Aug. 1, 1939. N. LANES 2,168,222

APPARATUS FOR APPLYING ADHESIVE TO LABELS AND THE LIKE

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Fig. 1.

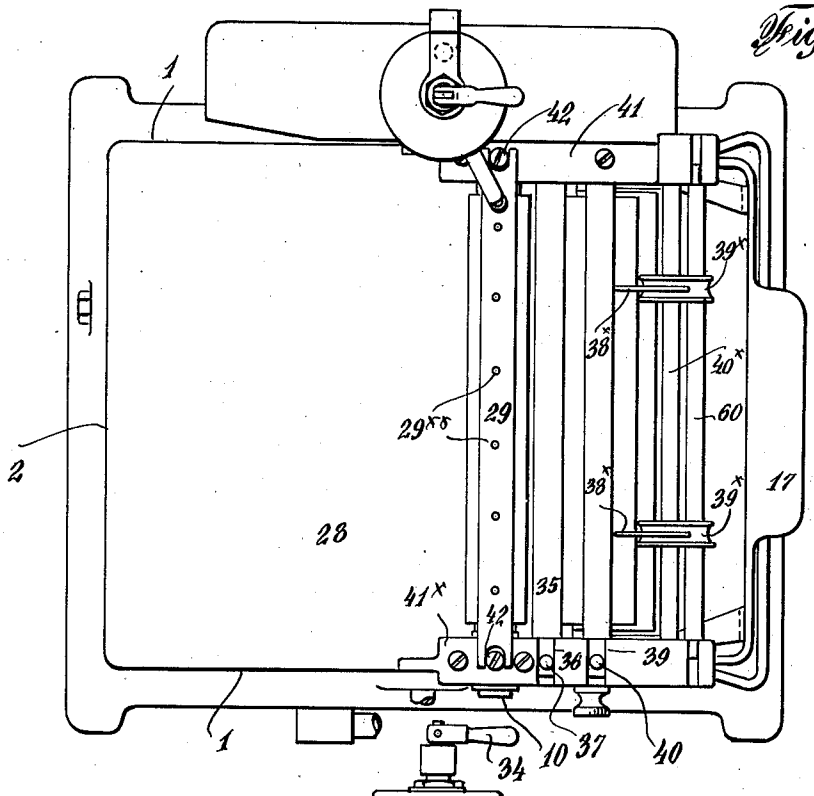


Fig. 3.

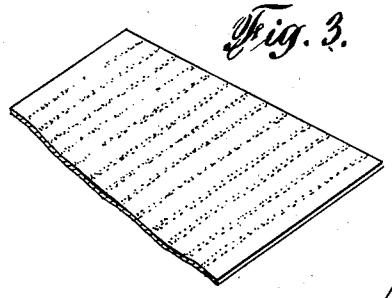


Fig. 2.

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Fig. 8

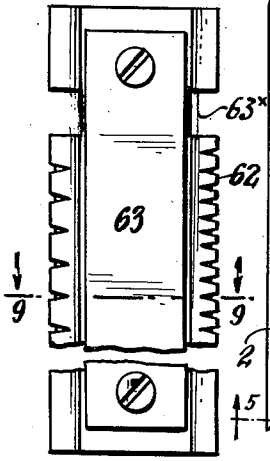


Fig. 9.

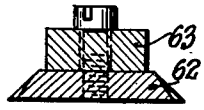


Fig. 4.

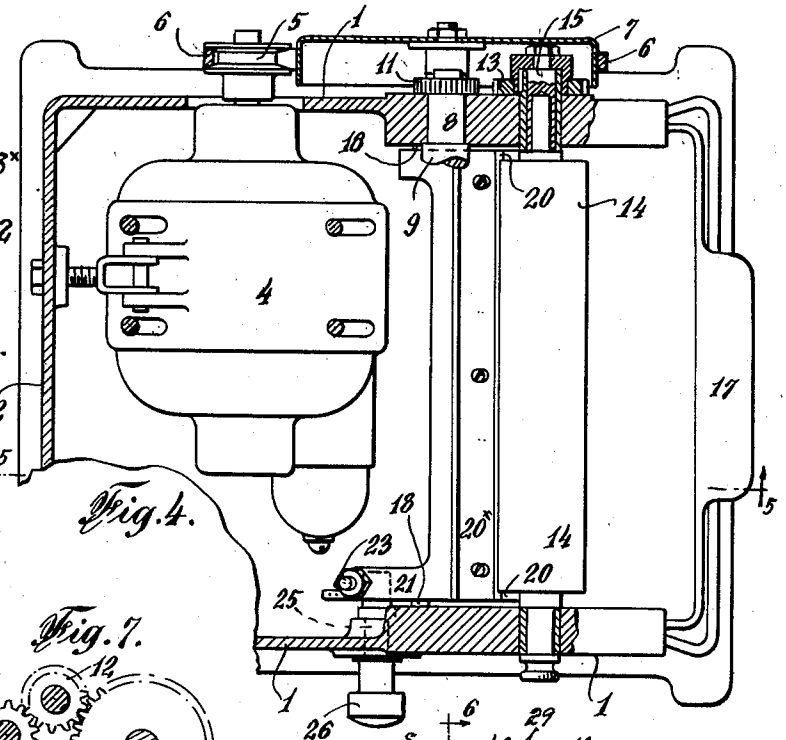


Fig. 7.

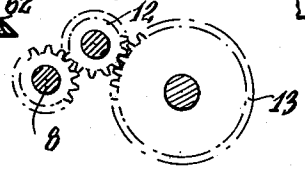


Fig. 5.

Fig. 6.

Fig. 5a

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Fig. 10

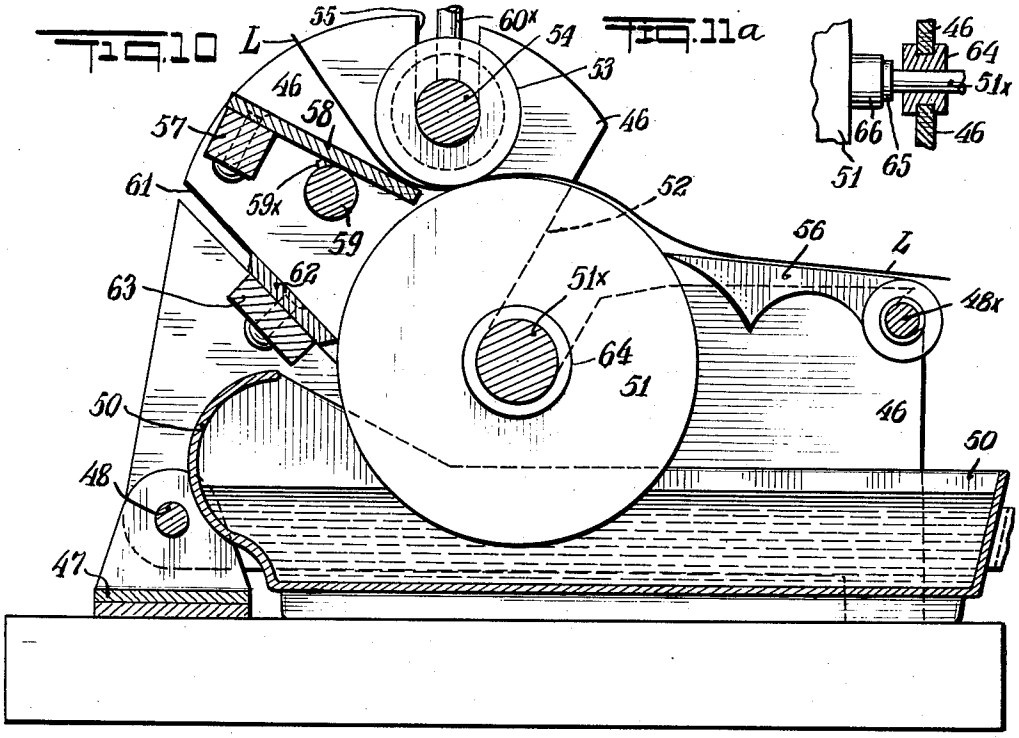
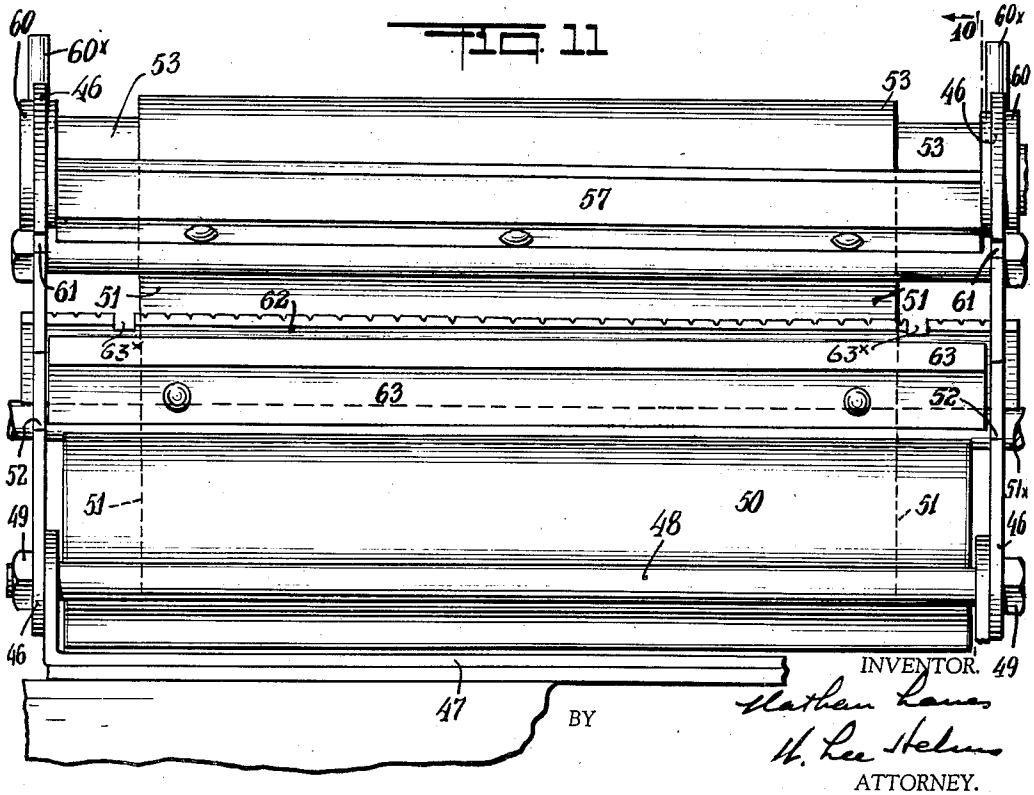


Fig. 11a

Fig. 11



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Patented Aug. 1, 1939

2,168,222

UNITED STATES PATENT OFFICE

2,168,222

APPARATUS FOR APPLYING ADHESIVE TO LABELS AND THE LIKE

Nathan Lanes, Brooklyn, N. Y.

Application January 30, 1937, Serial No. 123,216

5 Claims. (Cl. 91—50)

The object of the present invention is to provide an apparatus for applying adhesive to labels and the like, particularly in such manner that the labels will not curl through the action of the adhesive. Means are provided for simultaneously applying the adhesive on one face of the labels and for applying a controlled film of water on the opposite face of the label.

In one form of the invention means are provided for controlling the amount of the adhesive placed on each label so that the adhesive will be in parallel lines of a desired width instead of over-all surface coating.

The invention will be described with reference to the accompanying drawings, in which—

Figure 1 is a plan view of an apparatus constructed in accordance with the invention.

Figure 2 is an end elevation of the same.

Figure 3 is a diagrammatic perspective view of a label fragment showing the application of the adhesive in parallel lines thereon, as by the apparatus of Figures 8 to 11 inclusive.

Figure 4 is a horizontal section on the line 4—4, Figure 5.

Figure 5 is a transverse vertical section on the line 5—5, Figure 4.

Figure 6 is a fragmentary vertical section on the line 6—6, Figure 5.

Figure 7 is a schematic section through the primary drive shafts showing the intermeshing gear and pinions carried thereby.

Figure 8 is a plan view of the adhesive control blade and carrying bar therefor.

Figure 9 is a transverse section on the line 9—9, Figure 8.

Figure 10 is a vertical section on the line 10—10, Figure 11, through a modified form of the invention and particularly adapted for the adhesive control blade.

Figure 11 is a front elevation of the structure shown in Figure 10.

Figure 11*a* is a fragment of roller 51 at one end thereof, and showing its bearing support permitting end play of the roller.

Referring to Figures 1 to 6 of the drawings, 1 indicates the side walls of a frame, 2 the front wall thereof, and 3 the rear wall. Within the front area of the frame is a motor 4 having a pulley 5 connected by belt 6 with a large pulley 7 on main drive shaft 8 which is suitably journalled in the side walls 1.

Shaft 8 carries a lower feed roller 9 which, as shown in Figure 6, may be channeled to form feed ring surfaces.

Above feed roller 9 is a co-acting feed roller 10 which is preferably surfaced with rubber. Roller 10 is frictionally driven by roller 9. Shaft 8 carries a drive pinion 11 in mesh with an idler pinion 12 (Figures 7 and 5) which drives, through gear 13, adhesive applicator roller 14, the latter being secured at one end to a stub shaft 15 which carries the said gear.

Below applicator roller 14 is adhesive spreading roll 16 which is rotated by frictional contact with roll 14 and which may be journalled in the side walls of adhesive box 17.

Pivoted on short pivot studs 18 is a rocker bracket 19 carrying an adhesive control blade 20 which may be directly carried by a bar 20*x*. Rocker bracket 19 is provided with an arm 21 engaged by a spring 22 by means of which the arm moves an adjustable stud 23 into contact with a cam 24 on an adjusting shaft 25. Shaft 25 is operated by a hand dial 26 on the exterior of the side walls 1 which may carry a pointer 26*x*. Indicia on said wall 1 may be employed to show the position of the adhesive control blade 20 relative to the applicator roll 14 and hence the thickness of the film of adhesive to be applied to the labels.

Above the motor the frame is formed with a horizontal section 27 carrying a label supporting plate 28 in line with the contact point of the feed rollers 8 and 10 so that the labels may be conveniently positioned for action by the apparatus.

During the rotation of the top rubber-surfaced feed roller it receives a film of water or other liquid. To this end a moisture brush contacts with roller 10. The tufts of hair or fibre 29*x* of the brush are carried by a hollow member 29 having overhead apertures at 29*xx*. The member 29 receives water at the desired rate via the tubes 30, 31, the latter being at the base of a reservoir 32 which may be similar to a lubricator cup and controlled by a valve stem 33 and lever 34.

As shown in Figure 2, the brush member may carry a plurality of longitudinal rows of hair fibre or bristles. The hollow member 29 will become filled and the moistening fluid will overflow through apertures 29*xx*, passing onto the brush elements per se and to the top of each label to a degree sufficient to prevent curling of the labels by the action of the adhesive. In passing to the brush elements the water passes through slots *s*.

After leaving the feed rollers 8 and 10 the end of each label passes under a rod 35 which at each end may be reduced in diameter and enter a guide slot formed in the appropriate frame wall 1, as at 36, Figure 2. Each of said reduced

ends of rod 35 may be formed with a threaded aperture to receive a screw 37, the lower end of which may bear against the base wall of the guide slot and thus adjust the distance between the rod and the adhesive applicator roller 14. The rod may receive a rotary sleeve (not shown) if desired, to reduce friction. A second rod (or rod with sleeve) is shown at 38 mounted like rod 35 in guide slots such as 39 (Figure 2) formed in walls 1, and the reduced ends of the rod may receive adjusting screws 40 having the same function as screws 37. The labels passed under rod 35 are received between the applicator roller 14 and rod 38 and are ejected over upon any desired number of fingers 38x on carriers 39x adjustably movable on rod 60 and resting on a second rod 60x. If desired, the top of each wall 1 over the slots 36, 39 may be covered by a removable plate 41 as shown at the top of Figure 1. Each end of feed roller 10 may be reduced in diameter and mounted in a guide slot (not shown) similar to slots 36, 39. Screws 42 bearing upon the said roller ends and passing through plates 41, 41x (Figures 1 and 2) may exert downward pressure so that the rubber covering for feed roller 10 may be firmly pressed upon its co-acting positively driven feed roller 8.

Brush member 29 may be apertured at each end to receive supporting posts 43 carried by frame walls 1 so that the said member may instantly be removed and replaced when desired. This arrangement also enables gravitational pressure of the brush upon roller 10. At 44 a spirit level is employed to indicate proper positioning of the apparatus and hence even level of the adhesive 45 in box 17.

In Figures 9 to 11 inclusive, I have shown a simplified form of device. Opposed side frame plates 46 are connected near their base by a bracket member 47 having vertical ears which receive a rod 48 passing through apertures formed in plates 46 and threaded to receive nuts 49. Other suitable connecting elements for the frame plates may be employed, such as rod 48x, as will be understood without further explanation or drawing. Between the plates is disposed an adhesive pan 50 within which rotates the adhesive applicator roller 51 having reduced ends mounted in guide slots at 52 in the opposed frame plates, and one reduced end will carry a driving member (not shown).

A second roller 53 has reduced end sections, such as shown in cross section at 54, Figure 10, which enter guide slots as at 55 in plates 46. Roller 53 is slightly spaced from the roller 51 and the two rollers act in conjunction to feed the labels over upon a plurality of finger plates, of which one is shown at 56, Figure 10, and which are adjustable upon rod 48x. The ends of finger plates 56 may rest idly upon the surface of adhesive roller applicator 51.

Carried by a bar 57 pivotally connected to the frame members 46 is a guide plate 58 for the labels, the plate resting upon a cross rod 59, which is rotatable to raise and lower the plate through a finger 59x on the rod for adjusting the plate position in changes of paper or cardboard thickness.

If desired, the reduced ends 54 of roller 53 may pass through bearing members 60 held by frame members 46, the bearing members being provided with oil tubes 60x.

An inclined slot at 61 is formed in each frame plate 46 to receive an adhesive control blade 62 carrying a balancing weight 63, the construction of which is shown in Figure 8. Each edge of the adhesive control blade may be formed with spaced tapered grooves, of a number or thickness to control the amount of adhesive passed over upon the labels such as L, Figure 10, by the applicator roller 51. Near its ends the member 63 is formed at each margin with a slot at 63x (Fig. 8) which lies adjacent the end of the roller 51. The excess glue or other adhesive taken up on blade 62 will be barred against running to the ends of the blade by the slots at 63x and at each slot a rivulet of adhesive will be guided by the wall of the slot back into the reservoir. The entire surface of the applicator roller will be coated with adhesive in its passage through pan 50 but the control blade will remove all of the adhesive except spaced lines of adhesive of a predetermined width in accordance with the width of the slots in the plate. Therefore, the label bearing the adhesive will appear as in Figure 3.

In the form of the invention as shown in Figures 1 to 7, the combined effect of the moisture on one face of the label and pressure of the grooved roller 8 at the opposite face (opposite the rubber sheath of roller 10) will form slight channels in the label so that the face bearing the adhesive will also appear generally like that of Figure 3.

It will be understood that various modifications may be made in the form and arrangement of the elements illustrated in the drawings, without departing from the spirit of the invention, for example, in practice I lead each end of shaft 51x for the applicator roller 51 (Figures 10 and 11) through a channeled and axially apertured bearing disc 64 (Figure 11a), the disc in each case being inserted into channel 52 of the appropriate vertical frame members 46. Between roller 51 and the end of its shaft 51x is a steel wear collar 65 which is integral with the shaft and between roller 51 and the wear collar 65 may be disposed a sleeve 66. As roller 51 turns it will have end play back and forth between the vertical frame members 46. Therefore, the fingers 56 will not form grooves in the latter.

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

1. In an apparatus for applying adhesive to labels and the like, a container for adhesive, an applicator roller adapted to receive the adhesive, a blade coacting with the applicator roller for controlling the amount of adhesive thereon, means coacting with the applicator roller for feeding a label over the surface of said roller, said means comprising a yielding surfaced roller adapted to contact with the face of the label opposite that contacting with the applicator roller, and means for applying moistening fluid to said yielding surface.

2. In an apparatus for applying adhesive to labels and the like, a container for adhesive, an applicator roller adapted to receive the adhesive, a blade coacting with the applicator roller for controlling the amount of adhesive thereon, means coacting with the applicator roller for feeding a label over the surface of said roller, and means for applying a moistening fluid to the surface of the label opposite that which receives the adhesive comprising a moistening roller for contacting with the label, a reservoir brush device passing moistening fluid to said roller, and controlled means for continuously supplying a

predetermined quantity of moistening fluid to said reservoir brush device.

3. An apparatus for applying adhesive to labels and the like, constructed in accordance with claim 2, in which the reservoir brush device comprises a hollow member carrying brushes at its base and formed with openings in the upper portion thereof for the outflow of moistening fluid to the brushes.

4. An apparatus for applying adhesive to labels and the like, constructed in accordance with claim 2, in which the reservoir brush device comprises a hollow member carrying at its sides two brush holding members and formed with apertures at its top for the outflow of water to said brush members via passageways between the members and said hollow member, in combination with means for continuously supplying a measured quantity of moistening fluid to the interior of said hollow member.

5. In an apparatus for applying adhesive to labels and the like, a container for adhesive, an applicator roller adapted to receive the adhesive, a blade coacting with the applicator roller for controlling the amount of adhesive thereon, means for feeding a label over the surface of said roller, applicator means comprising a yielding surfaced roller adapted to contact with the face of the label opposite that contacting with the applicator roller, a grooved roller lying under the yielding surfaced roller and receiving pressure therefrom through the label as it is fed toward the applicator roller, and means for applying moistening fluid to said yielding surfaced roller.

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