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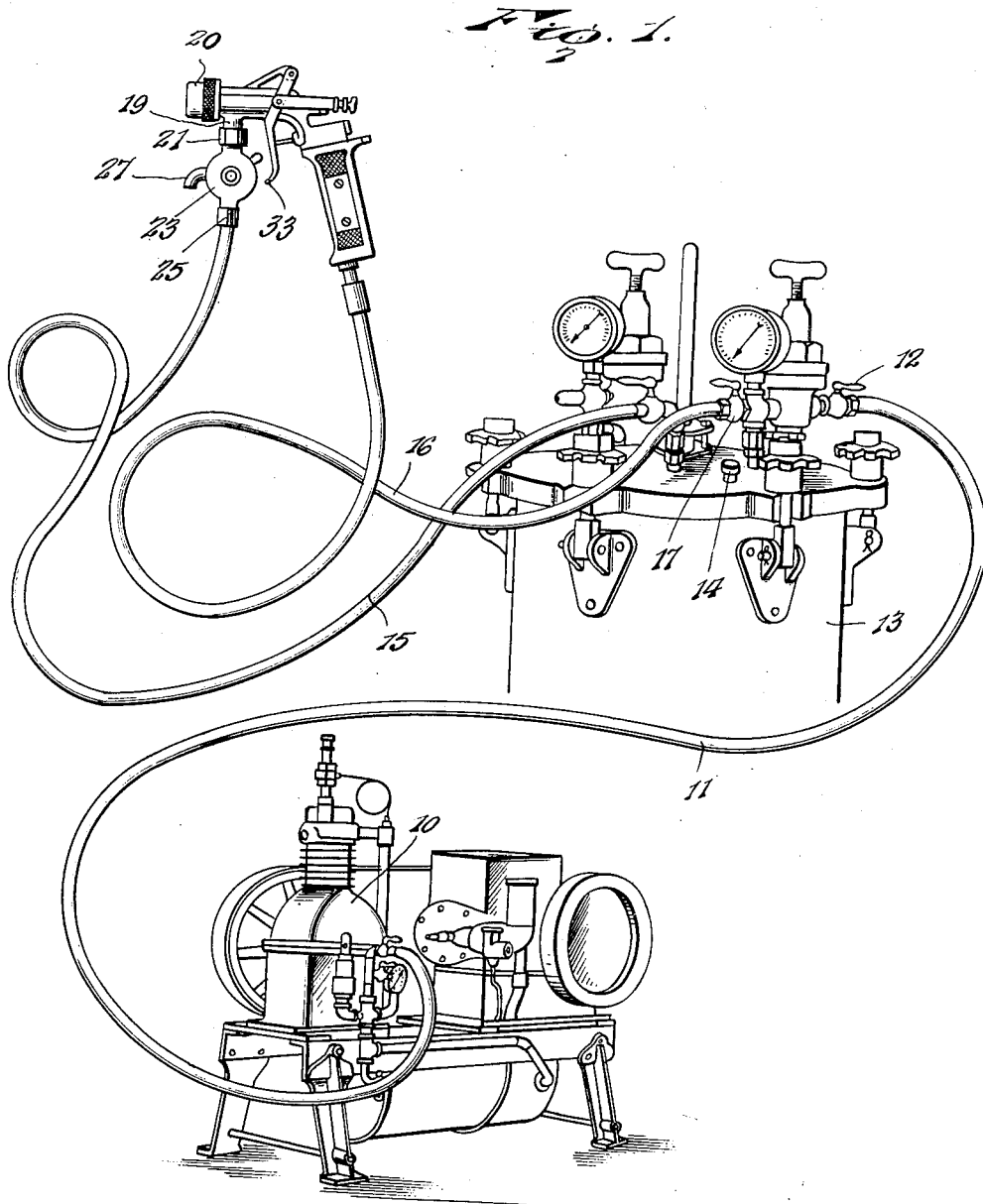
R. M. CATHCART

1,929,348

SPRAY GUN

Filed Jan. 30, 1931

2 Sheets-Sheet 1



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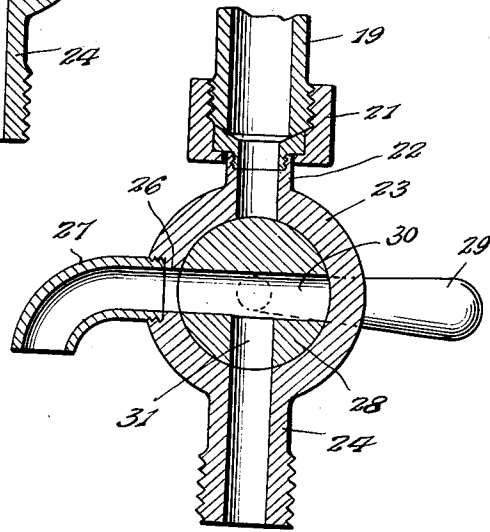
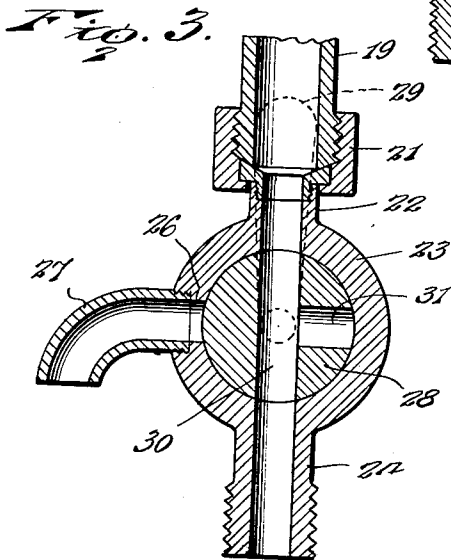
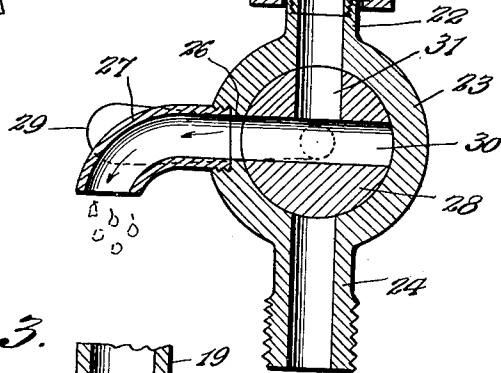
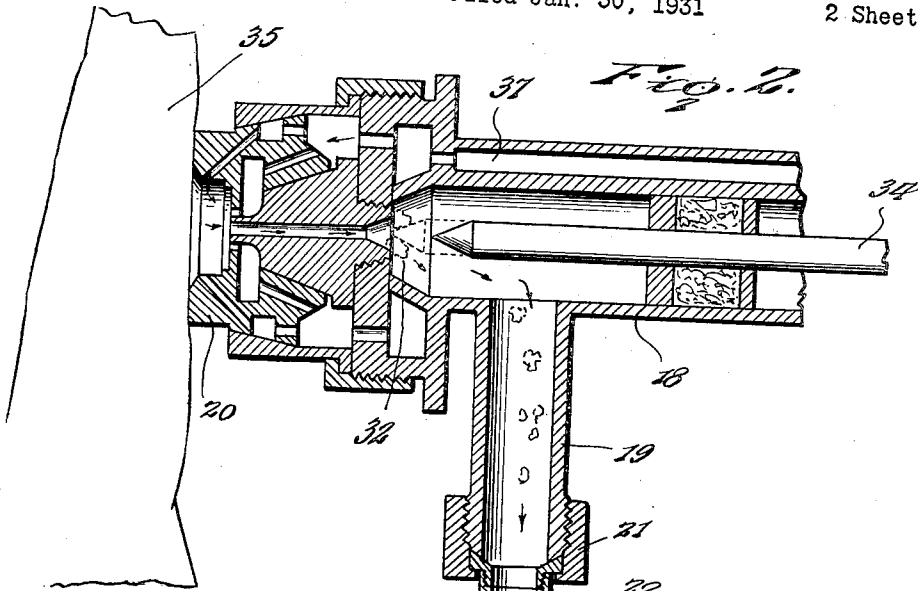
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SPRAY GUN

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3 Claims. (Cl. 91-45.5)

This invention relates to spray apparatus and has for an object to provide novel means whereby nozzle jamming material will be forcibly ejected from the barrel of a spray gun into the atmosphere when the compressed air is directed in a retrograde direction through the nozzle to dislodge the jamming material.

A further object is to provide a blow-off or waste fitting, disposed in the material feed line to the gun and valve controlled to permit of the gun being instantly freed of nozzle jamming material without disconnecting any of the parts of the apparatus.

A still further object is to provide a three-way valve, manipulation of which will, in addition to the foregoing, also permit of flushing the feed line with an accelerated flow of fresh material for relieving said line of any accumulation of clogging masses or foreign substances.

A still further object of the invention is to provide an apparatus wherein, after a scavenging fluid has been introduced into the tank, the valve may be, without the necessity of disconnecting any of the parts, opened for permitting an accelerated flow of the fluid through the feed line to the atmosphere so that said fluid will be forcibly driven through the line for dislodging any incrustations and quickly and effectively cleaning the line.

With the above and other objects in view the invention consists in certain novel details of construction and combinations of parts herein-after fully described and claimed, it being understood that various modifications may be resorted to within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings forming part of this specification:

Figure 1 is a perspective view, with parts in elevation, showing the air compression tank and spray gun of conventional construction, the spray gun being equipped with my improved purging valve.

Fig. 2 is a detail sectional view showing the purging valve in one operative position,

Fig. 3 is a detail sectional view showing the valve in position to afford direct communication between the material hose and the material barrel of the spray gun, and

Fig. 4 is a view similar to Fig. 3 but showing the valve turned to establish communication between the material hose and waste pipe.

A jam in the spray gun, while spraying texture, causes imperfect finish on the walls or ceiling while working the trigger to dislodge the jamming material, the stipple varying from coarse chunks down to a fine atomized spray. Even if this blotching of walls and ceiling did not occur, still a very serious loss in a workman's time and

in material is caused during the course of a day's work, especially in the spraying of viscous fluids, such as asphalts, cements, plasters, aggregates, etc., by the very frequent jamming of the spray gun. Usually, the workman places his hand over the nozzle of the gun to cause the compressed air to back up or move in a retrograde direction through the nozzle, and simultaneously works the trigger to dislodge the chunks which may be blocking the needle valve control or even the entrance of the fluid supply hose to the material barrel of the gun. This procedure results in the chunks being blown back into the material pipe only to again jam the gun, usually within a few minutes more or less.

The only practice certain to work is laborious and time consuming and usually consists in first cutting off the pressure from the compressor in the air line 11 by closing the inlet air valve 12. Next, the operator lets the pressure out of the tank 13 to prevent boiling, by unscrewing the escape valve 14. Next, the material hose 15 is disconnected from the spray gun. Then the air hose 16 is disconnected from the air outlet valve 17. The cleaning of the gun now takes place by putting the nozzle of the gun tight up against the open air valve 17 and suddenly opening the air valve 12 while at the same time pulling the trigger to open the fluid barrel, thus letting a pressure of from 75 to 100 pounds of air pass through the gun and blowing out the obstructing material. After purging, the various valves and connections must be returned to the adjustment necessary for spraying. All this takes time, is messy, and oftentimes results in an appreciable waste of material.

To obviate the above cleaning procedure, the present invention contemplates the use of preferably a three-way valve connected with the material barrel of the gun in the rear of the nozzle and, when opened, the operator meanwhile holding his hand over the nozzle and pulling the trigger, permitting the compressed air to pass in a retrograde direction through the nozzle to dislodge the jamming material and blow the same into the atmosphere without loss of time by equipment adjustment or defacement of the walls and ceiling being treated.

The construction of the invention is best illustrated in Fig. 2, in which the spray gun material barrel 18 is provided with a lateral inlet pipe 19 disposed in the rear of the nozzle 20 of the gun. This pipe is equipped with a gland nut 21 which ordinarily constitutes means for connecting the end of the material hose 15 to the gun but, in the present embodiment of the invention, is utilized for attaching the flanged outlet nipple 22 of a valve casing 23 to the pipe. The inlet nipple 24 of the valve casing is connected by a gland nut 25, shown in Fig. 1, to the material hose 15. The

valve casing is provided, midway between the outlet and inlet nipples with a lateral blow-off port 26 into which is threaded a blow-off or waste pipe 27 which preferably is arcuate in outline and opens into the atmosphere.

Preferably, a three-way rotary valve 28 is mounted in the valve casing and is controlled by a lever handle 29. As usual in this type of valve, there is a run port 30 and a lateral port 31.

When the valve handle 29 is turned forwardly, as shown in Fig. 2, the lateral port 31 and run port 30 establish communication between the material barrel 18 of the gun and the waste pipe 27. In this position of the parts, blocking material, such as lumps 32 may be dislodged and blown out of the gun by pressing the trigger 33 to withdraw the needle valve 34, and simultaneously placing the hand, as shown at 35, over the nozzle, it being understood, of course, that the trigger controls both the material and compressed air supply. The compressed air, entering the nozzle from the compressed air barrel 37 of the gun, is thus directed back in a retrograde direction through the nozzle, as shown by the arrow-heads. In practice it is found that the blocking material is dislodged instantly and with a sharp report similar to an air-rifle and forcibly ejected from the spray gun through the waste pipe 27 into the atmosphere.

The valve handle 29 ordinarily is turned upwardly, as shown best by dotted lines in Fig. 3, to dispose the run port 30 of the valve to establish communication between the material intake pipe 19 of the gun and the material supply hose 15. In this position of the parts, the material is fed from the hose to the spray gun without obstruction.

As shown best in Fig. 4, the handle 29 may be turned horizontally rearwardly to dispose the run port 30 of the valve and the lateral port 31 to connect the material hose 15 with the waste pipe 27. As the ports 30 and 31 of the valve are of substantially the same diameter as that of the hose 15, the passage of material through the hose and ports will be unimpeded so that in this position of the parts, the operator is enabled to flush the hose by an accelerated flow of fresh material from the tank as well as test the consistency of the material by permitting a quantity to escape from time to time, as desired. Furthermore, after the material has been removed from the tank at the completion of work, kerosene may be introduced into the tank, when by turning on the air supply, the kerosene may be forcibly driven through the hose for tearing loose any lumps of material therein and dislodging any incrustations to thus quickly and effectually clean the feed line.

From the above description it will be observed that the operator is permitted, by use of the novel valve fitting above described, to maintain absolute control over his material at all times. In the morning, when the operator is starting up, it enables him to blow off the first fluid into the waste bucket, taking all the scale and dirt from the line without disturbing a single connection. Furthermore, in all cleaning of equipment, it enables the operator to blow the cleaning fluid through the equipment in minimum time without disturbing a single connection. Furthermore, it permits of instantaneous dislodgment of particles, such as chunks or the like, which may jam the gun, without loss of time and without defacing the walls, ceiling or any surface being treated.

Having thus described the invention, I claim:

1. As a purging means for spray apparatus wherein material is fed to a gun from a tank by air pressure in the tank, the combination of a gun having air and liquid passages associated whereby air from the air passage may be directed backward into the liquid passage, a supply tank adapted to contain material as well as air under pressure tending to expel the material from the tank, means for feeding compressed air to said air passage, a feed line for conducting material from the tank to said liquid passage, and means for closing the feed line to maintain constant the air pressure in the tank and venting said liquid passage to the atmosphere whereby, by manually diverting a portion of the air issuing from the air passage into and back through the liquid passage and through said venting means, said liquid passage may be purged of clogging material without disturbing the adjustments of the tank or returning said clogging material to the tank.

2. As a purging means for spray apparatus wherein material is fed to a gun from a tank by air pressure in the tank, the combination of a gun having air and liquid passages associated whereby air from the air passage may be directed backward into the liquid passage, a supply tank adapted to contain material as well as air under pressure tending to expel the material from the tank, means for feeding compressed air to said air passage, a feed line for conducting material from the tank to said liquid passage, and a two-way valve in the feed line movable to one position for closing the feed line to maintain constant the air pressure in the tank and venting said liquid passage to the atmosphere whereby, by manually diverting a portion of the air issuing from the air passage into and back through the liquid passage and through said valve, said liquid passage may be purged of clogging material without disturbing the adjustments of the tank or returning said clogging material to the tank, and movable to another position to vent to the atmosphere that portion of the feed line extending from the valve to the tank for purging the feed line without disturbing the adjustments of the tank.

3. In spray apparatus, the combination with a compression tank, of a spray gun including a liquid nozzle, an air nozzle associated with the liquid nozzle whereby air from the air nozzle may be directed backward through the liquid nozzle, a needle valve for controlling the admission of liquid to the liquid nozzle, means for feeding compressed air to the air nozzle, a feed line to supply material from the tank to the liquid nozzle, and valvular means in the feed line adapted to close the feed line to maintain compression in the compression tank and prevent backward flow of the material from the liquid nozzle through the feed line into the compression tank and adapted also to vent to the atmosphere the feed line between the valvular means and the liquid nozzle whereby, by diverting a portion of the air issuing from the air passage into and back through the liquid passage and through said valvular means, said liquid passage and said needle valve may be purged of clogging material without disturbing the adjustments of the compression tank or returning said clogging material to the tank.

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