

Dec. 26, 1944.

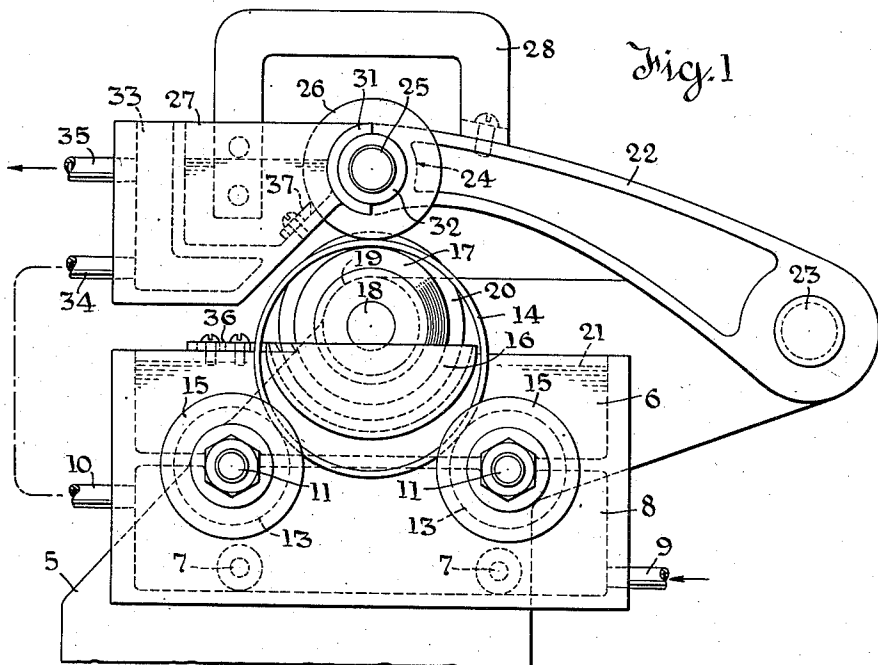
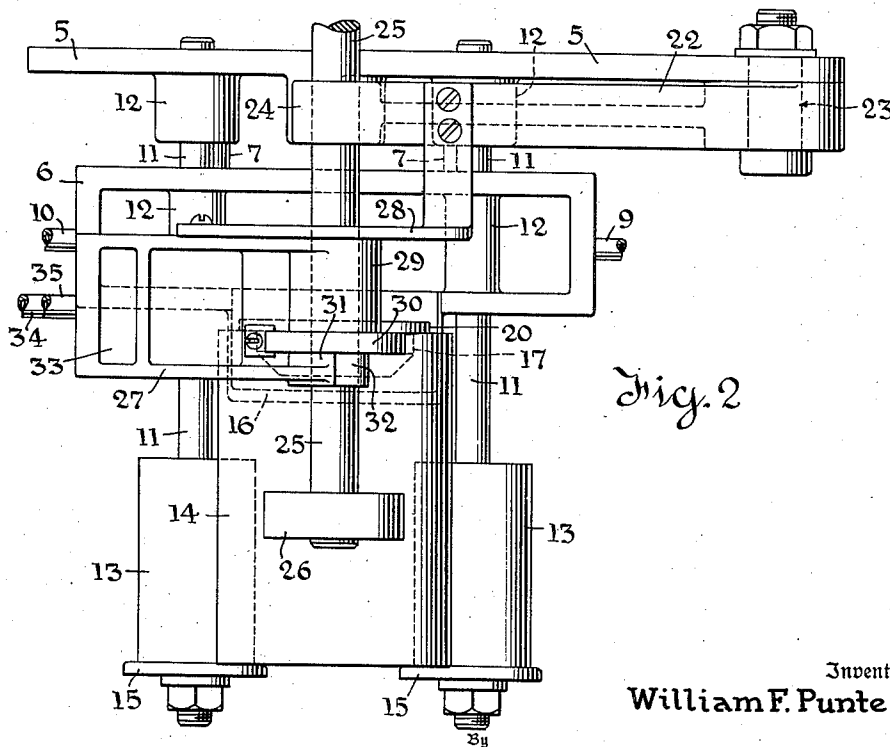
W. F. PUNTE

2,365,775

ADHESIVE APPLYING APPARATUS

Filed March 8, 1944

2 Sheets-Sheet 1



Inventor
William F. Punte

Max. Porter & Diller
Attorneys

Dec. 26, 1944.

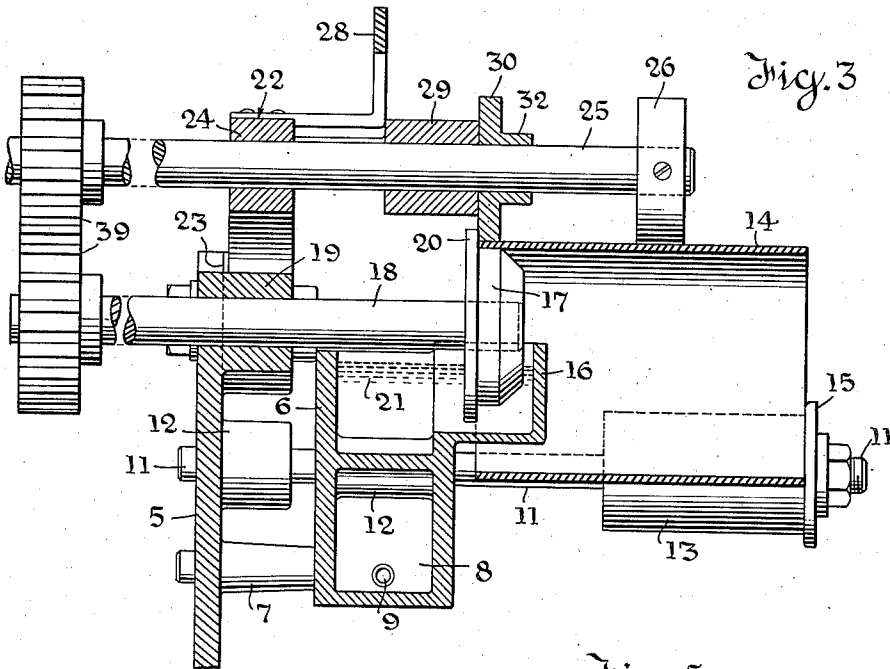
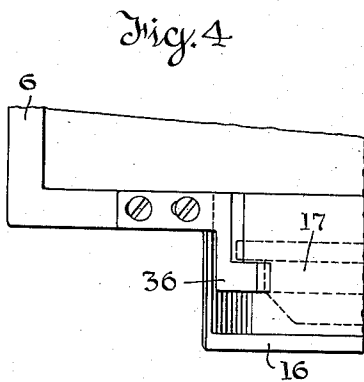
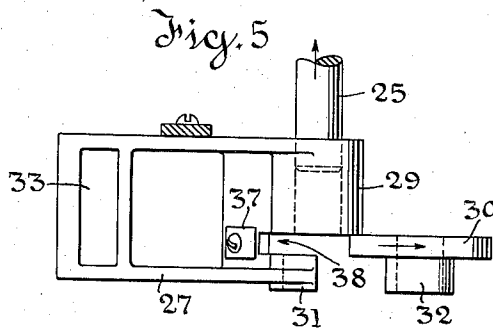
W. F. PUNTE

2,365,775

ADHESIVE APPLYING APPARATUS

Filed March 8, 1944

2 Sheets-Sheet 2



Inventor
William F. Punte

By

Mason, Porter & Miller
Attorneys

UNITED STATES PATENT OFFICE

2,365,775

ADHESIVE-APPLYING APPARATUS

William F. Punte, Passaic, N. J., assignor to Continental Can Company, Inc., New York, N. Y., a corporation of New York

Application March 8, 1944, Serial No. 525,613

10 Claims. (Cl. 91—49)

The invention relates generally to the art of manufacturing paper containers and primarily seeks to provide a novel apparatus adapted for simultaneously applying like or different adhesives to the internal and external wall portions at the ends of cylindricform paper containers for bonding and sealing end closures thereon.

In the manufacture of paper containers the ends thereof are closed and sealed by paper or metallic end closures. It is common practice to form an adhesive union between the container bodies and the end closures, and very often the adhesive is applied to the container bodies at the inner and outer wall portions thereof at the ends. Very often the adhesive applied to the inner wall portions is selected because of its sealing qualities, and the adhesive applied to the outer wall portions is selected for its bonding qualities. It is a purpose of the present invention to provide a novel adhesive applying apparatus capable of simultaneously applying to the inner and outer container body end wall portions different adhesives selected respectively for their sealing and bonding qualities.

In its more detailed nature the invention resides in providing an applicator roll receiving adhesive from one reservoir, a second applicator roll receiving adhesive from a second reservoir, a pair of supporting rolls for supporting a cylindricform container body in position for placing an end thereof between said rolls so that one engages inside and the other outside the same, and means for rotating the container body.

An object of the invention is to provide an apparatus of the character stated in which the supporting rolls are freely rotatable and the container body rotating means comprises a driving roll engaging the body and mounted on the same shaft with the applicator roll which engages the outside of the container body.

Another object of the invention is to provide an apparatus of the character stated in which the driving roll, the associated applicator roll, the shaft on which said rolls are mounted and the reservoir from which said associated applicator roll is supplied with adhesive are mounted on a swingable arm so as to enable swinging away of said drive and applicator rolls to free a container body to which adhesive has been applied so that it can be lifted off the supporting rolls.

With the above and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference to the following detailed description, the append-

ed claims, and the several views illustrated in the accompanying drawings.

Figure 1 is a front elevation illustrating an apparatus embodying the invention.

Figure 2 is a plan view illustrating the apparatus shown in Figure 1.

Figure 3 is a central vertical cross sectional view.

Figure 4 is a fragmentary plan view illustrating the mounting of the doctor blade which cooperates with the lower adhesive applicator roll.

Figure 5 is a fragmentary plan view illustrating a portion of the upper adhesive reservoir and the manner in which the upper adhesive applicator roll may be removed from its mounting.

In the example of embodiment of the invention herein disclosed, the apparatus is formed to include a frame 5 to which an adhesive reservoir 6 is secured as at 7. See Figures 1 and 3. The reservoir may have a water jacketing 8 through which warm water may be circulated through an inlet duct 9 and outlet duct 10.

Two shafts 11 are mounted in bearings 12, said bearings being provided on the frame 5 and on the reservoir 6, and said shafts serve to freely rotatably support a pair of container body supporting roll 13. It will be observed by reference to Figures 1, 2 and 3 of the drawings that the cylindricform paper container body 14 which is to have adhesive applied to the inner and outer wall portions thereof adjacent its end can be supported upon and between said rolls 13. The rolls 13 are provided with flanges 15 which serve as abutments for a container body mounted on the roller and prevent endwise movement thereof.

The reservoir 6 is provided with an extension 16 shaped in the manner clearly illustrated in Figures 1 and 3 to allow a container body to be readily mounted thereover. An applicator roll 17 is mounted within the reservoir extension 16 and is adapted to pick up adhesive from the interior of the reservoir and apply it to the internal wall portion of the container body at the end thereof in the manner clearly illustrated in Figure 3. The roll 17 is mounted on a shaft 18 which is rotatable in a frame bearing 19, and it will be observed that the roll is tapered at its end, so as to facilitate mounting of a container body thereover, and also is equipped with a flange 20 which serves as an end abutment for the container body and also to apply adhesive to the end extremity of said body. It will be apparent by reference to Figures 2 and 3 of the drawings that the roll flange 20 cooperates with the roll flanges 15 on the supporting rolls 13 in

holding the container bodies 14 against an endwise movement while adhesive is being applied thereto. The adhesive in the reservoir 6 is designated 21.

An arm 22 is pivotally mounted as at 23 on the frame 5 in the manner clearly illustrated in Figures 1 and 2, and this arm is equipped with a bearing 24 in which a drive shaft 25 is rotatably mounted. A driver roll 26 is mounted on the shaft 25 in position for engaging container bodies mounted for having adhesive applied thereon, and said roll contacts the container bodies centrally over the supporting rolls 13 in the manner clearly illustrated in Figure 1. It will be obvious that the contact of the rotating roll 26 with the outer walls of the container body 14 will cause them to rotate on the freely rotatably mounted supporting rolls 13.

A second adhesive reservoir 27 is provided, and this reservoir is secured to the arm 22 by means of a U-shaped bracket 28. The reservoir 27 is provided with a full bearing 29 for rotatably receiving the drive shaft 25, and an applicator roll 30 is secured on said shaft in the space intervening the bearing 29 and a half bearing member 31 also carried by the reservoir 27. The roll 30 is equipped with a hub portion 32 which has rotative bearing in the half bearing 31, and it will be observed by reference to Figures 1 and 2 of the drawings that the periphery of the roll 30 extends into the reservoir 27 through the space intervening the full bearing 29 and the half bearing 31 so as to pick up adhesive therein and apply it in the manner illustrated in Figure 3 to the external surface of the container body at the end thereof. It will be observed by reference to Figure 1 that by swinging the arm 22 upwardly, the reservoir 27, the shaft 25, the driver roll 26 and also the applicator roll 30 will be raised, and suitable space will be provided for facilitating the mounting or removal of a container body 14.

As in the case of the lower reservoir 6, the upper reservoir 27 is provided with water jacketing 33, and warm water may be circulated through the jacketing by provision of an inlet duct 34 which may be connected by a flexible duct with the outlet duct 10 of the lower reservoir, and an outlet duct 35 which may lead back to the warm water source (not shown). See Figure 1.

A doctor blade 36 is adjustably mounted on the lower reservoir in the manner clearly illustrated in Figures 1 and 4, and said blade is shaped and positioned to cooperate with the applicator roll 17 in determining the amount of adhesive to be carried into contact with the internal surface of container body 14 by the periphery of said roll and the container body end engaging flange face. A doctor blade 37 is similarly mounted on the upper reservoir 27 and serves a like purpose of controlling the amount of adhesive dragged out of the side opening in the reservoir by the applicator roll 30 and applied thereby to the external surface of the container body 14.

In Figure 5 of the drawings the applicator roll receiving space intervening the full bearing 29 and the half bearing 31 and through which adhesive is dragged by the applicator roll 30 is indicated at 38, and it will be observed that by reason of the provision of said opening and the half bearing 31, the applicator roll 30 may be readily removed by withdrawing the drive shaft 25 in the manner indicated by the arrow in Figure 5, and then withdrawing said roll latterly

out of the space 38 in the manner indicated by the arrow at the right in said Figure 5.

Rotation can be applied to the drive shaft 25 alone, if desired, and by any approved means (not shown), or the shafts 25 and 18 may be coupled to rotate in unison by a spur gear couple such as is shown at 39 in Figure 3.

In the practical operation of the apparatus, the lower and upper reservoirs 6 and 27 are supplied with suitable adhesive which may be the same in type, or adhesives of different types may be provided in the respective reservoirs. For example, the adhesive in the reservoir 6, to be applied to the inner surface of the container body and the end extremity thereof, may be selected for its sealing qualities, whereas the adhesive in the upper reservoir 27, to be applied to the external surface of the container body at the end thereof, may be selected for its bonding qualities. By lifting the arm 22 the applicator rolls 30 and 17 may be separated and the driver roll 26 lifted in a manner for facilitating the mounting of a container body 14 on and between the supporting rolls 13 with the open inner end thereof extending over the applicator roll 17 and the reservoir projection 16. By reason of the provision of the taper on the applicator roll 17, the mounting of container bodies thereover is facilitated.

After the container body has been suitably mounted on the supporting rolls 13, the arm 22 is lowered so as to lower the applicator roll 30 and driver roll 26 onto the external surface of the container body. With the parts in this position rotation is imparted to the container body 14 and to the applicator rolls 17 and 30 and the applicator rolls 17 and 30 will apply the adhesive to the inner and outer wall portion of the container body at the end thereof, the lower roll 17 applying adhesive from the reservoir 6 to the interior of the container body at the end extremity thereof, and the roll 30 applying adhesive from the upper reservoir 27 on the external surface of said container body at the end thereof.

It is to be understood that the structural details and the arrangement of parts herein disclosed may be variously modified without departing from the spirit and scope of the invention as defined in the appending claims.

I claim:

1. In apparatus of the character described, a first adhesive reservoir, a second adhesive reservoir, a first applicator roll supplied with a surface coating of adhesive from said first reservoir, a second applicator roll supplied with a surface coating of adhesive from said second reservoir, a pair of supporting rolls disposed in parallel spaced relation to support thereon and therebetween a container body in position for having adhesive applied to internal and external wall portions at one end thereof by engagement between said rolls with the first roll engaging internally of the container body and the second roll engaging externally of said body, and means for rotating said container body.
2. In apparatus of the character described, a first adhesive reservoir, a second adhesive reservoir, a first applicator roll supplied with a surface coating of adhesive from said first reservoir, a second applicator roll supplied with a surface coating of adhesive from said second reservoir, a pair of freely rotatable supporting rolls disposed in parallel spaced relation to support thereon and therebetween a container body in position for having adhesive applied to internal and external wall portions at one end thereof by en-

gagement between said rolls with the first roll engaging internally of the container body and the second roll engaging externally of said body, and a driving roll engaging the container body centrally over said supporting rolls for imparting rotation to the container body.

3. In apparatus of the character described, a first adhesive reservoir, a second adhesive reservoir, a first applicator roll supplied with a surface coating of adhesive from said first reservoir, a second applicator roll supplied with a surface coating of adhesive from said second reservoir, a pair of supporting rolls disposed in parallel spaced relation to support thereon and therebetween a container body in position for having adhesive applied to internal and external wall portions at one end thereof by engagement between said rolls with the first roll engaging internally of the container body and the second roll engaging externally of said body, and means for rotating said container body, said first roll having a tapered end facilitating the mounting of a container body thereover and having a flange forming an end abutment for the end of a container body being coated and also effective to apply adhesive from said first reservoir to the abutting end of the container body.

4. In apparatus of the character described, a first adhesive reservoir, a second adhesive reservoir, a first applicator roll supplied with a surface coating of adhesive from said first reservoir, a second applicator roll supplied with a surface coating of adhesive from said second reservoir, a pair of supporting rolls disposed in parallel spaced relation to support thereon and therebetween a container body in position for having adhesive applied to internal and external wall portions at one end thereof by engagement between said rolls with the first roll engaging internally of the container body and the second roll engaging externally of said body, means for rotating said container body, means stationarily mounting said first reservoir, said supporting rolls and said first applicator roll, and means for supporting said second reservoir, said second applicator roll and said body rotating means for movement in a direction for spacing the applicator rolls and freeing the container body so as to facilitate removal of the adhesive coated container body.

5. In apparatus of the character described, a first adhesive reservoir, a second adhesive reservoir, a first applicator roll supplied with a surface coating of adhesive from said first reservoir, a second applicator roll supplied with a surface coating of adhesive from said second reservoir, a pair of supporting rolls disposed in parallel spaced relation to support thereon and therebetween a container body in position for having adhesive applied to internal and external wall portions at one end thereof by engagement between said rolls with the first roll engaging internally of the container body and the second roll engaging externally of said body, means for rotating said container body, means stationarily mounting said first reservoir, said supporting rolls and said first applicator roll, and a swingably mounted arm for supporting said second reservoir, said second applicator roll and said body rotating means for movement in a direction for spacing the applicator rolls and freeing the container body so as to facilitate removal of the adhesive coated container body.

6. In apparatus of the character described, a first adhesive reservoir, a second adhesive reser-

voir, a first applicator roll supplied with a surface coating of adhesive from said first reservoir, a second applicator roll supplied with a surface coating of adhesive from said second reservoir, a pair of freely rotatable supporting rolls disposed in parallel spaced relation to support thereon and therebetween a container body in position for having adhesive applied to internal and external wall portions at one end thereof by engagement between said rolls with the first roll engaging internally of the container body and the second roll engaging externally of said body, a driving roll engaging the container body centrally over said supporting rolls for imparting rotation to the container body, and a driver shaft supporting the driving roll and also the second applicator roll.

7. In apparatus of the character described, a first adhesive reservoir, a second adhesive reservoir, a first applicator roll supplied with a surface coating of adhesive from said first reservoir, a second applicator roll supplied with a surface coating of adhesive from said second reservoir, a pair of freely rotatable supporting rolls disposed in parallel spaced relation to support thereon and therebetween a container body in position for having adhesive applied to internal and external wall portions at one end thereof by engagement between said rolls with the first roll engaging internally of the container body and the second roll engaging externally of said body, means stationarily mounting said first reservoir, said supporting rolls and said first applicator roll, a driving roll engaging the container body centrally over said supporting rolls for imparting rotation to the container body, a driver shaft supporting the driving roll and also the second applicator roll, and a swingably mounted arm supporting said second reservoir, said second applicator roll, and said driving roll for movement in a direction for spacing the applicator rolls so as to facilitate removal of the adhesive coated container body.

8. In apparatus of the character described, a first adhesive reservoir, a second adhesive reservoir, a first applicator roll supplied with a surface coating of adhesive from said first reservoir, a second applicator roll supplied with a surface coating of adhesive from said second reservoir, a pair of freely rotatable supporting rolls disposed in parallel spaced relation to support thereon and therebetween a container body in position for having adhesive applied to internal and external wall portions at one end thereof by engagement between said rolls with the first roll engaging internally of the container body and the second roll engaging externally of said body, a driving roll engaging the container body centrally over said supporting rolls for imparting rotation to the container body, a driver shaft supporting the driving roll and also the second applicator roll, and means coupling the driver shaft and the first applicator roll for rotation in unison.

9. In apparatus of the character described, a first adhesive reservoir, a second adhesive reservoir, a first applicator roll supplied with a surface coating of adhesive from said first reservoir, a second applicator roll supplied with a surface coating of adhesive from said second reservoir, a pair of freely rotatable supporting rolls disposed in parallel spaced relation to support thereon and therebetween a container body in position for having adhesive applied to internal and external wall portions at one end thereof by en-

engagement between said rolls with the first roll engaging internally of the container body and the second roll engaging externally of said body, a driving roll engaging the container body centrally over said supporting rolls for imparting rotation to the container body, and a driver shaft supporting the driving roll and also the second applicator roll, said second reservoir having a bearing for said driver shaft and an open half bearing and a space intervening said bearings and communicating with the interior of said second reservoir, and said second applicator roll having a hub portion mounted in said half bearing, said second applicator being withdrawable laterally out of said space and said half bearing upon withdrawal of the driver shaft axially there-through.

10. In apparatus of the character described, a first adhesive reservoir, a second adhesive reservoir, a first applicator roll supplied with a surface coating of adhesive from said first reservoir, a second applicator roll supplied with a surface coating of adhesive from said second reservoir, a pair of freely rotatable supporting rolls disposed in parallel spaced relation to support thereon and therebetween a container body in position for

having adhesive applied to internal and external wall portions at one end thereof by engagement between said rolls with the first roll engaging internally of the container body and the second roll engaging externally of said body, means station- 5 arily mounting said first reservoir, said supporting rolls and said first applicator roll, a driving roll engaging the container body centrally over said supporting rolls for imparting rotation to the container body, a driver shaft supporting the driving roll and also the second applicator roll, and a swingably mounted arm supporting said second reservoir, said second applicator roll, and said driving roll for movement in a direction for 10 spacing the applicator rolls so as to facilitate removal of the adhesive coated container body, said second reservoir having a bearing for said driver shaft and an open half bearing and a space intervening said bearings and communicating with the interior of said second reservoir, and said 15 second applicator roll having a hub portion mounted in said half bearing, said second applicator being withdrawable laterally out of said space and said half bearing upon withdrawal of the driver shaft axially therethrough. 20 25

WILLIAM F. PUNTE.