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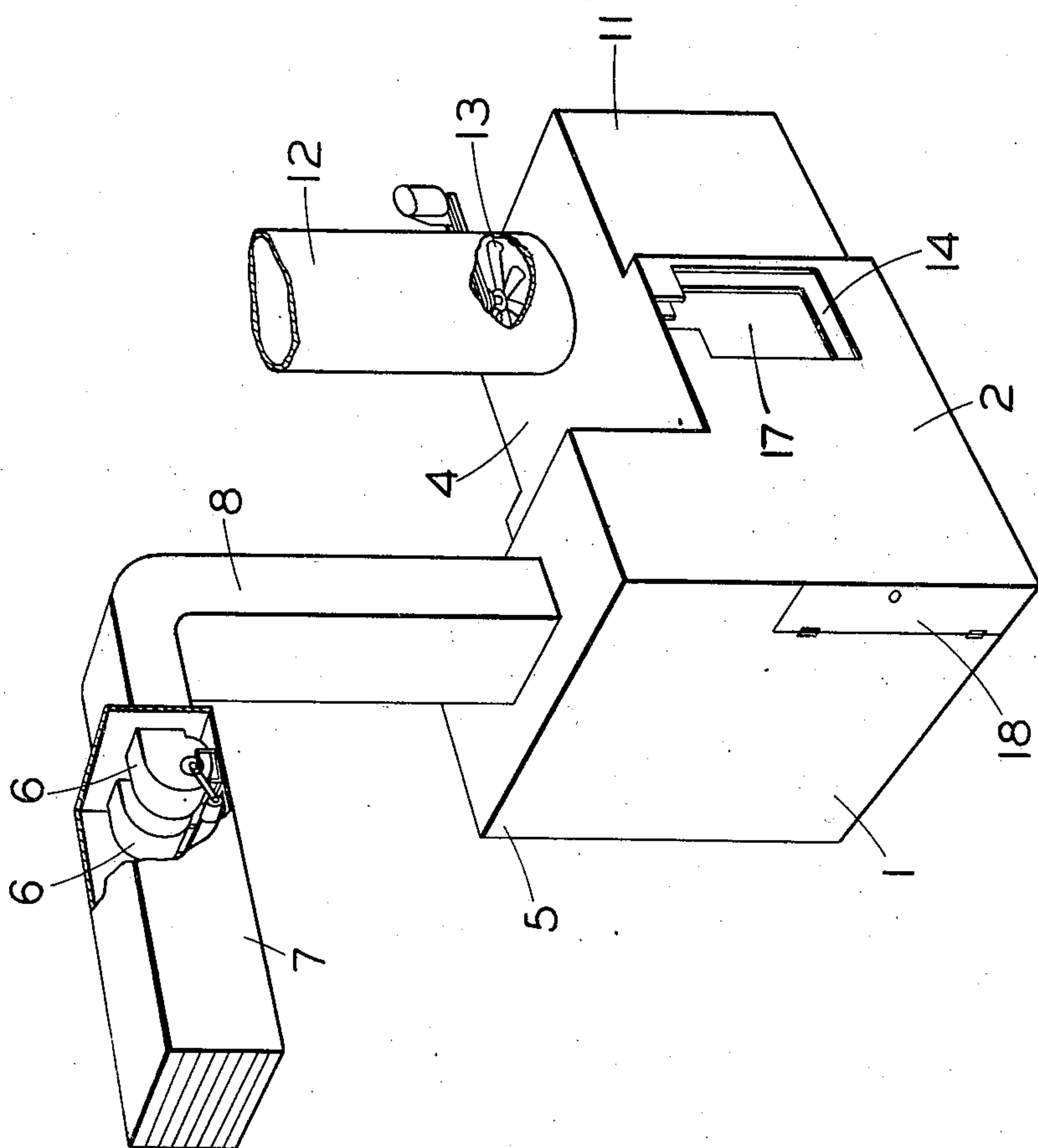
C. A. BRAUN

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SPRAY BOOTH

Filed Feb. 6, 1948

2 Sheets-Sheet 1



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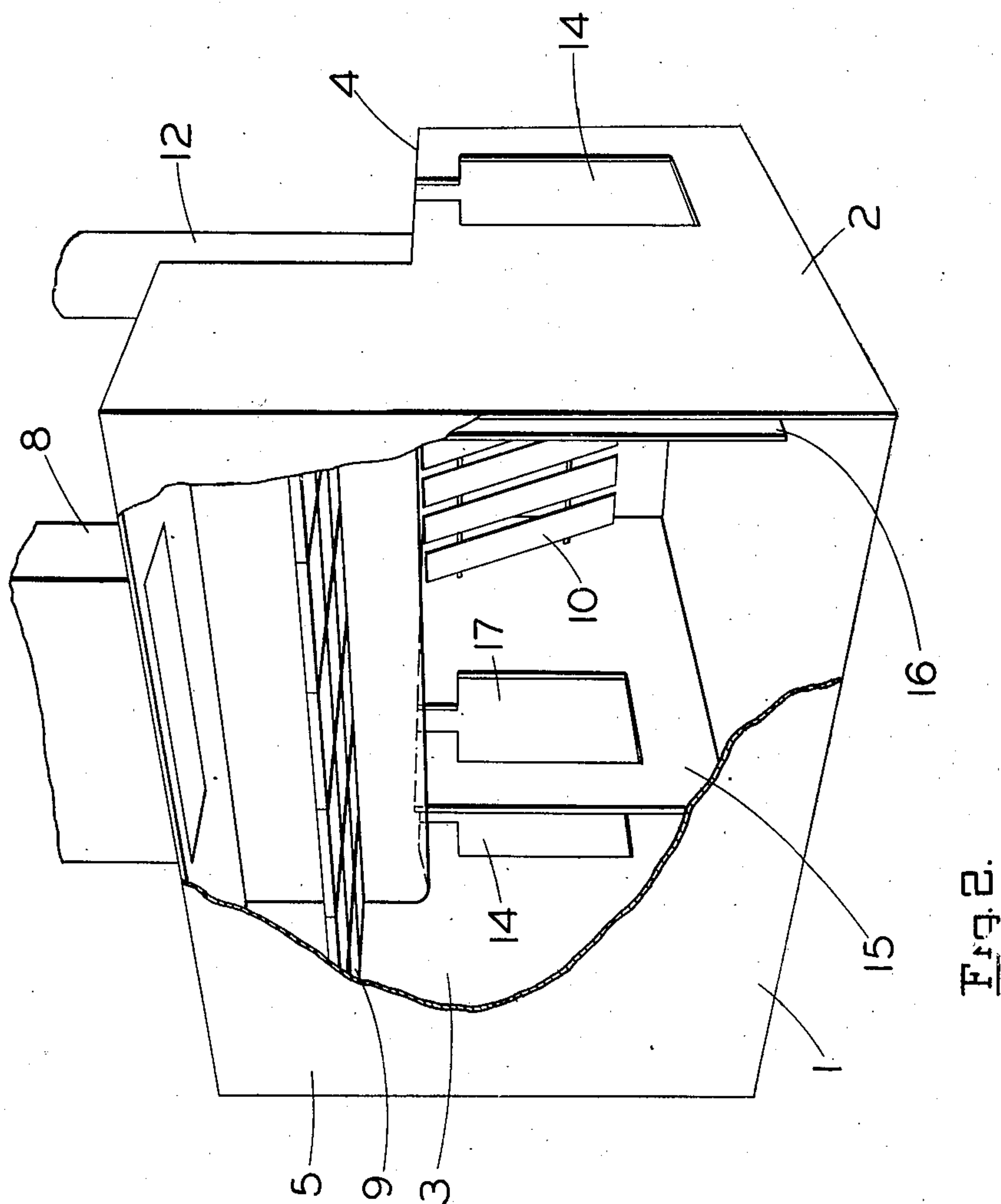
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UNITED STATES PATENT OFFICE

2,486,251

SPRAY BOOTH

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5 Claims. (Cl. 91—60)

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This invention relates to a spray booth for exhausting fumes arising from spray painting operations and particularly to such a spray booth for use with a conveyor for carrying articles to be coated through the spray booth.

One of the hazards to securing a good finish is the dust created by other plant activities. It is most desirable to prevent any such dust settling on the work during and immediately after the coating operation.

The principal object of this invention is to provide a spray booth which is adapted to keep dusts from outside sources from reaching the articles being coated in the spray booth.

A secondary object is to provide such a spray booth which prevents the escape of spray particles from the spray booth into the surrounding atmosphere.

Other objects and advantages will be apparent from the accompanying drawing and description.

In the drawings:

Figure 1 is a perspective view of a spray booth embodying the invention; and

Figure 2 is a second perspective view with one end of the booth broken away to show the interior thereof.

The spray booth illustrated in the drawing has a front end 1, sides 2 and 3, and top 4. Fresh clean air is introduced into the booth from an upwardly extending chamber 5 at the top of its front end. This air is preferably drawn from the exterior of the building, in which the booth is located, by blowers 6 in the air replacement cabinet 7. In addition to the blowers this cabinet may house heating means for bringing the air up to a temperature that is comfortable to the spray operator in the booth. From the cabinet 7 the air is forced by the blowers down the rectangular conduit 8 into inlet chamber 5. Horizontally across this chamber are positioned a close fitting series of conventional air filters 9. These not only clean the air but also distribute its flow evenly down into the main portion of the booth. The operator normally stands in the middle of the front end of the booth below the filters and faces into the booth. The major part of the incoming air is drawn through the central portion of the booth past the baffles 10 in the narrowed rear section 11 and upwardly into exhaust stack 12 by the exhaust fan 13.

As the capacity of the exhaust fan is less than that of the input blowers, more air is delivered to the booth than the exhaust fan will handle. The surplus air travels along the side walls of

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the booth and escapes through the exterior conveyor openings 14. Within the booth adjacent to these openings are vertical partitions 15 and 16 with similar conveyor openings 17. These partitions are the full height of the booth and form the sides of the spraying chamber. They are in line and may be integral with the sides of the narrowed rear section 11 of the booth. The partitions terminate just short of the area of the booth below the inlet chamber 5. The width of the chamber between a side wall and the adjacent partition should be at least equal to the width of the conveyor openings in the wall and partition. Additional input air enters between the side walls and the partitions 15 and 16 and passes inwardly to the center of the booth through openings 17 and is exhausted out the rear end of the booth.

As articles on the conveyor are spray painted at the center of the booth, the spray fumes are drawn to the rear and cannot escape out the openings 17 due to the inflow of air therethrough. Dust from the exterior of the booth is prevented from entering by the surplus air driven out the openings 14. Excess air introduced into the booth should be in sufficient volume to create a velocity of at least 150 feet per minute through the outer openings 14.

As the booth is totally enclosed except for these openings and the input and exhaust passages there is no other entering means for dust. A normally closed door 18 is provided for the convenience of the operators.

While a selected embodiment of the invention has been illustrated and described, it is to be understood that this is capable of modification within the purview of the following claims.

What is claimed is:

1. In a spray booth of the type described, a spray painting chamber, means for exhausting air from said spray painting chamber, an entering chamber at one side of said painting chamber, an opening from the exterior of the booth into said second chamber and an opening between the chambers, each of said openings being less in area than the area of the cross section of the entering chamber, said openings being provided for the introduction of articles to be painted to the painting chamber, and means for supplying air to the entering chamber in sufficient volume to insure a flow of air therefrom through the opening to the exterior of the booth and through the opening into the painting chamber.

2. In a spray booth of the type described side, front, rear and top wall sections, means for de-

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livering air to the front end of the booth, means for exhausting air in a volume somewhat less than that furnished by the delivering means from the rear end of the booth, partition walls within the booth spaced from but substantially parallel to the sides of the booth, openings through the sides and the adjoining partitions for passing articles to be coated through the center portion of the booth, the space between each side and adjoining partition being closed at the rear but open at the front to receive some of the air delivered to the booth whereby air flows into the space and passes therefrom both into the booth through the partition opening and exteriorly of the booth through the side wall opening.

3. In a spray booth of the type described, top, front, side and rear wall sections, means for exhausting a predetermined volume of air from the rear end of the booth, an inner side wall partition extending from the rear end of the booth in spaced relation to each side wall section and forming therewith a vertical chamber closed at its rear end and open to the interior of the booth at its front end, transverse openings through the side wall sections and their adjoining inner side wall partitions for the passage of articles to be spray coated, space near the front end of the booth for the operator, and means above said space for introducing air under pressure into the booth in predetermined excess volume to create a flow of air through the center portion of the booth to the exhaust means and into the side chambers from which the air flows both inwardly and outwardly through the openings provided for the articles to be coated.

4. A spray booth as set forth in claim 3 in which there are filter means positioned horizontally across the booth above the operators space

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for cleaning and distributing the air entering the booth.

5. In a spray booth of the class described front, side and rear walls, a top, a pair of vertical partitions within the booth extending from the rear end in spaced relation with the side walls, defining between them a spray chamber and defining with the adjacent side walls two forwardly open air plenum chambers, openings through the side walls and the partitions for the passage of articles to be coated through the spray chamber, an upwardly offset portion above the front end of the booth forming a rectangular air inlet chamber, a layer of air filtering material horizontally positioned across said inlet chamber, means for drawing a predetermined volume of air from the rear end of the spray chamber, and means for introducing a greater volume of air into the air inlet chamber and thence into the front ends of the spray chamber and the adjoining air plenum chambers.

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