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2,264,632

ADHESIVE APPLYING DEVICE

Filed Feb. 14, 1939

Fig. 1

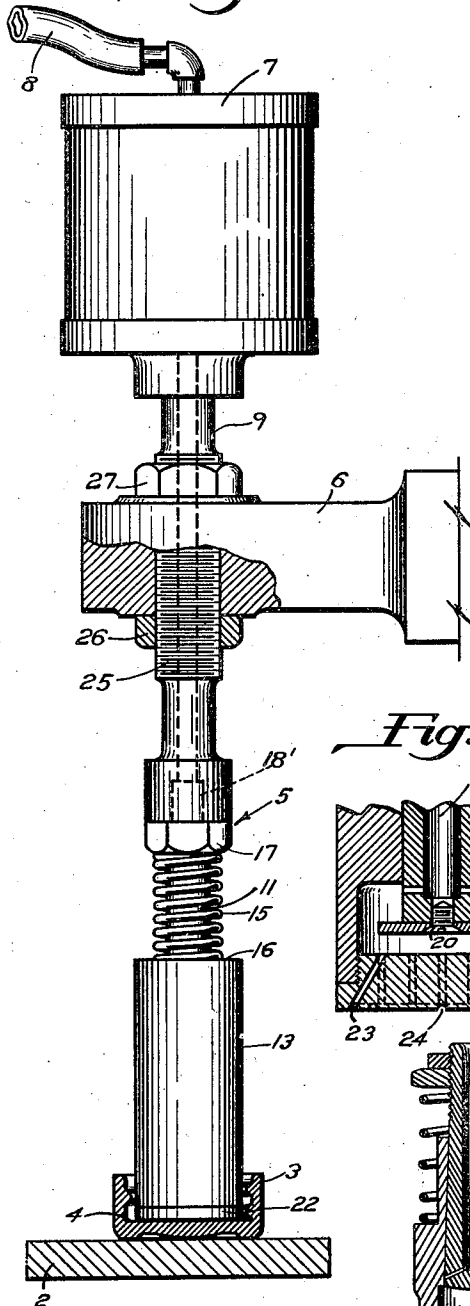


Fig. 2

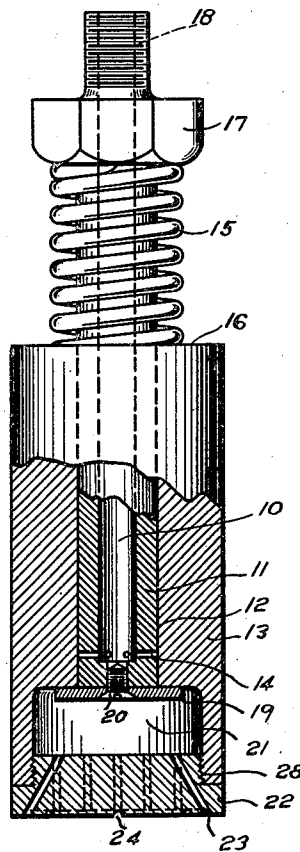


Fig. 3

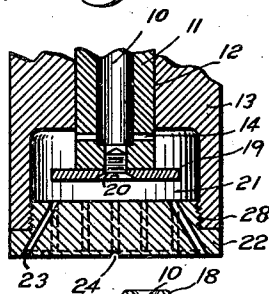


Fig. 4

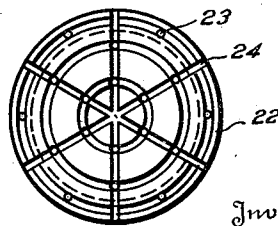
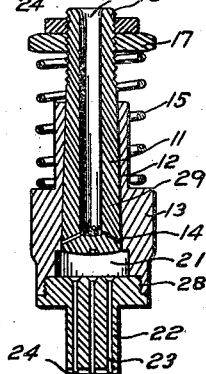


Fig. 5



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ADHESIVE APPLYING DEVICE

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6 Claims. (Cl. 91-43)

This invention relates to an adhesive applying device and more particularly to a device for applying adhesive to the inside of closure bodies for the securement of sealing liners thereto.

It is an object of my invention to provide a simple device by which adhesives of varying degrees of flowability may be applied to the head portions of closures and may be disposed uniformly and in predetermined quantity therein to effect adhesive securement of a sealing liner disposed in engagement therewith throughout substantially the entire extent of the surfaces in engagement with the adhesive.

Common practice heretofore has been to apply a single drop of adhesive to the central portion of the head of the closure body and rely upon the application of pressure to the liner to spread the adhesive over the contacting surfaces. This has been found generally unsatisfactory, particularly with the less fluid adhesives.

In order that my invention will be readily understood, I will describe the same in conjunction with the attached drawing in which

Figure 1 is a side elevation, partially broken away, illustrating the device of my invention attached to the reciprocating arm of a closure lining machine;

Figure 2 is a similar view showing particularly a valve mechanism for the adhesive supply line in closed position;

Figure 3 is a partial sectional view showing the valve mechanism in open position;

Figure 4 is a bottom plan view of a preferred form of distribution head; and

Figure 5 is a sectional view of a further modification.

Referring to Figure 1, there is shown a support 2 which carries a molded closure 3 to which adhesive is to be applied to the surface 4 of the head portion thereof by the adhesive applying device generally indicated by the numeral 5. The applicator 5 is carried by an arm 6 adapted for reciprocatory motion in a vertical plane to bring the applicator 5 into engagement with the surface 4 of the closure 3 to deposit adhesive thereon and to withdraw the applicator 5 from the closure to permit movement of the closure from the adhesive applying station and to present a new closure thereto for adhesive application. The arm 6 forms a part of a closure lining machine which need not be described in detail since any mechanism suitable for imparting such motion to the arm 6 will be satisfactory.

The adhesive is carried in a reservoir 7 and is placed under pressure by means of air intro-

duced from a suitable source through a flexible hose 8. A conduit 9 communicates with the bottom of the reservoir 7 and with a central feeder 10 (Figure 2) provided in a valve body 11. The valve body 11 is movable axially within an axial bore 12 provided in the body 13 of the applicator 5. Passageways 14 extend radially from the central feeder 10 to the outer periphery of the valve body 11 and are closed by the surface of the axial bore 12. The passageways 14 are normally held in closed position by retraction to a position within the bore 12 by a spring 15 which encircles the valve body 11 and is disposed between an upper surface 16 of the body 13 and a radial projection 17 on the valve body 11. The projection 17, in the embodiment shown in Figure 2, is formed as a nut to facilitate assembly of the applicator 5 to the conduit 9, the terminal end of the valve body 11 being provided with screw threads 18 engageable with complementary threads 18' (shown in dotted lines in Figure 1) formed in the central bore of the conduit 9. Movement of the valve body 11 with respect to the body 13 is limited by a valve plate 19 attached to the end of the valve body 11 by a screw 20. The valve plate 19 serves as a supplementary seal, acting against the surface of the body 13 surrounding the central bore 12, aiding in the sealing of the passageways 14.

A chamber 21 for the reception of adhesive is provided in the body 13 below the plate 19 and the bottom of this chamber is closed by a distributing head 22 formed with ports 23 communicating with the chamber 21 and extending to the outer face of the distributing head 22. As shown in Figure 4, the ports 23 are radially and circumferentially spaced and are connected by circumferentially and radially disposed grooves 24, which intersect to facilitate proper distribution.

In the operation of my device, a closure 3 positioned on the support 2 is brought into the adhesive applying station and the arm 6 is reciprocated in a vertically downward direction, bringing the distributing head 22 into engagement with the surface 4 of the head of the closure 3. As downward motion continues, the applicator body 13 is displaced with respect to the valve body 11 as shown in Figure 3, compressing spring 15, and adhesive under air pressure flows from the reservoir 7, through the conduit 9, the central feeder 10, and the passageways 14 into the chamber 21 and thence through the ports 23 to the grooves 24 into engagement with the surface 4. After completion of the downward movement, the arm 6 is elevated and the spring 15 causes

the applicator body 13 to move with respect to the valve body 11 bringing the passageways 14 within the bore 12 and the plate 19 into engagement with the applicator body 13 surrounding the bore 12, thus sealing the communication line from the reservoir 7 to the chamber 21. The closure 3 is then moved from the adhesive applying station and a new closure is presented thereto.

In order to facilitate the application of adhesive to closures of various sizes, the conduit 9 is screw threaded in an area 25 and is provided with clamp nuts 26 and 27 to permit vertical adjustment of the applicator with respect to the arm 6 to insure proper engagement of the distributing head 22 with the surface 4 of the closure 3 upon downward movement of the arm 6. The applicator assembly 5 is, as previously pointed out, screw threaded to the conduit 9 so that the same may be conveniently removed and replaced by a device having the proper diameter for the closures being operated upon. Additionally, the distribution head 22 is attached to the body 13 by screw threads 28 so that it may be conveniently changed.

In Figure 5, there is shown a modified construction in which a tapered valve 29 is provided for controlling the flow of adhesive from the reservoir 7 to the distributing chamber 21 in place of the valve arrangement of Figure 2. The applicator of Figure 5 operates in the same manner as the applicator shown in Figures 1, 2, 3 and 4 and corresponding numbers have been applied to corresponding parts. It will be noted, however, that the distributing head 22 is of different contour than the head of Figure 2, illustrating the interchangeability of the distributing head to operate upon closures of varying diameter.

While I have illustrated and described certain preferred embodiments of my invention, it will be understood that the invention is not so limited but may be otherwise embodied within the scope of the following claims:

I claim:

1. An adhesive applying device comprising a body with a chamber having a plurality of parts extending therefrom to an exposed surface to direct adhesive to the surface to be treated, said body being provided with a central axial bore, a valve axially movable in said bore upon relative movement of said body with respect thereto, said valve having a central axial feeder therein with a radially disposed passageway in communication therewith extending to the face thereof, yielding means disposed to normally hold said valve within said bore with said radially disposed passageway extending to the surface of said bore, and a source of adhesive under pressure communicating with said feeder, relative movement of said body with respect to said valve being effective to bring said passageway to a position within said chamber to permit the passage of adhesive from said source, through said feeder and said passageway to said chamber and through said ports to the surface to be treated.

2. An adhesive applying device comprising a body portion with a distributing chamber therein, a distributing head having a plurality of ports therein communicating with said chamber and extending to an exposed surface of said distributing head in radially and circumferentially spaced relationship, said ports being connected by circumferential and radially disposed grooves formed in the surface of said distributing head and serving to direct adhesive uniformly to the

surface to be treated, said body being provided with a central axial bore opening into said distributing chamber, a valve slidable axially within said bore, said valve being provided with a central axial feeder and radially disposed passageways extending therefrom to the surface of the valve, a valve plate-movable with said valve lying within said distributing chamber and of an area sufficient to overlie the line of engagement between the valve and body at the surface of said chamber, a radial projection on said valve, a spring encircling said valve and disposed between a surface of said body and said projection and normally holding said valve in closed position with said passageways disposed within the bore of said body and said valve plate in engagement with the body surrounding said line of engagement, a source of adhesive liquid under pressure, a conduit leading from said source to said axial feeder in said valve, a closure support, means reciprocable toward and away from said support, said valve being fixed with respect to and movable with said reciprocable support, said valve and body being displaceable with respect to each other upon engagement with said body with a surface to be treated, such displacement being effective for moving said valve plate away from the said line of engagement and said passageways to a position within said distributing chamber to permit the delivery of adhesive liquid under pressure from said source into said distributing chamber and through said ports to said grooves for application to the surface to be treated.

3. An adhesive applying device in accordance with claim 2 in which the distributing head is removably secured to the body.

4. An adhesive applying device comprising a source of adhesive liquid under pressure, an applicator body provided with an adhesive receiving chamber therein, a distributing head associated with the applicator body and having a plurality of ports communicating with said chamber and extending to an exposed surface of said head to direct adhesive from the chamber to the surface to be treated, said body being provided with a bore extending axially thereof into said chamber, a conduit leading from said source through said bore into said chamber, a valve axially movable in said bore upon relative movement of said body with respect thereto, said valve having a feeder therein with a radially disposed passageway extending to the surface of said bore, yielding means disposed to normally hold said valve in closed position with said radially disposed passageway within said bore, a support for an article the surface of which is to be treated, and valve carrying reciprocating means for imparting movement to said body and valve to bring said body into engagement with said surface to be treated and to effect relative movement between said valve and body, opening said valve for the discharge of fluid from said source, through said feeder and passageway to said chamber and through said ports to the surface to be treated.

5. An adhesive applying device comprising a body with a chamber having a plurality of ports extending therefrom to an exposed surface to direct adhesive to the surface to be treated, said body being provided with an axial bore having a tapered valve sealing surface, a valve having a complementary tapered surface axially movable in said bore upon relative movement of said body with respect there-

to, said valve having an axial feeder therein with a radially disposed passageway in communication therewith extending to the face thereof, and yielding means disposed to normally hold said valve in closed position with said radially disposed passageway within said bore, relative movement of said body with respect to said valve being effective to bring said passageway to a position within said chamber to permit the passage of adhesive through said feeder and said passageway to said chamber and through said ports to the surface to be treated.

6. An adhesive applying device comprising an applicator body provided with an adhesive receiving chamber therein, a distributing head associated with the applicator body and having a plurality of ports communicating with said chamber and extending to an exposed surface

of said head to direct adhesive from the chamber to the surface to be treated, said body being provided with a bore extending axially thereof, a valve axially movable in said bore upon relative movement of said body with respect thereto, said valve having a feeder therein with a radially disposed passageway extending to the surface of said bore, and yielding means disposed to normally hold said valve in closed position with said radially disposed passageway within said bore, relative movement of said body with respect to said valve being effective to bring said passageway to a position within said chamber to permit the passage of adhesive through said feeder and said passageway to said chamber and through said ports to the surface to be treated.

HARRY E. GERLITZKI.

CERTIFICATE OF CORRECTION.

Patent No. 2,264,632.

December 2, 1941.

HARRY E. GERLITZKI.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, first column, line 46, claim 1, for "parts" read --ports--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 10th day of March, A. D. 1942.

(Seal)

Henry Van Arsdale,
Acting Commissioner of Patents.