June 12, 1934. T. H. KRUEGER 1,962,722

MOISTENER FOR GUMMED TAPE AND LABEL MACHINES

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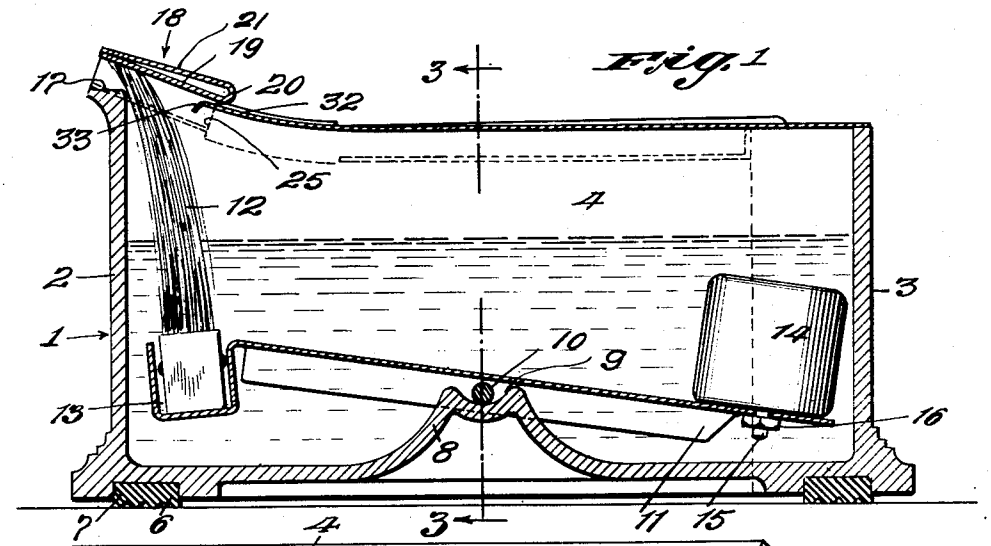


Fig. 1.

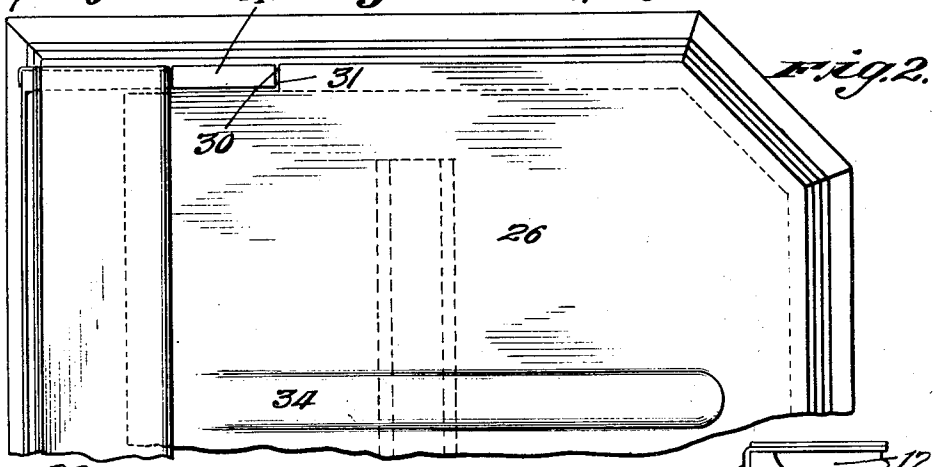


Fig. 2.

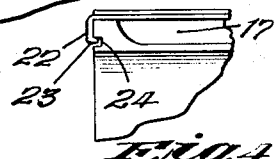


Fig. 4.

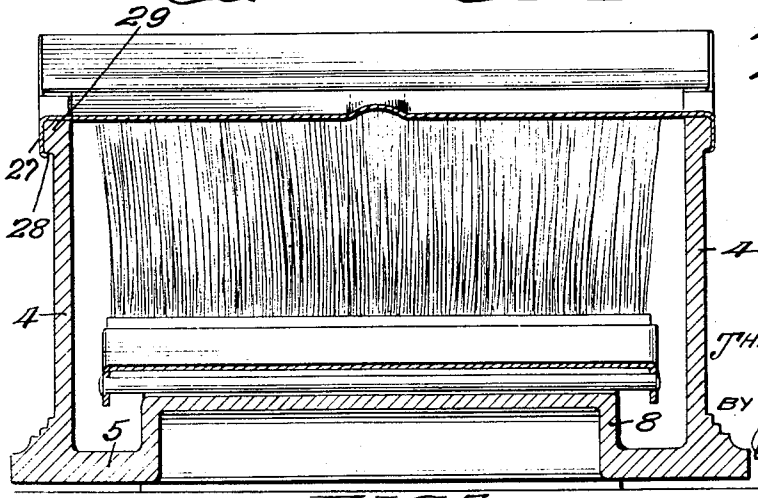


Fig. 3.

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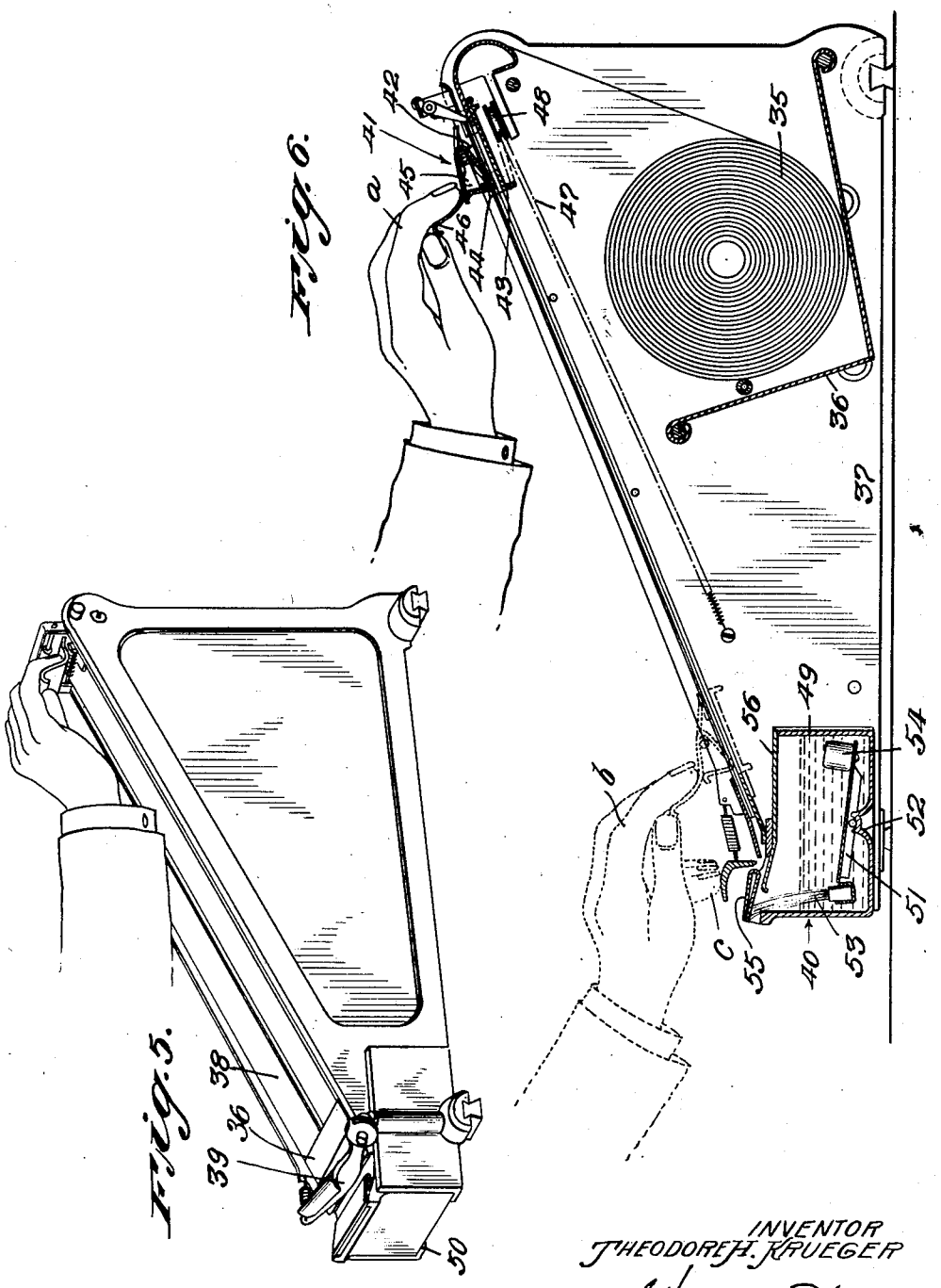
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MOISTENER FOR GUMMED TAPE AND LABEL MACHINES

Filed June 21, 1924 2 Sheets-Sheet 2



Patented June 12, 1934 1,962,722

UNITED STATES PATENT OFFICE

1,962,722

MOISTENER FOR GUMMED TAPE AND LABEL MACHINES

Theodore H. Krueger, New York, N. Y.

Application June 21, 1924, Serial No. 721,437

9 Claims. (Cl. 91—38)

This invention relates to adhesive label or tape moistening machines, one form of which is disclosed, for example in my Patent No. 1,638,816, granted August 9, 1927, on an application, filed March 4, 1924. In the machine of said application, adhesive tape is fed from a supply reel past a moistening brush located in a moistening chamber at the delivery end of the machine. Provision is made of a presser plate to bear upon the tape opposite the brush to press the tape into intimate contact with the brush. The presser plate is hingedly mounted to enable it to adjust itself for wear of the brush, and so that it might be swung out of the way when the operator desires to remove the brush or when access to it is desired for any other reason.

The brush and presser plate form a moistening couple which moisten the tape thoroughly and yet oppose only a very moderate resistance to the thrusting of the tape, between the brush and the presser plate due to the yielding of the bristles.

In accordance with one feature of the present invention advantage is taken of the desirable features of this previous invention, but in a different manner whereby further important advantages are gained. To this end, the presser plate, although removable, is fixed in a definite effective position, and provision is made of means arranged to yieldingly urge the brush upward against the fixed presser plate. Such means, as illustrated, consists of a see-saw support for the brush having a weight at the opposite end of the see-saw from the brush, capable of swinging the brush upward against the presser plate, although of course any other suitable means may be used for this purpose.

This construction renders the brush self-adjusting for wear or set, and this through a wide range, thus greatly extending the life of the brush and at the same time assuring efficient adjustment thereof at all times. The use of a weight to supply the pressure on the brush is particularly important since this assures uniform pressure at all times, although any other suitable means may be used to move the brush adjustably upward against the presser plate. A pressure which is designed to cause ample moistening of the tape or label, yet not to obstruct the feeding thereof is desired.

The adjustable mounting of the brush further enables the presser plate to be located in a uniform, fixed position, regardless of the extent to which the brush has been worn or bent, which is a convenience and which contributes to the rapidity of operation, of moistening labels or the like.

The fixed mounting of the presser plate moreover, eliminates the possibility of the tape or label being lifted out of contact with the brush if the tape or label is drawn upward at the same time that it is being drawn forward by the operator.

One form of apparatus illustrated, in which the above mentioned novel features are incorporated, is a machine for moistening separate individual labels. This machine also embodies other features of the invention. The top of the moistening chamber, as well as the presser plate, is removable, and is formed as a label presenting table on which a label may be placed and across which the label may be slid to pass beneath the presser plate and over the brush. The table is provided with a longitudinally extending, central rib, to prevent the formation of a vacuum between the table and a label which would tend to retard the feeding of the latter.

Other features and advantages will hereinafter appear.

In the drawings:

Figure 1 is a longitudinal, vertical section of a label moistener for dealing with separate individual labels;

Figure 2 is a fragmentary, plan view of the device shown in Figure 1;

Figure 3 is a vertical transverse section of the moistener taken substantially on the line 3—3 of Figure 1, looking in the direction of the arrows:

Figure 4 is a fragmentary, front elevation showing the upper left hand corner of the moistener;

Figure 5 is a perspective view of a tape serving device in which some of the features of the invention are incorporated; and

Figure 6 is a longitudinal, vertical section of the device shown in Figure 5.

The individual label moistener illustrated in Figures 1 to 4 includes a heavy cast metal water receptacle or tank 1, comprising a front wall 2, a rear wall 3, side walls 4, and a bottom 5. Rubber feet 6 are fitted into cavities 7 in the bottom 5 to support the device. The bottom 5 has an elongated boss 8 extending upward into the tank substantially from side to side thereof and located substantially equidistantly from the front wall 2 and the rear wall 3. This boss 8 has a trough 9 in its upper surface which supports a fulcrum pin 10 forming part of a see-saw support 11 for a moistening brush 12 which rests in a trough or cavity 13 at the forward end of the support. This brush is partly submerged in water which it feeds

upward by capillary action to its tip for moistening the labels. The see-saw support 11, at the opposite end from the brush 12, has a counter-balance weight 14 of lead or other suitable material, secured upon it as by means of a threaded shank 15 and nut 16.

The brush 12 extends upwardly across a label delivery opening 17 formed in the front wall 2 of the tank at the upper end thereof, and bears against a presser plate 18 of copper, brass or other smooth, non-corrosive material. The presser plate 18 comprises a lower body part 19 which is turned upward at its rear to form a smooth rolled edge 20 and thence extends forward to form an upper body part 21 that terminates flush with the forward edge of the lower body part 19. Sides 22 extend downward from the body part 19 and have inturned flanges 23 at their lower extremities (see Figure 4) which co-act with downwardly inclined guide channels 24 in the side walls 4 of the tank 1 to guide the presser plate 18 into position against shoulders 25 to locate it over the brush 12 in operative relation thereto. The construction is such that the presser plate 18 may be readily removed when seized by both hands and drawn straight forward. There is, nevertheless, a substantially binding action of the sides 22 upon the sides of the tank under ordinary conditions of use, which prevents accidental removal or misplacement of the presser plate 18.

The main cover or top 26 for the tank is of smooth non-corrosive metal such as brass, and is designed to be used as a presenting table on which a label may be placed in flat condition, and across which the label may be slid to feed it between the brush 12 and presser plate 18. Sides 27 extend downward from the cover 26 and have inturned flanges 28 at their lower ends which cooperate with horizontally extending flanges 29 on the sides 4 to guide the cover 26 forward until it is arrested in assembled position by engagement of shoulders 30 on the sides 4 with shoulders 31 of the cover. The forward end of the cover 26 is formed as a resilient, upwardly inclined tongue 32 which is rolled under to provide a smooth rounded forward extremity 33. This extremity 33 engages with the rolled rear edge 21 of the presser plate 18 and is cammed down by it as the cover plate is thrust forward to assembled position, but immediately springs up again to lie closely adjacent the presser plate 18 to form a restricted opening therewith for guiding the labels to the brush 12. The cover plate has a rib 34 extending longitudinally of its center which serves to prevent the creation of suction between the cover plate and a label upon it such as would interfere with the rapid feeding of the label.

The rear wall 3 and the side walls 4 are connected by obliquely extending walls which facilitate the guiding of the cover 26 into position upon the tank. The cover plate is made to correspond to the shape of the tank at the rear and thus obviates the presentation of sharp corners at the introductory side of the device which would be likely to injure the hand of the operator.

In using the device described a label is seized in one hand of the operator, placed upon the presenting table or top 26 and is slid forward beneath the presser plate 18 and over the brush 12. The brush is held up against the presser plate by the weight 14 and hence the label in passing between the presser plate 18 and the brush 12 comes into intimate contact with the bristles of the brush and is thoroughly moistened by them. The operator then seizes the leading margin of the label, beyond the plate 18 draws it forward out of the machine, and affixes it to package or other articles.

In Figures 5 and 6 the see-saw moistener is shown incorporated in a machine of the type disclosed in my patent referred to above, which machine is designed for feeding, moistening and severing labels provided in continuous strip form, either perforated, scored or plain, or for performing these operations upon a binding tape.

In this machine the tape or label strip is delivered from a spool 35 supported by a holder 36 in frame 37 and is fed down along an inclined guide 38 past a knife 39 and moistening apparatus 40 by means of a feeder indicated generally at 41. The feeder comprises a carriage 42, a fixed gripping member 43 thereon, and a pivoted gripping member 44, normally held away from the fixed gripping member 43 by a spring 45, but depressible into gripping cooperation with the member 43 by a handle 46, which handle is also operable to actuate the feeder as a whole. When it is desired to feed and sever a length of tape or label material the handle 46 is depressed to cause the grippers 43 and 44 to become effective, whereupon the hand engaging the handle is moved from the full line position *a* of Figure 6 to the dotted line position *b* to feed the tape or label strip. The hand is then moved to the dotted line position *c* of Figure 6 to actuate the knife 39 for severing the length of tape fed forward. The feeder 41 when released is automatically returned to its initial position at the upper end of the guide 38 by means of a tension spring 47 that runs around a pulley 48.

In a cavity at the delivery end of the machine there is located moistening apparatus 40 which is substantially the same in its principal features as the moistening apparatus described in connection with the separate label disclosed in Figures 1 to 4. This moistening apparatus 40 comprises a tank 49 slidable along supports 50 into and out of operative position. Within the tank there is mounted a see-saw moistener comprising a see-saw 51 fulcrumed on boss 52 and bearing a bristle brush 53 at one end and a counter-weight 54 at the other end. A presser plate 55 engages the upper ends of the bristles to limit upward movement of the brush and to co-act therewith in moistening the tape. This plate 55 is slidable to a fixed operative position in which it is substantially parallel with a tank cover plate 56, and located to cooperate most effectively with said cover and with the tape feeding and guiding means. It will be understood, of course, that the moistening tank may be removed when desired, and that the presser plate and cover plate of the tank may also be removed to give access to the interior thereof.

While I have described a preferred embodiment of my invention it will be understood that variations may be resorted to within the scope of the invention and parts of the improvements may be used without others and that the moistening device herein claimed may be used in other forms of gummed tape serving machines than that specifically shown.

I claim:

1. In a tape and label moistening machine, a tank, a capillary wick in the tank, a stationary presser opposite the tip of the wick, and a support for the wick comprising a boss upstanding from the bottom of the tank, a see-saw fulcrumed on said boss, and a counter-weight for

the wick on the see-saw at the opposite side of the fulcrum from the wick.

2. In a tape and label moistening machine, a heavy metal tank having a boss upstanding from the bottom thereof, said boss having a trough in its upper face, a see-saw fulcrumed in the trough of the boss, a capillary wick at one end of the see-saw, a counterweight at the opposite end of the see-saw to urge the wick upward, a stationary presser forming with the wick a moistening couple, and a cover for the tank constructed to serve as a tape and label presenting table and having its forward end extended beneath the presser plate to form a restricted label guiding opening with the presser plate adjacent the tip of the wick.

3. In a label moistening machine, a tank, a capillary brush in the tank at the forward end thereof, a cover plate for the tank constructed to form a label presenting table across which labels may be slid to the brush, coacting guides on the sides of the tank and cover plate to enable the cover plate to be slid into position on the tank and retained there, the tank having obliquely extending rear walls adjoining the side walls thereof to facilitate interfitting of the guides on the cover plate with the guides on the tank, and the cover plate having obliquely extending rear edges adjoining the sides thereof and conforming to the shape of the tank walls to obviate the presentation of sharp corners at the introductory side of the machine which would be apt to injure the hand of the operator.

4. In a label moistening machine, a tank, a see-saw within the tank, a weight fixed to the see-saw at one end thereof, a trough in the other end of the see-saw, a brush loosely set in the trough, and an unyielding presser above the brush to form a moistening couple therewith, the presser being removable to provide an opening through which the brush may be removed when desired.

5. In a machine for serving gummed strips, a support for a supply of strip material, a strip feeder, a strip cutter and a strip moistener arranged in the order named, said strip feeder comprising means to grip the tape and push it forward through the moistener, said moistener comprising a reservoir for a supply of moistening liquid, a brush in said reservoir with the moisture applying end of its bristles projecting above the liquid, a stationary plate supported above said brush in position to guide the strip across the moisture-applying end of said bristles, and a pivoted weighted member in said reservoir urging the brush upwardly toward said plate.

6. A device for moistening gummed strips comprising a yieldable capillary moisture applying element over which the gummed strip is moved to moisten the same, said element being of such nature that it will become deformed or set after a period of use, means for guiding the strip up to, across and in contact with said moistening element in a predetermined, fixed path irrespective of the adjustment, deformation or set of said moistening element, said guiding means including a surface extending across the moistening element whereby the moistening element will engage said surface when there is no strip present between the moistening element and surface, means for procuring a relative adjustment between the moistening element and said surface so as to maintain a top film of moisture at all times between the moistening element and said surface when the gummed strip is not therebetween, said means being so constructed as to permit of said adjustment without changing the predetermined fixed path of the strip through the machine, and strip feeding means comprising means to grip the tape before it reaches the moistening device and push it forward substantially into the plane of the guiding surface and between the moistening element and the guiding surface.

7. In a push feed moistening machine for thin gummed strips or labels, in combination, a moistening couple comprising a normally fixed strip guide having a lower guiding surface, and an inverted bristle brush therebeneath, means for supporting the bristle brush obliquely to the guiding surface and for yieldingly urging the brush upward against said guiding surface so that upward movement of the bristles is limited to the plane of said guiding surface and an acute strip receiving angle or bight is formed between the guiding surface and the brush, and strip feeding means thrusting the strip in a predetermined fixed path into the bight between the guiding surface and the brush, and thence between the brush tip and the guiding surface for moistening.

8. In a push feed moistening machine for thin gummed strips or labels, in combination, a moistening couple comprising a normally fixed guide having a lower guiding surface, and an inverted bristle brush therebeneath, a pivoted brush carrier supporting the bristle brush obliquely to the presser plate, and a counterweight acting on said brush carrier for yieldingly urging it to carry the brush upward against the guiding surface to bear against said surface with a light, substantially uniform pressure, the arrangement being such that an acute strip receiving angle or bight is formed between the guiding surface and the brush in substantially invariable position, and means for thrusting the strip in a predetermined, fixed path into the bight between the guiding surface and the brush, and thence between the brush tip and the guiding surface for moistening.

9. A device for moistening gummed strips comprising a yieldable capillary moisture applying element over which the gummed strip is moved to moisten the same, said element being of such nature that it will become deformed or set after a period of use, means for guiding the strip up to, across and in contact with said moistening element in a predetermined, fixed path irrespective of the adjustment, deformation or set of said moistening element, said guiding means including a surface extending across the moistening element whereby the moistening element will engage said surface when there is no strip present between the moistening element and surface, means for procuring an automatic relative self-adjustment between the moistening element and said surface so as to maintain a top film of moisture at all times between the moistening element and said surface when the gummed strip is not therebetween, said means being so constructed as to permit of said adjustment without changing the predetermined fixed path of the strip through the machine, and strip feeding means comprising means to grip the tape before it reaches the moistening device and push it forward substantially into the plane of the guiding surface and between the moistening element and the guiding surface.

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