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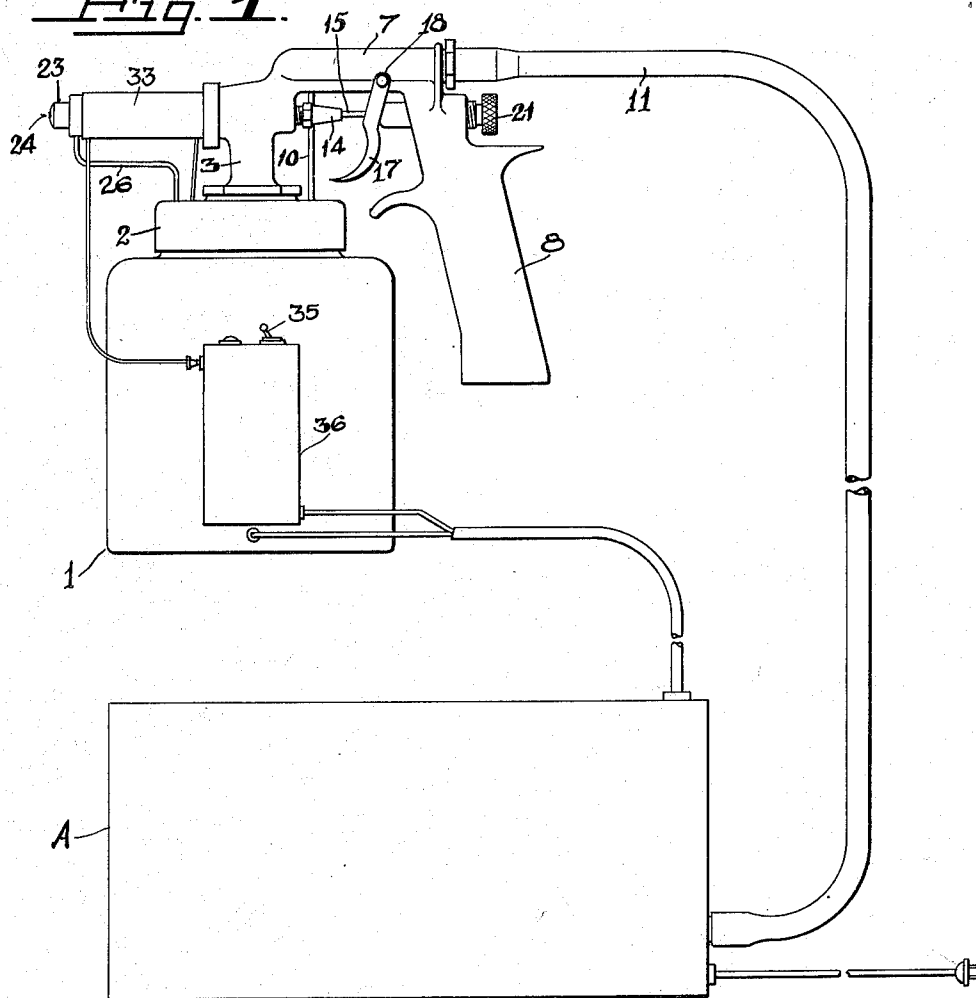
L. O. WING
PARAFFIN SPRAYER

2,551,078

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2 Sheets-Sheet 1

Fig. 1.



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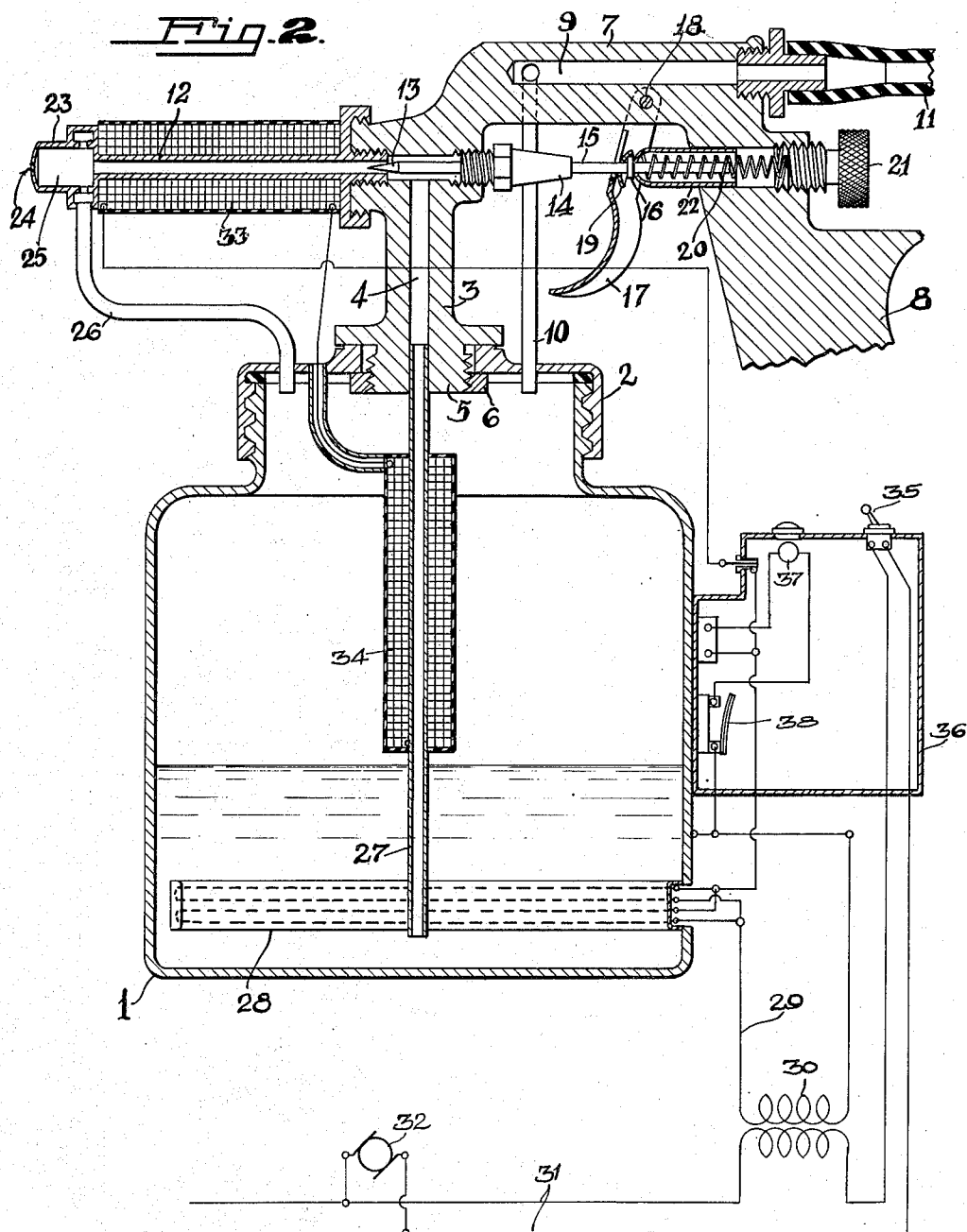
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PARAFFIN SPRAYER

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3 Claims. (Cl. 299—89)

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This invention relates to improvements in spraying apparatus, and more particularly to a novel device for liquifying and spraying paraffin, wax and the like on surfaces to be coated.

An object of the present invention is to provide an improved sprayer for paraffin and wax, embodying a novel combination by which paraffin or wax may be melted and sprayed over burns or wounds requiring a protective coating.

Another object of my invention is to provide a novel paraffin sprayer of the kind characterized embodying improved means operable through a low voltage electrical current by which a supply of paraffin or the like may be melted and then maintained in a liquified state while it is discharged in the form of a spray onto a surface requiring a protective coating.

A further object of this invention is to provide a novel paraffin sprayer of the kind characterized, embodying an improved discharge nozzle having a heating element associated therewith for maintaining the paraffin passing there-through in a liquified state so as to avoid any interference with the continuous flow and discharge of the paraffin.

Other and further objects of my invention will be pointed out hereinafter, or will be indicated in the appended claims or will be obvious to one skilled in the art upon an understanding of the present disclosure. For the purpose of this application I have elected to show herein certain forms and details of a paraffin sprayer representative of my invention; it is to be understood however, that the embodiment of my invention herein shown and described is for the purpose of illustration only and that therefore it is not to be regarded as exhaustive of the variations of the invention.

In the accompanying drawings:

Fig. 1 is a side elevation of a paraffin sprayer embodying the principles of my invention; and

Fig. 2 is a vertical sectional view of the sprayer, showing diagrammatically the electrical circuit in its preferred form.

Referring to the drawings the numeral 1 designates a metal container or tank for holding a supply of paraffin, wax or other similar material. The container is provided with a detachable top 2 on which a spray gun is securely mounted. The spray gun in its preferred form embodies an upstanding member 3 having a longitudinal channel 4 and a threaded lower end portion 5 which is engaged by a clamping nut 6, the said nut being arranged to securely engage with the lower side of the top 2 and thereby normally pre-

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vent the detachment of the spray gun from the container. Formed integrally with the upper end of the member 3 is a rearwardly extending member 7 having a depending handle 8 thereon. A channel 9 extending longitudinally through the member 7 is connected at its forward end by a tubular connection 10 to the interior of the container and at its rear end to a tubular conduit 11 leading to suitable means for supplying a continuous stream of air under suitable pressure.

The nozzle portion of the spray gun comprises a substantially horizontal tubular element 12 secured by suitable means to the upper end of the upstanding member 3, the opening through the tubular element being in communication with the channel 4 in the said member. A needle valve 13 mounted for reciprocating movement in a bearing 14 secured to the upstanding member 3 is arranged to control the flow of liquid paraffin through the tubular element, as will be later described. The needle valve 13 has a rearwardly extending stem portion 15 having a collar 16 secured thereon, and a trigger 17 pivotally secured as at 18 to the rearwardly extending member 7 is arranged to engage with a washer 19 abutting the collar. The rearward movement of the trigger 17 causes the needle valve 13 to be unseated, thereby opening the inlet end of the tubular element 12. The trigger when pivotally moved by the pressure of an operator's finger thereon in a rearward direction compresses a helical compression spring 20 which encircles the valve stem 15, the said spring being arranged with its rear end abutting an adjustable screw 21 positioned in a partially threaded opening in the handle 8. The helical compression spring 20 is encased in a thimble member 22 which abuts the collar 16 of the valve stem 15, and the forward end of the said spring is arranged in abutting relationship with respect to the rounded end of the thimble. Thus, when the trigger 17 is actuated rearwardly the valve 13 is moved to an open position, and when the trigger is released the compression spring automatically returns the valve to a position in which it closes the inlet end of the opening through the tubular element 12.

The forward end of the tubular element 12 is provided with an enlarged tip portion 23 having a small outlet opening 24 and a large mixing chamber 25 therein. The chamber 25 is connected by a vent tube 26 to the interior of the container 1 at a point well above the level of the paraffin supply therein.

The channel 4 in the upstanding member 3 is connected to a depending tube 27 which extends

to a position near the bottom of the container and well below the level of the supply of paraffin in the container. Liquid paraffin is adapted to flow upwardly through the tube 27 and the channel 4, past the needle valve 13 into and through the channel in the tubular element 12, then through the chamber 25 in the tip portion 23 and out through the small opening 24 in the form of a spray.

Since paraffin and the like must be maintained in a liquified flowable state while the spraying operation is in progress novel means is provided for preventing the hardening of the material as it is conveyed from the container to the nozzle's discharge opening.

A suitable heating element 28 for melting the supply of paraffin is arranged in the container 1 near the bottom of the latter. The heating element may be of the usual kind comprising a number of suitable resistance wires encased in a copper sheathing. The heating element is supplied with an electrical current of preferably six or twelve volts from an electrical circuit 29 connected through a suitable transformer 30 to conductors 31 leading to a source of electrical energy. A motor 32 for operating an air compressor (not shown) is connected to the conductors 31. An externally insulated electrical heating element 33 extending around the tubular element 12 of the nozzle portion of the spray gun supplies sufficient heat to the walls of the said tubular element to maintain the paraffin passing therethrough in a liquid state. Similarly, an externally insulated electrical heating element 34 extending around a substantial portion of the tube 27 normally heats the walls of the said tube sufficiently to prevent the liquid paraffin passing upwardly therethrough from assuming a solid state and thereby interfering with the operation of the device. The heating elements 28, 33 and 34 are connected in series in the circuit 29. It will be noted that one side of the circuit 29 is grounded through the metal container 1.

A hand switch 35 connected in the circuit leading to the source of electrical energy provides a master control for the electrical system, the said switch being mounted on a metal box 36 preferably secured at a side of the container 1. Arranged in the box 36 and connected in series in the electrical circuit 27 is an indicating lamp 37 and a thermostatic control 38. A sight opening in the box 36 above the lamp 37 permits the operator to determine whether the circuit to the heating elements is closed or open. The thermostatic control 38 is preferably mounted against or near the side of the metal container 1, and when the temperature of the melted paraffin approaches an excessive predetermined temperature, of around 103 degrees Fahrenheit, the thermostat will be operated to open the circuit to the heating elements 28.

When the hand switch 35 is operated to close the circuit 29, the heating elements 28, 33, and 34 become energized, thereby causing the paraffin in the metal container 1 to melt, and the tubular element 12 of the nozzle as well as the tube 27 to become heated. The flow of air under suitable pressure is then admitted to the inside of the container, thus building up a pressure upon the supply of liquified paraffin in the container sufficient to force it upwardly through the tube 27. As the trigger 17 is moved rearwardly to unseat the needle valve 13 the melted paraffin flows into and through the tubular element 12 to the mixing chamber 25 in the tip portion 23 of the nozzle.

At this time air from the container 1 is proceeding through the vent tube 26 to the mixing chamber 25. The incoming jets of air entering the mixing chamber at right angles to the stream of paraffin discharged into the said mixing chamber, causes the liquid paraffin to be thoroughly broken up into small particles. The air and fine paraffin particles are then discharged in the form of a continuous spray from the small outlet opening 24 in the nozzle tip.

The air compressor used in supplying a stream of air under suitable pressure to the spray gun as well as the motor 32 for operating it, together with the transformer 30 are preferably housed in a portable case A. Any suitable control means (not shown) may be employed to regulate the flow of air to the spray gun.

It is to be understood that my invention may be used in spraying any solid or semi-solid material which requires the application of heat to convert it into a flowable mass.

What I claim is:

1. A spray device for the purpose described comprising a container for holding a supply of normally solid coating material capable of being liquified by the application of heat, a spray gun operatively associated with the container and having an elongated tubular nozzle portion, the said nozzle portion having a discharge opening at one end and an inlet at its opposite end, means connecting the inlet of the nozzle with the interior of the container, whereby the material when in a liquid state may flow from the container to the nozzle's inlet opening, means for conveying air under pressure to the interior of the container, whereby the material in its liquid state may be forced from the container and supplied to the nozzle, valve means for controlling the flow of the material through the nozzle, an electrical heating element connected in an electrical current supply circuit and positioned in the container, a second electrical heating element connected in the circuit and positioned in heat transferring relation with the tubular portion of the nozzle, whereby the material may be kept in a liquid state as it flows through the nozzle and a conduit connecting the interior of the container with the discharge end of the nozzle, whereby air under pressure may be mixed with the material passing through the nozzle.

2. A spray device for the purpose described comprising a container for holding a supply of normally solid coating material capable of being liquified by the application of heat, a spray gun operatively associated with the container and having a nozzle portion provided with an inlet and a discharge outlet, tubular means connecting the inlet of the nozzle portion with the interior of the container, means for supplying air under pressure to the container for forcing the material when in its liquid state through the tubular means to the nozzle portion, means for controlling the flow of the material through the nozzle portion, and electrical heating elements connected in an electrical circuit, one of said elements being positioned in heat transferring relation with the interior of the container, whereby the material may be melted and maintained in a liquid state, another of said elements being positioned in heat transferring relation with the tubular means and another of said elements being positioned in heat transferring relation with the nozzle portion.

3. A spray device for the purpose described comprising a container for holding a supply of

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normally solid coating material capable of being liquified by the application of heat, a spray gun mounted on the container and having a nozzle portion connected to the interior of the container whereby the material when in a liquid state may be supplied to the said nozzle portion, an air line connected to the interior of the container whereby air pressure may be supplied to the interior of the container for forcing the material when in a liquid state from the container and through the nozzle portion, a mixing chamber located in the nozzle portion between its inlet and outlet, an air vent tube connecting the chamber with the interior of the container, whereby jets of air may be supplied to the mixing chamber, means on the spray gun for controlling the flow of the material through the nozzle portion, a heating element connected in an electrical circuit and arranged for heating the supply of material in the container, and another heating element connected in the circuit and arranged in heat transferring relation to the nozzle, whereby the mate-

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rial may be maintained in a liquid state as it proceeds through the spray gun.

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