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P. J. BARORD

COATING APPARATUS

Filed Aug. 26, 1927

Fig. 1.

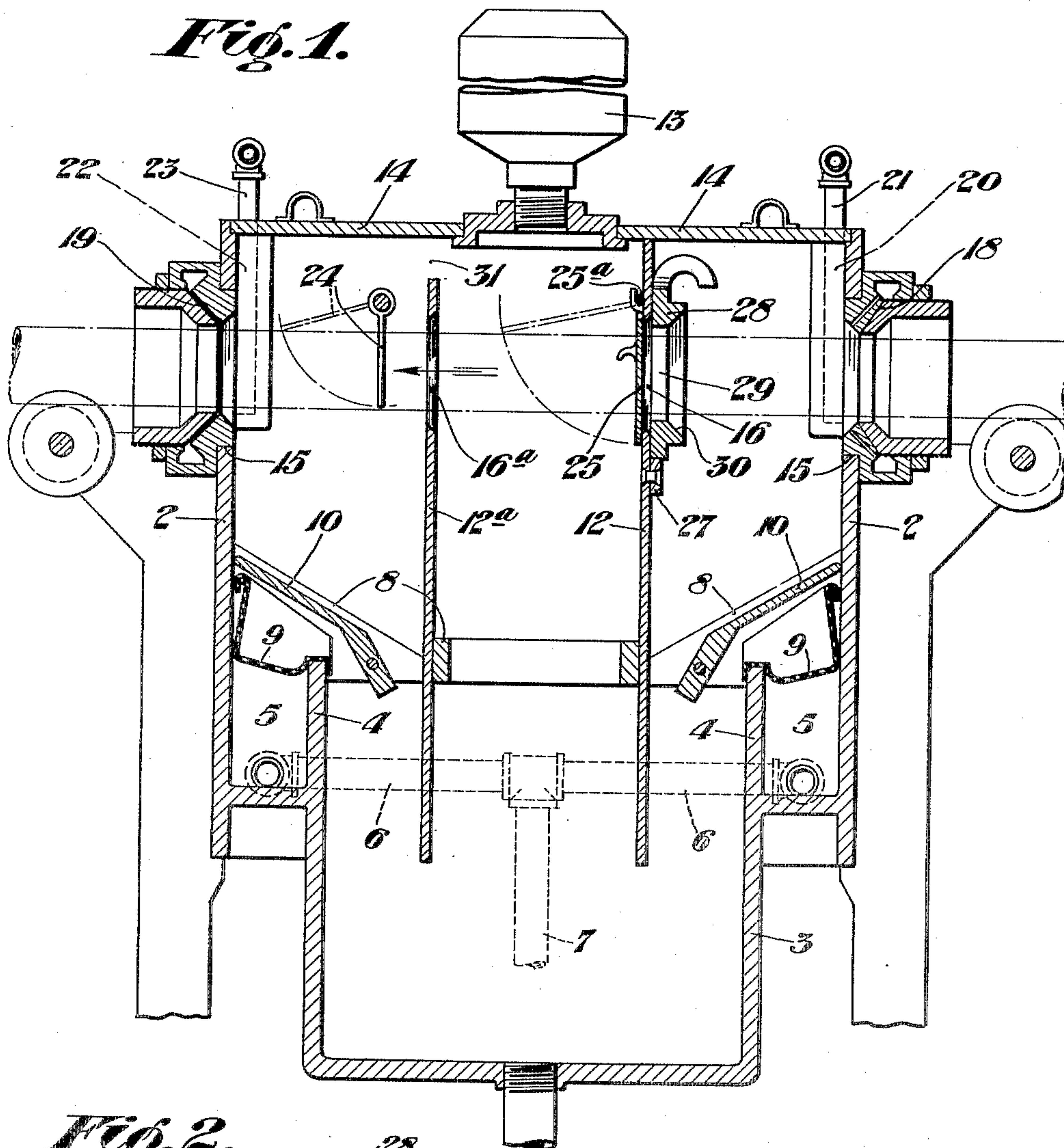


Fig. 2.

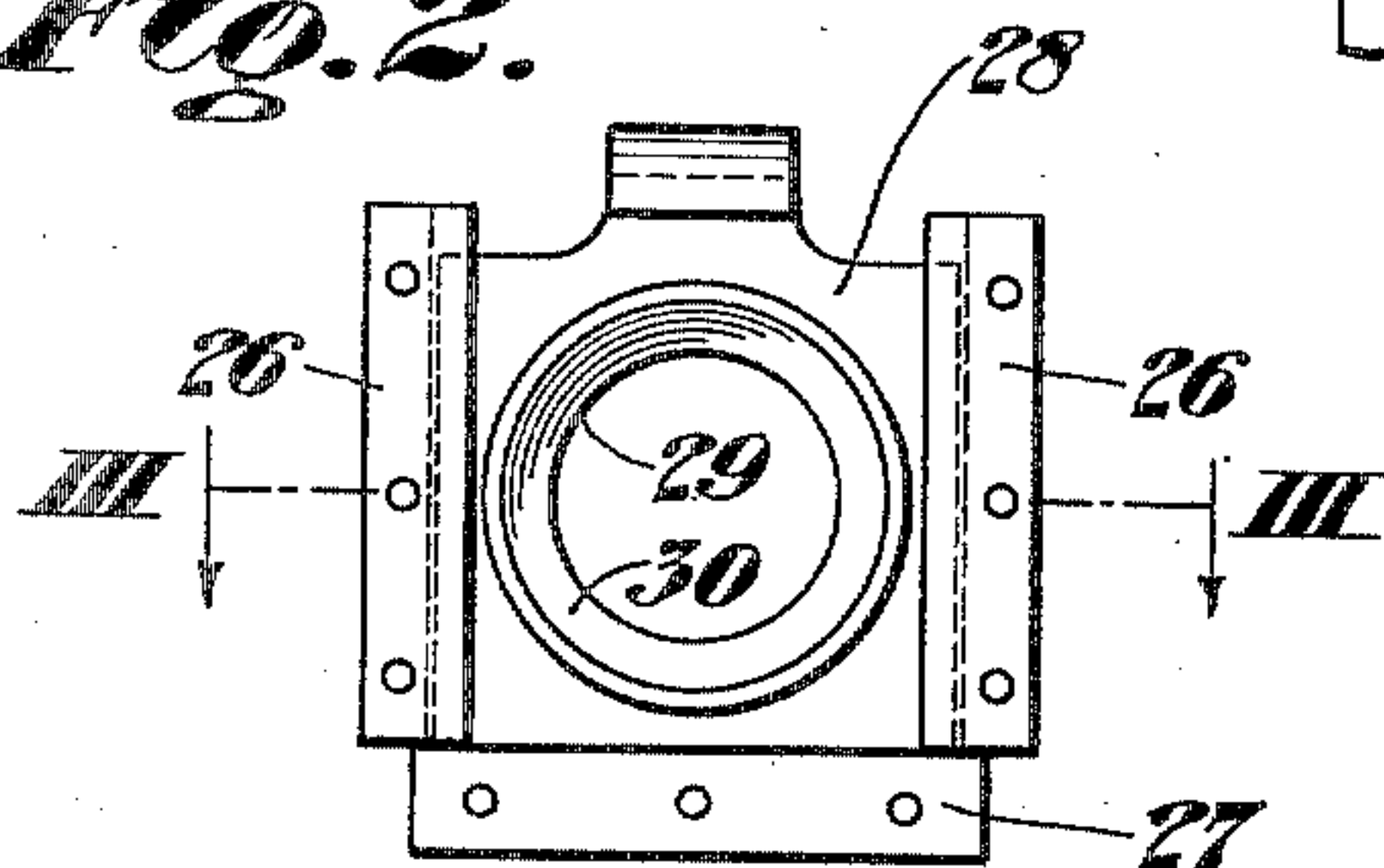
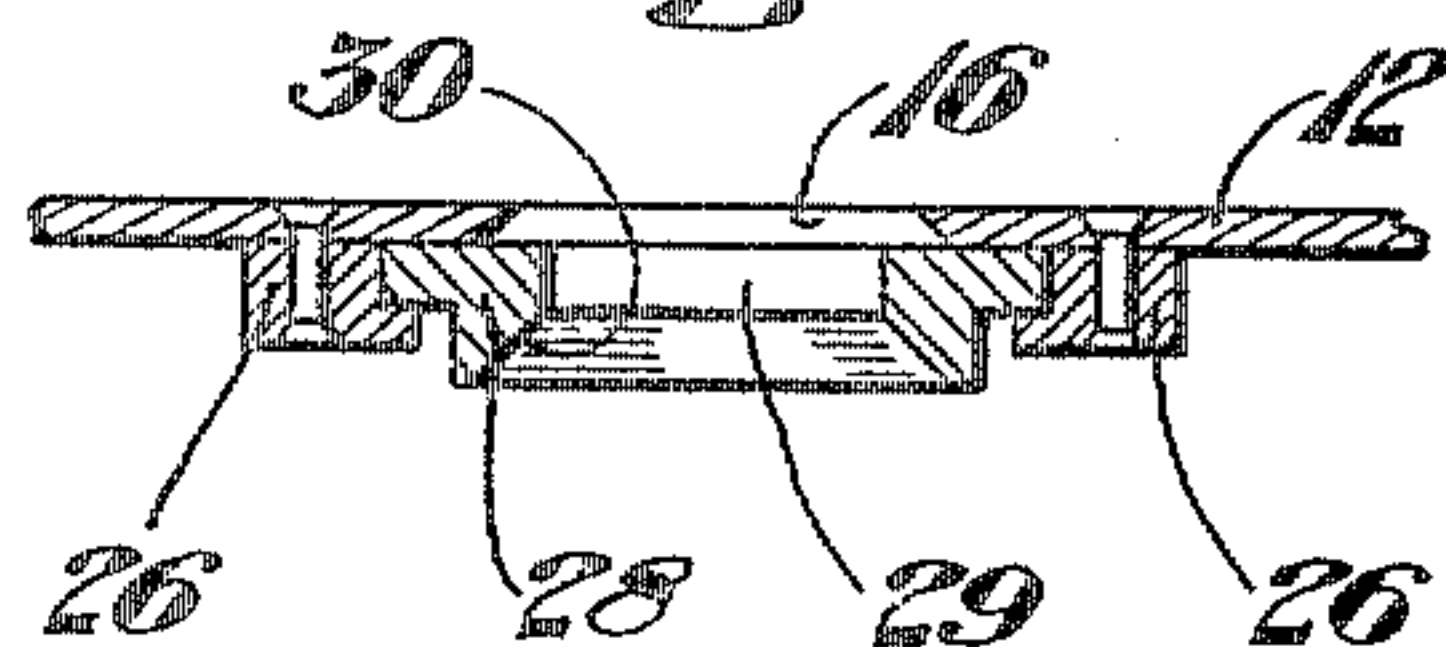


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

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COATING APPARATUS.

Application filed August 26, 1927. Serial No. 215,710.

This invention relates to coating apparatus and more particularly to apparatus for coating pipes, beams, and similar objects with paint or other liquid coating materials.

5 The present invention applies to that class of coating apparatus shown and described in my co-pending application, Serial No. 131,892, filed August 27, 1926, and has for its object the provision of a novel form of
10 baffle arrangement for machines of this class whereby the blowing out of the coating fluid by the wiping fluid is entirely eliminated.

In the drawings—

15 Figure 1 is a longitudinal vertical sectional elevation through the coating chamber of a machine embodying my invention.

Figure 2 is a front elevation of the baffle plate nearest the coating nozzle.

20 Figure 3 is a sectional plan taken on line III—III of Figure 2.

Referring more particularly to the drawings, the numeral 2 designates the coating chamber which is provided at its bottom with a settling basin or tank 3. A pair of
25 end walls 4 extend upwardly from the ends of the basin or tank 3 in spaced relation to the end walls of the coating chamber forming overflow chambers 5 for receiving the coating material overflowing from the settling basin or tank 3.

30 A pair of branch drain pipes 6 lead from the overflow chambers 5 to a main drain pipe 7, which pipe conducts the fluid back to the source of supply (not shown).

35 A grate or open support 8 extends longitudinally or from end to end of the coating chamber 2 above the settling basin or tank 3 and overflow chambers 5. Filter screens 9 are supported on the grate or support 8 and the walls 4 above each of the chambers 5, and cover plates 10 are hinged
40 supported on the grate 8 and arranged to normally overlie the chambers 5 so as to cause any liquid or coating material descending in the coating chamber to flow into the basin 3 from which it may overflow into the chambers 5 through the screens 9.

45 A pair of baffle plates 12 and 12^a are mounted transversely in the coating chamber 2 in longitudinally spaced relation for a purpose to be described.

50 An exhaust head 13 communicates through the top of the coating chamber 2 with the space between the baffle plates 12 and 12^a.

The top of the chamber 2 at each side of the exhaust head 13 is closed by hinged
55 closures 14 so that access may be readily had to the interior of the coating chamber 2.

The end walls of the coating chamber are provided with openings 15 through
60 which the work or object to be coated passes. The baffle plates 12 and 12^a are also provided with openings 16 and 16^a, respectively. The openings 15, 16, and 16^a are of sufficient size to permit the largest size object or work-
65 piece to pass.

The openings 15 form nozzle seats in which are seated the nozzles 18 and 19. Different sized nozzles are used for different sizes of objects. However, the bases of all
70 the nozzles are of the same size so as to fit the openings 15.

The nozzle 18 is adapted to coat the object or work-piece by directing a stream of coating material thereon and, therefore, is connected through a cored conduit 20 with a
75 coating supply pipe 21.

The nozzle 19 is adapted to direct a stream of air under pressure onto the object or work-piece to remove or wipe off all excess
80 coating material and, therefore, is connected through a cored conduit 22 with an air supply pipe 23.

The numeral 24 designates a trip lever adapted to be operated by the object being
85 coated as it passes through the chamber 2 to control the air supply to the nozzle 19 by means of a valve (not shown).

The baffle plate 12 extends transversely from side to side of the chamber 2 and
90 downwardly from the top of the chamber 2 through the grate or support 8 and an appreciable distance into the basin 3 so as to extend into the coating liquid in the basin, whereby the lower end of the baffle will be
95 sealed.

The baffle plate 12 as heretofore stated, is provided with an opening 16 through which the object being coated passes. The opening 16 is adapted to be normally closed
100 by a hinged closure or trap door 25 which is removably hinged to the baffle plate at 25^a and is of sufficient weight to normally remain closed by gravity. The opening 16 is preferably of sufficient size to permit the
105 passage therethrough of the largest size object for which the machine is designed. In order to more closely approximate the size

of the article or object being coated, the baffle plate 12 is provided with guideways 26 extending vertically along each side of the opening 16, and a stop 27 extending horizontally below the opening 16, and a gag or reducing plate 28 is slidably mounted in the guideways 26. The plate 28 is provided with a reduced opening 29 closely approximating the size of the object being coated, and different sizes of the plates 28 are substituted for the different sizes of objects coated.

The opening 29 is preferably flared outwardly toward the coating nozzle as at 30, so as to guide the object being coated through the opening 29.

The baffle plate 12^a, which is provided with an opening 16^a, extends transversely from side to side of the coating chamber 2, and from a point short of the top of the chamber 2 down into the coating liquid in the basin 3 so that the lower end of the baffle is sealed and the upper end is spaced from the top wall to form an opening or passageway 31 through which the air or other wiping fluid discharged by the nozzle 19 may pass into the space between the baffle plates 12 and 12^a and escape through the exhaust head 13.

In operation, assuming that the apparatus is equipped with annular nozzles and baffle plates having round openings therein for coating pipe, a pipe will be passed through the nozzle 18 and its forward end will pass through the opening 29 in the gag plate 28 and engage the trap door or closure 25 and force said door upwardly. The pipe will then continue its movement through the chamber 2 and through the wiping nozzle 19 which nozzle will direct a stream of air or other fluid against the pipe to wipe off all excess coating material. The air discharged by the nozzle 19, which is under high pressure, will strike the baffle plate 12^a and be directed up over the plate 12^a and into the space between the plates 12 and 12^a from which it will escape through the exhaust head 13.

Due to the fact that the gag plate 28 has an opening approximating the size and shape of the object or pipe being coated, no appreciable amount of air will escape through the baffle 12 while the object is passing therethrough and, therefore, the coating material will not be blown back through the nozzle 18 while the pipe is passing through the baffle 12, and as soon as the pipe passes through the baffle plate 12 the trap door 25 will automatically close by gravity and effectively seal the opening 16 in the baffle plate against the passage of air therethrough.

From the above it will be readily understood that I have provided an effective means for preventing the blowing back of the coating material discharged by the nozzle

18 by the wiping air from the nozzle 19.

While I have shown and described one specific embodiment of my invention, it will be understood that I do not wish to be limited thereto since various modifications may be made without departing from the scope of my invention as defined in the appended claims.

I claim—

1. In an apparatus for coating the surface of an object with fluid coating material comprising, in combination, a coating chamber, a coating nozzle at one end of said chamber, a wiping nozzle at the other end of said chamber, means for supplying coating fluid to said coating nozzle, and means for supplying gaseous fluid to said wiping nozzle, a baffle plate arranged transversely of said coating chamber and adapted to prevent the passage of gaseous fluid from said wiping nozzle into the path of the coating fluid being discharged from said coating nozzle, said baffle plate being apertured to permit the passage of the object to be coated therethrough, and means for normally closing said aperture.

2. In an apparatus for coating the surface of an object with fluid coating material comprising, in combination, a coating chamber, a coating nozzle at one end of said chamber, a wiping nozzle at the other end of said chamber, means for supplying coating fluid to said coating nozzle, and means for supplying gaseous fluid to said wiping nozzle, a baffle plate arranged transversely of said coating chamber and adapted to prevent the passage of gaseous fluid from said wiping nozzle into the path of the coating fluid being discharged from said coating nozzle, said baffle plate being apertured to permit the passage of the object to be coated therethrough, and a yieldable closure for said aperture adapted to normally close said aperture and to be opened by the object being coated as it passes through said aperture.

3. In an apparatus for coating the surface of an object with fluid coating material comprising, in combination, a coating chamber, a coating nozzle at one end of said chamber, a wiping nozzle at the other end of said chamber, means for supplying coating fluid to said coating nozzle, and means for supplying gaseous fluid to said wiping nozzle, a baffle plate arranged transversely of said coating chamber and adapted to prevent the passage of gaseous fluid from said wiping nozzle into the path of the coating fluid being discharged from said coating nozzle, said baffle plate being apertured to permit the passage of the object to be coated therethrough, and a hinged door for said aperture adapted to normally close said aperture and to be opened by the object being coated as it passes through said aperture,

said door being adapted to close by gravity.

4. In an apparatus for coating the surface of an object with fluid coating material comprising, in combination, a coating chamber, a coating nozzle at one end of said chamber, a wiping nozzle at the other end of said chamber, means for supplying coating fluid to said coating nozzle, and means for supplying gaseous fluid to said wiping nozzle, a baffle plate arranged transversely of said coating chamber and adapted to prevent the passage of gaseous fluid from said wiping nozzle into the path of the coating fluid being discharged from said coating nozzle, said baffle plate being provided with an aperture of sufficient size to permit the largest sized object to be coated to pass freely therethrough, and a reducing plate having an aperture of less size therein, said plate being removably mounted on said baffle plate so as to partially close the aperture in said baffle plate.

5. In an apparatus for coating the surface of an object with fluid coating material comprising, in combination, a coating chamber, a coating nozzle at one end of said chamber, a wiping nozzle at the other end of said chamber, means for supplying coating fluid to said coating nozzle, and means for supplying gaseous fluid to said wiping nozzle, a baffle plate arranged transversely of said coating chamber and adapted to prevent the passage of gaseous fluid from said wiping nozzle into the path of the coating fluid being discharged from said coating nozzle, said baffle plate being provided with an aperture of sufficient size to permit the largest sized object to be coated to pass freely therethrough, a reducing plate having an aperture of less size therein, said plate being removably mounted on said baffle plate so as to partially close the aperture in said baffle plate, and a yieldable closure for said aperture in said baffle plate, said closure being adapted to be opened by the object being coated as said object passes through said aperture.

6. In an apparatus for coating the surface of an object with fluid coating material comprising, in combination, a coating chamber, a coating nozzle at one end of said chamber, a wiping nozzle at the other end of said chamber, means for supplying coating fluid to said coating nozzle, and means for supplying gaseous fluid to said wiping nozzle, a baffle plate arranged transversely of said coating chamber and adapted to prevent the passage of gaseous fluid from said wiping nozzle into the path of the coating fluid being discharged from said coating nozzle, said baffle plate being provided with an aperture of sufficient size to permit the largest sized object to be coated to pass freely therethrough, and a reducing plate having an aperture of a size closely approximating the

size of the object being coated, said plate being removably mounted on said baffle plate so as to overlie the aperture in said baffle plate.

7. In an apparatus for coating the surface of an object with fluid coating material comprising, in combination, a coating chamber, a coating nozzle at one end of said chamber, a wiping nozzle at the other end of said chamber, means for supplying coating fluid to said coating nozzle, and means for supplying gaseous fluid to said wiping nozzle, a baffle plate arranged transversely of said coating chamber and adapted to prevent the passage of gaseous fluid from said wiping nozzle into the path of the coating fluid being discharged from said coating nozzle, said baffle plate being provided with an aperture of sufficient size to permit the largest sized object to be coated to pass freely therethrough, a reducing plate having an aperture of a size closely approximating the size of the object being coated, said plate being removably mounted on said baffle plate so as to overlie the aperture in said baffle plate, and a hinged closure for said aperture in said baffle plate, said closure being adapted to be opened by the object being coated as it passes through said aperture, said closure being adapted to close by gravity.

8. In an apparatus for coating the surface of an object with fluid coating material comprising, in combination, a coating chamber, a coating nozzle at one end of said chamber, a wiping nozzle at the other end of said chamber, means for supplying coating fluid to said coating nozzle, and means for supplying gaseous fluid to said wiping nozzle, a baffle plate arranged transversely of said coating chamber and adapted to prevent the passage of gaseous fluid from said wiping nozzle into the path of the coating fluid being discharged from said coating nozzle, said baffle plate being provided with an aperture of sufficient size to permit the largest sized object to be coated to pass freely therethrough, a reducing plate having an aperture of a size closely approximating the size of the object being coated, said plate being removably mounted on said baffle plate so as to overlie the aperture in said baffle plate, and said aperture in said reducing plate being flared outwardly toward said coating nozzle so as to guide the object to be coated therethrough,

9. In an apparatus for coating the surface of an object with fluid coating material comprising, in combination, a coating chamber having a settling tank opening into the bottom thereof to receive excess coating material, a coating nozzle at one end of said chamber, a wiping nozzle at the other end of said chamber, means for supplying coating fluid to said coating nozzle, and means for supplying gaseous fluid to said wip-

ing nozzle, a pair of spaced baffle plates arranged transversely of said chamber, an exhaust head communicating with the upper end of the space between said plates, the one of said plates nearest said coating nozzle extending from the top of said coating chamber down into said settling tank to a point below the level of the coating liquid therein, said baffle plate being apertured to permit the passage of the object to be coated therethrough, and means for normally closing said aperture, the other of said baffle plates nearest said wiping nozzle extending from a point short of the top of said coating chamber down into said settling tank to a point below the level of the coating liquid therein, said last named baffle plate being apertured to permit the passage of the object to be coated therethrough.

In testimony whereof, I have hereunto signed my name.

PAUL J. BARORD.