March 21, 1939. R. BARNARD 2,151,344

MEANS FOR APPLYING ADHESIVES

Filed Oct. 5, 1937

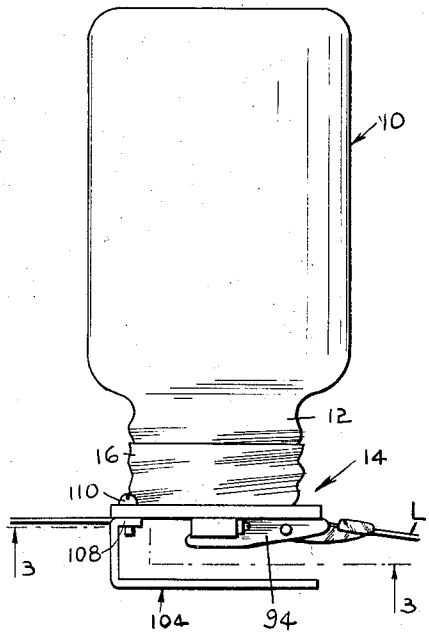


Fig. 1.

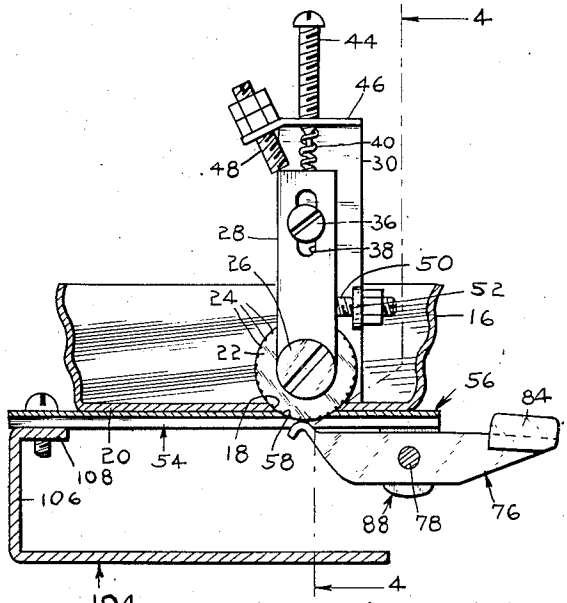


Fig. 2.

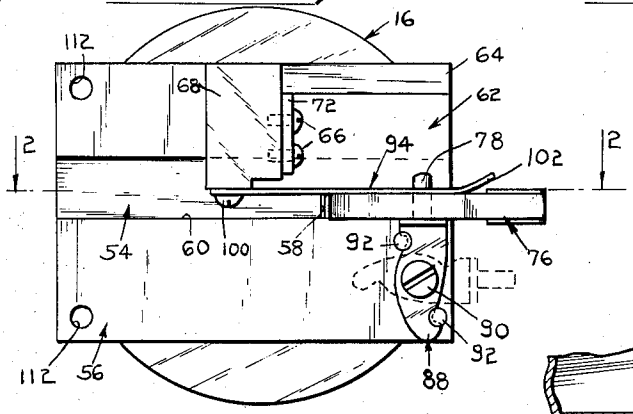


Fig. 3.

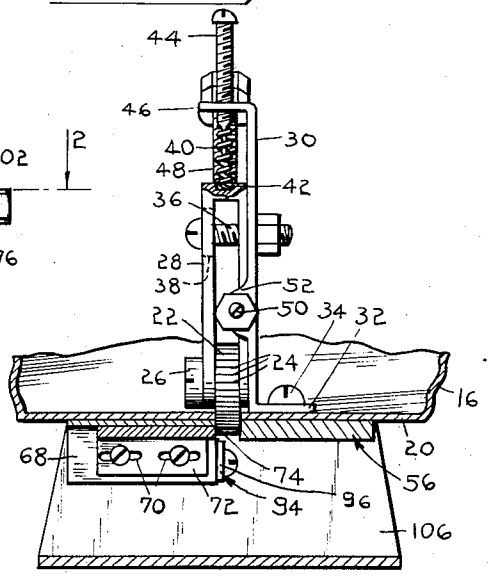


Fig. 4.

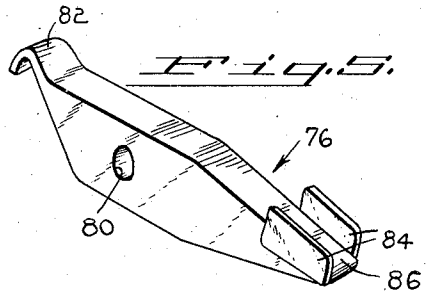


Fig. 5.

Inventor

RAY BARNARD

By

Attorney

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MEANS FOR APPLYING ADHESIVES

Ray Barnard, St. Louis, Mo.

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12 Claims. (Cl. 91—49)

The present invention relates to means for applying glue and other fluid or semi-fluid adhesives.

While the present invention is useful for other purposes, it is intended primarily for applying an adhesive, such as glue, to continuous lengths of narrow fabrics such as bindings, pipings, tapes, etc., and to lengths of other materials and is especially useful for coating only a predetermined width of the surface of such narrow materials leaving an adjacent surface portion of the latter uncoated. This is desirable especially in connection with certain ornamental materials, such as fabric, leather or imitation leather pipings utilized in shoe uppers for ornamenting the latter where the portion of the piping which is visible in the shoe upper should be free from a coating of the glue or other adhesive. One object of the invention is to provide improved means for facilitating the application of adhesive to lengths of materials of the character referred to.

Another object of the invention is to provide adhesive applying means having a chamber in which the adhesive is contained and preserved by inhibiting the passage of air into said chamber, and for that purpose to provide means for transferring the adhesive from the chamber to the material which is independent of the air pressure within said supply chamber.

Another object of the invention is to provide adhesive applying means in which fabrics of different widths may be treated for applying adhesive thereto or to a predetermined surface portion thereof.

It is also an object of the invention to provide adhesive applying means constructed and arranged to permit variations in the quantity of adhesive applied to the material.

A yet further object of the invention is generally to improve the construction of adhesive applying devices whereby to facilitate the application of the adhesive to narrow fabrics and other lengths of material in a continuous manner.

The above objects of the invention and other objects ancillary thereto will be fully understood from the following description considered with reference to the accompanying drawing which illustrates a preferred embodiment of the invention.

In the drawing:

Fig. 1 is a side view in elevation of a device embodying the present invention;

Fig. 2 is a sectional view of the device detached from the supply chamber and viewed as taken along the line 2—2 of Fig. 3;

Fig. 3 is a bottom plan view on the line 3—3 of Fig. 1;

Fig. 4 is a sectional view on the line 4—4 of Fig. 2;

Fig. 5 is a perspective view of a presser member forming a part of the device.

Referring now more particularly to the drawing, the device constructed in accordance with the present invention comprises, as here shown, a jar 10 having an externally threaded neck 12. Said jar may be made of any suitable material, for example, metal or glass, although a glass jar which is translucent or transparent is preferred so that the quantity of adhesive or other substance within the jar may be readily observed. The jar 10 which forms the supply chamber may be constituted by the container in which the adhesive is shipped and supplied to the consumer. With the jar 10 is associated the applicator unit 14 constructed in accordance with the present invention and assembled in combination with said jar for accomplishing the objects of the invention.

Unit 14 comprises an internally threaded cup 16, preferably of metal, removably secured to neck 12 of the jar and normally positioned as illustrated in Fig. 1 which shows the jar 10 in inverted position. It will be understood that cup 16 serves as a closure for the jar preventing the ingress of air into the jar. It will be further understood, of course, that provision is made for transferring adhesive from the supply chamber constituted by jar 10 to the material. For this purpose cup 16 has an opening 18 in its flat bottom wall 20, said opening being preferably rectangular. A roller 22 is carried by cup 16 and is mounted for rotation in such position above wall 20 that a peripheral portion of said roller substantially fits opening 18 and projects through the latter for transferring glue from the supply chamber to the material without permitting a free flow of the glue through said opening. Accordingly, opening 18 is but slightly wider than roller 22 and is otherwise dimensioned whereby said roller, although free to rotate therein, serves as an adjustable closure therefor. Roller 22 is provided with a plurality of closely spaced transverse shallow grooves 24 arranged on the periphery thereof for conveying glue or other substance from the supply chamber to the material and for providing frictional engagement between the length of material and the roller whereby said roller is rotated as the length of material is moved longitudinally in engagement with the material as will hereinafter more fully appear.

The mounting for roller 22 will now be described with particular reference to Figs. 2 and 4 of the drawing. As here shown, said roller is journalled on the stem of a pivot screw 26 threaded into the lower ends of the legs of U-shaped member 28 which constitutes a holder for said roller. Holder 28 is carried by a bracket post 30 having a reflexed foot portion 32 which is secured in any suitable manner, as by a screw 34, to bottom wall 20 of cup 16. Said holder is adjustable longitudinally of bracket post 30 and for that purpose is held in slidable engagement with said post by a bolt 36 fixedly secured to post 30 and engageable in aligned slots 38 provided in the legs of said holder and extending longitudinally thereof. Holder 28 is resiliently pressed downwardly by a helical spring 40 which bears at one end thereof on the closed end of holder 28 within a recess 42 formed in said closed end and is engaged at its other end by an adjustable screw 44 threaded through an opening in the upper reflexed end portion 46 of post 30. Holder 28 is held against rotation by adjustable stop screws 48 and 50 in threaded engagement with portion 46 and ear 52, respectively, at the top and side of bracket post 30. If desired, in certain cases, spring 40 may be eliminated and screw 48 may be adjusted to limit the upward movement of holder 28, the weight of said holder normally serving to force roller 22 in operative position in opening 18 to prevent the free flow of adhesive through said opening.

As previously stated, roller 22 is rotated by engagement therewith of the length of material to which the adhesive is applied in the operation of the device and for that purpose a guide passage for the material and means for pressing the latter into engagement with roller 22 are provided and will now be described. This passage is constituted, as here shown, by a groove 54 formed in a metal plate 56 which is welded, brazed, soldered or otherwise secured to the outer surface of wall 20 of cup 16. Said plate is provided with a rectangular opening 58 which registers with cup opening 18 and through which a narrow peripheral portion of roller 22 projects for engagement by the length of the material to which the adhesive is applied, opening 58 being appropriately dimensioned for this purpose.

Opening 58 in plate 56 is preferably positioned so that one side edge thereof lies closely adjacent one side 60 of groove 54 where the apparatus is, as here, designed for the application of adhesive to a marginal surface portion of the material. Groove 54 is wide enough to receive lengths of material of the maximum width for which the apparatus is designed. However, provision is made for guiding narrower materials in engagement with roller 22. For this purpose, plate 56 is provided with an adjustable part 62 which is movable toward and away from side 60 of groove 54. For this purpose a part 64 of plate 56 is of reduced thickness and slidable plate part 62 is held in sliding engagement therewith by any suitable means here shown as screws 66 which are threaded into a bracket 68 secured to the bottom surface of plate 56, said screws passing through elongated slots 70 formed in an integral reflexed side portion 72 of plate 62. It will be understood that as the length of material, indicated by the reference character L in Fig. 1, is moved longitudinally of groove 54 in engagement with roller 22, one side edge of said material is in engagement with side walls 60 of groove 54 and the opposite side edge of said length of material is engaged by the opposed edge 74 of adjustable plate 62.

The means for pressing the length of material into engagement with roller 22 as said material is moved longitudinally of groove 54 will now be described. As clearly shown in the drawing, said means comprises a presser member 76 (Fig. 5). Said member is pivotally mounted on a bearing pin 78 and for that purpose is provided with a through aperture 80. Pressure member 76 is provided at one end thereof with a pressure foot 82 for engaging the length of material and holding the same in engagement with the periphery of roller 22. The other end of member 76 is provided with spaced side wall portions 84 forming a guide for the length of material L. It will be observed that member 76 constitutes a lever and that said lever is fulcrumed at a point closer to the end at which presser foot 82 is provided than to its opposite end whereby the lever arm between said fulcrum and said opposite end is longer than the lever arm between said fulcrum and said lever at one end of which presser foot 82 is provided. As the length of material L is drawn through passage 54 between presser foot 82 and the periphery of roller 22 and through the guide passage at the outer end of pressure member 76, the latter, by pressing the length of material against the bottom 86 of the passage formed by guide walls 84, exerts a force on said presser member tending to increase the pressure of presser foot 82 against the material in engagement with the periphery of roller 22. Thus it will be understood that as the length of material is drawn through the apparatus in this manner, roller 22 is caused to rotate and thereby to transfer adhesive or other substance from the chamber of jar 10 to a surface portion of the material without however applying adhesive to adjacent surface portions of the material when the latter is wider than roller 22.

Pin 78, upon which presser member 76 is fulcrumed, is carried by a bracket 88 (Fig. 3) carried by plate 56 at the bottom thereof. As here shown, said bracket is pivotally mounted on a pivot screw 90 which is threaded into plate 56. Said bracket 88 can thus be moved from its normal position, shown in full lines, in which pivot pin 78 extends transversely of groove 54 to its dotted line position, as shown in Fig. 3, in which pivot pin 78 extends in parallel relation to said groove. Stop members 92 fixed to plate 56 are provided for limiting the movement of said bracket and for positioning the latter with pin 78 transversely of groove 54. Presser member 76 is releasably held on pin 78 by a flat spring 94 releasably secured at one end 96 thereof to bracket 68 in any suitable manner as by a screw 100 and engaged at its other end portion 102 to the adjacent side of presser member 76 to releasably retain the latter on pin 78. By releasing spring 94 from pin 78, presser member 76 can be readily removed from pin 78 for cleaning or for any other purpose, and bracket 88 can be swung from its full line position to its dotted line position for any purpose, as for example to facilitate cleaning of the parts or to facilitate the insertion of the length of the material in the groove in the initiation of the operation of the apparatus for applying adhesive to said material.

Any suitable support for the apparatus may be provided. As here shown, said support comprises a sheet metal base 104 which may be secured to any suitable table, bench or bracket. Said base is open at one end to permit the

assembly of presser member 76 on pin 78 and at its other end has a vertical wall 106 which is connected to plate 54 for supporting the apparatus. For this purpose, the upper end of wall 106 has an inwardly bent portion 108 which is connected to plate 56 by any suitable means here shown as screws 110, said screws passing through threaded openings 112 in said plate and through aligned openings formed in said reflexed lower portion 108.

Thus, it is seen that the construction herein shown and described is well adapted to accomplish the several objects of the present invention. It will be understood, however, that certain changes in the construction and arrangement of parts may be made without departing from the spirit of the invention and the scope thereof as defined by the appended claims considered with reference to the prior art.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In a device of the class described for applying a substance to a length of material, means forming a supply chamber for said substance provided with an outlet opening, and a roller rotatably mounted in said chamber and partially projecting through said opening for transferring said substance within said chamber to a point externally thereof while preventing the free passage of said substance through said opening, and means for supporting said roller adjustably in relation to said opening, said supporting means comprising a fixed bracket, a member carrying said roller connected to said bracket and movable in relation thereto toward and away from said opening, and a spring bearing on said bracket and on said roller carrying member for resiliently urging said roller toward said opening.

2. In a device of the class described for applying a substance to a length of material, means forming a supply chamber for said substance provided with an outlet opening, a roller rotatably mounted in said chamber and partially projecting through said opening for transferring said substance within said chamber to a point externally thereof while preventing the free passage of said substance through said opening, said roller being mounted for movement within said chamber toward and away from said opening, and means for supporting said roller adjustably in relation to said opening, said supporting means comprising a fixed bracket, a member carrying said roller connected to said bracket and movable in relation thereto toward and away from said opening, and a spring bearing on said bracket and on said roller carrying member for resiliently urging said roller toward said opening, and means carried by said bracket for limiting the movement of said roller away from said opening.

3. In a device of the class described for applying a substance to a length of material, means forming a supply chamber for said substance provided with an outlet opening, a roller rotatably mounted in said chamber and partially projecting through said opening, and means for pressing a length of material into engagement with said roller externally of the chamber whereby longitudinal movement of said material in a direction substantially tangentially of the roller periphery and transversely of the roller axis effects rotation of said roller for applying said substance to said material, said pressing means comprising a member pivoted between its ends and constructed and arranged to be urged into engagement at one end thereof with said material to press the same against said roller by pressure applied to said member at its other end by said material during said movement of the material.

4. In a device of the class described for applying a substance to a length of material, means forming a supply chamber for said substance provided with an outlet opening, a roller rotatably mounted in said chamber and partially projecting through said opening, means for pressing a length of material into engagement with said roller externally of the chamber whereby longitudinal movement of said material in a direction substantially tangentially of the roller periphery and transversely of the roller axis effects rotation of said roller for applying said substance to said material, said pressing means comprising a member pivoted between its ends and urged into engagement at one end thereof with said material to press the same against said roller by pressure applied to said member at its other end by said material during said movement of the material, and means on said pivoted member for guiding the material into engagement therewith.

5. In a device of the class described for applying a substance to a length of material, means forming a supply chamber for said substance provided with an outlet opening, and means for pressing a length of material into a position adjacent said opening comprising a member pivoted between its ends and constructed and arranged to be urged into engagement at one end thereof with said material by pressure applied to said member at its other end by said material in the course of movement of the material longitudinally of said member.

6. In a device of the class described for applying a substance to a length of material, means forming a supply chamber for said substance provided with an outlet opening, means for pressing a length of material into a position adjacent said opening comprising a member pivoted between its ends and constructed and arranged to be urged into engagement at one end thereof with said material by pressure applied to said member at its other end by said material in the course of movement of the material longitudinally of said member, and means on said pivoted member for guiding the material into engagement therewith.

7. Means for applying a substance from a supply chamber to a length of material externally of said chamber, said means comprising a member having an opening, a roller mounted within said chamber and partially projecting through said opening for transferring the substance from said supply chamber to said material externally of said chamber, said roller having a portion rotatable in said opening and projecting therethrough for engagement by said material, and means for supporting said roller on said member in adjustable position in relation to said opening, said supporting means comprising a bracket carried by said member, a member on which said roller is rotatably mounted, and an adjustable pin and slot connection between said bracket and said roller carrying member.

8. Means for applying a substance from a supply chamber to a length of material externally of said chamber, said means comprising a member having an opening, a roller mounted within said chamber and partially projecting through said opening for transferring the substance from

said supply chamber to said material externally of said chamber, said roller having a portion rotatable in said opening and projecting therethrough for engagement by said material, means for pressing said material into engagement with said projecting portion of said roller, and means for supporting said roller on said member in adjustable position in relation to said opening, said supporting means comprising a bracket carried by said member, a member on which said roller is rotatably mounted, and an adjustable pin and slot connection between said bracket and said roller carrying member, said first mentioned member and roller supporting means being attachable to and detachable from said supply chamber as a unit.

9. Means for applying a substance from a supply chamber to a length of material externally of said chamber, said means comprising a member having an opening, a roller mounted within said chamber and partially projecting through said opening for transferring the substance from said supply chamber to said material externally of said chamber, said roller having a portion rotatable in said opening and projecting therethrough for engagement by said material, and means for supporting said roller on said member in adjustable position in relation to said opening, said supporting means comprising a bracket carried by said member, a member on which said roller is rotatably mounted, and an adjustable pin and slot connection between said bracket and said roller carrying member, said first mentioned member and roller supporting means being attachable to and detachable from said supply chamber as a unit.

10. Means for applying a substance from a supply chamber to a length of material externally of said chamber, said means comprising a member having an opening, a roller carried by said member adapted to be mounted within said chamber and partially projecting through said opening for transferring the substance from said supply chamber to said material externally of said chamber, said roller having a portion rotatable in said opening and projecting therethrough for engagement by said material, and means for pressing a length of material into engagement with said roller externally of the chamber whereby longitudinal movement of said material in a direction substantially tangentially of the roller periphery and transversely of the roller axis effects rotation of said roller for applying said substance to said material, said pressing means comprising a member pivoted between its ends and constructed and arranged to be urged into engagement at one end thereof with said material to press the same against said roller by pressure applied to said member at its other end by said material during said movement of the material.

11. Means for applying a substance from a supply chamber to a length of material externally of said chamber, said means comprising a member having an opening, a roller carried by said member adapted to be mounted within said chamber and partially projecting through said opening for transferring the substance from said supply chamber to said material externally of said chamber, said roller having a portion rotatable in said opening and projecting therethrough for engagement by said material, means for pressing a length of material into engagement with said roller externally of the chamber whereby longitudinal movement of said material in a direction substantially tangentially of the roller periphery and transversely of the roller axis effects rotation of said roller for applying said substance to said material, said pressing means comprising a member pivoted between its ends and constructed and arranged to be urged into engagement at one end thereof with said material to press the same against said roller by pressure applied to said member at its other end by said material during said movement of the material, and means for guiding said material in the course of the movement thereof.

12. Means for applying a substance from a supply chamber to a length of material externally of said chamber, said means comprising a member having an opening, a roller carried by said member adapted to be mounted within said chamber and partially projecting through said opening for transferring the substance from said supply chamber to said material externally of said chamber, said roller having a portion rotatable in said opening and projecting therethrough for engagement by said material, means for pressing a length of material into engagement with said roller externally of the chamber whereby longitudinal movement of said material in a direction substantially tangentially of the roller periphery and transversely of the roller axis effects rotation of said roller for applying said substance to said material, said pressing means comprising a member pivoted between its ends and constructed and arranged to be urged into engagement at one end thereof with said material to press the same against said roller by pressure applied to said member at its other end by said material during said movement of the material, and means on said pivoted member for guiding the material into engagement therewith.

RAY BARNARD.