H. A. HOUSE, JR.

PAINTING BOOTH.

APPLICATION FILED DEC. 18, 1916.

1,368,338.

Patented Feb. 15, 1921.

3 SHEETS—SHEET 1.

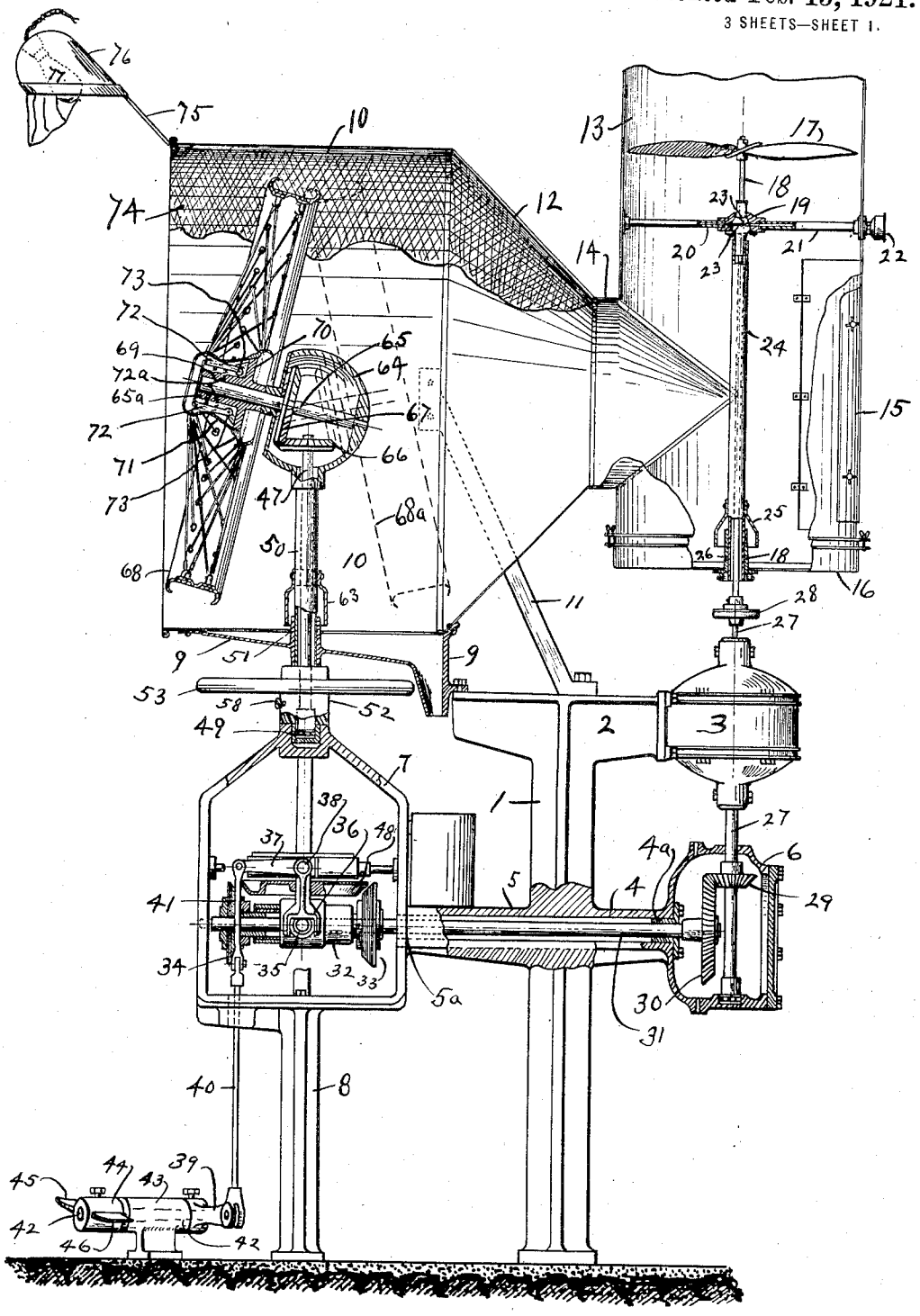

Fig. 1.

INVENTOR
Henry A. House, Jr.
by his attorney
J. Edward Shebard

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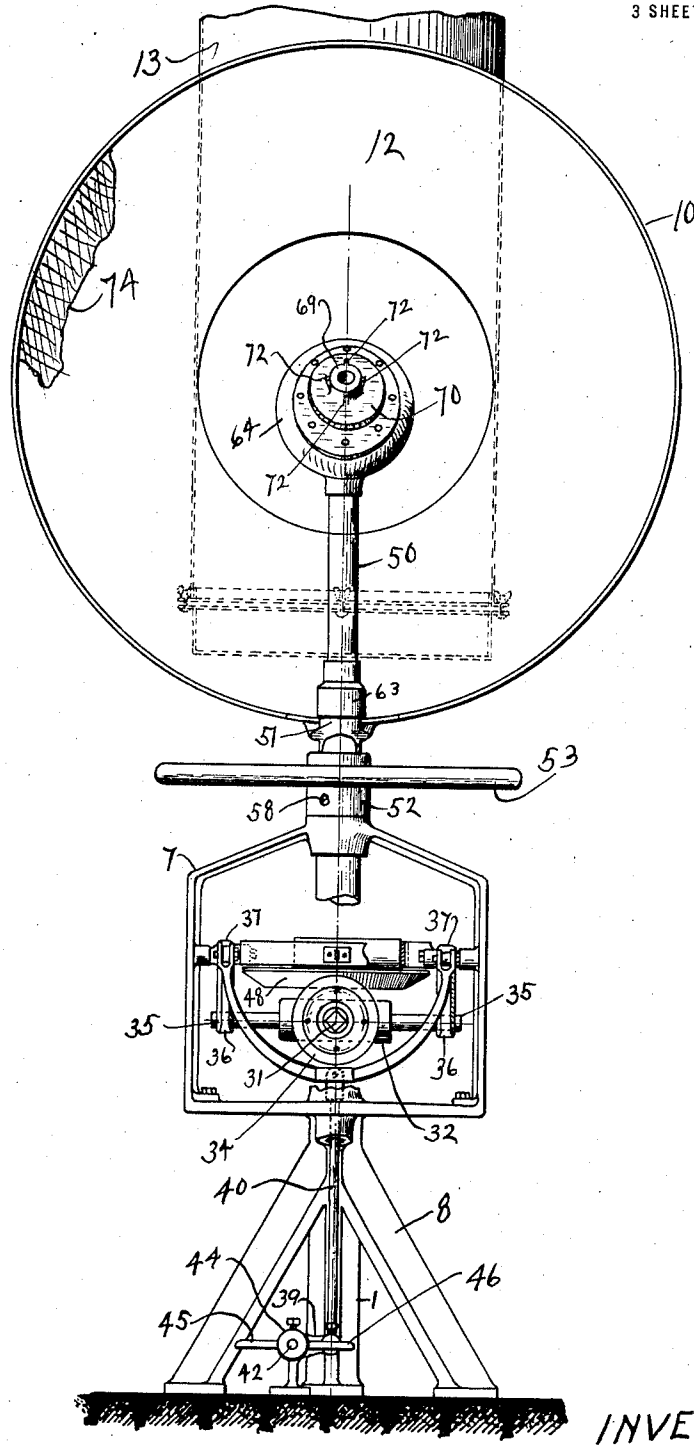

Fig. 2.

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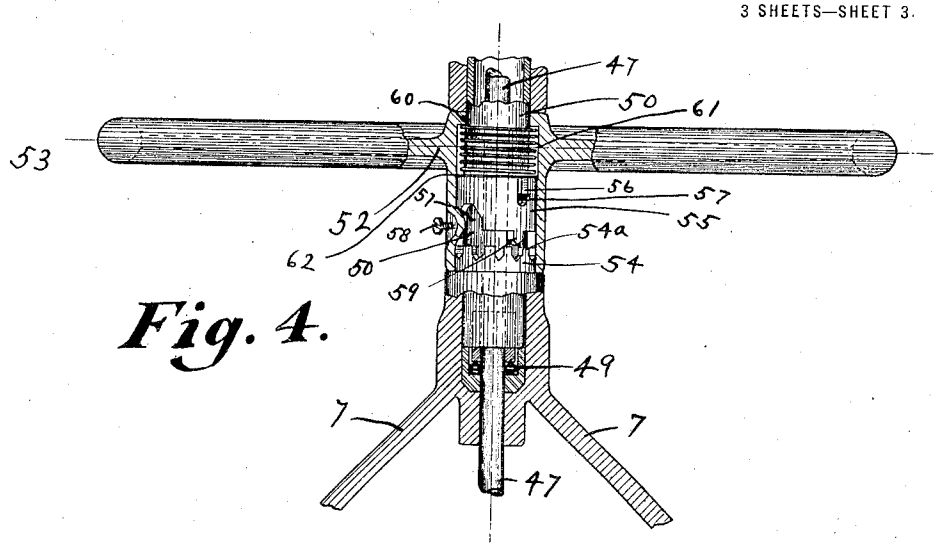

Fig. 4.

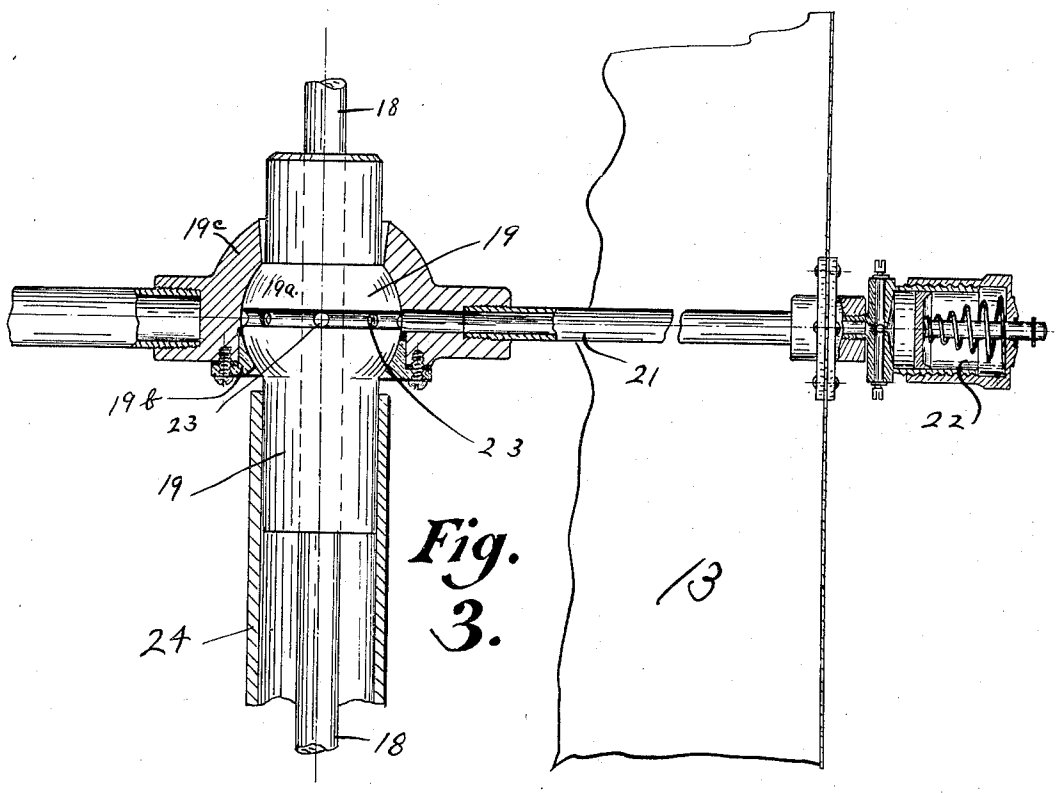

Fig. 3.

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UNITED STATES PATENT OFFICE.

HENRY A. HOUSE, JR., OF BUFFALO, NEW YORK, ASSIGNOR TO WIRE WHEEL CORPORATION OF AMERICA, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

PAINTING-BOOTH.

1,368,338. Specification of Letters Patent. Patented Feb. 15, 1921.

Application filed December 18, 1916. Serial No. 137,658.

To all whom it may concern:

Be it known that I, HENRY A. HOUSE, Jr., a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Painting-Booths; and I do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings and to figures of reference marked thereon, which form part of this specification.

Like figures of reference refer to like parts.

This invention relates to painting booths; particularly to that kind thereof, which are adapted for positioning, within the booth, wheels or other round objects, to be liquid coated, either by hand or air brush.

One object of this invention is to provide a painting booth, with ventilating passages and means for producing a forced draft therethrough.

Another object is to provide an upright chimney as one of the draft passages, allowing the paint to drop within, before the air leaves the chimney.

Another object is to provide the inner walls of the booth with a removable covering upon which the excess paint can lodge, and thus afford a ready means for reclaiming paint which is usually wasted, besides facilitating the cleaning of the inner walls of the booth without much interruption in the service of the booth.

A further object is to provide means for revolving the round object within the booth while being painted, and also to turn said round object, to present its reverse side to be covered.

A further object is to provide means for isolating the coating liquid from all revolving parts of the machinery, while in the action of creating the forced draft or revolving the round object being treated.

Another object is to provide readily releasable means for positioning, and holding the round object, for the coating operation.

Another object is to provide means for reversing the rotation of the round object.

Another object is to provide a motor in connection with the booth, for driving the air fan, and the machinery for rotating the object to be coated.

Another object is to provide said booth with a wheel holding means, adapted to readily receive and release said wheel, as desired by the operator.

To these and other ends my invention consists in a painting booth having the following features; means for rotating the object in either direction, while being painted, means for positioning and holding about a vertical axis, a given object to be rotated, means for reversing the rotation of said object, means for making a forced draft, means for protecting the bearings from the coating liquid, and a motor.

One embodiment of my invention is illustrated in the drawings and hereafter described, the operation is explained, and what I claim is set forth,

In the drawings.

Figure 1, is a sectional side elevation of a painting booth, embodying one form of my invention.

Fig. 2, is a front elevation of the booth shown in Fig. 1.

Fig. 3, is a sectional elevation of the upper fan bearing, showing the lubricant feeding mechanism.

Fig. 4, is a sectional elevation of the turning mechanism, including the automatic lock for holding the object in a given position for coating.

Referring to the figures, in Fig. 1, the main part for the frame marked 1, is shown having a top 2, to which is attached an electric motor 3. Extending on either side of the frame, part 1, are two hollow arms 4 and 5. The arm 4 terminates in a frame-work 6, and the arm 5 terminates in a frame-work 7. The frame-work 7 is partially supported on the standard 8. Bolted to the top 2 is the drain frame 9, which acts to support the cylindrical part 10 of the booth. A strut 11, acts to steady the booth on the top 2. Extending from the part 2, is the conical part 12, connected with the chimney 13, by the short pipe 14. In the wall of the chimney 13, is the door 15, and in the lower end of the chimney 13, is the removable bottom 16.

Within the chimney 13, is the fan 17, mounted on the shaft 18, which is journaled in the special bearing 19, held central within the chimney 13, by the struts 20 and 21. The strut 21 is hollow and is connected with the grease forcing cup 22. Holes 23, 23 in the bearing 19 serve to communicate the surface of the shaft 18, in the bearing 19, with the bore of the tube or strut 21. Depending from the bearing 19, is the tube 24, to which is attached the hood 25, spaced from the upstanding thimble 26. Passing through the motor 3, is the shaft 27, connected with the shaft 18 by the coupling 28. The lower part of the shaft 27 is journaled in the frame-work 6 and has mounted thereon the bevel gear 29, which meshes with the gear 30, fixed on the shaft 31. The shaft 31 is journaled in bearings 4[a] and 5[a], in the arms 4 and 5 respectively, and extends across the frame-work 7, in which it is also journaled. In spliced engagement upon the shaft is the sleeve 32, having fixed thereon the two friction cones 33 and 34. The sleeve 32 has extending on opposite sides thereof, posts marked 35, which engage forked levers 36, respectively. The forked levers 36, are fixed to a yoke 37, and are pivoted at 38 and connected with the crank-arm 39, by the links 40 and 41. The crank-arm 39 is fixed to a short shaft 42, journaled in the support 43. Fixed to the outer end of the shaft 42, is the double foot piece 44, having ears 45 and 46. Extending up through the frame-work 7, is the shaft 47, having fixed at its lower end, the friction cone 48, positioned to be engaged by either of the cones 33 or 34. The shaft 47 is supported upon the thrust bearing 49 in the upper end of the frame-work 7, and is concentric within the tube 50, which rests in a socket in the upper part of the frame-work 7. The tube 50 is in turning engagement with the tubular boss 51, of the drain frame 9. Between the drain frame 9, and the frame-work 7, and in turning engagement with the tube 50, is the hub 52 of the hand wheel 53. Inside of the hub 52 is the castellated top 54, of the frame-work 7, having teeth 54[a]. In sliding engagement with the tube 50 and between the hub 52 and the tube 50, is the cylindrical sleeve 55, having a longitudinal slot 56, engaging a pin 57, fixed in the tube 50. A notch 57, having its upper part inclined in opposite directions, is engaged by the inner end of a set-screw 58. Depending from the sleeve 55, is a tooth 59, adapted to enter the space between any two consecutive teeth 54. In the space between the sleeve 55, and the inturned flange 60 of the hub 52, is the compressed spring 61, bearing against a thin washer 62, on the sleeve 55. (The construction of the parts within the hub 52 is better shown on a larger scale in Fig. 4). Fixed to the tube 50 and extending concentrically over the tubular boss 51, is the shield 63. A globular frame 64, is mounted upon the upper end of the tube 50, and has journaled in it the upper part of the shaft 47, and the short inclined shaft 65. Fixed to the shaft 47, is the bevel gear 66, which meshes with the gear 67, on the shaft 65. A wheel 68 is shown positioned upon a holder 65[a], on the outer part of the shaft 65. This holder is made up of a cylindrical portion 69, engaging the shaft 65, a flange 70, adapted by its shape to engage the inner tapered surface of the hub 71, of the wheel 68, is integral and concentric with the portion 69. Outwardly spring-pressed fingers 72, pivoted at 73, on the portion 69, engage the tapered surface within the outer end of the hub 71. The springs pressing the fingers 72 outward, are numbered 72[a].

The inside of the booth parts 10 and 12 are shown lined by the covering 74, partly broken away. To the outer and upper portion of the part 10, is fixed the bracket 75, supporting the reflecting hood 76. An electric bulb 77 is shown within the hood 76.

In operation, a wheel 68 is positioned upon the holder 65[a], on the shaft 65, the shaft 65 being first positioned as shown in Fig. 1. The motor 3 is next started and revolves the fan 17, and the sleeve 32. The operator's foot is next pressed upon either one of the ears 45, 46, as desired to cause one or the other of the cones 33 or 34, to contact the cones 48 and revolve the shaft 47 and subsequently the wheel 68 in the direction desired. A spray of coating liquid is next directed into the booth, against the wheel 68, while it is being motor rotated. I use the usual hand air brush for this work. While the liquid is being applied, a draft created by the fan draws the liquid spray in against the wheel 68, and some of the excess spray lodges against the covering 74; some finds its way onto the tube 50, and running down is guided outside the tubular boss 51 into the drain 9 and with other accumulated liquid finds its way out the spout 9[a] into the can 9[b]. The spray which is drawn into the chimney 13, is precipitated into the bottom 16, and that portion which lodges upon the tube 24, runs down and is guided by the thimble 25 into the bottom 16. Some liquid will lodge upon the bearing 19, and will tend to mix with the lubricant, oozing from between the shaft 18 of the bearing 19. During the use of the booth, the grease gun 22[a], presses a supply of lubricant slowly through the tube 21 and into the holes 23, of the bearing 19, and out between the shaft 18 and the bearing 19, preventing the inflow of the coating liquid, running along the shaft 18 into the bearing 19.

After the face of the wheel 68 is coated, the foot lever 44 is released, disconnecting the motor 3, and the operator turns the hand wheel 53 partially, until the set-screw 58, engaging one of the inclined walls in the upper part of the recess 51, forces the sleeve 55 upward, releasing the tooth 59, from engagement with the teeth 54, 54, and upon further turning of the hand wheel 53, the set-screw 58, pressing against the vertical part of the wall of the recess 51, carries the sleeve 55 with it, and in turn the sleeve 55, pressing against the pin 37, in the slot 56, carries the tube 50 with it, turning the wheel 68 around in the booth, into the dotted position 68^a, so as to present its reverse side for coating. Upon letting go the hand wheel 53, the spring 61, forces the sleeve 55 downward, and the tooth 59 enters a space between two consecutive teeth 54, 54, and locks automatically, the position of the axis of the wheel 68 within the booth. The operator next presses down the opposite ear to that which he first pressed, and kept down during the coating of the face of the wheel 68, and the wheel is then oppositely rotated with respect to the globular frame 64, but in the same direction with respect to the operator.

During the coating operation the lamp 77 illuminates the object within the booth being coated.

Modification of the embodiment of my invention, above described and shown, may be made without departing from the spirit and scope thereof; I therefore do not wish to be confined to this one embodiment.

Having described my invention I claim:

1. In a paint booth, the combination of a coating chamber, a chimney connected therewith, means for creating a forced draft in said chimney to draw air into said chamber, a detachable lining to said chamber, and means within said chamber for supporting an object to be coated.

2. In a paint booth, the combination of a coating chamber, supporting means within said chamber and rotating means on said supporting means adapted to receive and rotate the object to be coated, said rotating means being adapted to rotate said object about an axis angularly positioned relative to the axis of said suporting means whereby said object is rotated in a plane other than the vertical.

3. In a paint booth, the combination of a chamber, supporting means therein, rotating means on said supporting means adapted to receive and rotate an object to be coated within said chamber, a motor connected with said rotating means and a reversible transmission between said motor and said rotating means adapted to reverse the rotation of said object within said chamber.

4. In a paint booth the combination of a chamber, supporting means therein, rotating means on said supporting means, adapted to receive and rotate an object to be coated within said chamber, a motor connected with said rotating means and turning means connected with said supporting means adapted to turn said supporting means to present various sides of the object to be coated as desired.

5. In a paint booth, the combination of a chamber, supporting means therein adapted to hold an object to be coated a lubricant fed bearing in said booth exposed to an atmosphere of coating material, and means for feeding said lubricant faster than it is used by said bearing whereby the lubricant wastes out from said bearing and prevents said coating material from coming in contact with the interior of the bearing.

6. In a paint booth, the combination of a frame, a coating chamber carried thereby, supporting means rotatably mounted on said frame and extending into said chamber to carry the object to be coated, means for manually positioning said supporting means on said frame and means for automatically locking said supporting means to said frame, said last named means being releasable as said supporting means is manually positioned.

7. In a paint booth, the combination of an open chamber, a vertical chimney connected with said chamber, a suction fan supported on bearings in said chimney adapted to draw air into said chamber, means within said chamber adapted to support a wheel therein said means being turnable about a vertical axis within said chamber and comprising a tubular shaft terminating at its upper end in a gear frame, an inclined shaft journaled on said gear frame, a bevel gear on said inclined shaft, a vertical shaft journaled in said tubular shaft having fixed at its upper end a bevel gear meshing with said first named gear, a reversible clutch connected with said vertical shaft, motor driven means connected with said reversible clutch, means for illuminating the interior of said chamber, and a removable lining within said chamber.

8. In a paint booth, the combination of a rotatable shaft, a bearing therefor exposed to the coating fluid, struts supporting said bearing, one of said struts being provided with a passage for lubricant to said bearing, and means for forcing through said passage more lubricant than can be used by said bearing so that the excess overflows and prevents the entrance to the bearing of the coating liquid.

9. In a paint booth the combination of a rotating shaft on which the wheel to be coated is mounted, a suction fan for creat-

ing a forced draft past said wheel, and a motor for actuating said rotating shaft and said fan.

10. In a paint booth, the combination of a rotating shaft on which the wheel to be coated is mounted, a suction fan for creating a forced draft past said wheel, a motor for actuating said shaft and said fan and means between said motor and said shaft to permit rotation of said shaft in both directions.

Buffalo, N. Y., December 9, 1916.

HENRY A. HOUSE, JR.

Witnesses:

ANTON STEIDLE,

N. L. COOK.