

Aug. 8, 1939.

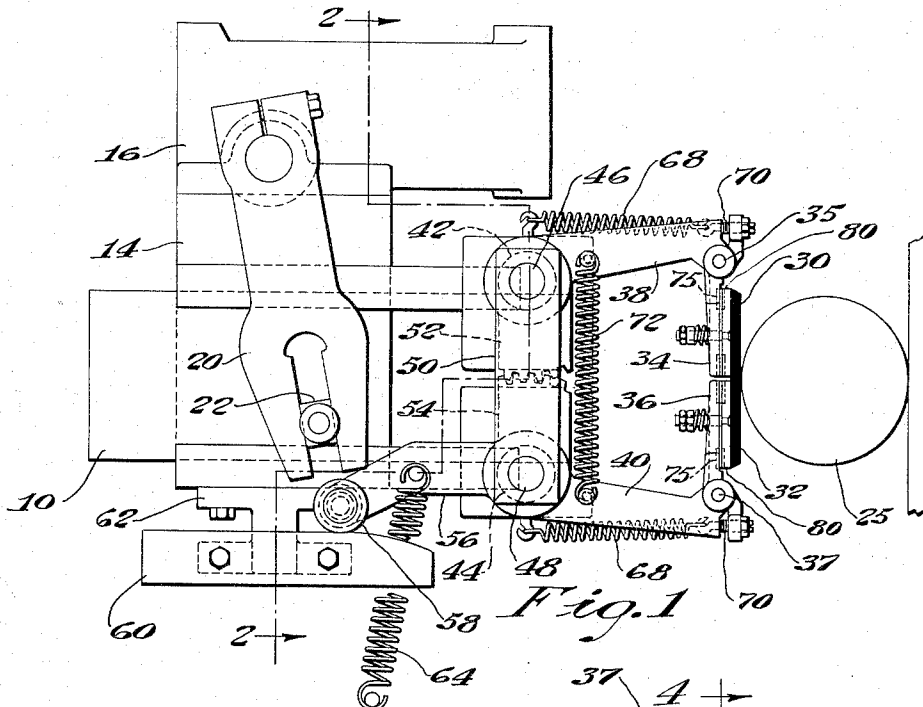
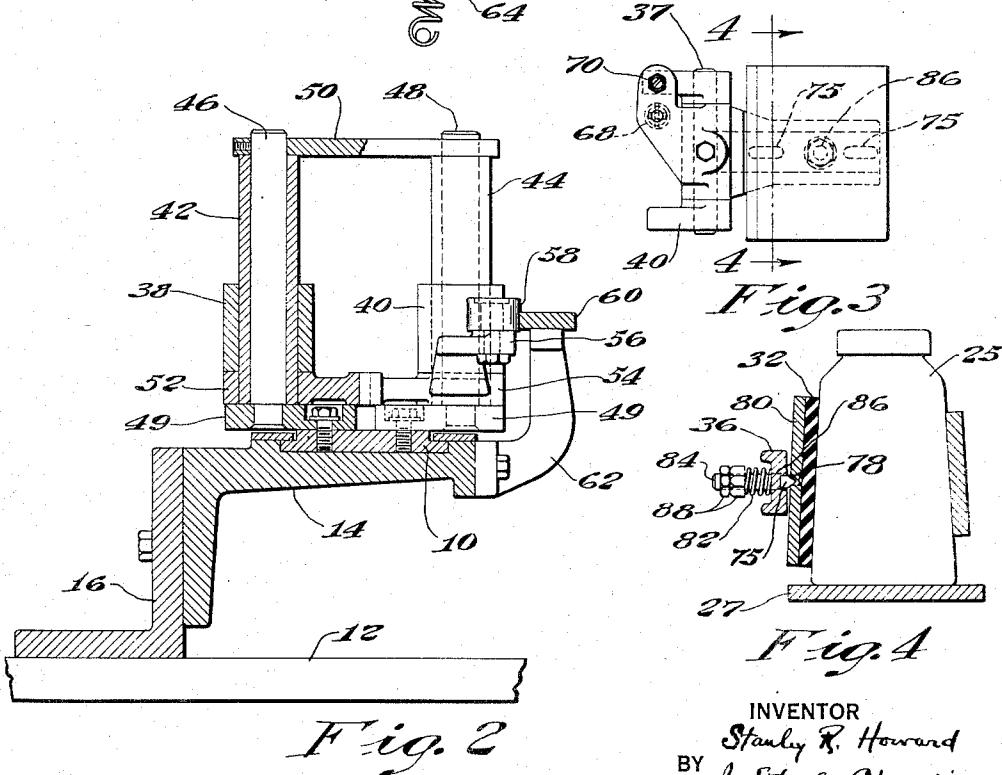
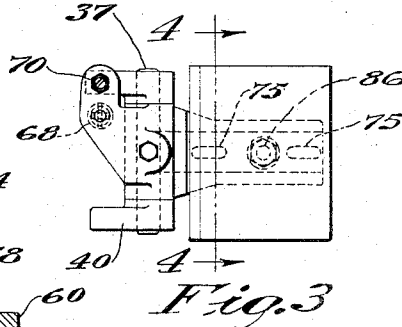
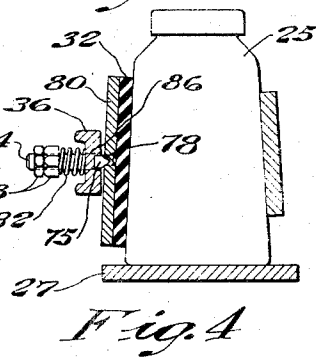
S. R. HOWARD

2,168,525

LABELING MACHINE

Filed Dec. 30, 1937

2 Sheets-Sheet 1



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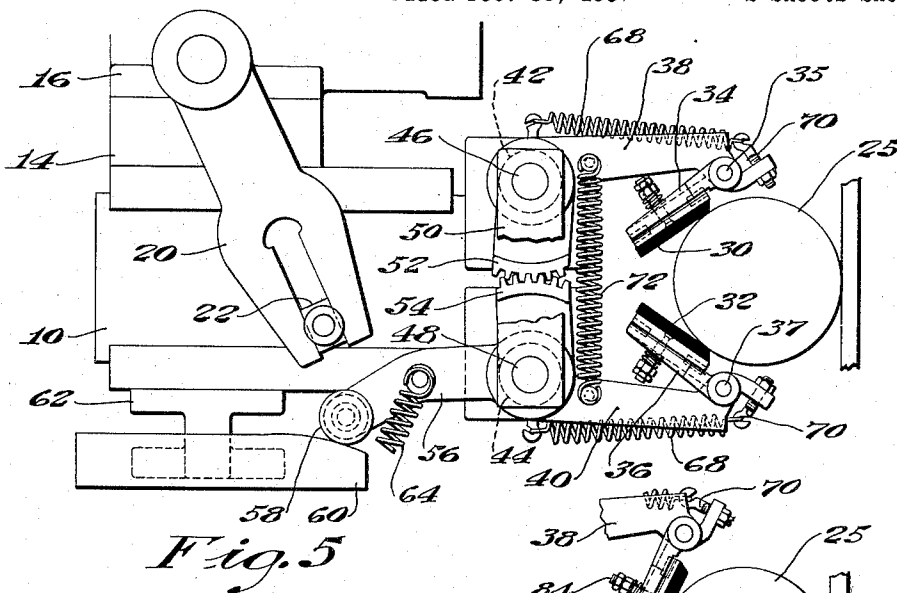
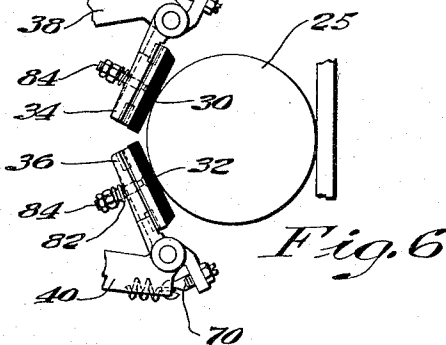
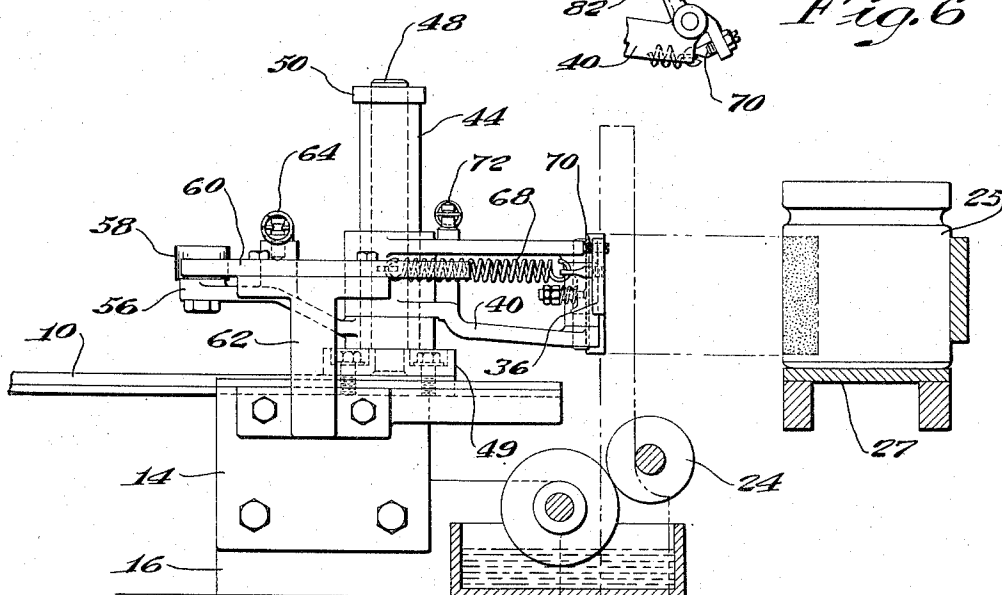
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LABELING MACHINE

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,168,525

LABELING MACHINE

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10 Claims. (Cl. 216—35)

This invention relates to a labeling machine.

The invention has for an object to provide a novel and improved labeling apparatus adapted to apply evenly distributed pressure against the surfaces of a container and may be used with advantage as either an adhesive applying device or as a label wiping device.

Another object of the invention is to provide novel and improved labeling apparatus which is capable of vertical self alignment with the surface of a container whereby pressure may be evenly and uniformly applied to conical surfaces or to any slight deviations from the vertical surfaces of a container.

With these objects in view and such others as may hereinafter appear, the invention consists in the labeling machine and in the various structures, arrangements, and combinations of parts hereinafter described and particularly defined in the claims at the end of this specification.

In the drawings illustrating the preferred embodiment of the invention, Fig. 1 is a plan view illustrating a portion of a labeling apparatus embodying the present invention; Fig. 2 is a rear view in cross-section, taken on the line 2—2 of Fig. 1; Fig. 3 is a detail view in front elevation of a portion of the apparatus shown in Fig. 1; Fig. 4 is a view in cross-section taken on the line 4—4 of Fig. 3; Fig. 5 is a plan view similar to Fig. 1 but in a different position of operation; Fig. 6 is a partial plan view showing the pressure applying members in still another position of operation, and Fig. 7 is a side elevation of the apparatus shown in Fig. 1.

In general, the present invention aims to provide novel and improved labeling apparatus which may be used with advantage for either applying adhesive to a container or for wiping a previously applied label upon a container and finds particular use in performing such operations upon a round container. In the operation of labeling machines of the general type herein illustrated, it is the usual practice to use a unitary flat adhesive applying pad in order that the adhesive may be transferred to said pad by contact with an adhesive transferring roller. When applying labels to a round container, the flat pad, necessarily of a yieldable nature, such as rubber, thus provided with adhesive is then brought into contact with the surface of the round container and wrapped about such surface to apply the adhesive or label to the container. The wrapping action is accomplished by pressure of the pad against the surface of the container so that as the pad yields, the ends of the pad will wrap themselves

about the round surface of the container. This method of applying adhesive has been found satisfactory for applying adhesive to flat surfaces and to slightly round or oval surfaces of containers but when used for applying adhesive to completely round surfaces, it was found that the adhesive was not evenly distributed because of the uneven pressure applied by the flat pad when yieldingly wrapped about said round surface. Experience had demonstrated that the use of such prior unitary adhesive applying pads resulted in the application of a thin film of glue at the center portion of the container surface where the pad makes its first contact, and a relatively thick film of glue on the outer edges of said container surface where the end portions of the pad contact with the container. This result was due to the fact that when the flat unitary pad was yieldingly pressed against the container, the pressure against the center portion greatly exceeded that against the end portions resulting in uneven distribution of the adhesive.

When a similar pad was used as a label wiping pad at a succeeding station of operation of the labeling machine to press a previously applied label against the adhesive coated surface of a container, the uneven distribution of pressure caused an uneven bond between the label and the container.

In accordance with the present invention, the adhesive applying or label wiping device herein illustrated contemplates apparatus particularly adapted for use in applying pressure evenly against the surface of a container, and particularly a round container, so as to apply a uniform film of glue thereto when the apparatus is used as an adhesive applying device or so as to apply equal pressure to all portions of a label when used as a label wiping device. Inasmuch as the details of construction and mode of operation of the apparatus is the same when used at either station of operation in a labeling machine, the apparatus will be hereinafter referred to and described as an adhesive applying unit. In its preferred form, the unit contemplates the application of adhesive to the surface of a container from a flat pad by rolling contact with said surface to the end that uniform contact and evenly distributed pressure against the container may be had.

Referring now to the drawings, the invention is, for purposes of illustration, shown as embodied in a labeling machine of any well-known type now upon the market in which the article to be labeled is first coated with adhesive at one

station of operation and thereafter at a succeeding station of operation a label is attached to the article over the adhesive. Reference may be had to the labeling machine disclosed in U. S. Patent No. 1,746,988, to Otto G. Brautigam, issued February 11, 1930, for a full and complete description of such labeling machine.

Labeling machines of the type disclosed in the Brautigam patent above referred to are provided with a reciprocable slide 10 mounted in a bracket 14 supported from the machine frame 12 by a bracket 16. The slide 10 may be reciprocated through any well-known actuating mechanism, such as a rocker arm 20 cooperating with a follower 22 swivelly mounted in the slide 10, and in operation, the unit is advanced to an intermediate position as illustrated in Fig. 7, where a glue roll 24 mounted for vertical operation is raised and lowered to transfer adhesive to the face of the adhesive applying member. Thereafter, the unit is advanced to the container 25 which is to be coated with adhesive whereupon the unit is returned to its retracted position.

In its preferred form, and as herein shown, see Fig. 1, the label applying unit comprises two flat pads 30, 32, secured to levers 34, 36, pivotally mounted upon rocker arms 38, 40. The rocker arms are mounted upon elongated sleeves 42, 44, which are rotatably supported upon vertical studs 46, 48 riveted to intermediate members 49 secured to the slide 10. A tie bar 50 extending between the upper ends of the stud 46, 48, serves as a retaining member for the sleeves 42, 44. The elongated sleeves are provided in order that the rocker arms may be raised or lowered to conform to the height of the container upon which the adhesive is to be applied as indicated in Fig. 7.

The rocker arms 38, 40 are arranged to be rocked simultaneously and as herein shown, cooperating gear segments 52, 54 are secured to the lower ends of the sleeves 42, 44. One of the segments 54 is provided with a second arm 56 carrying a cam roller 58 which cooperates with stationary cam 60. The stationary cam 60 is mounted upon a bracket 62 secured to the slide bracket 14. A spring 64 operates to hold the roller 58 against its cam.

In the operation of the apparatus, when the roller 58 is on the high part of its cam, the adhesive applying pads are arranged to be in alignment to present a continuous flat surface, as illustrated in Fig. 1. The levers 34, 36 are yieldingly mounted upon the rocker arms 38, 40 and as herein shown, a spring 68 in cooperation with stop screws 70 are arranged to normally retain the pads in their aligned position. The rocker arms 38, 40 are provided with a common spring 72 in order to take up any play in the gear teeth so as to insure accurate adjustment and alignment of the pressure applying pads 30, 32.

As hereinbefore described, the adhesive is transferred to the flat pads by the glue roll 24 while they are in their aligned position. After the pads have been supplied with adhesive, the unit is advanced toward the container, as shown in Fig. 1 and as it continues its forward motion and the pads come into contact with the container 25, the levers 34, 36 rock upon their pivots 35, 37 and at the same time the rocker arms 38, 40 are urged inwardly, or toward each other as controlled by the stationary cam 60. This motion of the rocker arms changes the position of the pivot points 35, 37 so as to provide a pure rolling

contact between the pads 30, 32 and the periphery of the container. The cam 60 is preferably so designed and the arms and levers are preferably so proportioned that the flat surface of each pad is always positioned at substantially a tangent to the container surface and, as a result each pad is caused to roll about the surface against which is bears to apply a uniform pressure at each successive point of contact and to distribute an even film of glue to the surface of the container.

Upon its return movement, the unit follows the same procedure in the reverse direction and the applying pads return to their normal position of alignment in preparation for the next cycle of operation of the machine.

In the operation of the machine, after the above described operations have been performed, the container 25 is advanced on the belt 27 to the next station of operation where a label is loosely applied over the adhesive on the container and finally at the last station of operation the label is wiped or pressed firmly into contact with the container.

From the description thus far, it will be apparent that the label pressing apparatus above described may be employed with advantage to press a label evenly against an adhesive coated surface.

Referring now to Figs. 3 and 4, provision is made for permitting the pads to align themselves vertically with the surface of a container such as a slightly conical or angular surface as illustrated in Fig. 4. As therein shown, each pad 30, 32 is mounted to pivot at its central portion upon knife edges 75 in order to permit the pads to align themselves vertically with the contacting surface with which it engages. The knife edges are arranged to rest in grooves 78 cut in the backing member 80 for the pads and are retained in engagement with the grooves by springs 82. As herein shown, each spring 82 is coiled about a stud 34 which is fixed in the member 80 and which extends through a clearance hole 86 in the pad supporting levers. The springs are retained in their operative position by nuts 88 on the end of the studs 34. In the operation of the device, the pads will rock to conform themselves with the angular surface of the container, and it will also be seen that this feature is highly useful in conforming the pads to any slight deviations from the vertical plane apt to occur in substantially vertical containers.

From the above description of the apparatus and its operations, it will be seen that the present invention may be employed to advantage as either a glue applying unit or as a label wiping unit.

While the preferred embodiment of the invention has been herein illustrated and described, it will be understood that the invention may be embodied in other forms within the scope of the following claims.

Having thus described the invention, what is claimed is:

1. In a labeling machine, in combination, means for supporting a container to be labeled, mechanism for applying substantially equal pressures upon the surface of the container comprising a reciprocatory slide member, a pair of arms operatively connected together and pivotally mounted upon the slide member, a presser member including a pad having a substantially flat side for engagement with the surface of the container yieldably and pivotally attached to each of said arms, means tending to maintain the flat side of each of said presser members normally in sub-

stantially the same plane and in substantially contiguous relation while permitting said presser members to pivot upon engagement with the surface of the container, and means for changing the pivotal point of each of said presser members whereby to cause a rolling contact between the presser members and said surface.

2. In a labeling machine, in combination, means for supporting a container to be labeled, mechanism for applying substantially equal pressures upon the surface of the container comprising a reciprocatory slide member, a pair of arms operatively connected together and pivotally mounted upon the slide member, a presser member including a pad having a substantially flat side for engagement with the surface of the container yieldably and pivotally attached to each of said arms, said presser members being normally disposed so as to present their flat sides substantially in one plane and in substantially contiguous relation and adapted to pivot upon engagement with the surface of the container, and means operatively connected with said arms for changing the pivotal point of each of said presser members whereby to cause a rolling contact between the presser members and said container surface.

3. In a labeling machine, in combination, means for supporting a container to be labeled, mechanism for applying substantially equal pressures upon the surface of the container comprising a reciprocatory slide member, a pair of arms operatively connected together and pivotally mounted upon the slide member, a presser member including a pad having a substantially flat side for engagement with the surface of the container yieldably and pivotally attached to each of said arms, said presser members being normally disposed so as to present their flat sides substantially in one plane and in substantially contiguous relation and adapted to pivot upon engagement with the surface of the container, and means for changing the pivotal point of each of said presser members including a stationary cam operatively connected to said arms, whereby to permit a rolling contact between the presser members and said container surface.

4. In a labeling machine, in combination, means for supporting a container to be labeled, mechanism for applying substantially equal pressures upon the surface of the container comprising a reciprocatory slide member, a pair of arms operatively connected together and pivotally mounted upon the slide member, a presser member including a pad having a substantially flat side for engagement with the surface of the container yieldably and pivotally attached to each of said arms, said presser member being normally disposed so as to present their flat sides substantially in one plane and in substantially contiguous relation and adapted to pivot upon engagement with the surface of the container, means tending to maintain said presser members in their normal position, and means for changing the pivotal point of said presser members whereby to cause a rolling contact between the presser members and said container surface.

5. In a labeling machine, in combination, means for supporting a container to be labeled, mechanism for applying substantially equal pressures upon the surface of a container comprising a reciprocatory slide member, a pair of arms operatively connected together and pivotally mounted upon the slide member, a pressure member including a pad having a substantially flat side for engagement with the surface of the container

yieldably and pivotally attached to each of said arms, said presser members being normally disposed so as to present their flat sides substantially in one plane and in substantially contiguous relation and adapted to pivot upon engagement with the surface of the container, means for changing the pivotal point of each of said presser members, and means for permitting said presser members to automatically align themselves vertically with the surface of the container.

6. In a labeling machine, in combination, means for supporting an article to be labeled, pressure applying mechanism adapted to apply substantially equal pressures against the surface of a container to be labeled comprising a reciprocatory slide member, a pair of arms pivotally mounted upon the slide member, a presser member including a pad having a substantially flat side for engagement with the surface of the container pivotally attached to each of said arms and normally disposed so as to present their flat sides substantially in one plane and in substantially contiguous relation, and means for controlling the pivotal movement of said presser members upon engagement with the surface of the container whereby to maintain the flat sides of the presser members substantially tangent to the surface of the container during the movement of said slide member with relation to the container.

7. In a labeling machine, in combination, means for supporting an article to be labeled, pressure applying mechanism adapted to apply substantially equal pressures against the surface of the container to be labeled, including a reciprocatory slide member, a pair of arms pivotally mounted upon the slide member and operatively connected together, a presser member including a substantially flat pad for engagement with the surface of the container pivotally attached to each of said arms, said presser members being normally disposed so as to present their flat sides substantially in one plane and in substantially contiguous relation, and means for controlling the pivotal movement of said presser members upon engagement with the surface of a container, said controlling means including a cam operatively connected to said arms, whereby to maintain the substantially flat sides of the presser member substantially tangent to said container surface during the movement of said slide member with relation to the article to be labeled.

8. In a labeling machine, in combination, means for supporting an article to be labeled, pressure applying mechanism adapted to apply substantially equal pressures against the surface of a container to be labeled, including a reciprocatory slide member, a pair of arms pivotally mounted upon the slide member, a presser member including a substantially flat pad for engagement with the surface of the container pivotally attached to each of said arms, said presser members being normally disposed so as to present their flat sides substantially in one plane and in substantially contiguous relation, means for permitting said presser members to vertically adapt themselves to slight variations in the surface of the container, and means for controlling the pivotal movement of said presser members upon engagement with the surface of a container whereby to maintain the flat sides of the presser members substantially tangent to said surface during the movement of said slide member with relation to the article to be labeled.

9. In a labeling machine, in combination, container supporting means, a pair of pivotally

- mounted label pressing members each having a substantially flat side for engagement with the surface of a container, means for relatively moving the container supporting means and said pressing members to perform the pressing operation, and means for controlling the pivotal movement of said pressing members to maintain their flat sides substantially tangent to the surface of the container during such relative movement.
10. In a labeling machine, in combination, con-

tainer supporting means, a pair of pivotally mounted label pressing members, means for relatively moving the container supporting means and said pressing members to perform the pressing operation with a small area of contact between the pressing members and the container, and means for controlling the pivotal movement of the pressing members to cause said areas of contact to progress laterally during the pressing operation.

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