

July 29, 1924.

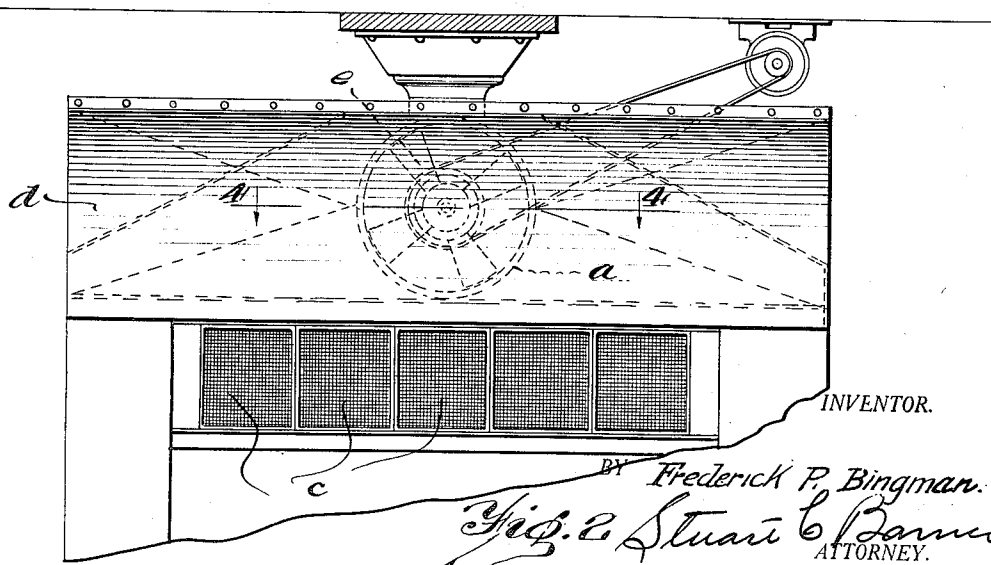
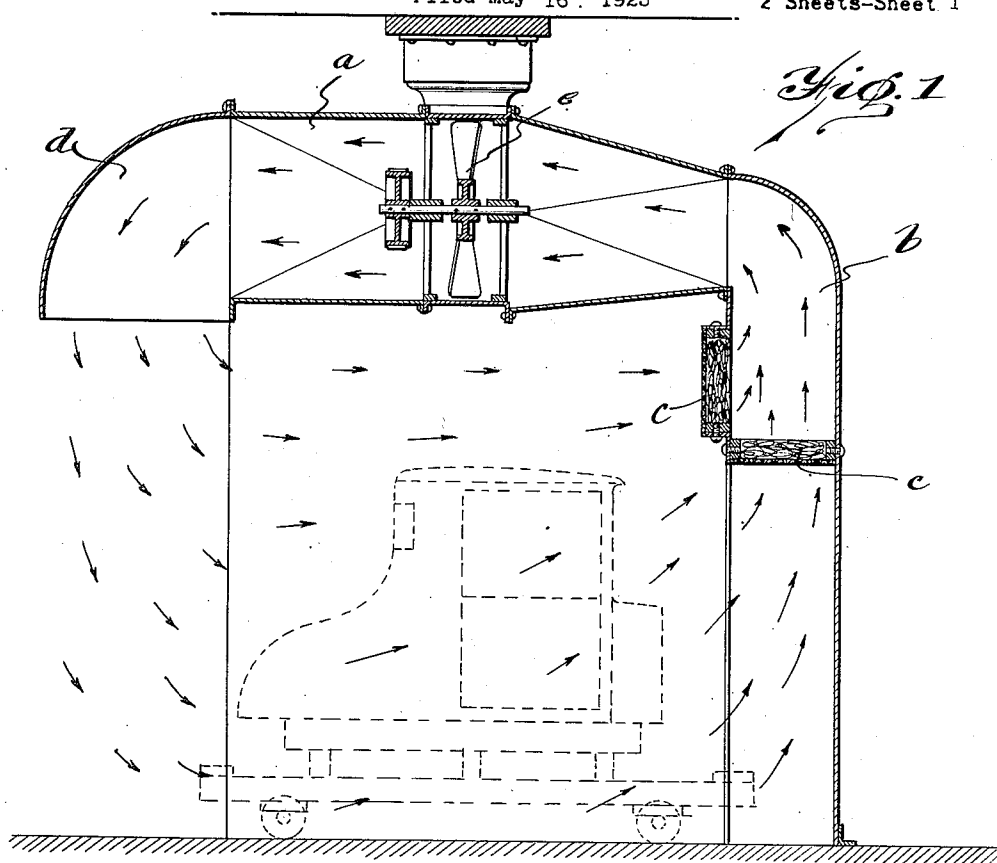
F. P. BINGMAN

1,502,844

PAINTING BOOTH

Filed May 16, 1923

2 Sheets-Sheet 1



BY Frederick P. Bingman.

Fig. 2 Stuart C. Barnes
ATTORNEY.

July 29, 1924.

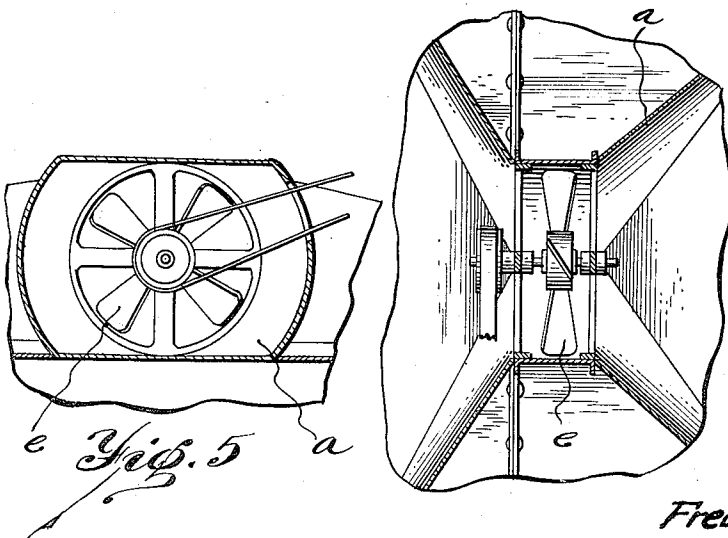
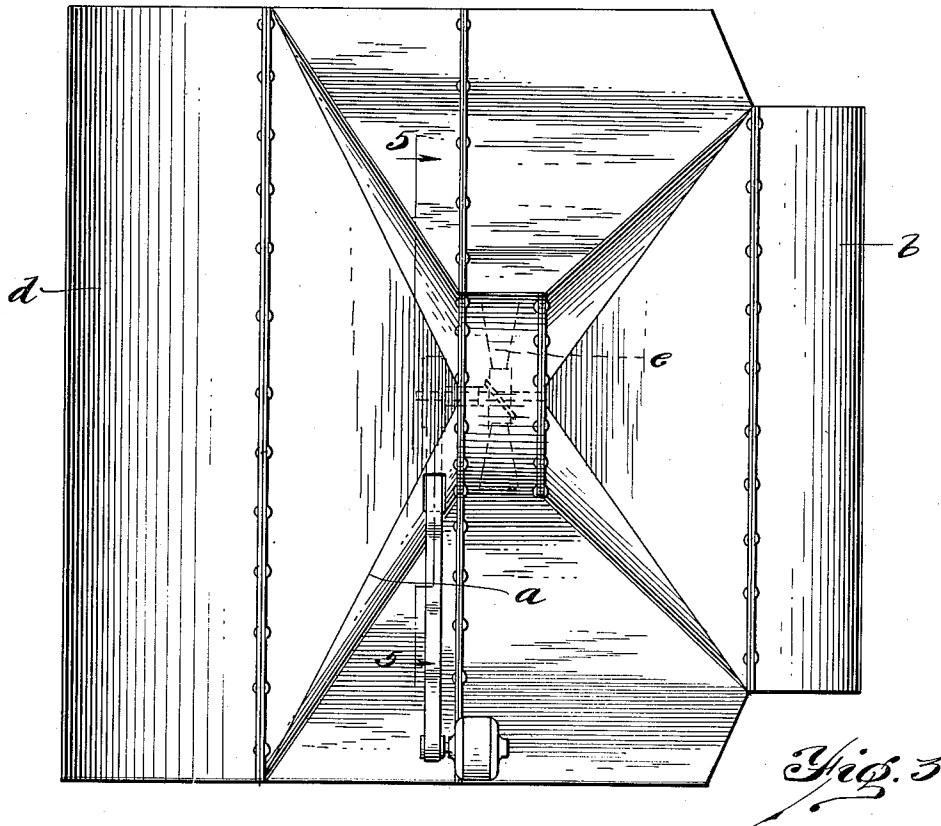
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2 Sheets-Sheet 2



INVENTOR.

Frederick P. Bingman.

BY

Stuart C. Barnes
ATTORNEY.

Patented July 29, 1924.

1,502,844

UNITED STATES PATENT OFFICE.

FREDERICK P. BINGMAN, OF DETROIT, MICHIGAN, ASSIGNOR TO FISHER BODY CORPORATION, OF DETROIT, MICHIGAN, A CORPORATION OF NEW YORK.

PAINTING BOOTH.

Application filed May 16, 1923. Serial No. 639,285.

To all whom it may concern:

Be it known that I, FREDERICK P. BINGMAN, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Painting Booths, of which the following is a specification.

This invention relates to painting booths and is intended to provide a special form of spray booth for spraying automobile bodies with paint.

On the cheaper grades of bodies it is now customary to apply the paint by spraying. Thorough ventilation has to be applied during the spraying operation, to carry off the surplus spray and protect the workmen. This is done by having air pipes that lead away from the vicinity of the spraying and draw the air up through the pipes and through stacks to the outside. This draws the fumes and the surplus spray out through the pipes; however, it is found that a large amount of the paint settles on the inside of the pipes and produces a serious fire hazard due to the inflammable character of the accumulations. Furthermore, the air has to be drawn through the pipes by an aspiratory action. It is impossible to set the fan directly in the line of draft through the pipes for it becomes so gummed up with the paint that it would not operate. It is therefore necessary to set the fan in a branch line and suck the air through the ventilating line by an aspiratory action. This results in a considerable loss of power as a large column of air has to be moved which in itself does not ventilate, but simply acts to draw along the ventilating column of air.

Still a further serious handicap is great loss of heat and the disturbance of the working conditions of the workmen in front of the enameling ovens. The spraying is ordinarily done in the vicinity of enameling ovens. Under the old system where the fumes and excess paint was ventilated into the outside air, the hot air is drawn from the enameling ovens by the suction directly in the faces of the attendants making it almost unendurable. Obviously the heat losses in the building are very serious as the heated air is drawn from the building in great volumes and discharged to the outside atmosphere.

It is the purpose of the present invention

to overcome these difficulties and introduce other advantages in the spraying operation. To this end I provide spraying booths provided with suitable air filters so that the air is drawn from the back of the spray booth taken over the top of the spray booth and discharged downwardly in front of the spray booth. This has numerous advantages aside from correcting the difficulties already alluded to. One of these advantages is that the filtered air is discharged directly on top of the workman in front of the booth adding to his comfort, and is discharged in such a way that it tends to keep the spray back from the front of the booth and away from the workman. These and other features will be described after a description of the various parts has been given.

In the drawings:

Fig. 1 is a vertical section through the painting booth.

Fig. 2 is a section fragmentary in character taken from a 90 degree point from the section shown in Fig. 1.

Fig. 3 is a plan view of the booth.

Fig. 4 is a fragmentary horizontal section through the air duct.

Fig. 5 is a section taken on the line 5—5 of Fig. 3.

The painting booth is preferably constructed of sheet metal and is a shell, the details of which need no specific description. The idea is to provide a large air duct *a* at the top of the booth; the duct connects with an up-going flue *b*; this up-going flue communicates at the front and bottom with the interior of the booth by means of sectional air filters *c*. These sectional air filters are preferably mineral wool covered with some kind of oil which will absorb fumes, such in particular as turpentine fumes, and the mineral wool is packed in thick enough to arrest the passage of any paint spray. The air duct converges from the back towards the center and diverges from the center toward the front where it terminates in a downwardly opening hood *d* directly over the front of the booth and over the attendant. At the converging central portion is provided a fan and propeller *e* driven by suitable connections.

The body can be rolled in on a truck sprayed and the spray and the fumes will be sucked up through the filter, thence through the fan and the air discharged

down over the workman and in front of the booth. This will prevent the heat losses that occurred heretofore and in no way interfere with the heat conditions and the ventilating conditions in the rest of the room. Furthermore, a fan can be located directly in the ventilating line without getting gummed up with paint. The filter can be daily taken out and cleaned and it will be found only necessary however, to clean two filters a day. The serious fire hazard that has heretofore obtained due to the flues with large paint accumulations therein running for great lengths through the building, has been entirely eliminated.

What I claim is:

1. In a paint booth, the combination of a shell provided with a painting chamber, and an air conduit for taking the air at one side of the chamber and discharging it at another side of the chamber from which it is again re-circulated laterally through the booth, and means for forcing the air through the air conduit.

2. In a painting booth, the combination of a shell forming a painting chamber, and an air duct for taking the air at one side of the chamber and discharging it at another side of the chamber from which it is re-circulated laterally through the booth, means for forcing the air through such air duct, and means for filtering the air passing through such duct.

3. In a painting booth, the combination of a shell forming an air chamber, and an air duct leading from the rear of the shell over the top and discharging it in front of the booth from which it is re-circulated laterally through the booth, a fan for propelling the air through said duct, and a filter near the intake of the duct for filtering the air and eliminating the fumes of the paint spray.

4. In a painting booth, the combination of a shell forming a painting chamber with air open front, and an air duct leading from the rear of the chamber up over the top and discharging through a hood at the open front of the chamber, a fan for propelling the air

laterally through said chamber, and removable filter sections at the intake of said duct.

5. In a painting booth, the combination of a shell provided with an open front and forming a spraying chamber and an air duct having an up-going flue and a converging and diverging flue across the top of the chamber with a narrow portion near the center, said flue discharging at the said open front, a fan located at the narrow portion, and a filter near the intake of the up-going flue.

6. In a painting booth, the combination of a shell provided with an open front and forming a spraying chamber and an air duct leading from the rear of the chamber over the top where it converges and diverges with a narrow central portion and terminates with an overhanging discharge hood above the said open front of the booth, a fan located at the narrow portion, and removable filter sections located at the intake at the rear.

7. In a painting booth, the combination of a shell provided with an open front and affording a painting chamber and an air duct in the form of an upgoing flue at the rear, a flue passing over the top of the chamber and converging toward the center and diverging toward the front to form a narrow restricted portion and discharging at the front of the booth in an overhanging hood, a fan located in the restricted portion, and a filter located at the intake in the rear.

8. In a paint booth, the combination of a shell including a painting chamber, an air duct for taking the air from the upper rear portion of said chamber and conducting it to the front of the chamber and directing the same downwardly on the workman, means for filtering the air, and means for providing a forced re-circulation of the air through the booth and air duct, whereby the air is forced downwardly on the workman and passed laterally through the booth away from the workman.

In testimony whereof I affix my signature.

FRED P. BINGMAN.