

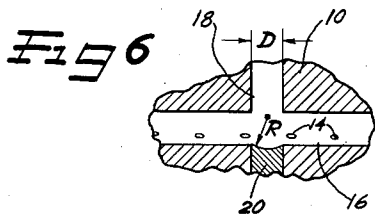
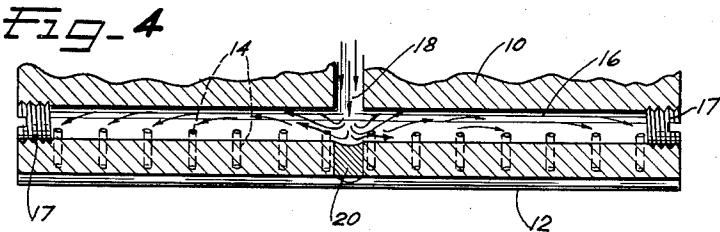
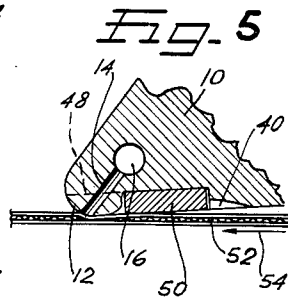
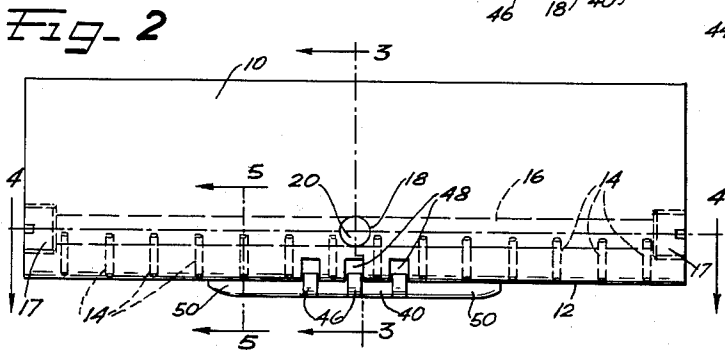
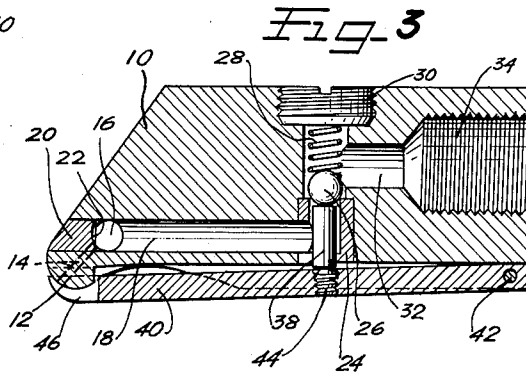
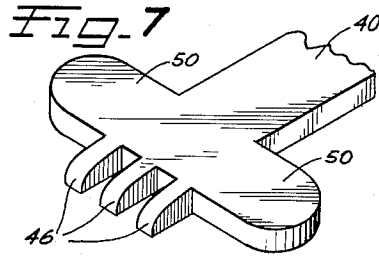
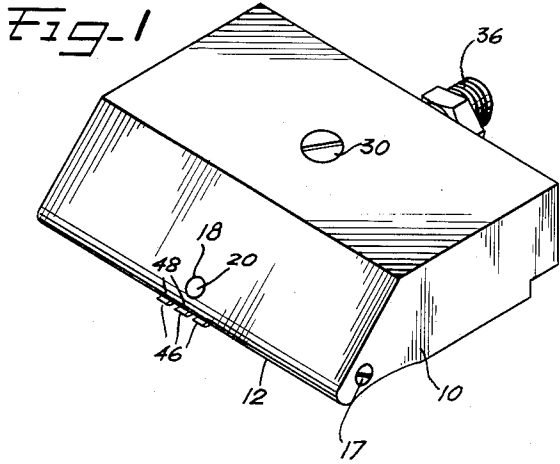
March 31, 1964

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3,126,574

FLOW TYPE GLUE GUN

Filed March 21, 1963



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3,126,574

**PLOW TYPE GLUE GUN**

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 Filed Mar. 21, 1963, Ser. No. 266,890  
 6 Claims. (Cl. 15-580)

This invention relates to a plow type glue gun or one in which the surface to be glued such as the flaps of a carton contact a control lever of the glue gun for opening the glue flow control valve thereof thus supplying glue only when a carton is passing beneath the gun.

One object of the invention is to provide a glue gun of the type disclosed which is comparatively simple and inexpensive to manufacture yet operates efficiently to perform plow type gluing operations.

Another object is to provide a glue gun which has a body member provided with a plurality of spaced-apart glue discharge ports arranged laterally of the direction of travel of the surface to be glued relative to the body member, a glue distributing passageway supplying glue to the spaced-apart glue discharge ports, a glue supply passageway for the glue distributing passageway and a novel means for effectively deflecting the glue and distributing it substantially equally throughout the length of the glue distributing passageway so that it flows equally from the glue discharge ports.

Still another object is to provide a combination of glue supply passageway supplying glue in the direction of movement of the surface to be glued, and a lateral glue distributing passageway communicating therewith, the glue supply passageway entering one side of the glue distributing passageway and the opposite side thereof being provided with a spherical depression to effect deflection and distribution of the glue in the glue distributing passageway.

A further object is to provide the spherical depression so shaped and dimensioned as to secure substantially equal distribution throughout the distributing passageway.

Still a further object is to provide the body member with a glue flow control valve and a depressible control means for operating the valve, such means being adapted to be depressed by contact with a surface to be glued as such surface moves past the body member.

An additional object is to provide the depressible control means in the form of a pivoted lever having a plurality of tines adapted to contact such surface and to depress thereinto if the surface is soft, thereby providing a degree of automatic regulation for the control valve of the glue gun depending on the character of the surface being glued.

With these and other objects in view, my invention consists in the construction, arrangement and combination of the various parts of my plow type glue gun, whereby the objects above contemplated are attained, as hereinafter more fully set forth, pointed out in my claims and illustrated in detail on the accompanying drawing, wherein:

FIG. 1 is a perspective view of a plow type glue gun embodying my invention;

FIG. 2 is an enlarged front elevation thereof;

FIG. 3 is a vertical sectional view on the line 3-3 of FIG. 2 to show internal details of construction;

FIG. 4 is a horizontal sectional view on the line 4-4 of FIG. 2 showing the distributing action within the glue gun;

FIG. 5 is a vertical sectional view on the line 5-5 of FIG. 2 showing the glue gun in operation to glue a surface passing therebeneath;

FIG. 6 is a view similar to a portion of FIG. 4 showing certain critical dimensions, and

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FIG. 7 is a bottom perspective view of a portion of a control lever for the glue flow control valve of my glue gun.

On the accompanying drawing I have used the reference numeral 10 to indicate a body member which may be formed of metal or a suitable plastic. The body member 10 has an elongated surface 12 provided with a plurality of spaced-apart glue discharge ports 14 as shown in FIG. 2. The surface 12 extends laterally of the direction of travel of a surface to be glued as will hereinafter appear. The ports 14 connect with a glue distributing passageway 16 extending laterally with respect to a glue supply passageway 18 that connects with one side of the passageway 16 as shown in FIG. 3. The open ends of the passageway 16 are provided with closure plugs 17 whereby the glue from the passageway 16 is discharged only through the ports 14.

I have found that the problem of substantially equal distribution of the glue from the supply passageway 18 to the distributing passageway 16 so that there is substantially equal flow of glue from the ports 14 poses somewhat of a problem. To solve this problem I provide a spherical depression 22 which, as shown in FIG. 4 by arrows, deflects the glue so that it is substantially equally distributed throughout the two branches of the passageway 16 providing they are substantially no longer than approximately 3 inches. I have also found the radius of the spherical depression 22 somewhat critical, most efficient operation being experienced when substantially equal in radius to the diameter of the supply passageway 18. Referring to FIG. 6, diameter D and radius R are indicated, and one is the equal of the other to illustrate this area of criticality. The relative dimensions may vary plus or minus 10 or 15 percent but deviation beyond these variations produce inefficient distribution.

To provide the spherical depression 22, a constructional problem is posed which I solved by forming the depression in a plug 20 which plugs the outer end of the passageway 18 drilled into the body 10. It may be sealed therein with solder or the like, or may be a press fit.

For controlling the flow of glue to the supply passageway 18 I provide a valve seat sleeve 24, a ball valve 26 normally seated thereon by a valve seating spring 28 and a spring plug 30 backing the spring 28. A passageway 32 communicates an inlet 34 with the upper end of the valve seat sleeve 24 so that when the valve 26 is unseated therefrom glue may flow into the passageway 18. As shown in FIG. 1 a supply nipple 36 is connected to the inlet 34 and a suitable glue supply pipe or hose may be connected therewith.

For unseating the valve 26 I provide a control lever 40 pivoted at 42 and having an adjusting screw 44 adapted to contact a valve actuating pin 38 interposed between the screw 44 and the ball 26. The lever 40 has a plurality of tines 46 adapted to enter slots 48 of the body member 10 when the valve is opened, and a pair of wings 50 which are adapted to contact the work being glued such as a carton wall 52 as shown in FIG. 5. The glue gun is so adjusted relative to the carton that the valve is opened as determined by the setting of the adjusting screw 44 whenever the work passes under the glue gun in the direction of the arrow 54 shown in FIG. 5. If the work is somewhat soft (such as a corrugated cardboard carton as shown) the tines 46 depress thereinto and the glue gun is adjusted with relation to the work to compensate for such depression and secure the desired full opening of the valve 26.

To prevent the dripping of glue from the ports 14, the amount of glue must be controlled so that there is a minimum of reservoir space in the valve and discharge

port assembly. It will be noted that the ports 14 are relatively small and thereby produce capillary action to cause the glue to be removed from the distributing passageway 16 to the discharge ports 14 so that when the valve is closed the glue in the ports recedes to the passageway 16. A little bead of glue on each port prevents air from getting into the ports and hardening the glue, and when the surface 52 comes in contact with the glue beads they are knocked off and the gluing operation promptly commences. These glue beads will protect against glue hardening for five to ten seconds on fast setting glues. Thus a continuous gluing operation on successive cartons or the like automatically conveyed past the glue gun can be readily accomplished.

Another area of criticality I have found in the combined volume of the ports 14 with respect to the distributing passageway 16. This combined volume needs to be about two percent larger than the volume of the passageway 16, and if much larger, the effect is a reservoir which permits dripping. The volume of the glue in the passageway 16 is sufficient to supply the ports 14 at a rate which gives blobs of glue rather than continuous stripes thereof thereby providing instantaneous tack and faster paper-failure bond.

The adjusting screw 44 gives a variation in the distance the control lever 40 is depressed and the valve thereby opened. The lever is moved through greater distances when gluing hard materials than when gluing soft materials. Therefore for soft material a larger depression distance is employed. The tines as disclosed, being located between the spaced ports 14, provides an arrangement in which there is no interruption of the flow in the area of the tines. A glue gun of the character disclosed saves glue and is relatively easy to maintain and keep clean.

Some changes may be made in the construction and arrangement of the parts of my plow type glue gun without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims any modified forms of structure or use of mechanical equivalents which may reasonably be included within their scope.

I claim as my invention:

1. In a plow type glue gun, a body member having an elongated surface provided with a plurality of spaced-apart glue discharge ports, said body member having a glue distributing passageway with which said glue discharge ports connect for receiving glue therefrom, and a glue supply passageway communicating with said glue distributing passageway at substantially the center thereof, said glue supply passageway meeting said glue distributing passageway at one side thereof, the opposite side of said glue distributing passageway having a spherical depression against which the stream of glue from said glue supply passageway impinges, said depression being thereby effective to deflect the glue and distribute it substantially equally throughout the length of said glue distributing passageway.

2. A glue gun in accordance with claim 1 wherein said spherical depression is formed on a radius substantially equal to the diameter of said glue supply passageway.

3. A glue gun in accordance with claim 2 wherein a glue flow control valve is provided in said body member and a depressible control lever is provided for operating said valve, said control lever being adapted to be depressed by contact with a surface to be glued as such surface moves past said lever.

4. A glue gun in accordance with claim 1 wherein the combined volume of said glue discharge ports is slightly greater than the volume of said glue distributing passageway.

5. A glue gun in accordance with claim 1 wherein a glue flow control valve is provided in said body member and a depressible control means is provided for operating said valve, said control means being adapted to be depressed by contact with a surface to be glued as such surface moves past said body member.

6. A glue gun in accordance with claim 5 wherein said depressible control means comprises a pivoted lever having a plurality of tines adapted to contact such surface.

No references cited.