

Aug. 12, 1941.

L. BEEH

2,252,542

ADHESIVE DISPENSER

Filed March 21, 1940

2 Sheets-Sheet 1

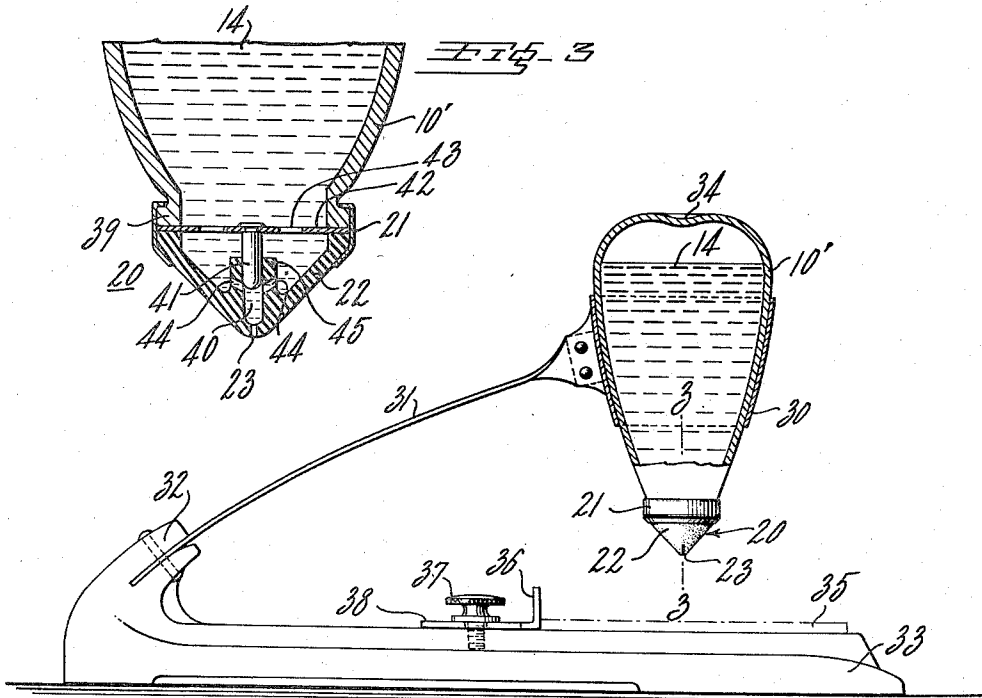
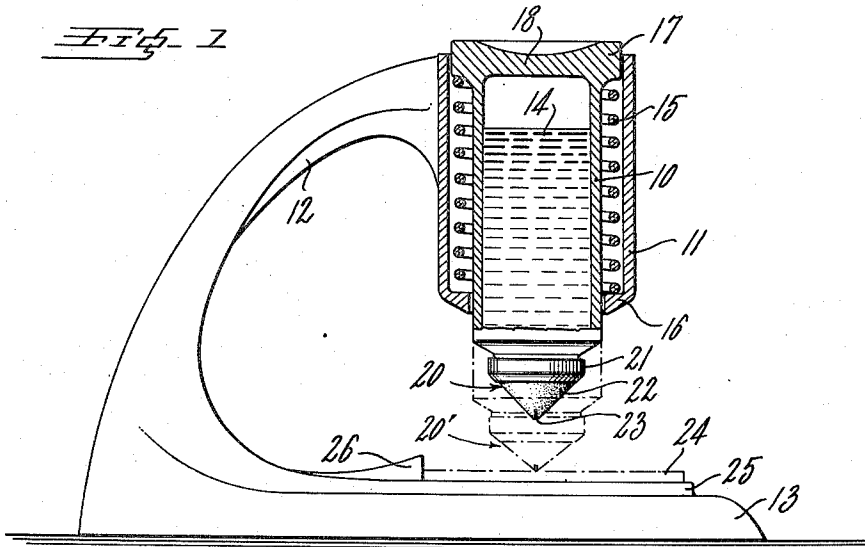


FIG. 2

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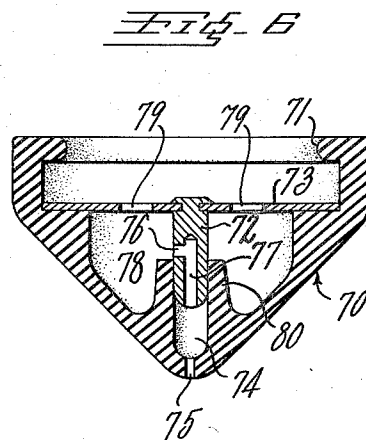
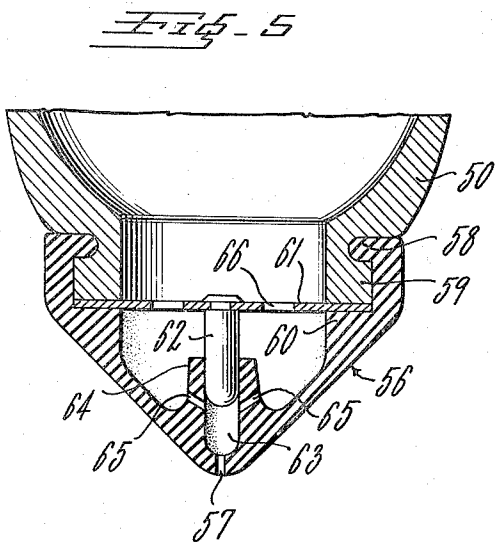
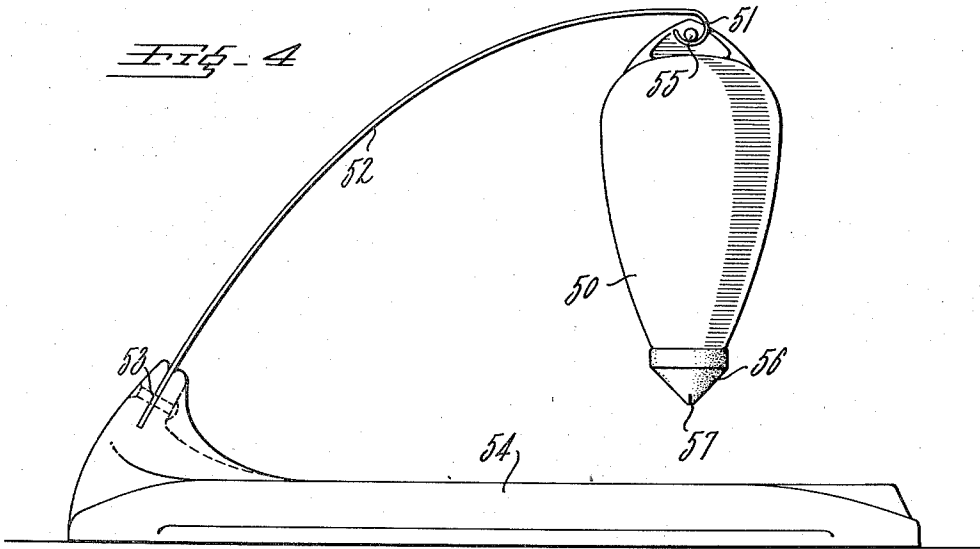
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ADHESIVE DISPENSER

Filed March 21, 1940

2 Sheets-Sheet 2



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ADHESIVE DISPENSER

Louis Beeh, Longmeadow, Mass.

Application March 21, 1940, Serial No. 325,227

4 Claims. (Cl. 91—43)

This invention relates to adhesive dispensers, and more particularly to novel arrangements for successively dispensing predetermined charges of adhesive.

In accordance with the present invention, a bottle containing adhesive in liquid form is resiliently mounted for ready manual actuation towards the dispenser base upon which the sheet or surface to be treated is placed. When pressure is released from the bottle, it returns to its normal position above the base. In a preferred embodiment of the dispenser, a predetermined relation is effected between the reciprocatory movement of the dispenser bottle and the base, so that adhesive is applied along a predetermined distance from a sheet edge. The bottle or container of the adhesive is readily mounted in the dispenser, and is readily replaceable by a new one.

Another important feature of the present invention resides in a novel deformable dispenser cap arranged on the open end of the bottle or container of adhesive, constructed to discharge adhesive when pressed on a surface, preferably in predetermined amounts. A plunger is arranged within the cap in a manner to discharge adhesive when the cap is deformed. A small reservoir in the cap containing the fixed charge of adhesive, is filled after emptying. In the preferred embodiment of the invention, the dispenser cap is arranged at the end of the resiliently mounted adhesive bottle, to successively apply charges of adhesive on a surface by simply pressing against the surface.

It is accordingly an object of my present invention to provide a novel adhesive dispenser.

Another object of the present invention is to provide a novel resiliently mounted adhesive dispenser.

Still another object of the present invention is to provide a novel resiliently mounted adhesive dispenser arranged to apply adhesive on a sheet in a predetermined alignment thereon.

A further object of the present invention is to provide a novel adhesive dispenser cap or applicator.

Still a further object of the present invention is to provide a novel arrangement for successively dispensing predetermined amounts of adhesive.

These and further objects of the present invention will become more apparent in the following description of embodiments thereof illustrated in the drawings, in which:

Fig. 1 is an elevational view, partly in section, of one embodiment of the invention;

Fig. 2 is an elevational view, partly in section, of a further embodiment of the invention;

Fig. 3 is an enlarged cross-sectional view through the dispenser cap, taken along the line 3—3 in Fig. 2;

Fig. 4 is still a further embodiment of the dispenser; and

Figs. 5 and 6 are enlarged cross-sectional views of modifications of the dispenser cap, corresponding to the view of Fig. 3.

In Fig. 1 a container or bottle 10 is mounted in a receptacle 11 depending from a frame 12 extending above base 13 of the dispenser assembly. Bottle 10 contains a liquid adhesive 14, which may be any suitable glue, mucilage, paste, or an equivalent compound. Bottle 10 is resiliently supported in receptacle 11 by a helical spring 15, the bottom end of which rests on neck portion 16 of receptacle 11. The top of spring 15 supports bottle 10 at an extending collar 17 co-extensive with the bottle base 18.

Adhesive bottle 10 is arranged to be pressed downwardly, and to be guided by the coating receptacle neck portion 16. The bottle is moved downwardly, against the biasing action of spring 15, by simply pressing down on its base 18. When manual pressure on base 18 is removed, spring 15 immediately returns the bottle to its normal upper position illustrated in Fig. 1. The bottle 10, containing the liquid adhesive 14, is covered at its open end with the novel dispenser cap 20. Cap 20 is secured to the neck of bottle 10 by a metal ring 21. The conical tip 22 of cap 20 is made of deformable material, such as resilient rubber, and contains a transverse slotted or slitted section 23 at its apex. The consistency of the adhesive 14 and the width of slot 23 are such that the adhesive will normally solidify at or otherwise not leak through the slot when the cap is not deformed.

In operating the dispenser, bottle 10 is pressed downwardly towards a sheet 24 placed on platform 25 of base 13. The dispenser cap 20 is moved to the dotted position illustrated at 20' in Fig. 1, wherein the apex containing slot 23 presses upon the top surface of sheet 24. The conical section 22 of the dispenser cap is deformed when pressed on sheet 24 and discharges a portion of contained adhesive through slot 23, which may be a predetermined amount as will be described. The inside edge of sheet 24 is placed in position against a guide post 26 to predetermine the distance of adhesive application on sheet 24 from

that edge. The adhesive bottle 10 of the dispenser is reciprocated in a fixed vertical position. By displacing sheet 24 along the dispenser base 25, a series of regions containing adhesive is deposited at the predetermined distance from its inside edge. The adhesive spots may be spaced along sheet 24 by correlating the feed or advancement of sheet 24 along the dispenser base 25 with the frequency of reciprocations of the dispenser bottle against the sheet.

The bottle 10 is supplied properly capped with dispenser 20 and containing the liquid adhesive 14. The bottle is readily inserted in the receptacle 11 of the dispenser fixture, in the position illustrated in Fig. 1. The weight of the bottle and contained adhesive holds it properly aligned in the receptacle 11. When the adhesive 14 is used up, the bottle is readily removed from receptacle 11, and either refilled or replaced by a new bottle. The dispenser assembly is simple to construct and maintain, and is very useful for applying spots, lines or regions of adhesive onto a sheet and along a predetermined distance from the edge of the sheet.

In Fig. 2 a modified arrangement of the dispenser assembly is illustrated in elevation. The dispenser bottle 10' tapers toward the dispenser cap 20, which is similar to the cap of the embodiment of Fig. 1. The bottle 10' is set into a correspondingly tapered receptacle 30 supported at the end of a leaf spring 31, the opposite end of which is secured with extension 32 of dispenser base 33. The bottle 10' rests in tapered receptacle 30, and the weight of the bottle holds it in stable position therein.

The dispenser of Fig. 2 is operated by simply pressing on base 34 of bottle 10', whereupon the bottle and its receptacle 30 move downwards against the resilient support of spring 31, onto sheet 35 in position on dispenser base 33. The inside edge of sheet 35 rests against an adjustable guide bar 36. The distance from the inside sheet edge of the adhesive spots deposited onto sheet 35 is determined by the setting of a guide post or bar 36 by set screw 37. A transverse slot in horizontal arm 38 of the guide bar permits transverse positioning thereof.

An important feature of my present invention resides in the novel adhesive dispensing cap. Fig. 3 is an enlarged cross-sectional view through the dispensing cap 20, taken along the lines 3—3 in Fig. 2. The cap comprises a deformable conical member 22 preferably made of resilient rubber, containing a slot 23 at its apex. It is affixed to neck 39 of bottle 10' by a sheet metal ring 21. Conical resilient member 22 is molded or otherwise shaped to contain a central cylindrical reservoir region 40 communicating with slot 23 and coacting with a plunger 41. The reservoir opening 40 is formed in a central inwardly extending projection 45 of member 22. Plunger 41 is supported upon slot 23 by a diaphragm or spider element 42 set between the coacting edges of cap 22 and bottle neck 39.

The liquid adhesive 14 from bottle 10' passes into the dispenser cap region through openings 43 in diaphragm 42. The adhesive fills reservoir 40 by passing through openings 44 in the inner central projection 45 of the cap. When the bottle 10', or bottle 10 in Fig. 1, is pressed downwardly against the sheet, resilient cap 22 is deformed and the apex containing slot 23 is pressed towards diaphragm 43 whereupon plunger 41 forces the adhesive in reservoir 40 out through slot 23. Diaphragm 43 limits the inward ex-

ursion of deformable member 22 to where the top of the projection 45 abuts it. The walls of deformable cap 22 are sufficiently resilient and designed to permit a full relative movement of piston 41 into reservoir 40.

When cap 22 is deformed, piston 41 first closes the ends of slots 44 communicating with reservoir 40 and then presses the entrapped charge of liquid in reservoir 40 out through slot 23. The pressure overcomes any slight hindrance due to drying of adhesive at the outer tip of slot 23 in cap 22. The quantity of adhesive charge in reservoir 40 is predetermined by design of the dispenser cap 20. The full adhesive charge may be deposited on a stationary sheet, or in the form of a narrow line where the sheet is continually moved. The length of the adhesive line in the latter instance is determined by the amount of adhesive in each charge and the relative rate of movement between the sheet and the dispenser cap.

A further form for the dispenser arrangement is illustrated in Fig. 4, wherein a dispenser bottle 50 is suspended by the end 51 of a leaf spring 52 secured at extension 53 of dispenser base 54. A pin 55 is secured with the top end of dispenser bottle 50 and removably coacts with the leaf spring end 51 in the manner indicated. A dispenser cap 56 is arranged about the neck of bottle 50 for dispensing the contained liquid adhesive in a manner similar to that previously described. In the form of the invention in Fig. 4, the bottle 50 is gripped in one's hand and tip 57 is directed to the portion of the sheet upon which the charge of adhesive is to be deposited. Bottle 50 is resiliently supported above the base 54 of the dispenser, the movement of the bottle not being rigid as in the previous modifications.

The dispenser cap 56 on bottle 50 of Fig. 4 is removable, and the adhesive may be replaced in the bottle if desired. Fig. 5 is a vertical cross-sectional view through the dispenser cap 56. The cap 56 is made of deformable material, and is shaped to contain an inwardly projecting ridge 58 coacting with a corresponding recess in the neck of bottle 50. The base of conical cap 56 is gripped about the collar 59 corresponding to the open end of dispenser bottle 50. A shoulder 60 in cap 56 presses a diaphragm 61 against the end of bottle 50, for suitable centrally positioning it. A piston or plunger 62 is secured to diaphragm 61, and coacts with a cylindrical reservoir opening 63 centrally of cap 56 which communicates with apex slot 57 thereof. An inwardly projecting portion 64 of cap 56 contains the reservoir 63 with the interior of cap 56 and communicates with the adhesive in interior of bottle 50 through openings 66 in diaphragm 61. The dispenser cap 56 of Fig. 5 is similar to dispenser cap 20 hereinabove described in connection with Figs. 1, 2 and 3. The modified arrangement in cap 56 resides in its being directly attachable onto the neck of the dispensing bottle by the inwardly projecting ridge 58.

Fig. 6 illustrates a modified dispensing cap arrangement comprising a deformable conical body portion 70 containing the inwardly projecting ridge for attachment to the neck of the dispensing bottle, similar with that of Fig. 5. A plunger 72 is centrally supported on a diaphragm 73, and coacts with a reservoir 74 in cap 70 communicating with apex slot 75, as in the previous embodiments. However, a compound bore arrangement 76, 77 is provided in piston 72 so that reservoir 74 communicates with the liquid in inner region

78 of the cap. Region 78 communicates with the adhesive in the associated bottle through openings 79 in diaphragm 73.

When tip 75 of deformable cap 70 is pressed against the sheet upon which the adhesive is to be applied, the central projecting portion 80 of cap 70, bounding reservoir 74, contains no openings corresponding to openings 65 and 44 of the previous modifications. When cap projection 80 moves up on plunger 72, horizontal slot 76 is closed from communication with open region 78 of the cap. Thus, the charge of adhesive within reservoir 74, and bore arrangement 76, 77, are sealed from the remainder of the adhesive supply. The relative movement of piston 72 in reservoir 74 forces the predetermined charge of adhesive therein through slot 75 onto the sheet to which it is to be applied.

Although I have disclosed preferred embodiments for carrying out my present invention, it is to be understood that further modifications therein may be made by those skilled in the art, falling within the broader spirit and scope of the invention as defined in the appended claims.

I claim:

1. An adhesive dispenser comprising a container for the adhesive, a dispensing cap at one end of said container, and means for resiliently supporting said container above a surface comprising a receptacle surrounding said container and a depressible spring arranged to displaceably support said container within said receptacle and normally above the dispenser base to permit said cap to be displaced to a position against said surface.
2. An adhesive dispenser comprising a container for the adhesive, a dispensing cap at one end of said container having means for discharging predetermined amounts of adhesive upon pressure of said cap against a surface, and means for resiliently supporting said container above a

surface and displaceable in a predetermined alignment to move said cap against the surface for releasing adhesive thereon comprising a receptacle surrounding said container and a spring arranged to support said container within said receptacle and above the dispenser base.

3. An adhesive dispenser comprising a bottle for the adhesive, a deformable dispensing cap at one end of said bottle having means for discharging adhesive upon pressure of said cap against a surface, and means for resiliently supporting said bottle above a surface and displaceable in a predetermined vertical alignment to move said cap against the surface for releasing adhesive thereon and automatically return the said bottle to its position above the surface comprising a receptacle surrounding said bottle and a helical spring within said receptacle arranged to support said bottle within said receptacle and above the dispenser base, and sheet guiding means on said base for predetermining the distance of adhesive application from a sheet edge in position thereon.

4. An adhesive dispenser comprising a bottle for the adhesive, a normally sealed deformable dispensing cap at one end of said bottle having means for discharging adhesive upon pressure of said cap against a surface, and means for resiliently supporting said bottle above a surface and displaceable in a predetermined alignment to move said cap against the surface for releasing adhesive thereon and automatically return the said bottle to its position above the surface comprising a receptacle surrounding said bottle, a helical spring surrounding said bottle the lower end of which is supported by said receptacle and the upper end of which abuts a projection of said bottle for supporting said bottle within said receptacle and above the dispenser base.

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