No. 888,894. PATENTED MAY 26, 1908.

G. A. HOFFMAN.

BOTTLE LABELING MACHINE.

APPLICATION FILED AUG. 11, 1906.

4 SHEETS—SHEET 1.

Fig. 2.

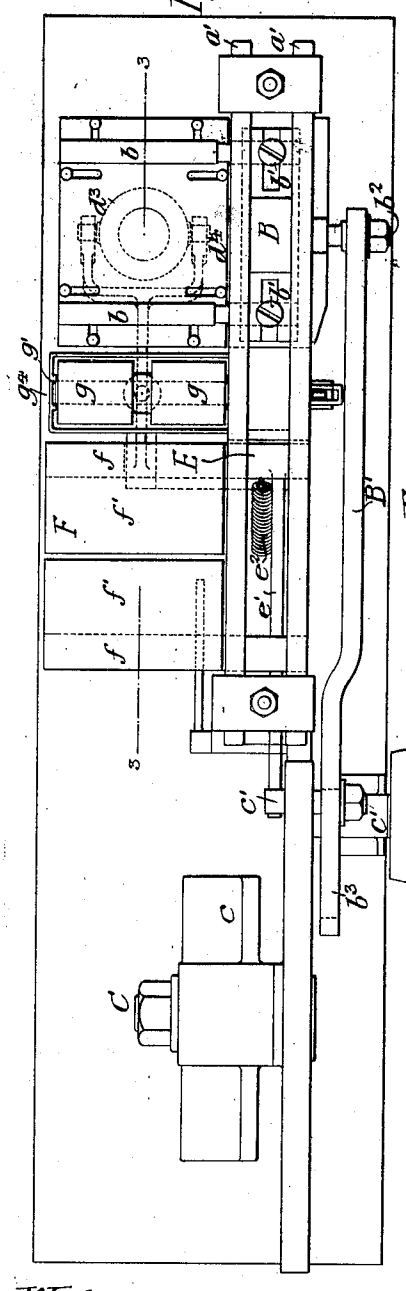
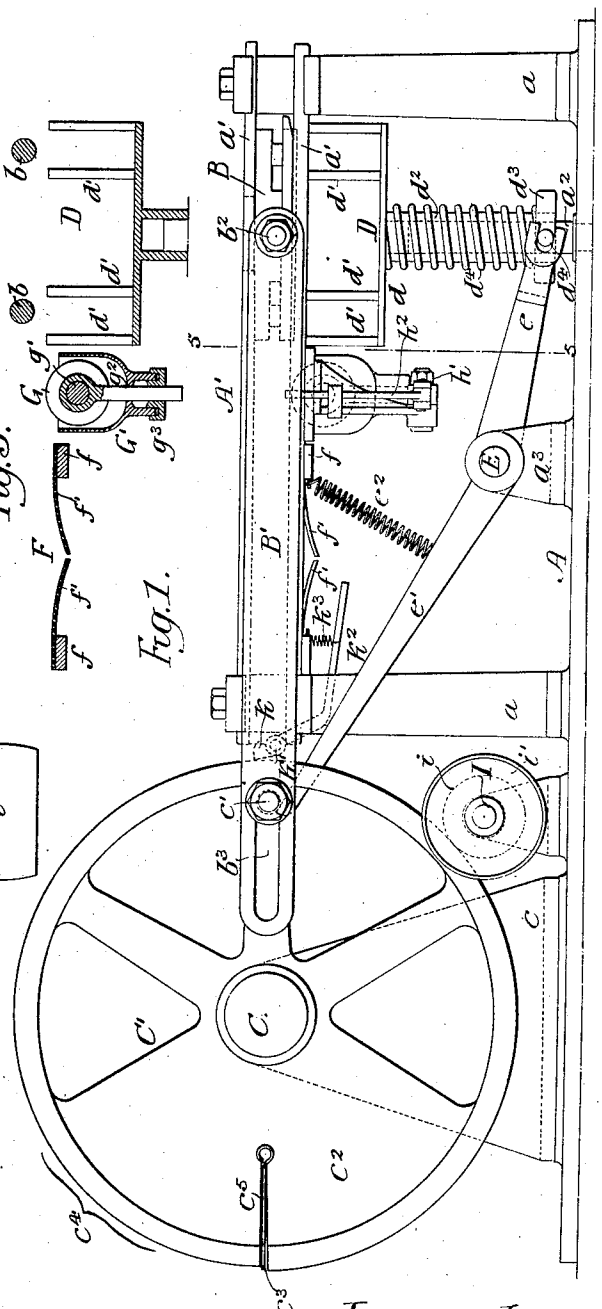


Fig. 3.

Fig. 1.



Witnesses:
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Titus Nelson

Inventor
George A. Hoffman
by his Attorneys,
Howson & Howson

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4 SHEETS—SHEET 2.

Fig. 3.

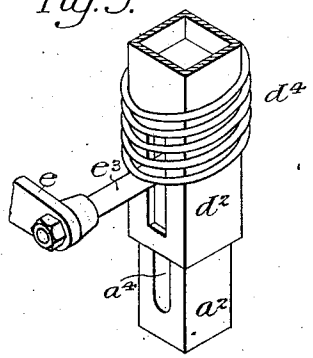


Fig. 4.

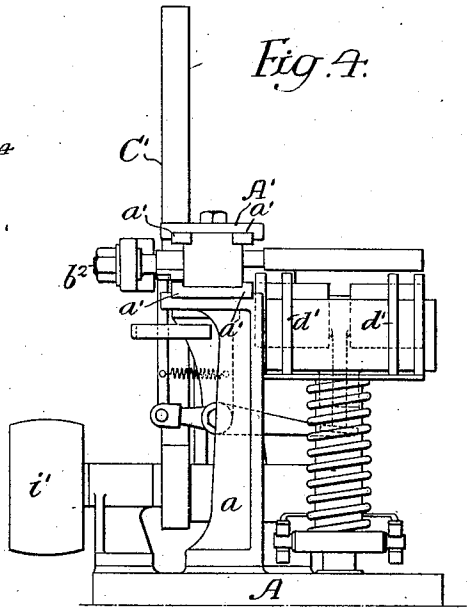


Fig. 7.

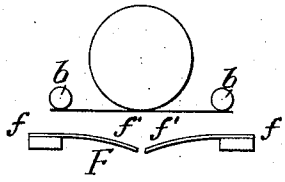


Fig. 8.

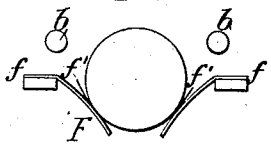


Fig. 5.

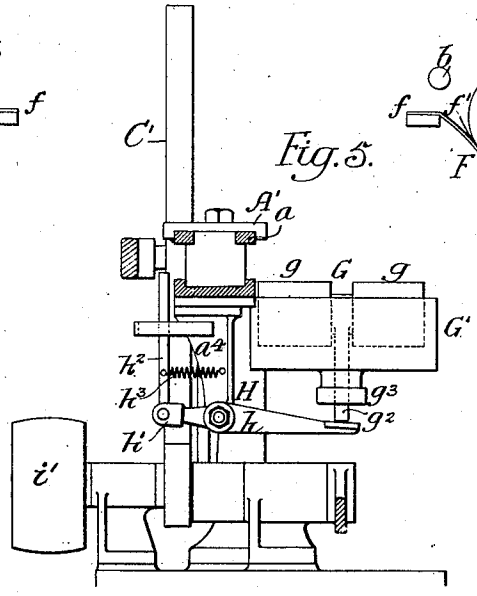
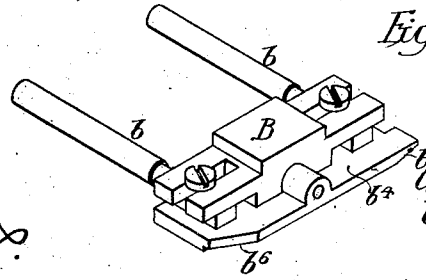


Fig. 6.



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4 SHEETS—SHEET 3.

Fig. 10.

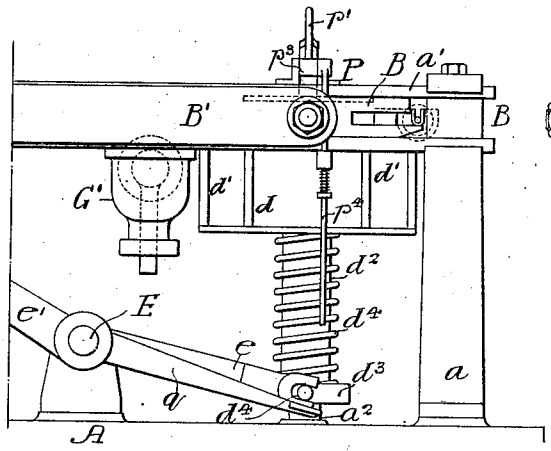


Fig. 11.

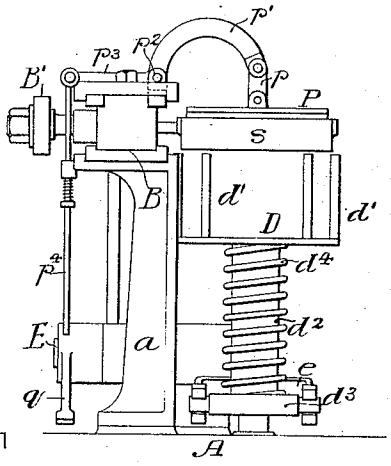


Fig. 12.

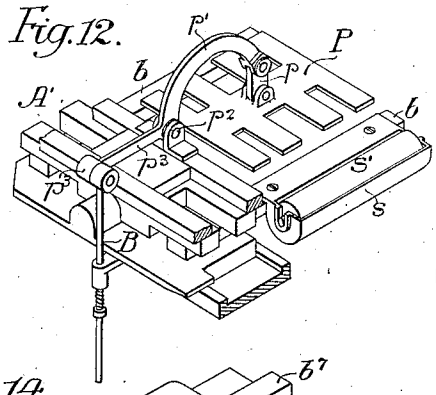


Fig. 15.

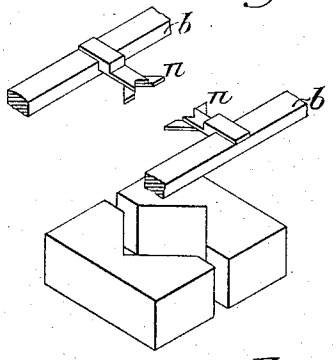


Fig. 14.

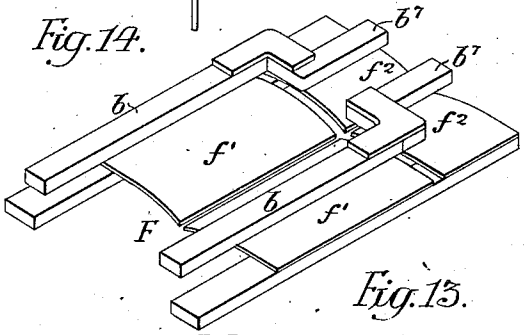


Fig. 16.

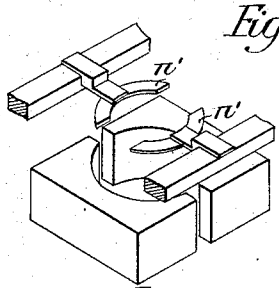
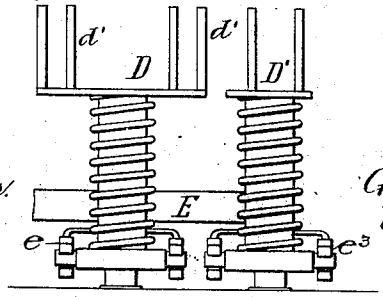


Fig. 13.



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No. 888,894. PATENTED MAY 26, 1908.

G. A. HOFFMAN.

BOTTLE LABELING MACHINE.

APPLICATION FILED AUG. 11, 1906.

4 SHEETS—SHEET 4.

Fig. 17.

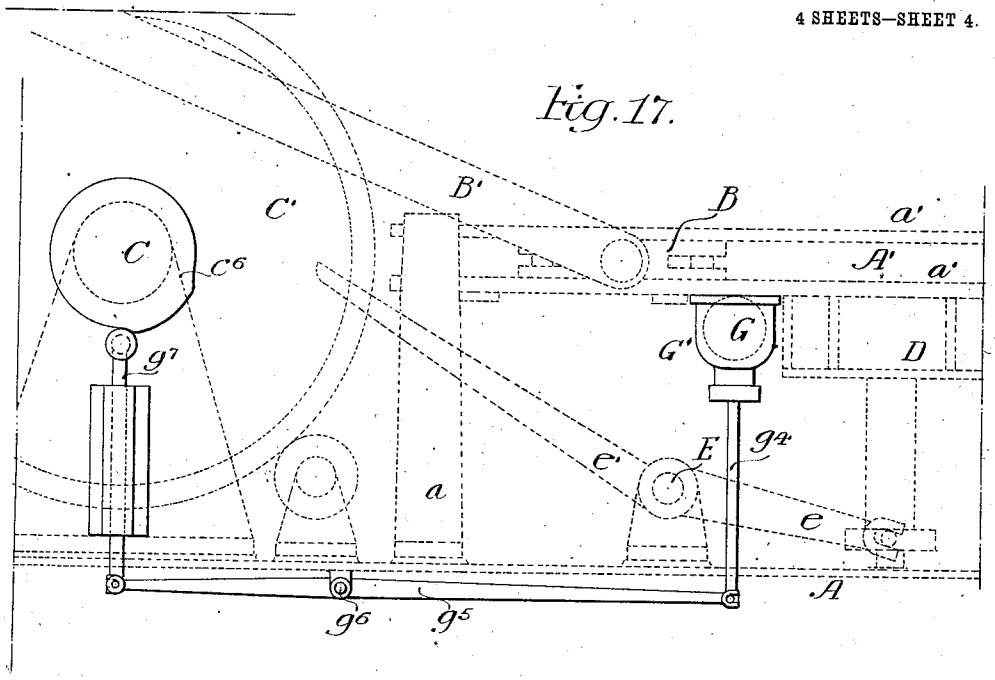


Fig. 18.

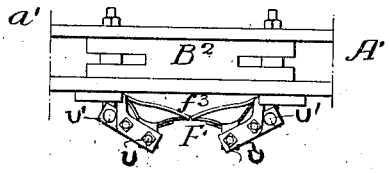


Fig. 19.

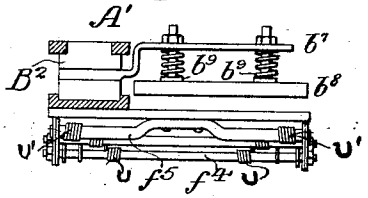


Fig. 20.

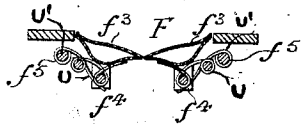
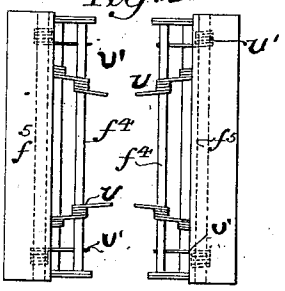


Fig. 21.



Witnesses:
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F. W. Mebrook.

Inventor.
George A. Hoffman
by his Attorneys;
Howson & Howson

UNITED STATES PATENT OFFICE.

GEORGE A. HOFFMAN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO WILLIAM F. RUWELL, OF PHILADELPHIA, PENNSYLVANIA.

BOTTLE-LABELING MACHINE.

No. 888,894. Specification of Letters Patent. Patented May 26, 1908.

Application filed August 11, 1906. Serial No. 330,258.

To all whom it may concern:

Be it known that I, GEORGE A. HOFFMAN, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Bottle-Labeling Machines, of which the following is a specification.

The object of my invention is to construct a machine for placing the labels upon bottles in an accurate and rapid manner and which will be comparatively inexpensive to build.

This object I attain in the following manner, reference being had to the accompanying drawings, in which:

Figure 1, is a side view of my improved bottle labeling machine; Fig. 2, is a plan view; Fig. 3, is a longitudinal sectional view on the line 3—3, Fig. 2; Fig. 4, is an end view; Fig 5, is a section on the line 5—5, Fig. 1; Fig. 6, is a detail perspective view of the carrier for the label; Figs. 7 and 8, are diagrams showing the method of placing the label on the bottle; Fig. 9, is a detail perspective view of a modification of the means for lifting the label holder; Fig. 10, is a side view of a modification where it is desired to paste the entire label; Fig. 11, is an end view of Fig. 10; Fig. 12, is a detail perspective view of a portion of Fig. 11; Fig. 13, is a detail view showing a pair of label holders, one for the body label and the other for the neck label of the bottle; Fig. 14, is a perspective view of the label carrier and wipers used when two labels are to be placed on a bottle; Fig. 15, is a view of a modification of a detail showing the means of applying a diamond shaped label; Fig. 16, is a view of the means for applying a circular label; Fig. 17, is a view of a modification of the device for lifting the paste roller; and Figs. 18, 19, 20 and 21, are views of a preferred form of the mechanism for applying the label to the bottle.

A is the base of the machine on which are mounted the standards *a a* supporting the slideway A′ made up of four bars *a′* in the present instance. Arranged to slide in this slideway A′ is a carrier B having arms *b*, *b* which transfer the label from the label holder to a position above the wipers at a point where the label is placed upon the bottle. These arms are mounted so as to be adjusted towards and from each other and secured to slots in the carrier B by a set screw *b′*.

In Fig. 4 the arms are shown rigidly secured to the carrier B, but they may be made so as to yield, as shown in Fig. 19. In this view fixed arms b^7 extend from the carrier B^2, and depending from the arms are bolts carrying at their lower ends plates b^8. On said bolts are springs b^9 confined between the arms and plates respectively so that said plates are free to yield or move upwardly when pressure is exerted upon them from beneath.

c is a bearing projecting from the base A and carrying a shaft C; on this shaft is a wheel C′.

B′ is a connecting rod pivoted at *b′* to the carrier B and is slotted at b^3 for the reception of the crank pin *c′* of the wheel C′ so that there will be a certain amount of lost motion to allow the carrier to dwell at the point where the label is applied to the carrier and also where the label is applied to the bottle.

D is the label holder consisting of a base *d* with projecting rods *d′* forming a cage for the labels. In the present instance the label holder has a depending hollow stem d^2 mounted on a stud a^2 projecting from the base A and mounted so as to slide on the stem d^2 is a sleeve d^3 having projecting pins d^4 in the present instance, which are engaged by an arm *e* on a rock shaft E mounted in bearings a^3 projecting from the base A.

Between the sleeve d^3 and the base plate *d* of the label holder D is a spring d^4 so that when the sleeve is raised by the arm it will move the carrier up to such a position that the top label will bear against the arms *b*, *b* of the carrier and the spring will yield sufficiently that the carrier will accommodate itself to the arms as the number of labels is decreased or increased.

The construction of the mechanism between the arm *e* and the label holder may be modified as illustrated in Fig. 9, for instance, in which the arm *e* has a pin e^3 which enters a slot in the stem and a slot a^4 in the stud a^2. The spring d^4 in this instance bears upon the pin e^3. There is sufficient lost motion to allow the pin to work freely in the slot.

The shaft E has an arm *e′* which bears upon the portion of the crank pin *c′* which projects on the rear side of the wheel C′, as illustrated clearly in Figs. 1 and 2. A spring e^2 secured to a fixed portion of the ma-

chine and to the arm e' tends to keep the arm e' normally raised, as indicated in Fig. 1.

F is the means for applying the label to the bottle and consists, as shown in Figs. 1 and 3, of two arms f, f projecting the full width of the label. Secured to each arm is a flexible wiper f' made of rubber coated canvas or other material; the arms are spaced a sufficient distance apart to allow a bottle to be forced between the wipers.

Between the label holder D and the label applying device is a paste roller G mounted in a paste pot G' secured to the slideway A' in any suitable manner. The paste roller in the present instance is made in two parts g, g, each part mounted on a spindle g^1 carried by a central stem g^2 which passes through a stuffing box g^3 in the bottom of the paste pot. The rolls are guided by the end of the spindle g' extending into a groove g^4 in the end of the paste pot.

a^4 is a bracket depending from the slideway A'; pivoted to this bracket is a lever H, one arm h of which extends under the stem g^2 while pivoted to the other arm h' of the lever is a tappet h^2. A spring h^3 tends to keep the tappet in the vertical position, as shown in Fig. 5.

On the slide B is a cam plate b^4; the rear of this cam plate is beveled on the underside as at b^5 and the front of the cam plate is beveled at the edge as shown at b^6, Fig. 6, so that when the slide returns after delivering a label the cam plate strikes the tappet h^2 and depresses it as it is held from moving with the slide by a guide on the bracket a^4 and as the tappet is depressed it causes the lever to force the paste rollers g, g up into the path of the arms b, b of the carrier so that the underside of each arm will be coated with paste. As soon as the slide passes the tappet the rollers are returned to their normal position in the paste pot. When the slide again moves forward the beveled edge b^6 of the cam plate will force the tappet out against the pressure of the spring h' without elevating the paste rollers. Thus the paste rollers are only raised on the return movement of the carrier

The paste roller may be raised by the means shown in Fig. 17, a cam c^6 mounted on the shaft C actuating a sliding rod g^7 connected to one arm of a lever g^5 pivoted at g^6 and connected at the opposite end to a rod g^4 carrying the paste roller G, the cam being so timed as to raise the roll at the proper time.

The wheel C' is driven by a friction wheel i mounted on a driving shaft I having a belt pulley i'. The wheel C' is weighted at c^2 and has a stop projection c^3 which comes in contact with a pawl k which is pivoted to the frame at k'. The arm k^2 of this pawl is held in place by a spring k^3, the arm projecting into the path of the bottle, as indicated by dotted lines in Fig. 2, so that when the bottle is passed between the wipers f' it will act upon the pawl and cause it to be withdrawn from the wheel C' and the weight being elevated on the pawl side of the wheel it will cause the wheel to turn in the proper direction as soon as the pawl is withdrawn; I preferably make a depression in the surface of the wheel at c^4 so as to reduce the friction when the wheel is prevented from rotating by the pawl k. Thus the slide returns and has a certain amount of dwell owing to the lost motion in the connecting rod B' to allow the label to be placed upon the arms of the carrier and has a dwell at the forward end of its stroke determined upon the length of time required for the operator to pick up a bottle and pass it between the wipers.

The operation of the machine is as follows: The labels are to be placed upon the body of the bottle and as near the same position on each bottle as possible. The labels are packed in the holder D, the arms are made adjustable so as to conform to the size of the label. The machine is set in motion, and if the carrier is on its return movement, it passes the paste pot, the rollers having been raised so as to place paste on the underside of the arms. These arms, when they are over the label holder, are allowed to remain for a certain length of time by the lost motion in the connecting rod B' and during this time the label holder is raised so as to force a label against the arms and on its return all the labels except the one in contact with the arms will remain in the holder. Then the silde B moves forward carrying the label with it, passing the paste pot, the rollers in the paste pot remaining in the normal position and when the carrier is directly above the means for applying the label the mechanism is stopped by the pawl k engaging the wheel C'. The operator then takes a bottle by the neck and passes it between the wipers f', f', as shown in Figs. 7 and 8; the first movement applies the label to the bottle and removes the label from the arms b, b of the carrier, and as the bottle is forced down the label is spread upon the surface of the bottle by the flexible wipers f', as shown in Fig. 8.

In Figs. 18 to 21, inclusive, I have shown a preferred form of the mechanism for applying the label to the bottle. The device F' consists of two plates or pads f^3 pivoted to rods f^4, and are held in their normal position by springs u, u; the rods f^4 are carried by plates pivoted to rods f^5 rigidly secured to the frame; springs u', u' hold the rods f^4 in their normal position. When the bottle is forced between the pads f^3 they turn and conform to the bottle spreading the label neatly upon the bottle. As the bottle descends it acts upon the arm k^2 of the pawl k and releases the wheel C' from the control of the pawl, and the mechanism is again set in motion, the carrier returning to receive another label, passing the paste pot where its arms

receive another coating of paste and another label is forced up into contact with the arms and the above operation is repeated.

In some instances I may use a spring c^5 in the wheel C′ to engage the pawl k, as shown in Fig. 1, the spring taking up the shock due to the wheel striking the pawl, but this construction may be dispensed with in some instances, or any suitable shock absorber may be used, if desired. In many instances it is only necessary to paste the two edges of a label when it is desired to quickly remove the labels, especially in bottles which are to be returned to be refilled, but where the labels are to be permanent it is preferable to provide a machine for pasting the greater portion of the label. Therefore, I have shown in Figs. 10, 11 and 12, an attachment which can be used in connection with my improved machine. This attachment consists of a plate P which can be either made solid or preferably forked at each side, as shown in Fig. 12. This plate is hung by a link p from a curved arm p' pivoted at p^2 to the slideway A′. The other arm p^3 of the lever is connected to a spring tappet p^4 and this tappet is actuated by an arm q on the shaft E. Mounted on the rear arm b of the carrier B is a paste pot s having a pasting roller s' which supplies paste to the underside of the plate P. The paste is applied to the underside of the arm b, b in the manner described above. By this construction on the return movement of the carrier B the arms b, b receive paste from the roller G and as the arms pass under the plate P a coating of paste is applied to the underside of the plate, and as the label holder is raised by its arm so that a label will come in contact with the arms b, b the plate is depressed so as to transfer the paste onto the body of the label, the plate is then withdrawn and the carrier with the label attached is transferred to the position above the wipers f'.

In Figs. 13 and 14 I have shown my improved device arranged to apply a label not only to the body of the bottle but also to the neck thereof. In this instance I make a small duplicate D′ of the label holder D and use an additional arm e^3 on the rock shaft E. The arms b, b of the carrier B are extended to form arms b^7, the space between these arms being reduced so as to accommodate the small neck labels. The wipers f' are duplicated so as to form wipers f^2 under the arms b^7. By this arrangement two labels are picked up by the arms of the carrier, transferred to the wipers and as the bottle is passed through the machine takes up the two labels and they are wiped onto the bottle, one on the body and the other on the neck.

The above described mechanism is especially designed for square labels and where diamond shaped labels are used the arms b may have V-shaped projections u, u, as indicated in Fig. 15, and the label holder may be diamond shaped to fit the labels.

In Fig. 16, I have shown semi-circular projections u' for picking up round labels and the label holders have round openings in this instance to receive the circular labels.

I claim:—

1. The combination in a bottle labeling machine of a label holder, a pasting roller, and a wiper for applying the label to the bottle, a carrier having arms for holding the label, a cam for actuating the pasting roller, means for raising the label holder, and means for temporarily stopping said parts of the machine, while the label is being applied to the bottle, with means for automatically starting the machine after such temporary stoppage, substantially as described.

2. The combination in a bottle labeling machine, of a label holder, a paster, and a wiper for applying the label, a carrier having arms, a driving wheel, a connecting rod coupling the driving wheel to the carrier, means for driving the wheel by friction, and releasable means for positively holding said wheel from moving against the action of said frictional driving means, substantially as described.

3. The combination in a bottle labeling machine, of a label holder, a paster, and a wiper for applying the label, a carrier having arms, a driving wheel, a connecting rod coupling the driving wheel to the carrier, means for driving the wheel by friction, a device for holding the wheel from turning, and means whereby a bottle in process of receiving a label is caused to release said device, substantially as described.

4. The combination of a label holder, a paste pot, a wiper for applying the label, a carrier having label holding arms, a slideway upon which the carrier is mounted, means for reciprocating the carrier, a pasting roller mounted in the paste pot, and means actuated by the carrier for periodically raising the roller, substantially as described.

5. The combination of a label holder, a paste pot, a wiper, a slideway, a carrier mounted on the slideway having arms to receive the label, a roller mounted in the paste pot to place paste upon the arms of the carrier, a lever for raising the rollers in the path of the arms, a cam on the carrier arranged to actuate the lever so as to raise the pasting rollers on the return movement of the carrier, substantially as described.

6. The combination of a label holder, a paster, a wiper, a carrier, means for reciprocating the carrier, a rock shaft having two arms, one of said arms projecting under the label holder, a spring between the arm and the label holder, a rotating member, a pin

thereon, the other arm of the rock shaft extending into the path of the pin so as to be engaged thereby to raise the label holder, with means for temporarily holding the rotating member from moving after each revolution thereof, substantially as described.

7. The combination in a label pasting machine, of a slideway, a carrier mounted on said slideway, arms on the carrier, a driving wheel, a crank pin on the driving wheel, a connecting rod attached to the carrier and slotted at its opposite end, the pin on the driving wheel passing through the slot, a detent pawl carried by the frame of the machine and extending into the path of the bottle, said detent pawl engaging the driving wheel and holding it until the bottle releases the pawl as it is passed through the label applying device, substantially as described.

8. The combination in a label pasting machine, of a slideway, a reciprocating carrier mounted thereon, a label holder, a paster, a label applying device, a rotating wheel, a connecting rod connecting the wheel with the carrier, a detent for locking the wheel in a given position, said wheel being weighted at one side, and a friction wheel bearing against the said wheel, whereby the weighted wheel is driven by friction, substantially as described.

9. The combination of a slideway, a carrier mounted so as to reciprocate in the slideway, arms on the carrier, means for adjusting said arms, a label holder, a rock shaft having two arms, a sleeve mounted on the label holder and engaged by one of the arms, a spring between the sleeve and the base plate of the label holder, a driving wheel, a pin on the driving wheel arranged to rock the said shaft to raise the label holder, a paste pot, mechanism actuated by the carrier for raising the pasting roller, wipers, means for stopping the mechanism when the carrier is above the wipers, and a device for releasing the mechanism as the bottle is forced between the wipers, substantially as described.

10. The combination in a bottle labeling machine, of a double label holder, a paster, means for applying the labels to a bottle, a guideway, a carrier having arms for carrying a large label and provided with extensions arranged to convey a smaller label, and means for reciprocating said carrier on said guideway, substantially as described.

11. The combination in a bottle labeling machine, of a carrier, arms extending from the carrier, plates yieldingly supported from the arms with a label holder, paster and applier, substantially as described.

12. The combination in a bottle labeling machine, of a slideway, a carrier arranged to reciprocate therein, arms for carrying the label, a label holder, a pasting device, means for applying the label to the bottle, a paste pot secured to one of the arms of the carrier, a pasting plate mounted above the label holder, and means for actuating the plate so that the plate will receive paste from the pasting roller mounted on the carrier while the arms of the carrier will receive paste from the stationary paster, substantially as described.

13. The combination in a bottle labeling machine of a carrier, a label holder, a paster and means for applying a label to a bottle consisting of two pads, rods supporting the pads, and springs so arranged that when a bottle is forced between the pads they will yield and conform to the shape of the bottle, substantially as described.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

GEORGE A. HOFFMAN.

Witnesses:
WILL. A. BARR,
JOS. H. KLEIN.