

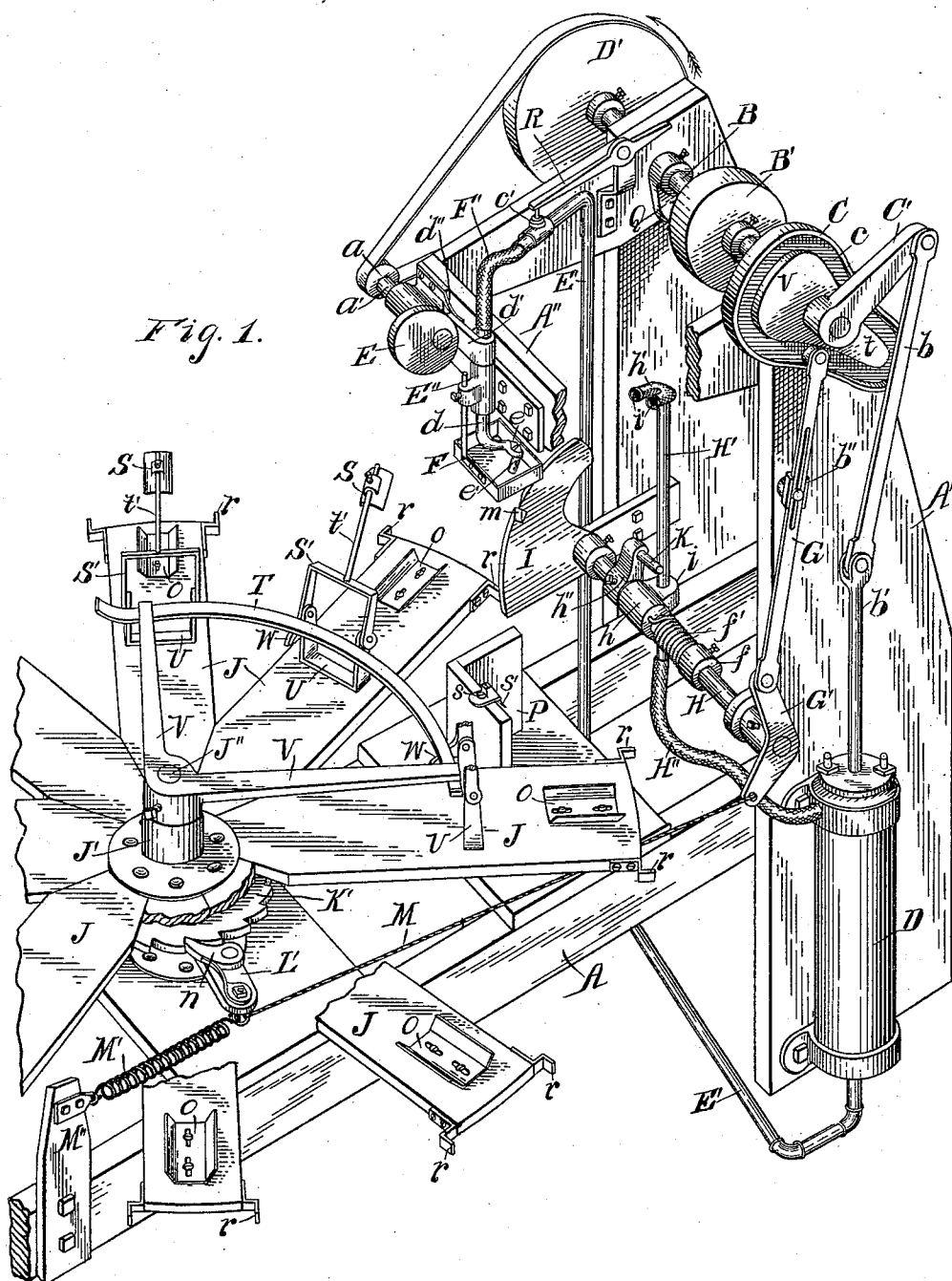
(No Model.)

2 Sheets—Sheet 1.

E. W. CORNELL.
MACHINE FOR LABELING BOTTLES.

No. 579,792.

Patented Mar. 30, 1897.



WITNESSES
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Cassius Holmbeck.

INVENTOR
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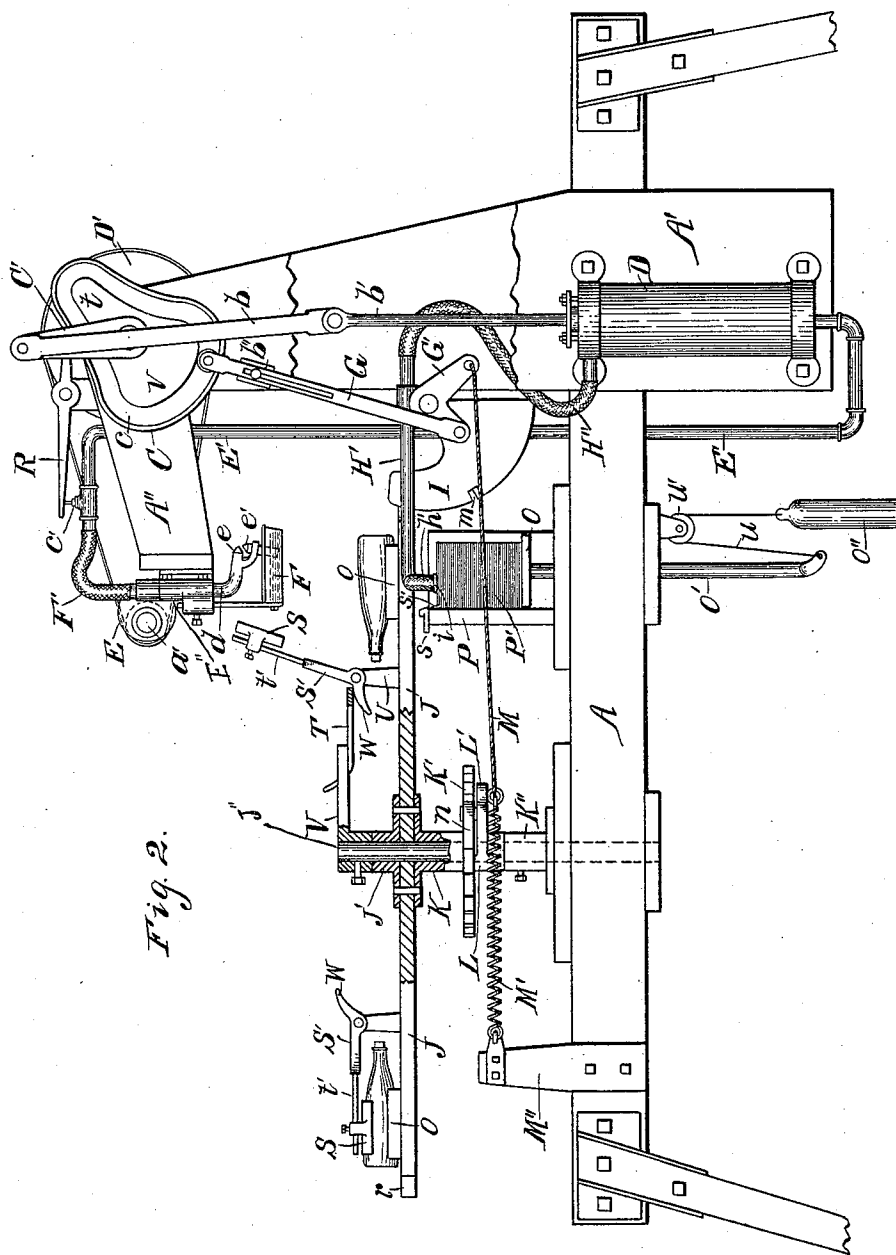


Fig. 2.

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UNITED STATES PATENT OFFICE.

EVAN W. CORNELL, OF ADRIAN, MICHIGAN, ASSIGNOR OF ONE-HALF TO
CORNELL & KNAPP CO., OF SAME PLACE.

MACHINE FOR LABELING BOTTLES.

SPECIFICATION forming part of Letters Patent No. 579,792, dated March 30, 1897.

Application filed September 16, 1895. Serial No. 562,658. (No model.)

To all whom it may concern:

Be it known that I, EVAN W. CORNELL, a citizen of the United States, residing at Adrian, in the county of Lenawee, State of Michigan, have invented certain new and useful Improvements in Machines for Labeling Bottles; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to machines for labeling bottles; and it consists in the construction and arrangement of parts herein-after fully set forth and claimed.

The object of the invention is to provide effective means for attaching labels to bottles in such manner as to insure a permanent attachment of the labels and to enable the work to be quickly and accurately done, which object is attained by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of my improved machine, parts of which are broken away to more clearly show the construction thereof. Fig. 2 is a side elevation of the machine, the hub of the rotary bottle-carrier showing in section.

Referring to the letters of reference, A designates the frame of the machine, which may be made of any suitable construction and is provided with the adjacent uprights A', which carry a portion of the mechanism. Suitably journaled in said uprights near their upper ends is a transverse shaft B, carrying a drive-pulley B', which may be connected by belting or gearing with any suitable source of power. Also mounted on said shaft at one end is a cam C, of peculiar formation, having a way c in the face thereof which conforms to the contour of the cam. Fixed on the end of said shaft adjacent to said cam is a crank C', which is pivotally coupled to the upper end of a connecting rod or pitman b, which in turn is coupled to a piston-rod b', carrying a piston-head working within the air-cylinder D.

On the opposite end of the shaft B is a pul-

ley D', which is connected by a belting with a small pulley a on the counter-shaft a', which is suitably journaled to a portion A'' of the frame supported by said uprights and carries thereon an eccentric disk E, which is driven at a high rate of speed. Leading from the lower end of the air-cylinder and communicating therewith is a pipe E', which extends upward and is provided at its upper end with an elbow in which is located a valve c'. Journaled in a suitable hanger E'' is a tube d, carrying at its lower end an air-nozzle e, which is adapted to eject an air-blast across the orifice of a tube e', which depends therefrom into an adhesive solution carried in the pan F, the upper end of the tube d being connected by a section of hose F' with the pipe E', which permits of a slight rotary reciprocation of said tube caused by the engagement of the eccentric E with the arm d', mounted thereon, which as said eccentric rotates is moved inward by the high side thereof and is returned by the spring d'', engaging the rear face of said arm, whereby the air-nozzle is caused to vibrate rapidly, causing the tube b' to travel rapidly back and forth in the pan F' and spraying the adhesive solution over a greater area than could be done were the nozzle fixed, at the same time agitating the solution and preventing a sediment from forming therein.

G designates a bar or pitman carrying at its upper end an antifriction-roller which engages in the camway c, the lower end of said bar being pivoted to a bell-crank G', mounted on the outer end of a transverse shaft H, through the medium of which crank and bar said shaft is given a partial rotation in opposite directions in reciprocal succession by the rotation of said cam, the pitman G being guided in its vertical movement in a suitable oscillative way b''.

Fixed upon the shaft H is a collar f, to which is secured one end of a coiled spring f', the opposite end of which is attached to a sleeve h, which is loosely mounted on said shaft and is provided with a lateral lug i, in which is secured a pipe or tube H', which passes there-through and to the lower or inner end of which is attached a flexible hose H'', which connects with the upper end of the air-cylinder, by

which arrangement said tube II' is caused to reciprocate in the arc of a vertical circle as the shaft II is rotated, said spring *f'* effecting a yielding connection between said tube and shaft. Upon the upper end of said tube or hollow arm II' is a hollow bifurcated head or nozzle *h'*, communicating therewith and having extended portions provided with an orifice therein which is surrounded by a ring of rubber *i'* or other suitable material, which will enable the orifices of said head to serve as suckers, as hereinafter stated.

Secured upon the shaft II, adjacent to the sleeve *h*, is a fixed collar *h''*, having an extended lug provided with a lateral pin *k*, which extends into the path of the arm or tube II' and serves to insure the return or raising of the tube as the shaft II is actuated. Also mounted upon the shaft II is a segmental stop-plate I, which is adapted to swing in the arc of a circle by the operation of said shaft and is provided in its curved outer edge with a beveled slot *m*.

The bottle-carrying device consists of a rotary table composed of radial arms J, which are secured in a hub J', journaled on the upright shaft J''. Secured to the under face of said hub is a depending sleeve K, which environs said shaft and carries on its lower end a ratchet-wheel K'. Journaled upon the shaft below said wheel is a sleeve L, carrying an arm L', upon which is mounted a spring-pawl *n*, which engages the teeth of said ratchet, the sleeve L of said arm being supported on a fixed collar K'' on said shaft. Attached to the outer end of said arm L' is a cord M, the opposite end of which is secured to the lower arm of the bell-crank G'. Also attached to the outer end of said arm is a coiled spring M', which extends rearwardly and is secured to a post M'', by which arrangement the operation of the bell-crank draws the arm L' forward, causing the pawl *n* to engage in a succeeding notch in the ratchet-wheel K', at the same time applying tension upon the spring M', the force of which is exerted upon the ratchet carried by the hub of the rotary arms, whereby the bottle-table is intermittently rotated as said arms are successively released by the operation of the stop-plate I, as hereinafter specified.

Mounted upon each of the arms J is a suitable receptacle *o*, adapted to receive the bottles, and projecting from the ends of said arms are the opposed ears *r*, which successively engage the stop-plate I and pass through the beveled slot *m* therein, thereby regulating the intermittent movement of the rotary table. Located below said table and directly in the path of the sucker-carrying arm II' is a label-receptacle P, in which the labels P' (shown in Fig. 2) are confined by a suitable removable part. (Not shown.) Mounted upon the upper edge of the fixed portion of the label-receptacle is a plate *s*, carrying one or more downwardly-extending needle-points *s'*, which are adapted to bear upon the uppermost label

near the margin thereof and serve to detachably retain them in place, the label being fed upward against said points by a suitable follower O, from which depends a vertically movable rod O', having attached to its lower end a cord *u*, which passes over a pulley *u'* and has a weight O'' attached thereto, whereby said follower is forced upward as the labels are removed and keep them in contact with the needle-points.

In the operation of this improved machine, with the parts in their normal position, as shown in Fig. 1, the labels are placed in the receptacle and the machine propelled by any suitable power. The rotation of the shaft in the direction of the arrow drives the cam C and causes a downward stroke of the pitman G, rotating the shaft II and swinging downward the arm II' and the stop-plate I, mounted thereon, at the same drawing upon the cord M through the bell-crank, causing the pawl *n* to engage in a succeeding notch in the ratchet K' and placing tension upon the spring M'. As the arm II' swings downward the sucker-head *b'* is carried downward upon the uppermost label and is held forcibly but yieldingly thereon through the medium of the coiled spring *f'* by a slight further rotation of said shaft, this position of the parts being retained during the passage of the large end *v* of the cam, which is concentric with its axis of rotation, at which time the position of the crank C' is such as to exert a downward stroke of the piston of the air-cylinder, thereby causing a vacuum in the upper end thereof which exhausts the air from the hose-coupling II'' and the pipe or arm II', whereby the uppermost label is drawn with force against the margin of the mouth-opening in the head *h'* and caused to adhere firmly thereto. A further rotation of the shaft B causes the side of the cam to quickly raise the pitman G, thereby turning the shaft II in the opposite direction and swinging the tubular arm II' upward to a vertical position with the label adhering thereto, in which position the back face of the label is presented directly in line with the spraying-nozzle, at which time the arm Q, mounted on said shaft, trips the lever R, causing it to open the valve *c'*, when a blast of air, compressed by the downward stroke of the piston, will be ejected through the nozzle *e*, thereby forcing a spray of the adhesive solution against the face of the label and by the vibratory motion of said nozzle thoroughly spraying the entire surface thereof. Simultaneously with the raising of the tubular arm, carrying the label therewith, the stop-plate I swings upward. The ear *r* of the adjacent rotary arm J of the table being caused to bear against the face of said plate by the tension of the coiled spring M' will, as said plate swings upward, pass through the beveled slot *m* in the edge thereof, permitting said arm to swing until the succeeding ear *r* thereon comes in contact with the side of said plate, when it is arrested directly over the label-receptacle in the path

of the label-carrying arm H', at which time a continued rotation of the shaft B causes the small end *t* of the cam C to force the pitman G downward, thereby again swinging the arm H' downward and depositing the label with its adhesive-sprayed surface upon the bottle which is contained in the receptacle *o*, carried by said arm J, at which time the crank C' is in the act of raising the piston of the air-cylinder, thereby relieving the vacuum in the upper end thereof and causing the label to adhere to the bottle as the sucker-carrying arm is again raised by the opposite side of the cam to permit the labeled bottle to pass out of the way as the table carrying the radial arms is intermittently rotated, the upward motion of the stop-plate I with the sucker-carrying arm permitting the succeeding ear *r* on the bottle-carrying arm to pass through the slot thereof and the ear on the succeeding arm on the table to engage the face thereof, when the sucker-carrying arm again descends and picks up another label, which is sprayed, as before described, and is deposited upon the succeeding bottle brought into place by the movement of the rotary table, and so the operation continues.

To prevent the labels from curling up on the bottles after being placed thereon and to provide for retaining them in place until they have thoroughly adhered, there is employed a gravity-pad S, adjustably secured to a rod *t'*, secured to a bail S', pivoted to a suitable support U, mounted on the arms J, said bail having an upwardly-curved end *w*, which is adapted to engage under a segmental rail T, which is supported upon radial arms V, mounted on the shaft J'', the position of this rail being such that the curved end *w* of the bail engages thereunder and swings said bail upward to raise the pad, so as to permit the labeled bottle to be removed and unlabeled bottles to be placed in the receptacle *o* as said arms swing into the path of the label-depositing arm H', said pad again dropping onto the bottle after the label has been applied thereto and remaining thereon until a circuit of the rotary table is made.

It will be evident that two bottles may be labeled at a time as well as one by making the necessary division of the sucker-head, and that instead of carrying the bottles upon a rotary table they may be carried under the label-depositor by means of an endless belt or other conveyor.

Having thus fully set forth my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with the adhesive-spray-

ing mechanism, of the movable arm adapted to grasp and retain the label, and mechanism for actuating said arm to carry the label into position to receive the adhesive spray and to deposit the label upon the bottle, and the bottle-retaining agent for presenting the bottles in the path of the movable arm.

2. In a bottle-labeling machine, the combination with the bottle-holding device and label-receptacle, of the movable arm provided with means for picking up and retaining the label, the adhesive-spraying device, means for actuating said arm to carry the label into position to receive the adhesive spray thereon, means for vibrating said sprayer, and means for actuating the label-carrying arm to deposit the sprayed label upon the bottle.

3. In a bottle-labeling machine, the combination with the bottle-receptacle, the label-receptacle, the movable label-carrying arm having the suction-nozzle thereon, the adhesive-spraying mechanism, the air-cylinder, and means connecting said suction-nozzle, and the spraying device, with said cylinder.

4. In a bottle-labeling machine, the combination with the bottle-holder and label-receptacle, of the movable label-carrying device having means for grasping the uppermost label and carrying it into position to receive the adhesive, the adhesive-spraying mechanism, the air-compressor, and means for passing an intermittent air-blast through the spraying-nozzle.

5. In a bottle-labeling machine, the combination with the intermittently-movable bottle-carrier, of the label-receptacle, the adhesive-applying mechanism, the movable label-carrying arm provided with means for grasping the label, means for actuating said arm to carry the label into position to receive the adhesive, and means for actuating said arm to deposit the label upon the bottle.

6. In a bottle-labeling machine, the combination of the label pasting and applying mechanism, of the movable bottle-carrier having bottle-receptacles thereon, the series of arms journaled on supports fixed to said carrier, said arms having a rear extension, the pads mounted on the free ends of said arms, the fixed rail mounted over said carrier which is engaged by the extension of the arm of said pads whereby said pads are actuated.

In testimony whereof I affix my signature in presence of two witnesses.

EVAN W. CORNELL.

Witnesses:

E. M. BURNHAM,
P. H. BURNHAM.