Dec. 16, 1930. G. RAYMOND 1,785,097

DISPENSING DEVICE

Filed Sept. 4, 1928

Fig. 2.

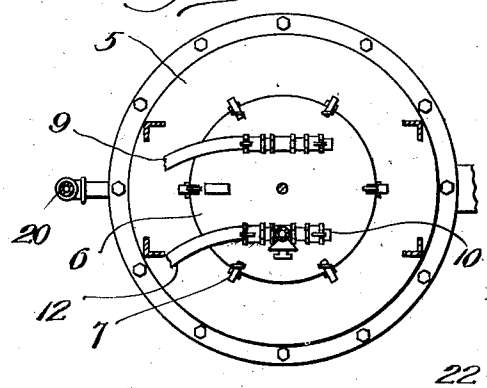


Fig. 1.

Fig. 3.

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Patented Dec. 16, 1930 1,785,097

UNITED STATES PATENT OFFICE

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DISPENSING DEVICE

Application filed September 4, 1928. Serial No. 303,715.

This invention relates to filling apparatus for pressure discharge tanks and although it is primarily intended for use with pressure painting systems, it may be used with any liquid or free-flowing solid, such as sand.

The chief object of the invention is to produce means and apparatus for the filling of a pressure paint tank so that the operation of painting articles as they pass on an endless driven conveyor or under any other condition, may be continuous with no shut-down or substitution of painting equipment as is now necessary while the pressure painting tank is being refilled with paint. When the apparatus is used with free-flowing solids, it will of course be understood that slight modification in structure will preferably be necessasry such as hereinafter mentioned.

With the general objects named in view, the invention consists in certain novel and useful features of construction and organization of parts as hereinafter described and claimed; and in order that it may be fully understood, reference is to be had to the accompanying drawing, in which:

Figure 1 is a side elevation of the apparatus as arranged for use in a pressure painting system.

Figure 2 is a section on the line II—II of Figure 1.

Figure 3 is a diagrammatic view of a modified construction.

In the said drawing, where like reference characters identify corresponding parts in all of the figures, 1 indicates a pressure tank for the reception of a liquid or free-flowing solid, said tank, if adapted for paint, being preferably provided with a constantly driven agitator 2 propelled by an electric motor 3 or other suitable power means mounted on a support 4 secured to the head 5 of the tank, said head normally being provided with a removable top 6 held in air-tight relation to the tank by clamps 7.

Projecting through the top 6 and extending into close proximity to the bottom of the tank is a liquid discharge pipe 8 to which a painting line 9 is connected exteriorly of the tank and which leads to the point where the paint is to be applied. In order to apply pressure to the painting tank to force the paint out through the discharge line 9, 10 is a conduit leading to the pressure tank 1 from any suitable source of compressed air supply, and having communication with the upper end of the tank by a connection 11, it being also noted that with painting apparatus, a branch pressure supply line 12 leads to the same point as the paint line 9 where the lines are joined or united in a spray head or other suitable apparatus for spraying the paint.

Under present conditions, as soon as the paint in the pressure tank 1 has been exhausted, the air pressure must be shut off and the painting operations of such tank cease while the top is removed and the tank is filled with a fresh supply of paint.

In order, therefore, to obviate such shut-down, 13 indicates any suitable support for a locking or filling vessel 14, it being noted that vessel 14 is elevated so that it can discharge by gravity into the pressure tank 1, and connecting the bottom of said vessel and the pressure tank is a discharge line 15, controlled by a valve 16. The filling vessel 14 is also equipped with a closable filling connection 17, said connection being closed by a valve 18, as illustrated, it being here noted that the filling vessel may, if desired, be closed by a removable screw cap or any other suitable air-tight closure instead of the valve, but where the filling funnel 19 is employed the valve is the most convenient. Leading from the upper part of the compressed air space in the pressure tank 1 is a pressure line 20 connected at its opposite end to the upper part of the filling vessel 14, said line being controlled by a valve 21.

It is here to be pointed out that the connections above described may lead to practically any desired point on either the tank or the filling vessel, the only exception being that the discharge line 15 must connect with the bottom of the filling vessel if it is desired that all of the material shall flow into the pressure tank, It will also be noted that if the mechanism is to handle a free-flowing solid slide cut-offs may be substituted for the valves 16 and 18, and that the connection 15

will preferably have a continuous downward pitch from the filling vessel to the pressure tank to insure proper flow of the material.

The operation of the mechanism is substantially as follows, considering that the painting apparatus is under operation with pressure in the tank 1 and the valves 16 and 21 closed: The paint supply in the pressure tank needs to be replenished and the operator opens the filling valve 18 and pours fresh paint into the filling vessel, such vessel being equipped with air venting valve 22 to exhaust air in the vessel as it is displaced by the paint. Valves 18 and 22 are now closed and the pressure line valve 21 is opened to equalize the pressures in the filling vessel and the pressure tank. The discharge valve 16 is now opened and the paint in said filling vessel will flow by gravity into the pressure tank without interfering with the continuous operation of the painting system. It is to be here noted that under some conditions, especially with light paint or with an inclined discharge line, it may be possible to omit the pressure line 20 as the air in the pressure tank may escape into the upper end of the filling vessel by passing upwardly along one side of the discharge line 15 while the displaced paint is flowing down the other side, as will be readily understood.

In Figure 3 a modified construction is shown, in which the pressure tank 1 is at a higher level than the filling vessel 14, said tank and vessel being connected by a valve-controlled line 23. The painting tank is equipped with a paint discharge line 24 and with an air pressure line 25, while the filling vessel is provided with a closable filling opening 26 and an air supply line 27. When it is desired to fill the painting vessel, the pressure in filling vessel 14 is increased sufficiently to overcome the pressure in tank 1 and also to lift the paint from 14 to 1, the line 23 being opened to permit passage of the liquid.

From the above description it will be apparent that I have produced apparatus possessing the features of advantage set forth as desirable in the statement of the object of the invention, and which may be modified in minor particulars without departing from the principle of construction and mode of operation involved or from the spirit and scope of the appended claim.

I claim:

The combination in pressure spraying apparatus, of a pressure tank adapted to contain a liquid to be sprayed, a discharge connection leading from a point adjacent the bottom of said tank, a filling tank adapted to contain spraying liquid to be admitted to said pressure tank, a valve-controlled liquid supply line connected at one end to the bottom of the filling tank and at its other end to said pressure tank, a valve-controlled pressure line connecting each of said tanks at points above the normal liquid levels therein, and a connection to the upper part of said pressure tank from a source extraneous to both tanks for applying compressed air to said pressure tank.

In testimony whereof I affix my signature.

GWYNNE RAYMOND.