of Charles C. Bell for improvements in cement spraying units, are used in the manufacture of shoes, for example, where parts of the shoes are to be coated by means of a spray gun. One of the materials commonly employed is a solution of latex and since it is impossible to confine the spray exactly to the parts to be coated, there is necessarily a portion which would be disseminated through the air of the room were it not drawn off by air exhausting means. Such booths as in the patented structure usually comprise a work receiving opening at the upper front portion, an exhaust opening at the rear lower portion and may be provided with a fan for effecting a circulation of air through the exhaust passage between the two openings, which passage frequently is constituted by the casing itself. The use of filters, of various sorts, in such casings transversely of the exhaust passage is well known and various expedients have been tried to lessen the cost of the filters which, in the case of latex sprays, are apt to become so saturated that they are no longer serviceable to permit the passage of a current of air. If this happens too quickly the cost to the user of the booth becomes excessive. At the same time it is important that the whole of the unused spray shall be removed from the current of air so that it may not be disseminated through the room where the booth is located.

An important object of the invention is to provide an improved filter in which the cost of maintenance is low. As illustrated, this consists of two superposed filters one of which includes a sheet of textile material such as cheesecloth and which may be discarded, and the other of which is some commercial form of filter such as the Fiberglas filters employed in air conditioning systems.

Another object of the invention is to provide a filter supporting structure, which will permit the filters to be removed through the work receiving opening, and when replaced will guide these filters readily into place with a vertical spacing between the two so that any sprayed material which passes through the upper filter will be scattered over a larger portion of the lower filter.

These and other objects of the invention will best be understood from a consideration of the following specification taken in connection with the accompanying drawings in which,

Fig. 1 is an angular view of the whole spray booth, with portions broken away;

Fig. 2 is a detail horizontal section taken through a corner of the casing on the line II—II of Fig. 1; and

Fig. 3 is an enlarged vertical section on the line

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III—III of Fig. 1 showing a portion of the means for supporting the filters at the left side of the casing.

The booth shown in the drawings has a frame made up of angle-iron corner posts 10, 12 at the front and 11, 13 at the rear. Side plates 14, 16 have been applied to these posts and attached thereto by screws 18. The front margins of the side plates 14, 16 are bent inwardly to form reinforced hollow corner pockets 20. The front of the casing has a work-receiving opening 22 between an upper front plate 24 having an intumed lower edge 26 and a bottom front plate 28 having an intumed upper edge portion 30.

The top of the casing is formed by a cover plate 32 and on this there is supported an instrument board 34 for various control devices such as are described in the aforementioned patent. A spray gun 36, carried by an arm 38, is adjustably supported upon a transverse shaft 40 carried by brackets, such as the one shown in Fig. 2 at 42, which are secured to the angle iron corner pieces 10 and 12. On this cross shaft 40 there is pivotally mounted an arm 44 arranged to actuate the trigger of the gun. This arm extends beyond the front plate 24 into the corner pocket 20 and is joined there, pivotally, to an upright treadle rod 46 which extends downwardly through the corner pocket to a point near the bottom of the machine where it is joined to an arm 48 mounted on a transverse shaft 50. The shaft has a treadle 52 normally held in its upper position by a spring 54.

An exhaust opening 56 is provided in the back wall 60 of the casing and it will be noted that the upper portion 62 of this wall is tilted slightly forward so as better to direct downwardly the current of air passing through the casing. A fan 64 operated by a motor 66 is effective to cause a current of air, passing into the work receiving opening 22, to go downwardly through an exhaust passage formed partly by the hollow casing and to be driven out through the exhaust opening 56. By locating the treadle rod 46 in the pocket formed by the marginal portion 20 there is little danger of damage to this rod by physical contact therewith and no opportunity for it to become coated with cement so as to require cleaning.

Near a mid portion of the exhaust passage the casing is provided with means for supporting one or two Fiberglas or other mineral wool filters 70 which are made up in pasteboard packages for ease in handling. The support of these filters is effected by narrow strips or ledges 72 across the front and rear of the casing, these strips being supported by angle irons 74 attached to the corner posts at front and rear such as those shown at 10, 11 and at 12, 13. At the ends of the strips 72 and extending from front to rear along the sides of the casing are hollow sheet metal guides 76 having straight guiding surfaces up and down their vertical faces. These guides are secured by screws 79 to these strips 72 and to the angle irons 74.

The upper faces 78 of the hollow guides 76 are inclined downwardly and inwardly to facilitate the dropping into position of the Fiberglas filters 70. They are also provided with notches forming shoulders 80 on which are rested the margins of a hollow frame 82. This is a rectangular structure of angle iron strips having intumed bottom edges 84 and it is provided with upstanding pointed screws 86 along all four margins to receive and position a sheet of cheesecloth 88 in stretched or flat conditions. It will be noted that the frame fits within the upright portions 90 of the notches in the guide members but for convenience it should not be brought too closely to said upright portions. Accordingly, it is found preferable to cut the sheet of cheesecloth 88 to such a size that it will extend across the gap between the frame 82 and the upright portions 90 to prevent any accumulation of cement therein which might interfere with the

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ready removal of the frame 82. Indeed, it is found preferable to extend this cheesecloth to a point 92 where it engages the sides of the casing.

With an arrangement of this sort the majority of the unused spray is intercepted by the cheesecloth 88 and only a minor portion thereof is received and intercepted by the Fiberglas filters 70. Inasmuch as the cheesecloth is relatively inexpensive, it can be changed as often as is required without incurring any considerable expense. It is found, however, that several hundred shoes will have been worked upon before such change is necessary, while the Fiberglas filters, with such an arrangement, need replacement only once or twice a year. It will be noted furthermore that the operator is able to tilt the frame 82 slightly to facilitate its removal through the work receiving opening 30, and that the positioning of this frame or of the Fiberglas filters in correct relation to the exhaust passage is greatly facilitated by the guide members 76 and the shoulders 80 therein. At the same time the inclined upper faces 78 of said members help to guide the filter members when they are put back through the opening and dropped into place.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a spray booth having a work receiving opening and an exhaust passage, means beneath said opening for supporting a mineral wool filter transversely of said passage, guide members superposed on said means to allow said filter to drop into place and to position said filter laterally, a cheesecloth-carrying hollow frame, said guide members having inclined top portions extending to the adjacent side walls to facilitate the positioning of the filters and having means supporting the hollow frame at a position above said filter, and means for holding a piece of cheesecloth on said frame with its margins resting on the inclined top portions of the guide members.

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2. In a spray booth, a substantially rectangular upright casing having, at its upper front portion, a work receiving opening, the casing also having an exhaust opening at a lower level and constituting a vertical exhaust passage, ledges on said casing along two sides thereof for receiving and supporting a mineral wool filter, upright guide members adjacent to said ledges having side walls and inclined top surfaces, said guide members extending transversely of the casing along the remaining sides, means fastened on the casing supporting the ledges and the guide members, the bottom portions of the side walls of the guide members serving to transversely locate the position of the filter, a hollow frame larger than said filter for another filter, the inclined tops of said guide members being notched to provide upright sides and shoulders to receive said hollow frame at a level spaced above the first filter, the upright sides of said notches being spaced in the passage to transversely locate the position of the hollow frame on said guide members, said frame being provided with sheet positioning and holding means, and a sheet of textile material positioned on the hollow frame and having marginal portions overlying and extending beyond the sides of the frame which rest upon said notches to touch the casing, thereby to prevent the accumulation of sprayed material on said guides which would interfere with the removal of the hollow frame.

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