

April 5, 1938.

J. P. SHEVLIN

2,113,244

ADHESIVE SPRAYING ATTACHMENT

Original Filed April 22, 1935

2 Sheets-Sheet 1

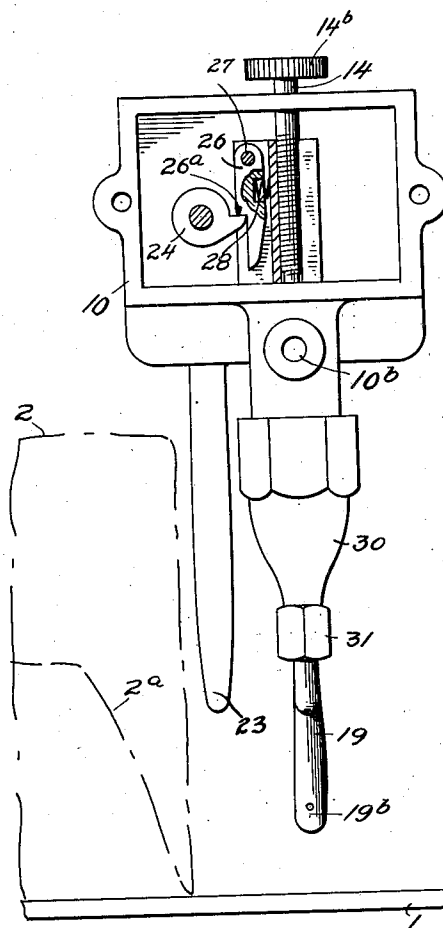
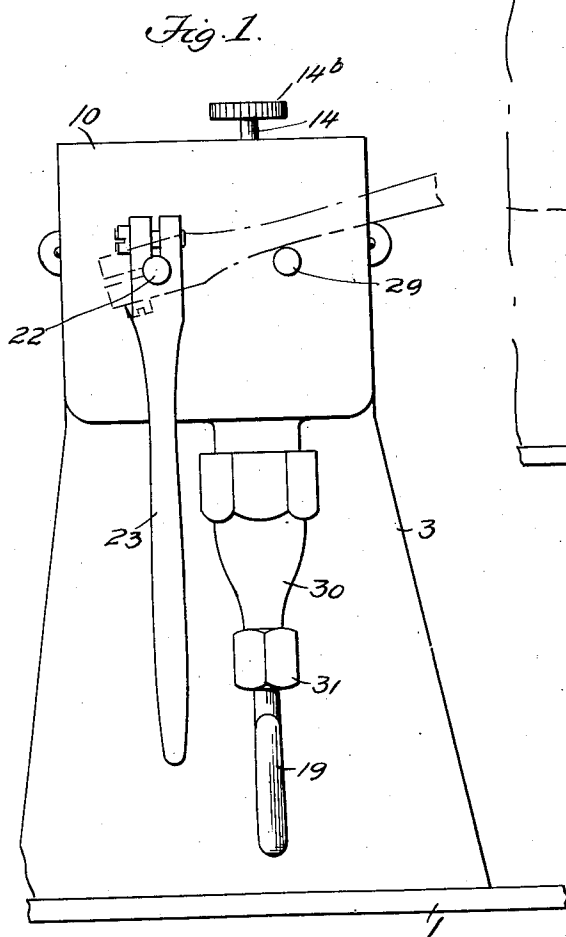


Fig. 2.

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2 Sheets-Sheet 2

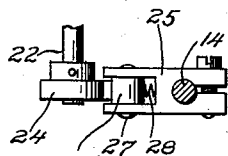


Fig. 4.

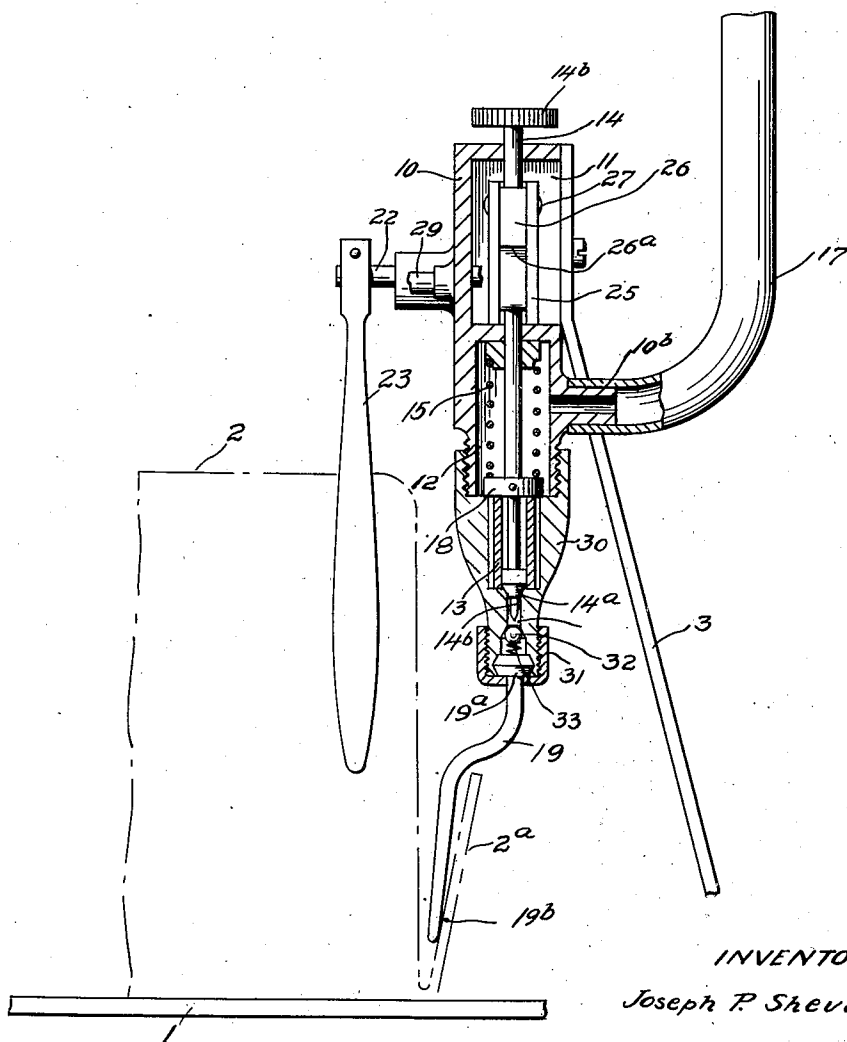
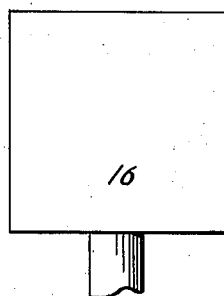


Fig. 3.

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ADHESIVE SPRAYING ATTACHMENT

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12 Claims. (Cl. 91-44)

This invention relates to means for applying a sealing adhesive to the wrapper of machine wrapped packages, and has particular reference to an attachment for package wrapping machines capable of applying an adhesive substance to the folds of the wrappers during the wrapping operation.

The object of the invention is to provide a simple and inexpensive device, capable of ready attachment to commercially known wrapping machines. A further object is the provision of an attachment operable by the article to be wrapped, during its passage through the wrapping machine, to place adhesives on the folds of the wrapper. Another object is to provide means, embodied in the attachment, for delivering the adhesive to the fold of the wrapper in a fine spray in order that the binder may quickly set, securely to hold the wrapper together after the package leaves the machine.

These and the further objects and advantageous features of the invention are hereinafter fully described and illustrated in the appended drawings, of which:

Fig. 1 is a front elevation of an attachment to a wrapping machine embodying the invention,

Fig. 2 is a corresponding rear elevation of the attachment with parts removed in order to disclose the interior mechanism,

Fig. 3 is a cross sectional end elevation of the device, indicating its relation to a package passing through a wrapping machine, and

Fig. 4 illustrates a detail the relation of which to the device will presently be explained.

While the device of the invention is adapted for attachment to different types of packaging machines, it is here shown and described in connection with machines for wrapping loaves of bread. Such machines are so common and well known commercially that it is thought sufficient for the purpose of this description to illustrate a table 1, and to state that a loaf of bread 2 is advanced on this table in any well known manner and that associated with this table are suitable folding elements.

To the table is shown suitably clamped a bracket 3, which serves to support the device of the invention. The latter comprises a casing 10 which, for the sake of simplicity of illustration, is shown fastened to the bracket 3 in such a manner that the upper part of the bracket serves as a cover for the casing. But the casing may, of course, be made with a separate cover, if preferred.

The casing is divided to form an upper, sub-

stantially rectangular chamber 11 and a downwardly extending cylindrical chamber 12. A cylindrical sleeve 13 is loosely seated within an extension of the chamber 12. A plunger 14 is mounted to extend through both chambers and through the sleeve 13, and it is made with a valve head 14^a which slidably fits the sleeve and which registers with a seat of the casing. A spring 15 maintains this valve head yieldingly seated. At a suitable elevation above the device is hung a tank 16, in which a suitable liquid adhesive, such as glue, is placed. This liquid is free to flow through a flexible tube 17 and a port 10^b of the casing into the chamber 12. Because the sleeve 13 is loosely seated, this adhesive will also flow through the narrow space between the sleeve and the chamber wall, down to the valve head.

If now the plunger is slowly lifted, as by taking hold of the finger knob 14^b, it is seen that a small amount of adhesive will flow between the valve head and seat and that, the moment the knob is released, the spring 15 will return the plunger quickly. A collar 18 is shown fastened on the plunger to form a rest for the spring, and this collar registers with the upper end of the sleeve 13. When the valve head 14^a is nicely fitted within the sleeve it follows that, because of the stickiness of the liquid, the raising of the valve head also will tend to lift the freely seated sleeve. When the plunger is released, it is seen that the collar 18 will strike the top of the sleeve and that the sleeve and the valve head will move downward together to force whatever liquid has been deposited thereunder through a passage 10^c and into the discharge tube 19.

The plunger terminates in a pilot 14^b, seated in the passage 10^c to prevent glue from flowing through this passage too fast when the plunger is raised. But, if much glue is required, this pilot may be omitted. Referring now to Figs. 2 and 3, it is noticed that the last fold 2^a of the wrapper is being gradually closed, by the usual folding elements (not shown). The tube 19 is suitably bent to extend into the narrowing gap between the closing fold and the end of the package, and it is on the side adjacent the fold shown made with a discharge orifice, or nozzle 19^b, close to its flattened end. In the side of the casing is rotatably seated a stem 22, to the outer end of which is affixed a pendent arm 23, and a cam 24 is shown rigidly mounted on the inner end of the stem. It is also to be noted that the pendent arm 23 is positioned in the path of travel of the package through the machine. The

plunger 14 is, within the chamber 11, threaded to receive a substantially rectangular carrier 25, and this carrier is along one side made with a groove in which a pawl 26 is hung to swing on a pivot 27. A spring 28 urges the pawl outward, against the aligned cam 24, as best shown in Fig. 2. The arrow points to the direction of travel of the package, and as the latter advances, it reaches and slowly swings the arm 23 on its pivot, thereby causing the cam 24 to rotate and to raise the pawl, the carrier and the plunger until the lip 24^a passes the corner 26^a of the pawl, whereupon the spring 15 is free to shoot the plunger back into its original position.

If the discharge tube 19 has been previously filled, as above described, it is seen that the return of the plunger causes a small quantity of liquid to be sprayed through the nozzle and on to the fold 21, whereupon the package advances past the attachment to allow the folding elements complete the wrapping operation.

It was stated that the carrier 25 is mounted on screw threads of the plunger. This arrangement makes it possible to adjust the plunger vertically by merely turning the knob 14^b, and thereby to determine the quantity of liquid adhesive to be delivered on the fold of the wrapper.

Some wrappers are provided with a coating such as wax, and heat elements are provided for softening this coating to bind the folds of the wrapper together. Where such wrapper is used, it is not necessary to apply any adhesive and means should be introduced to make the device of the invention inoperative while such wrapper is employed. Such means is here shown to consist in a stud 29, seated in the casing adjacent the stem 22 and preferably parallel therewith. To make the device inoperative, it is merely required to swing the arm 23 to a position of rest on this stud and to swing it back again when required to apply the liquid binder.

In the drawings, the casing 10 is for convenience in manufacture shown threaded to receive an extension 30, within which the sleeve 13 is seated. The discharge tube 19 is shown rotatably seated on the extension 30, and it is held tightly in adjusted position by a cap 31 engaging an enlargement 19^a of the tube. In such manner, the tube may readily be directed to deposit binder at the place where it is needed.

The gravity feed, from the tank 16, is preferred on account of its cheapness and simplicity but, where compressed air is available, it may be found advantageous to apply air pressure to force the binder through the device. In that case, the function of the plunger is essentially to shut off the supply at the proper time.

It is also to be noted that a ball valve 32 is seated, by a spring 33, yieldingly to close the passage from the casing extension to the discharge tube. While this valve readily yields to the pump pressure to pass adhesive into the discharge tube, it prevents adhesive from being drawn back into the casing extension. When such check valve is provided, it is seen that the discharge tube always will remain filled and not fail to deliver a predetermined quantity of adhesive on the wrapper fold.

I claim:

1. In a binder depositing attachment for a package wrapping machine, a casing having a discharge opening at one end, means for applying liquid binder to the casing, liquid expelling means slidable in said casing, pressure means projecting said expelling means to close said opening, and

package actuated means for withdrawing said expelling means and to trip it at a predetermined distance from said opening again to be projected into the opening by said pressure means, thereby to close the opening.

2. In a binder depositing attachment for a package wrapping machine, a casing provided with a discharge opening at one end, means for supplying liquid binder to the casing, a plunger axially slidable in said casing, pressure means projecting said plunger to close said opening, and package actuated tripping means for withdrawing said plunger from said opening against the force of said pressure means, said tripping means being designed to release the plunger when the latter is withdrawn a predetermined distance for projection into said opening.

3. For attachment to a package wrapping machine, a casing, means for continuously supplying liquid binder to the casing, means within the casing for expelling binder, means operated by a package while being wrapped for actuating said expelling means to deposit a portion of the binder within the casing on said wrapper, and means for adjusting said expelling means to vary the quantity expelled.

4. A binder applying attachment for a packaging machine comprising, a casing having an inlet for uninterrupted inflow of liquid binder and provided with a binder discharge nozzle, a plunger in said casing, a spring yieldingly maintaining said plunger advanced to close said nozzle, a pawl on said plunger, and a device actuated by a package being wrapped to engage said pawl to retract the plunger against the tension of said spring and to release the plunger at a predetermined point to permit the spring to advance the plunger to expel binder through said nozzle.

5. In a binder depositing attachment for a package wrapping machine, a casing, means for continuously supplying liquid binder to the casing, an adjustable discharge nozzle on the casing, a plunger in the casing, a spring maintaining said plunger advanced, a pawl adjustable on the plunger, a device movable by a package passing through the machine, and a cam on said device engaging said pawl slowly to retract the plunger to permit binder to accumulate in front of the plunger and then to trip the pawl, thereby to permit the spring to return the plunger to expel the binder in front of the plunger through said nozzle.

6. In a binder depositing attachment for a package wrapping machine, a casing for liquid binder, a discharge nozzle on the casing, a plunger in the casing, a spring maintaining said plunger advanced to close said nozzle, a pawl on the plunger, a device movable by a package passing through the machine, a cam on said device engaging said pawl to retract the plunger to permit binder to accumulate in front of the plunger and then to trip the pawl, thereby to permit the spring to return the plunger to expel binder in front of the plunger through said nozzle, and means for adjusting said pawl relative to the plunger to determine the quantity of binder to be expelled.

7. In a binder depositing attachment for a package wrapping machine, a casing for liquid binder, a plunger in the casing, a spring maintaining said plunger advanced to close the outlet from said casing, a device movable by a package passing through the machine for retracting said plunger against the tension of its spring, a sleeve loosely seated in the casing to permit binder to pass between the sleeve and the encompass-

ing casing wall, the plunger having a head slidably seated in said sleeve, said device being capable of releasing the plunger at a predetermined point to permit the spring to return the plunger and to expel the binder that has gathered in front of said sleeve and the said plunger head.

8. In a binder applying attachment for a package wrapping machine, a liquid binder containing casing, binder expelling means in the casing, a member normally in line of travel of packages through the machine and operable by said packages to actuate said binder expelling means, and means for maintaining said member out of the path of travel of the packages when binder is not required on the packages.

9. In a binder applying attachment for a package wrapping machine, a casing having a cylindrical bore terminating at one end in a smaller discharge passage, means admitting binder to said bore, a plunger in the bore having a valve head and terminating in a pilot seated in said passage, means urging the plunger forward to seat said head in the entrance to said passage to close the passage, and means actuated by a package passing through the machine for retracting said plunger to permit binder to flow past said head and pilot and into said passage.

10. In a binder applying attachment for a package wrapping machine, a liquid binder containing casing terminating at one end in a discharge passage, a plunger seated in the casing and made with a collar, a valve head below said

collar and terminating below said valve head in a pilot seated in said passage, a spring pressing against said collar to urge the plunger forward to seat said head in the entrance to the passage to close the passage, a sleeve freely seated in the casing and encompassing said valve head, and means for retracting said plunger to permit binder to flow past said sleeve, valve head and pilot and into said passage to be expelled when the plunger again is released.

11. In a binder depositing attachment for a package wrapping machine, a casing for liquid binder having a discharge nozzle, a plunger yieldingly maintained advanced in the casing to close said nozzle, means movable by a package passing through the machine for retracting the plunger and for releasing the plunger at a predetermined point to expel a corresponding amount of binder through the nozzle.

12. In a binder depositing attachment for a package wrapping machine, a reservoir within the attachment, means for continuously supplying liquid binder to said reservoir, binder expelling means slidable within said reservoir, a member operable by a package passing through the machine to be wrapped for slidably actuating said expelling means to deposit a portion of the binder held stored within said reservoir, and means for determining the sliding movement of said expelling means to vary the quantity expelled.

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