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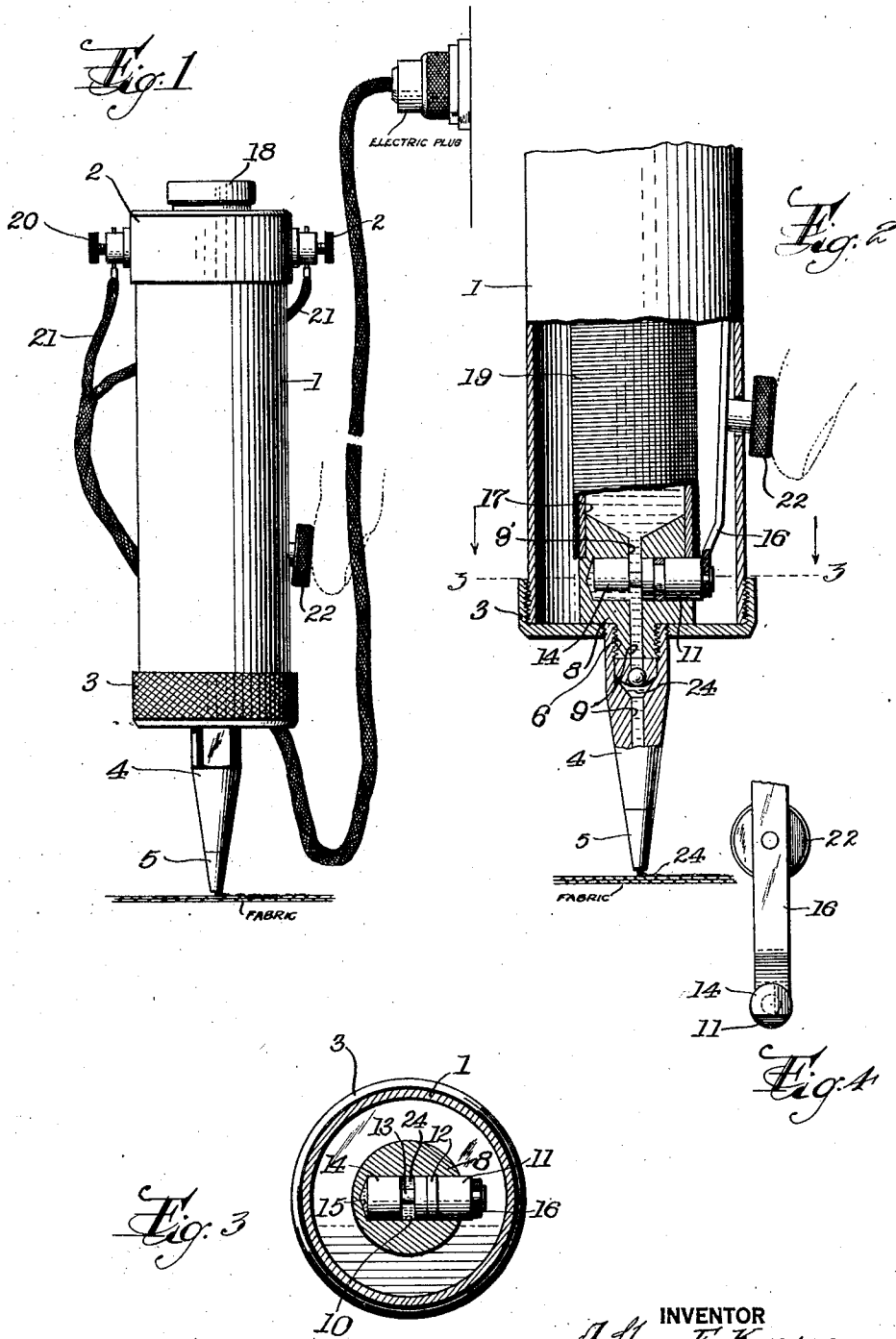
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1,767,079

WAX APPLYING TOOL

Filed June 12, 1928

2 Sheets-Sheet 1



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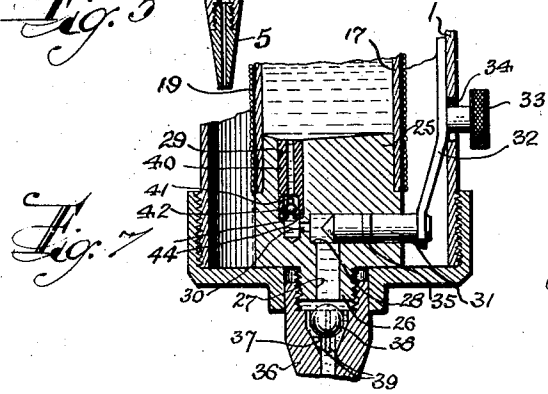
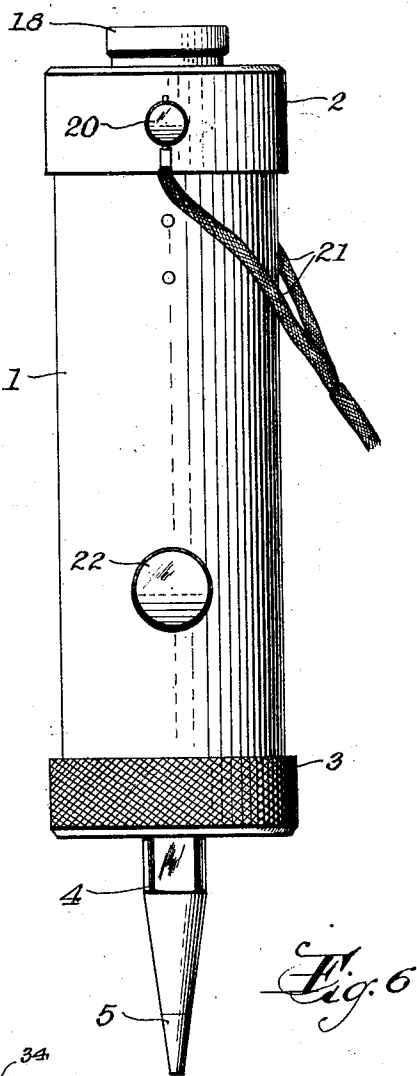
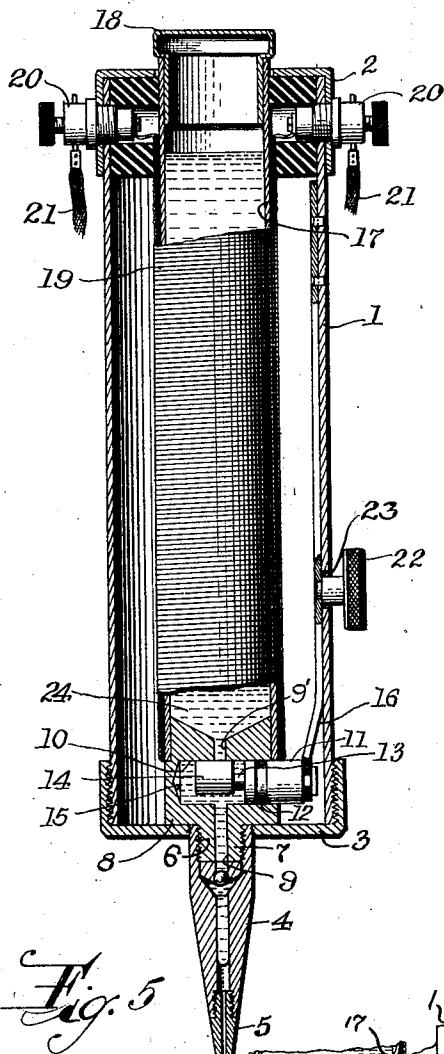
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WAX APPLYING TOOL

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WAX-APPLYING TOOL

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The present invention relates, generally, to a tool for applying molten wax for purposes such, for example, as making batik work; and the invention relates, more particularly, to a tool for holding a quantity of wax, for melting it, and for feeding the molten wax as desired.

An object of the invention is to provide a wax holder having a feeding spout and an electric heater for the holder to melt the wax fed to the spout.

Another object of the invention is to provide a contractible chamber for forcing molten wax to an applying element and withdrawing it therefrom.

Various other objects and advantages of the invention will be obvious from the following particular description of a form of apparatus embodying the invention or from an inspection of the accompanying drawings; and the invention also consists in certain new and useful features of construction and combinations of parts hereinafter set forth and claimed.

In the accompanying drawings there is shown for purposes of illustration one form of apparatus embodying the invention, in which:

Fig. 1 is an elevation view;

Fig. 2 is a vertical section view, in part, with closure parts moved to open position;

Fig. 3 is a section view taken along the line 3-3 of Figure 2, looking in the direction of the arrows;

Fig. 4 is an elevation view in part of a detail of the apparatus;

Figs. 5 and 6 are, respectively, front and right side vertical elevation views with the closure parts in closed position; and

Fig. 7 is a vertical section view, in part, of an alternate embodiment.

In all the above described views like characters of reference are used to indicate corresponding parts throughout.

Referring now to the drawings the reference character 1 indicates a barrel having an annular cap 2 at the top end and an annular cap 3 screwed onto the lower end. In the lower end of cap 3 is screwed a feed spout 4 which at its lower end has a removable tip 5

and at its upper end has a threaded counter bore 6. Into said counter bore 6 is threaded the boss 7 formed on the block 8 positioned within said barrel 1 and having formed there-through a bore 9 which connects, through said boss 7, to the bores of said spout 4 and its tip 5, the upper face of said cylinder 8 being made concave to form a guide for molten wax to flow to said bore 9.

In said block 8, transverse to and connecting with said bore 9 intermediate the latter's length, is formed a bore 10 greater in diameter than bore 9 and having one end closed. Movable longitudinally in said bore 10 is a piston 11 having a piston ring 12 (shown in section) positioned in an annular groove thereon to make close fit with the wall of said bore 10. On an axially aligned stud 13 extending from its inner end, said piston 11 carries a closure member 14 for that part 9' of bore 9 which is above said bore 10, said stud 13 serving to space apart said closure member 14 and piston 11 to provide a passageway between them for the flow of wax when said closure member 14 is moved inwardly from a position across said bore 9' to bring said stud 13 adjacent thereto. Said closure member 14 is cylindrical in shape with sliding fit in said bore 10 and has a sector removed for its entire length below its horizontal diameter to define a space between it and the lower side of said bore 10. The inner end of said bore 10 serves as a stop for said closure 14 and piston 10 on inward movement and a countersink 15 at the inner end of said bore 10 provides a space which connects with the space below said closure member 14. A leaf spring 16, mounted at one end to the inside wall of said cylinder 1 and at its other end to the outer end of said piston 11, serves to hold said piston 11 and closure member 14 in a position in which the latter is positioned across and closes the lower end of said bore 9'. It is to be particularly noted that when said spring 16 is pressed in said piston 11 starts moving inwardly in said bore 10 before said bore 9' has begun to be opened; and, also, that when spring 16 is released said piston 11 will be moving outwardly in

bore 10 after closure 14 has completely closed bore 9' and that, during this movement, bore 9' will be kept closed while piston 11 is still moving outwardly.

Said block 8 serves as the bottom closure of a wax holding tube 17 which extends upwardly through said barrel 1 and through the central opening of said annular cap 2 above which latter said tube has a cap closure 18. About said tube 17 and electrically insulated therefrom is a coil of heater wire 19 which has two terminals 20, 20 mounted to the outside of and insulated from said barrel 1, and adapted to connect leads 21, 21 to said heater wire 19. A knob 22 attached to said spring 16 and extending out through an opening 23 in said barrel 1 serves for moving said closure 14 against the pressure of said spring 16 to permit passage of molten wax 24 from said tube 17.

In the use and operation of the above described apparatus of the invention as, for example, to make batik designs, a body of wax 24 is supplied to said tube 17 and melted or kept melted therein by heat supplied from said heating coil 19. When said wax 24 is at a proper state of fluidity it is fed to and through said spout 4 by pressing said knob 22 in, against said spring 16, to move said closure member 14 from its normally closed position across the lower end of said bore 9' (see Figs. 1, 2 and 3), whereupon said wax will flow out through the tip 5 of spout 4 onto a fabric or other material to which the wax is to be applied, said tip 5 being used to press the molten wax into the fabric and to spread it in the configuration or design desired.

To stop the flow of wax the knob 22 is released to permit spring 16 to draw said closure 14 back into position across the lower end of said bore 9'. During this return movement the suction caused by the displacement of said piston 11 from said bore 10 will cause the wax in said bore 9 to be drawn back into said bore 10 and into the upper part of bore 9 and hold it there so that it will not flow out. It is to be noted particularly that there is a substantial outward movement of piston 11 in bore 10 after bore 9' has been closed by said closure 14, which latter is long enough to keep said bore 9' closed until this outward movement has ceased. This provides that wax is prevented from flowing from tube 17 while sucking up of wax from bore 9 is continued. In this position of parts heat transmitted from said heater 19, through inter-adjacent metal parts, will maintain the wax in the molten state (see Fig. 5), and clogging of the bore of said tip 5 by congealed wax will be avoided.

When next the knob 22 is pressed in to move said closure 14 to open said bore 9'

to again feed wax said piston 11, on its inward movement, will displace the wax out of said bore 10 and push it out into said bore 9 so that by the time said bore 9' is opened the molten wax will again be at the feeding tip 5. During the commencement of the inward movement of said piston 11 in bore 10 said closure 14 will be in completely closing relation across said bore 9' so that downward movement of wax in bore 9 by piston 11 is begun before said bore 9' is opened.

In Figure 7 is illustrated an alternate embodiment of the invention in which is the block 25 mounted at the lower end of a wax holding cylinder 17 and having an axially aligned boss 26 extending downwardly therefrom. In said boss 26 is formed a bore 27 which extends upwardly and terminates in said block 25 where it connects with the side of a bore 28 which extends inwardly from one side of said block 25 and terminates therein at a point beyond the end of said bore 27. A bore 29 extending downwardly from the upper surface of said block 25 connects with the end of said bore 28 through a bore 30 which is axially aligned with and smaller in diameter than said bore 28. Mounted in said bore 28 is a piston 31 having its inner end conical in shape to adapt it to seat against the inner end of bore 28 and to close said bore 30. A spring 32 attached at one end to the outer end of said piston 31 and at its other end to the inner surface of a cylinder 1 enclosing cylinder 17 normally holds said piston 31 in the unseated position so that normally there is an unobstructed passage from bore 29, through bores 30 and 28, to said bore 27. A thumb knob 33 mounted to said spring 32 and extending through an opening 34 in said cylinder 1 serves to move piston 31 into seating position to close said bore 30, and a piston ring 35 mounted in an annular groove about said piston 31 serves to prevent leakage of molten wax thereby.

On said boss 26 is mounted, in threaded relation, a feed spout 36 which has a conical counter bore 37 at its upper end which carries a ball 38 which, by turning up said spout 36, can be seated against the lower end of said bore 27 to close it and in the same way can be adjusted in its distance from the end of said bore 27 to control the rate of flow of wax through the spout. Fluted channels in the sides of said bore 37 provide passageway for wax past said ball 38.

In said bore 29 is provided a tube 40 which at its lower end has a counter bore 41 in which is provided a ball 42 adapted to seat against the upper end of said counter bore 41 and close the main bore 43 of tube 40. Fingers 44 formed on the lower end of said tube 40 hold said ball 42 in tube 40

and have spaces therebetween to permit passage of molten wax thereby.

In the use and operation of this embodiment of my invention the tool is normally open to permit the flow of molten wax therefrom; the piston 31 being adapted, by pressing knob 33, to be moved by the hand of the manipulator of the tool to close said bore 30 to stop the flow of wax when the tool is moved from one part to another of the material being decorated or for stopping flow until the tool can be inverted into a position in which gravity keeps the molten wax from flowing out. As above noted the spout 36 can be turned on its threads on boss 26 to regulate the rate of flow of the wax from the tool.

By quickly moving piston 31 inwardly said ball 42 can be forced against the end of bore 43 to close it and molten wax forced under pressure from spout 36 either to force it into the material being decorated or to clear the bore of spout 36 of congealed wax.

While I have shown and described and have pointed out in the annexed claims certain novel features of the invention, it will be understood that various omissions, substitutions and changes in the forms and details of the devices illustrated and in its use and operation may be made by those skilled in the art without departing from the spirit of the invention.

Having thus described my invention, what I claim and desire to protect by Letters Patent is:

1. A tool for applying molten wax, comprising in combination, a wax holding chamber having a discharge port; a cylinder having a port intermediate its ends which connects with said holding chamber and a second port on a side opposite first said port, said cylinder being closed at one end; a piston in the other end of said cylinder; and a closure member in said cylinder between its closed end and said piston, attached to said piston and held thereby against the chamber port side of the cylinder; said closure being spaced away from the discharge port side of the cylinder; and said closure and piston being formed to define a passageway therebetween adapted by moving said piston and closure to be disposed in and out of registry with both said chamber port and said discharge port.

2. A tool for applying molten wax, comprising in combination, a wax holding chamber having a discharge port; heating means for said chamber; a cylinder having a port intermediate its ends which connects with said holding chamber and a second port on a side opposite first said port, said cylinder being closed at one end; a piston in the other end of said cylinder; and a closure member in said cylinder between its closed end and said piston, attached to said piston and held

thereby against the chamber port side of the cylinder; said closure being spaced away from the discharge port side of the cylinder; and said closure and piston being formed to define a passageway therebetween adapted by moving said piston and closure to be moved into and out of registry with both said chamber port and said discharge port.

3. A tool for applying molten wax, comprising in combination, a wax holding chamber having a discharge port; a cylinder having a port intermediate its ends which connects with said holding chamber and a second port on a side opposite first said port, said cylinder being closed at one end; a piston in the other end of said cylinder; a closure member in said cylinder between its closed end and said piston, attached to said piston and held thereby against the chamber port side of the cylinder; said closure being spaced away from the discharge port side of the cylinder; and said closure and piston being formed to define a passageway therebetween adapted by moving said piston and closure to be disposed in and out of registry with both said chamber port and said discharge port; and means tending to hold said closure member in the closed position with respect to said chamber port.

4. A tool for applying molten wax, comprising in combination, a wax holding chamber having a discharge port; a cylinder having a port intermediate its ends which connects with said holding chamber and a second port on a side opposite first said port, said cylinder being closed at one end; a piston in the other end of said cylinder; a closure member in said cylinder between its closed end and said piston, attached to said piston and held thereby against the chamber port side of the cylinder; said closure being spaced away from the discharge port side of the cylinder; and said closure and piston being formed to define a passageway therebetween adapted by moving said piston and closure to be disposed in and out of registry with both said chamber port and said discharge port; an electric heater for said wax holding chamber; and a spring tending to hold said closure member in closed position with respect to said chamber port; said spring being adapted to be manipulated to move said piston and closure inwardly in said cylinder.

5. A tool for applying molten wax, comprising, a wax holding container; an electric heater in operative relation to maintain wax in said container in the molten state; a feeding spout connecting from said container; a cylinder having a bore which traverses the bore of said spout; a closure member for the upper part of the bore of said spout, in said cylinder and movable therein and out of closing relation with said container; a piston in said cylinder and con-

ected in spaced apart relation to said closure member with a space between them adapted to be registered with the bore of said spout to define a passageway from said container to said spout; said closure member being spaced apart from the lower surface of said cylinder adjacent with thereto, to provide a space which connects the lower part of the bore of said spout in both the open and the closed position of said closure; an outer casing about said container, in spaced apart relation thereto, and extending about the lower part of the tool to enclose said cylinder and piston with said spout extending therefrom.

6. A tool for applying molten wax, comprising, a wax holding container; an electric heater in operative relation to maintain wax in said container in the molten state; a feeding spout connecting from said container; a cylinder having a bore which traverses the bore of said spout; a closure member for the upper part of the bore of said spout, in said cylinder and movable therein and out of closing relation with said container; a piston in said cylinder and connected in spaced apart relation to said closure member with a space between them adapted to be registered with the bore of said spout to define a passageway from said container to said spout; said closure member being spaced apart from the lower surface of said cylinder adjacent with thereto, to provide a space which connects the lower part of the bore of said spout in both the open and the closed position of said closure; an outer casing about container, in spaced apart relation thereto, and extending about the lower part of the tool to enclose said cylinder and piston with said spout extending therefrom, and means on said piston and having an extension through said outer casing, adapted for actuation to move said piston and closure in said cylinder.

7. A tool for applying molten wax, comprising, a wax holding container; an electric heater in operative relation to maintain wax in said container in the molten state; a feeding spout connection from said container; a cylinder having a bore which traverses the bore of said spout; a closure member for the upper part of the bore of said spout, in said cylinder and movable therein and out of closing relation with said container; a piston in said cylinder and connected in spaced apart relation to said closure member with a space between them adapted to be registered with the bore of said spout to define a passageway from said chamber to said spout; said closure member being spaced apart from the lower surface of said cylinder adjacent with thereto, to provide a space which connects the lower part of the bore of said spout in both the open and the closed position of said closure; an outer casing about said container, in spaced apart relation

thereto, and extending about the lower part of the tool to enclose said cylinder and piston with said spout extending therefrom; a spring, attached to said piston and to said outer casing, tending to hold said piston and closure at a position in which the latter is in the closed position across the upper part of said spout.

8. A tool for applying molten wax, comprising in combination, a wax holding container and a feeding spout therefor; a movable closure for said spout on the holding container side thereof; and a pump connecting with said spout below said closure; said pump and closure being interconnected in operable relation, said pump being adapted to apply pressure and suction, successively to the discharge port of said spout while said closure is in closed relation to the part of said spout immediately connected to said holding container.

9. In a tool for applying molten wax, comprising in combination, a wax holding container, an electric heater for said container, said container having an externally threaded boss at its lower end through which extends a discharge port, a nozzle threaded on said boss having a discharge passage aligned with said discharge port of said boss, a ball valve within said nozzle passage and movable into closing relation to said discharge port when said nozzle is screwed upward on said boss, and means within said nozzle passage to dispose said ball for by-passing of discharged wax therearound.

In testimony, that I claim the invention set forth above I have hereunto set my hand this 22nd day of May, 1928.

ARTHUR E. KENYON.