Nov. 10, 1959 F. C. GROSS 2,911,942

ADHESIVE APPLYING DEVICE

Filed Feb. 25, 1957 2 Sheets-Sheet 1

Fig. 1.

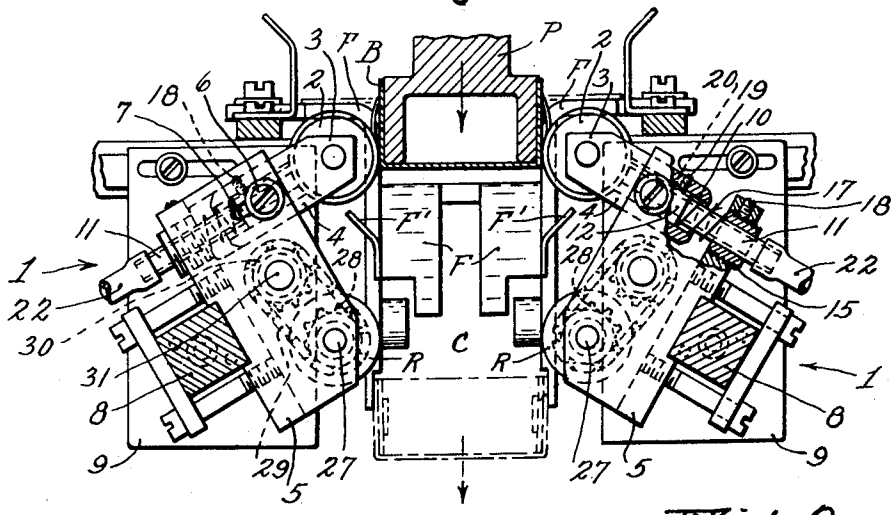


Fig. 3.

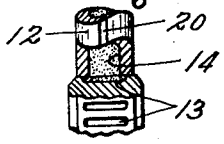


Fig. 2.

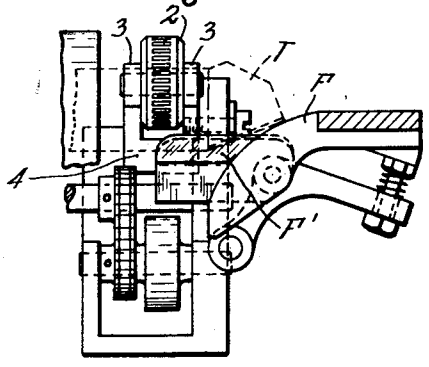


Fig. 5.

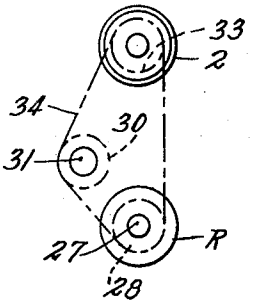
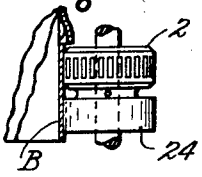


Fig. 4.



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Fig. 7.

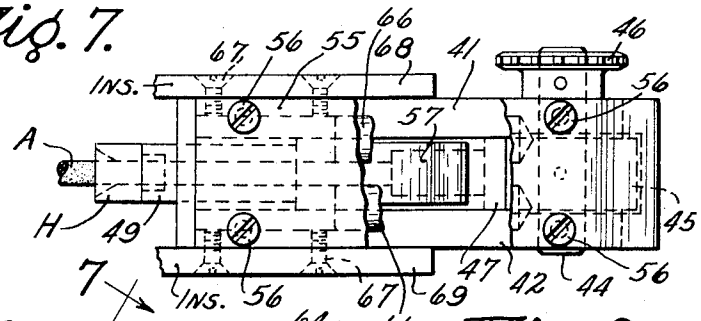


Fig. 6.

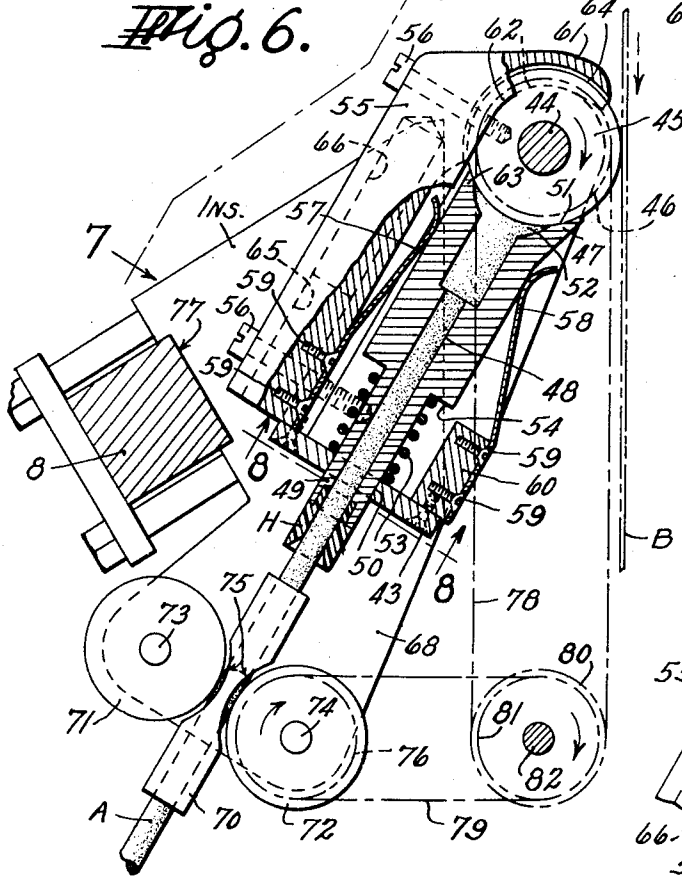


Fig. 8.

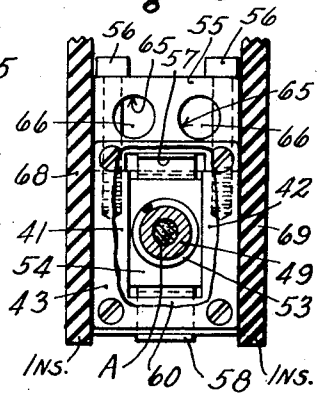


Fig. 10.

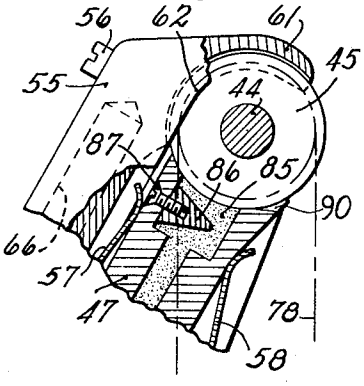


Fig. 9.

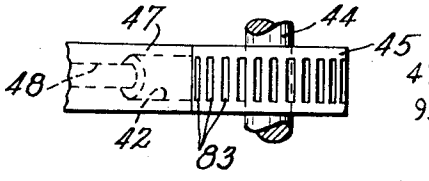
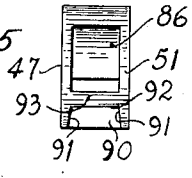


Fig. 11.



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2,911,942

ADHESIVE APPLYING DEVICE

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Application February 25, 1957, Serial No. 642,013

24 Claims. (Cl. 118—202)

This invention relates to apparatus for applying adhesive to the surface of sheets or blanks in the manufacture of boxes or other containers and in the sealing of containers and for similar or other purposes where the adhesive applying means and the surface to which the adhesive is to be applied are moved relative to each other in effecting such application.

This application is a continuation in part of application Serial No. 290,545, filed May 28, 1952, now Patent 2,846,930, and of application Serial No. 339,593, filed March 2, 1953 and now abandoned.

One object of the invention is to provide adhesive applying means operable at high speeds and which applies a predetermined amount of adhesive to a restricted area.

A further object is to provide means of the above character capable of handling quick drying or setting adhesives supplied in liquid form, and capable of handling with equal facility and advantage thermoplastic adhesives or cements, supplied in semi-solid or solid rope or rod form.

Another object is to provide adhesive applying means of the above character which will avoid or prevent escape of adhesive and resulting fouling of the adjacent elements of the machines with which the applying device is associated, during operation of such machines or during temporary stoppage thereof.

Other and further objects will be made apparent in the disclosures of the accompanying drawings and the following specification and claims.

In the accompanying drawings:

Fig. 1 is an elevational view, partly in section, showing two liquid adhesive applying devices embodying the invention in association with the forming plunger and folding channel of a box or tray forming machine, the applying devices being shown in side elevation;

Fig. 2 is a front elevational view of one of the applying devices of Fig. 1;

Fig. 3 is a detail view, on a larger scale, showing the relation of the adhesive feed to the applying roll;

Figs. 4 and 5 are detail views showing modified structures;

Fig. 6 is a side elevational view, partly in section, of an adhesive applying device embodying the invention as modified for handling a thermoplastic adhesive supplied in solid rope or rod form;

Fig. 7 is a generally top plan view, parts being broken away, looking in the direction of the arrows 7—7 in Fig. 6;

Fig. 8 is a sectional view, parts being broken away, substantially on line 8—8 of Fig. 6;

Fig. 9 is a detail plan view showing the relation of the adhesive feed to the applying roll;

Fig. 10 is a fragmentary view similar to Fig. 6 showing a modified adhesive chamber; and

Fig. 11 is a detail view of the arcuate face of the adhesive supplying member.

Referring to Fig. 1, two adhesive applying devices according to the invention and generally indicated at 1, are shown positioned at opposite sides of the folding channel C of a box or tray forming machine, which includes a plunger P by which a box blank B is carried through the channel provided with side and end folders F which fold the blank against the sides and ends of the plunger. As the so-folded blank is carried downward into the channel the sides of the blank are engaged by the applying rolls 2 of the devices 1 by which a band of adhesive is applied to the sides of the blank. As the plunger carried blank is carried downwardly through channel tabs T extending from the ends of the end wall of the blank and shown in dotted line in Fig. 2, are folded onto the adhesively coated portion of the blank by folders F' and are pressed into firm engagement therewith by rolls R. The elements of the box machine form no part of the present invention and may take any conventional or desired form and further description thereof are therefore unnecessary.

The adhesive applying devices 1 are identical in construction. The glue rolls 2 are each rotatably mounted between fork arms 3 of a member 4 adjustably secured to a bracket 5 by a screw 6 extending through a slot 7 in the wall of the bracket. The bracket 5 is mounted on a frame member 8 of the box machine for adjustment longitudinally. Frame members 8 are mounted adjacent their ends to a pair of supporting plates 9, one of each pair being shown in Fig. 1, adjustably secured to the machine end frames (not shown) for adjustment transversely thereof. The members 4 are each formed with a bore 10 opening through the base of the forks 3, and through which a tubular glue supply plunger 11 slidably extends. Plunger 11 includes a head 12 which makes an arcuate concentric engagement (Fig. 1) with the peripheral surface of the glue roll. As best shown in Fig. 3, the peripheral surface of the adhesive roll is formed with transverse grooves or other suitably shaped depressions 13. The grooves 13 are preferably slightly longer than the diameter of the glue passage 14 in the head 12 but are shorter than the outside diameter of the head and of less transverse width than the wall thickness of head 12 so that, as the rolls rotate over the adhesive supply opening, the grooves 13 are filled with adhesive, but no adhesive can escape between the engaging surfaces of the head and roll. The opposite end of plunger 11 extends through and is slidably supported by a bushing 15 threaded in a wall of bracket 5. A compression spring 17 surrounding the plunger 11, with its opposite ends engaging head 12 and bushing 15, urges the head of the plunger into contact with the glue roll with a pressure which is controlled by adjusting the position of bushing 15 in the bracket, the bushing being held in adjusted position by a set screw 18. Plunger 11 is prevented from rotation in bore 10 by a screw 19 which engages in a keyway 20 formed in the plunger head 12.

The free end of plunger 11 is connected by a flexible tube 22 or other suitable conduit, to a source of adhesive, not shown, from which adhesive is supplied under gravity pressure to the rolls. As will be apparent, a closed adhesive system is thus provided which prevents undesirable escape of adhesive over adjacent parts of the machine, and confines the adhesive supply to the grooves 13. Evaporation and setting of the adhesive is confined to the surface of the rolls. The small body of glue in each of the grooves is sufficient to withstand objectionable hardening or setting during a momentary stoppage and in the event of a prolonged stoppage only the surface of the roll requires cleaning with a suitable solvent to prepare the machine for continued operation. The quantity of adhesive applied can be controlled by the depth and width of the grooves, the length of the

grooves being held to a dimension such that the ends of the grooves are closed by the walls of the head 12, as shown in Fig. 3.

As shown in Fig. 1 the applying rolls 2 are rotated by contact with the surface to which the adhesive is applied as such surface is moved relative to the roll. If found desirable, and as shown in Fig. 4, the shafts of rolls 2 may be provided with rubber friction rolls 24 which engage the surface of the blank to one side of the portion engaged by the roll 2 to provide a friction drive in addition to the frictional drive of the applying roll itself. Alternatively the rolls 2 may be positively driven from any suitable powered shaft of the machine with which the device is associated. In Fig. 1, for example, the shafts 27 of presser rolls R are shown provided with sprockets 28 driven by chains 29 from a sprocket 30 in a powered shaft 31 of the box machine. If desired the shafts of rolls 2 may be provided with a sprocket 33, as indicated in Fig. 5, and rolls 2 positively driven, in common with rolls R, from the sprockets 30 on shaft 31 by a chain 34 which replaces chain 29.

In Figs. 7 to 9 a modified form of the invention is shown which is more particularly adapted for handling a thermoplastic adhesive supplied in a solid rope or rod form.

Referring to the latter figures, spaced side members 41 and 42 are connected at their base by a plate 43. In the opposite ends of members 41 and 42 is rotatably mounted a shaft 44, carrying the glue applying roll 45. Shaft 44 is provided, outwardly of the adjacent member 41 with a sprocket 46 by which roll 45 is driven in the direction of the arrow in Fig. 1, as later described. Slidably fitted between members 41 and 42 is a member 47 provided with a longitudinal bore 48. The forward end portion of member 47 is generally rectangular in cross section, the rear portion 49 comprising a cylindrical extension which extends rearwardly through an opening 50 in plate 43. The forward end of member 47 is formed with an arcuate face 51, conforming to the radius of roll 45. Bore 48 opens to the periphery of roll 45 through arcuate face 51, the bore being enlarged and flared adjacent the opening to form a chamber as indicated at 52. A coiled spring 53 surrounds the extension 49 and is compressed between the rear plate 43 and a shoulder 54, formed at the junction of extension 49 with member 47, to maintain the arcuate face 51 of member 47 in contact with the periphery of roll 45.

A cover member 55 bridges the side members 41 and 42 and is secured thereto as by machine screws 56. The member 47 is yieldingly held in diametrical alignment with the roll 45 by relatively stiff leaf springs 57 and 58 respectively secured as by screws 59 to cover 55 and a cross bar 60, formed integral with or otherwise secured between members 41 and 42. The forward end of cover 55 is provided with an extending portion 61 which extends forwardly part way around the periphery of roll 45, the extending portion 61 being formed with side flanges 62 extending along the sides of roll 45 and the edges of which preferably engage the ends of side members 41 and 42. From the leading lip 63 of chamber 52 to the end of extension 61 the inner face of the latter is grooved as at 64 to avoid direct contact with the adhesive carried by the roll. The cover member 55 is provided with parallel bores 65 in each of which is positioned an electrical heating cartridge 66 of conventional type, supplied with current through suitable leads, not shown.

The extension 49 is provided at its entrance end with a suitable length of heat insulating tubing H of thermoset plastic or other suitable material to prevent premature softening of the rope adhesive A.

Secured to the outer side faces of members 41 and 42, as by screws 67, are respective rearwardly extending bracket members 68 and 69, which are formed of a heat insulating material such as hard rubber or a thermoset plastic. A tubular guide member 70 is secured between the rear end portions of brackets 68 and 69 in spaced axial alignment with bore 48. Opposed feed rolls 71 and 72 are mounted between brackets 68 and 69, the respective shafts 73 and 74 of rolls 71 and 72 being suitably journaled in the brackets. The sides of tubular guide 70 are cut away as at 75 to permit feeding engagement of a rope A of thermoplastic adhesive passing through guide 70. The transverse form and dimensions of bore 48 conform substantially to the corresponding dimensions of rope A. The shaft 74 of roll 72 is provided outwardly of bracket 68 with a sprocket 76 by which the roll 72 is driven, as later described, in the direction of the arrow in Fig. 1 to frictionally feed the rope of adhesive A through guide 70 and into and through bore 48 and into the chamber 52 where it is reduced to a suitable viscosity for application to a box blank, wrapper or other article, indicated in broken lines at B, by the heat supplied by heaters 66 in the cover member and transmitted through members 41 and 42 to the member 47 and by the latter to the end portion of the rope A within the chamber 52. The extension 61 which receives its heat from the heaters maintains the adhesive carried forward by roll 45 suitably fluid until it is applied to the surface which is to receive it.

The brackets 68 and 69 are shown notched as at 77 to be clamped to the frame F of a box forming machine in any suitable way, as previously described, at any desirable angle as shown in Fig. 6. Applying roll 45 and feed roll 72 are adapted to be driven through their respective sprockets 46 and 76 from any convenient source of power as by sprocket chains 78 and 79 trained around sprockets 80 and 81 secured to a powered shaft 82 of the machine to which the device is attached.

It will be understood that the sprockets 46, 76, 80 and 81 are of such diameter as to drive the applying and feed rolls, constantly or intermittently, at the desired speed to maintain the proper supply of adhesive to chamber 52 and roll 55, roll 72 slipping if the pressure on the adhesive in chamber 52 exceeds that necessary to properly fill the recesses in the roll, later described, and that the rating of the heaters used will be that required to properly plasticize or liquify the particular thermoplastic compound of which the rope is made to meet the speed of operation of the machine with which the device is used.

For the purpose of controlling the quantity of adhesive advanced by roll 45 and to meet other requirements of certain box forming operations, as well as to prevent fouling of the machine as above described, the surface of roll 45 is provided with parallel grooves 83 or other engraved pattern, the lip 63 acting as a doctor blade to fill the grooves, and the dimensions of the arcuate surface 51 at the sides and ends of the chamber 52 being such as to confine the adhesive carried by the roll to the grooves 83, and prevent escape of adhesive from the chamber.

The combination above described has the general advantages of that previously described, including the handling of quick setting adhesives and further permits the use of the rope type thermoplastic adhesive materials.

A modified arrangement is shown in Fig. 10, where the heating chamber 85 in member 47 and opening to the periphery of roll 45 is provided with a baffle bar 86 about which the substantially liquified adhesive is forced before being forced into the pockets or grooves 83 in the peripheral surface of roll 45. Baffle 86 is fixed as by a screw or screws 87 to the member 47, and is heated therefrom. As the liquified adhesive is forced into the narrowing space between the face of the roll 45 and the adjacent angular face of the baffle 86 it is positively forced into the pockets 83 of the roll at the exit side of the chamber assuring that each pocket is completely and properly filled.

Preferably and as shown in Figs. 10 and 11 the arcuate face of member 47 is relieved to form a channel 90 of

decreasing width and depth from the outer edge of member 47 to a line adjacent the chamber 85, so that any adhesive retained at the edges of the pockets 83 or on the adjacent unrelieved portions of the surface of roll 45 will not be scraped or doctored off by the outer edge of member 47 but will be carried inwardly between the roll and the arcuate face of member 47 and scraped or doctored back into the pockets by the inclined edges 91 of the channel 90 and the transverse edge 92 at the inner end of the channel. The decreasing depth of the channel and the unrelieved portion 93 between the inner end of channel 90 and chamber 47 assures that such surplus adhesive is forced into the pockets. The unrelieved portion 93 between the inner end of channel 90 and chamber 47 is of greater transverse dimensions than the transverse dimensions of the recesses 83 and prevents any escape of adhesive from chamber 47 into the channel.

The outer end of channel 90 is preferably at least as wide as the length of the recesses 83.

The provision of channel 90 prevents or minimizes the formation of strings of adhesive at the outer edge of the arcuate face of member 47.

What is claimed is:

1. An adhesive applying device which comprises a support including spaced side members, an adhesive applying roll rotatably mounted between said members at their forward end, an adhesive supplying member positioned between said side members and provided with a longitudinal tubular passage opening at its forward end to the surface of said roll and through which adhesive material may be fed to the roll, a cover member bridging said side members and having a forwardly extending portion overlying an arcuate portion of the roll beyond the opening of said supply passage to the roll, said extending portion being positioned out of contact with the roll and the adhesive carried thereby and electric heating means carried by said cover member to maintain the adhesive in the forward end of said passage and on the portion of the roll underlying said extending portion at a temperature to maintain the desired viscosity.

2. An adhesive applying device which comprises a support including spaced side members, an adhesive applying roll rotatably mounted between said members at their forward end, an adhesive supplying member slidably mounted between said side members and provided with a longitudinal tubular passage opening at its forward end to the surface of said roll and through which adhesive material may be fed to the roll, portions of said member surrounding said opening engaging the surface of the roll, spring means maintaining contact of said portions with the roll, means to heat said member, means spaced from the rear end of said passage to feed thermoplastic adhesive in solid rope form to and through said passage, and heat insulating means intermediate said passage and said feeding means to confine the heating of the adhesive to that portion of the rope within the passage.

3. In an adhesive applying device a rotatable adhesive applying roll, the peripheral surface of the roll being relieved to provide a plurality of recesses separated from each other and from the peripheral edges of the roll by unrelieved portions of said surface, means to advance thermoplastic adhesive in the form of a solid rope endwise into contact with the peripheral surface of the roll, means to heat the portion of said adhesive in contact with and adjacent the roll to substantially liquify said portion and fill said recesses with liquid adhesive, means to rotate the roll, and means engaging the unrelieved portion of the peripheral surface of the roll entirely around the area of contact of the adhesive with the roll to limit the adhesive carried by the roll to said recesses.

4. In an adhesive applying device a housing, an adhesive applying roll rotatably mounted in said housing for rotation free of peripheral contact therewith and having a portion of its peripheral surface extending outwardly of the housing, the peripheral surface of the roll being relieved to provide a plurality of recesses separated from each other and the peripheral edges of the roll by unrelieved portions of said surface, means to supply adhesive to the roll comprising a member mounted in the housing and having an arcuate surface engaging and conforming to a portion of the peripheral surface of the roll within the housing, a passage formed in and extending through said member, one end of the passage opening through said arcuate surface and the other end opening outwardly of the housing, means to rotate the roll, means to feed thermoplastic adhesive in solid rope form through said passage, means to heat said member to substantially liquify that portion of the adhesive within the passage and adjacent the roll to fill said recesses and to heat said housing to maintain the adhesive in the recesses in a substantially liquid condition as the latter is carried outwardly of the housing upon rotation of the roll.

5. In an adhesive applying device a housing, an adhesive applying roll rotatably mounted in said housing for rotation free of peripheral contact therewith and having a portion of its peripheral surface extending outwardly of the housing, the peripheral surface of the roll being relieved to provide a plurality of recesses separated from each other and the peripheral edges of the roll by unrelieved portions of said surface, means to supply adhesive to the roll comprising a member slidably mounted in the housing and having an arcuate surface engaging and conforming to a peripheral portion of the roll within the housing, a spring maintaining said arcuate surface in contact with the roll, said arcuate surface being recessed to form a chamber open to the peripheral surface of the roll, a passage formed in and extending through said member one end of said passage opening to said chamber and the other end opening outwardly of the housing, means positioned outwardly of the housing to feed thermoplastic adhesive material in the form of a solid rope, conforming in cross-section to the cross-section of the passage, into and through said passage to said chamber, heating means to liquify that portion of the adhesive that is within the chamber to fill the recesses in the roll, and means to drive said feeding means and roll in timed relation to each other.

6. In an adhesive applying device a housing, an adhesive applying roll rotatably mounted in said housing for rotation free of peripheral contact therewith and having a portion of its peripheral surface extending outwardly of the housing, the peripheral surface of the roll being relieved to provide a plurality of recesses separated from each other and the peripheral edges of the roll by unrelieved portions of said surface, means to supply adhesive to the roll comprising an adhesive supplying member slidably mounted in the housing and having an arcuate surface engaging and conforming to a peripheral portion of the roll within the housing, said arcuate surface being recessed to form a chamber, a passage formed in and extending through said member for supplying adhesive to said chamber and the peripheral portion of the roll exposed therein, and means yieldingly urging said member against the roll.

7. In an adhesive applying device a support, an adhesive applying roll rotatably mounted on the support, the peripheral surface of the roll being relieved to provide a plurality of recesses separated from each other and from the peripheral edges of the roll by unrelieved portions of said surface, an adhesive supplying member slidably mounted on the support and having an arcuate surface engaging and conforming to a peripheral portion of the roll, a passage formed in and extending through said member and opening through said arcuate surface for supplying adhesive to the peripheral surface of the roll and means yieldingly urging the portion of said arcuate surface surrounding said passage against the unrelieved portions of the peripheral surface of the roll to

confine the adhesive supplied to the roll to the said recesses in the peripheral surface thereof.

8. An adhesive applying device which comprises a support, an adhesive applying roll, means for supplying adhesive to the adhesive applying roll comprising a tubular plunger one end of which, throughout its perimeter, is in arcuate concentric engagement with the periphery of the roll, spring means pressing said tubular plunger toward the roll and into sealing engagement therewith and means to supply adhesive under pressure to and through said tubular plunger.

9. An adhesive applying device which comprises a support, an adhesive applying roll, the peripheral surface of the adhesive applying roll being provided with a plurality of circumferentially spaced recesses of less transverse extent than the transverse dimension of the peripheral surface of the roll, the means for supplying adhesive to the roll comprising a tubular plunger making arcuate concentric engagement with the periphery of the roll, the transverse extent of said engagement being sufficient to confine the adhesive, supplied through the tubular plunger, to said recesses, spring means pressing said tubular plunger into substantially fluid-tight engagement with the roll outwardly of said recesses, and means to supply adhesive under pressure to said tubular plunger.

10. An adhesive applying unit for die and plunger carton forming machines which comprises, a bracket adapted to be mounted at a side of the path of the plunger of the machine, a roll rotatably mounted in said bracket, a tubular plunger slidably mounted in said bracket, one end of said plunger making an arcuate concentric contact with the periphery of said roll, spring means pressing said plunger into contact with the roll, means to supply adhesive to the interior of the tubular plunger, and a presser roll rotatably mounted in said bracket and spaced from and in alignment with said adhesive applying roll.

11. An adhesive applying unit for die and plunger carton forming machines which comprises, a bracket adapted to be mounted at a side of the path of the plunger of the machine, a roll rotatably mounted in said bracket, the peripheral surface of said roll being provided with a plurality of recesses of less transverse extent than the transverse dimension of the peripheral surface of the roll, a tubular plunger slidably mounted in the bracket, one end of said plunger making an arcuate concentric engagement with the periphery of the roll, the transverse extent of said engagement being sufficient to confine the adhesive, supplied through the tubular plunger, to said recesses, spring means pressing said tubular plunger into contact with the roll, means to supply adhesive to the interior of the tubular plunger, and a presser roll rotatably mounted in said bracket and spaced from and in alignment with said adhesive applying roll.

12. An adhesive applying unit as in claim 11 having electrical heating means carried by the bracket to maintain the adhesive in the end of the tubular plunger at a temperature to maintain the desired viscosity.

13. An adhesive applying device comprising a support, an adhesive applying roll rotatably mounted on the support, the peripheral surface of the roll being relieved to provide a plurality of recesses separated from each other and from the peripheral edges of the roll by unrelieved portions of said surface, an adhesive supplying member slidably mounted on the support and having an arcuate surface engaging and conforming to a peripheral portion of the roll, a passage extending through said member for supplying adhesive to the peripheral portion of the roll exposed therein, means yieldingly urging the portion of said arcuate surface surrounding said passage against the unrelieved portions of the peripheral surface of the roll and means to rotate the roll, the said portions of said arcuate surface being of sufficient extent to prevent escape of adhesive between the engaging unrelieved surfaces of the roll and said member and confine the adhesive carried by the roll to said recesses in the peripheral surface thereof.

14. An adhesive applying device as in claim 13 and having a transverse baffle extending transversely of said passage adjacent the roll, the face of said baffle adjacent the roll being inclined to provide a narrowing passage between the opposed faces of the baffle and roll in the direction of rotation of the roll.

15. An adhesive applying roll as in claim 13 the portion of said arcuate surface at the incoming side of the roll being relieved to form a channel extending inwardly from the outer edge thereof, and terminating short of said passage a distance greater than the transverse width of the recesses in the surface of the roll, said channel decreasing in width and depth from its outer end.

16. An adhesive applying roll as in claim 13 having electrical heating means carried by the support to maintain the adhesive in the forward end of said passage at a temperature to maintain the desired viscosity.

17. An adhesive applying roll as in claim 16 the portion of said arcuate surface at the incoming side of the roll being relieved to form a channel extending inwardly from the outer edge thereof, and terminating short of said passage a distance greater than the transverse width of the recesses in the surface of the roll, said channel decreasing in width and depth from its outer end.

18. An adhesive applying roll as in claim 14 the portion of said arcuate surface at the incoming side of the roll being relieved to form a channel extending inwardly from the outer edge thereof, and terminating short of said passage a distance greater than the transverse width of the recesses in the surface of the roll, said channel decreasing in width and depth from its outer end.

19. An adhesive applying roll as in claim 14 having electrical heating means carried by the support to maintain the adhesive in the forward end of said passage at a temperature to maintain the desired viscosity.

20. An adhesive applying roll as in claim 19 the portion of said arcuate surface at the incoming side of the roll being relieved to form a channel extending inwardly from the outer edge thereof, and terminating short of said passage a distance greater than the transverse width of the recesses in the surface of the roll, said channel decreasing in width and depth from its outer end.

21. An adhesive applying device comprising a housing, an adhesive applying roll rotatably mounted in said housing for rotation free of peripheral contact therewith and having a portion of its peripheral surface extending outwardly of the housing, the peripheral surface of the roll being relieved to provide a plurality of recesses separated from each other and the peripheral edges of the roll by unrelieved portions of said surface, means to supply adhesive to the roll comprising a member mounted in the housing and having an arcuate surface engaging and conforming to a portion of the peripheral surface of the roll within the housing, a passage extending through said member, one end of the passage opening through said arcuate surface, means yieldingly urging that portion of said arcuate surface surrounding said passage and the opposed unrelieved portions of the peripheral surface of the roll into engagement with each other, the said portions of said arcuate surface being of sufficient extent to prevent escape of adhesive between the engaging unrelieved surfaces of the roll and said member, means to rotate the roll, means to feed thermoplastic adhesive in solid rope form through said passage, and means to heat said member to substantially liquify that portion of the adhesive within the passage and adjacent the roll to fill said recesses and to heat said housing to maintain the adhesive in the recesses in a substantially liquid condition as the latter is carried outwardly of the housing upon rotation of the roll.

22. An adhesive applying device as in claim 21 and

having a transverse baffle extending transversely of said passage adjacent the roll, the face of said baffle adjacent the roll being inclined to provide a narrowing passage between the opposed faces of the baffle and roll in the direction of rotation of the roll.

23. An adhesive applying device as in claim 21, the portion of the said arcuate surface at the incoming side of the roll being relieved to form a channel extending inwardly from the outer edge thereof, and terminating short of said passage a distance greater than the transverse width of the recesses in the surface of the roll, said channel decreasing in width and depth from its outer to its inner end.

24. An adhesive applying device as in claim 23 and having a transverse baffle extending transversely of said passage adjacent the roll, the face of said baffle adjacent the roll being inclined to provide a narrowing passage between the opposed faces of the baffle and roll in the direction of rotation of the roll.

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2,382,920	Schaefer	Aug. 14, 1945
2,549,579	Dearsley	Apr. 17, 1951
2,659,340	Zinn	Nov. 17, 1953
2,700,260	Paulsen	Jan. 25, 1955
2,726,629	Paulsen	Dec. 13, 1955