

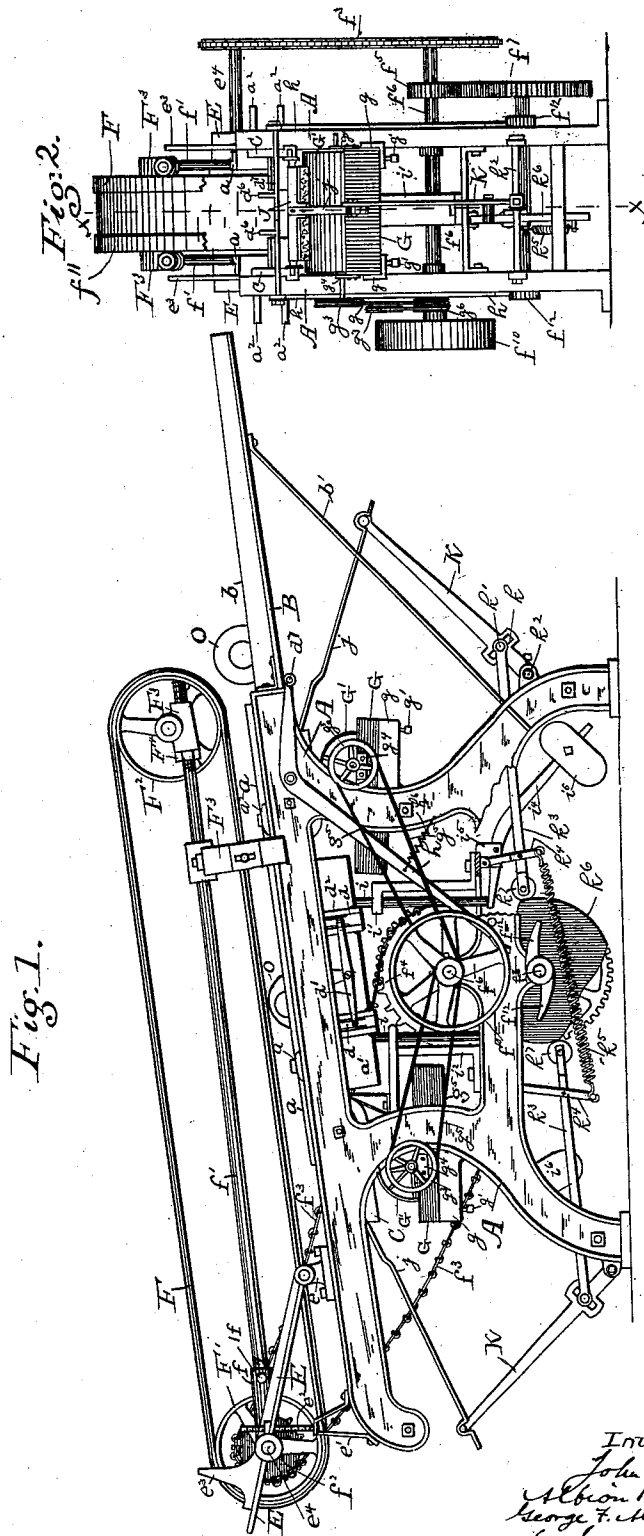
(No Model.)

2 Sheets—Sheet 1.

J. C. TAYLOR, A. P. BENJAMIN & G. F. ALLEN.
CAN LABELING MACHINE.

No. 469,906.

Patented Mar. 1, 1892.



Witnesses:
H. F. Lunt
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Inventors:
John C. Taylor
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George F. Allen
by S. W. Bates
Attorney

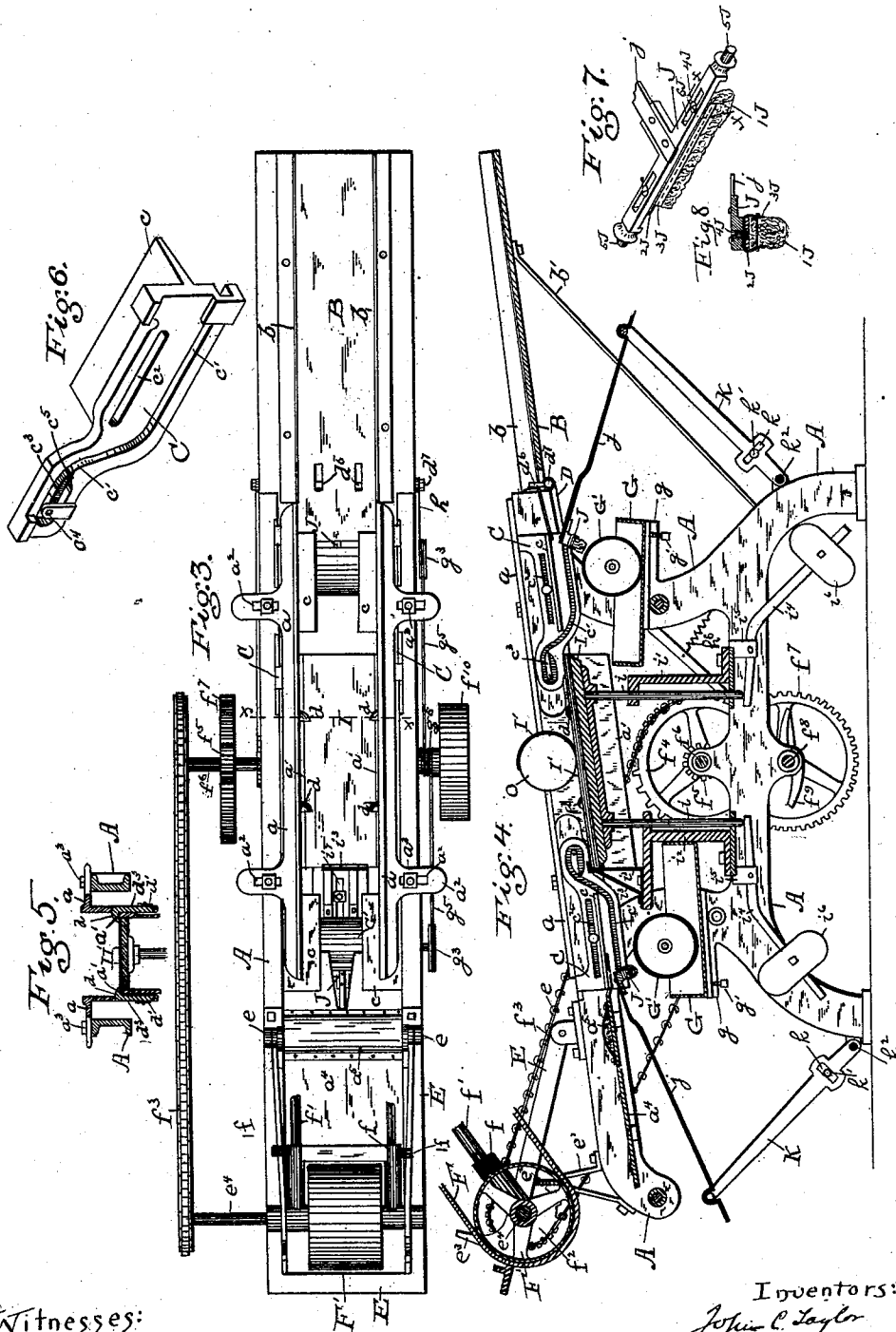
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CAN LABELING MACHINE.

No. 469,906.

Patented Mar. 1, 1892.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN C. TAYLOR, OF WESTPORT, MASSACHUSETTS, AND ALBION P. BENJAMIN AND GEORGE F. ALLEN, OF OAKLAND, MAINE.

CAN-LABELING MACHINE.

SPECIFICATION forming part of Letters Patent No. 469,906, dated March 1, 1892.

Application filed November 2, 1889. Serial No. 329,043. (No model.)

To all whom it may concern:

Be it known that we, JOHN C. TAYLOR, of Westport, in the county of Bristol and Commonwealth of Massachusetts, and ALBION P. BENJAMIN and GEORGE F. ALLEN, of Oakland, in the county of Kennebec and State of Maine, citizens of the United States, have invented certain new and useful Improvements in Can-Labeling Machines; and we do hereby 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.

Our invention relates to machines for applying labels to the sides of cylindrical cans. So far as we are aware this work is now generally done by hand; and the object of our invention is to provide an efficient machine for this purpose.

The general design of our machine is to roll the cans along a bed by means of a feed-belt, allowing it to pick up the label, whose two ends are pasted before the can reaches it by means of reciprocating brushes, which pass obliquely upward from a pasting-roll located at each end of the machine. Mechanism is provided for releasing the labels one at a time as the cans pass over them and for the adjustment of all parts to adapt the machine to cans of different sizes.

Our invention consists in the combination of parts as set forth in the claims.

In the accompanying drawings we illustrate a machine which embodies the several features of our invention.

In the drawings, Figure 1 is a side elevation. Fig. 2 is an end elevation. Fig. 3 is a plan or top view with the feeding-belt and one of its pulleys omitted. Fig. 4 is a longitudinal section on the line *xx* of Fig. 2, omitting the same parts as in Fig. 3. Fig. 5 is a partial section on line *xx* of Fig. 3. Figs. 6 and 7 are details in perspective, and Fig. 8 is a section on line *xx* of Fig. 7.

A is the frame of the machine, preferably made of cast-iron, the parts being secured together by bolts or otherwise, the upper part or bed being preferably inclined from end to end. Secured to the higher end of the machine and forming a continuation of the bed thereof is a table B, having flanges *b*, one on

each side, to form a channel, through which the cans to be labeled are fed to the machine. Braces *b'* retain the table B in place, their lower ends being attached to the frame of the machine. Secured to the top of the frame are two straight guides *a a*, one on each side. They are adjustably secured by means of bolts *a³*, passing through slots *a²* in the guides. These guides extend lengthwise of the machine so far as the operation of applying the label takes place. They are placed parallel with each other and are adjusted to make the distance between them equal to the length of the can to be labeled. For some distance at the center each guide has a vertical web *a'*, which projects slightly inward at the level of the bed of the machine to form a narrow ledge or shoulder, (see Fig. 5,) on which the end of the cans roll. Between the two inner faces of the vertical web *a'* is the label-holder I. This is preferably a flat wooden board inclined to conform to the slope of the bed. It is supported in such a manner as to have a vertical motion by means of rods *i*, adapted to move up and down in suitable guides, as *i'* *i²*, secured to the machine. When at its highest position, the label-holder I is a trifle above the ledges or shoulders on which the can rolls. Pivoted to the vertical portion of each guide *a* are two or more vertical arms *d³*, having on their upper ends inward-projecting fingers *d*, extending out over the edge of the label-holder, which bears against their under surface when at its highest position. The fingers *d* are, as here shown, flat on their under sides and rounded on top in such a manner that they will be pushed outward as the edge of the can rolls over them. The fingers are kept pressed inward at all times by a suitable spring, as *d'*, Fig. 1, which is secured at its center, each of its ends resting on one of the vertical arms *d³* to press it inward, as described.

I' represents the labels, which are laid in a pile on the label-holder I, the top label being pressed upward against the fingers *d* by means hereinafter shown.

We provide for evening the ends of the labels by means of a guide or evener *i³*, which is secured to the bracket *i²* by means of a slot *i'*, whereby it may be adjusted with relation

to the end of the label-holder. The upper end of the evener is turned over the end of the label-holder to form a small flange or shoulder, against the under side of which the back ends of the labels press and by which they are held.

The holder I is pressed upward with a uniform tension by means of levers i^4 , pivoted to the ears i^3 and weighted by means of weights i^6 , adjustably secured thereto. By the use of weights for this purpose a constant upward pressure is exerted, whatever the depth of the pile of labels may be, on the holder I.

Between the ends of the label-holder and the ends of the machine we support the can by means of ledges c , placed in line with the bed of the machine, one on each side thereof. These ledges, as here shown, are made integral with the brush-guides C, hereinafter described.

An apron a^4 forms the rear end of the bed of the machine, and on this apron is a cushion a^5 , extending transversely across the bed. This cushion is so placed relative to the label-holder that as the can rolls through after receiving its label the pasted joint will come in contact with it as the can passes over, thus giving it an additional pressure.

The paste is placed in two pans G, one at each end of the machine and supported on brackets g , and in one end of each pan is the paste-roll G' , which rotates in suitable bearings g^4 , attached to the sides of the pan. These pans are inclined slightly toward the end containing the paste-roll, and they are raised and lowered for the purposes of adjustment by means of the set-screws g' . A band-pulley g^3 is attached to the outer end of the shaft of each roll, and these pulleys are connected by bands g^5 with band-pulleys g^6 on the main driving-shaft f^6 . (See Fig. 2.) On the end of the main shaft is the driving-pulley f^{10} .

The paste is applied, as herein shown, simultaneously to each end of the label by means of two brushes J, one at each end of the machine. Each of the brushes J when at its normal position extends horizontally over the paste-roll and a little back from its highest point, each end J resting in a groove c' in the brush-guide C. The form of brush which I prefer to use is that herein illustrated, although other forms of brush may be used with good effect. It consists of a main bar having secured to its under side a bar 2 J by means of screws 4 J passing through slots 6 J. Held between the bar 2 J and the main bar is a strip of some suitable fabric, as cotton cloth 3 J, whose edges are folded down and sewed to a strip of sponge 1 J, which forms the paste-brush proper. The brush has a reciprocating motion back and forth in the groove c' , which extends along over the paste-roll, thence passes obliquely upward to a point over the end of the label, thence it drops down upon the label a short distance from the end and draws along the label to the end, thence it passes obliquely upward, lifting itself from

contact with the label at the extreme end, and so back by the same groove in which it advanced. It will be observed that the groove c' doubles on itself to produce the required motion over the end of the label, and between the two divisions of the groove is a latch c^3 , whose upper and under edges form the walls of the groove. The latch c^3 is pivoted at the back end or the end next the label, the opposite end being free to move vertically. The latch is so hung that when the brush is moving forward it passes on top, thence drops down, and comes back underneath, lifting the free end as it rises from the end of the label. The groove c' is formed in the brush-guide C, which is secured to the frame of the machine by means of a bolt passing through a slot c^2 . The particular construction of this brush-guide being formed, as it is, integral with the ledge c and being adjustable longitudinally forms a ready means of setting the brush to deliver its paste in any particular place. The handle j of the brush extends backward and is pivoted to an upright lever K, which is pivoted at its lower end to a rod k^2 . We here show the handle j connected to said lever by means of a yoke formed in its end and fitting over a stud in the end of said lever. This lever K is reciprocated by means of a link k^3 , pivoted to it at one end by means of a stud k' , passing through a slot k , which extends laterally across the lever K. The throw of the lever K is regulated by the position of the stud k' in the slot k . On the inner end of the link k^3 is pivoted the roll k^7 , and this end of the link is supported by a vertical link k^4 , the lower end of which is pivoted to it a short distance from the end, the upper end being pivoted to the frame of the machine. The link k^3 is thus free to move longitudinally for a limited distance, taking the lever K with it. The rolls k^7 (two in number) rest against the edge of the cam k^6 , the lower ends of the two links k^4 being connected and drawn toward each other by means of a spring k^5 . This spring k^5 thus forces each roll against the edge of the cam and draws inward the lever K, which operates the brush. The cam k^6 is secured to an arbor f^8 , which is journaled to the machine in suitable bearings. The cam is rotated by means of a gear f^7 , secured to the end of the shaft f^6 and adapted to engage the small gear f^5 on the end of the main shaft. It is made with two opposite concentric portions and two opposite flattened or eccentric portions, so as to impart to the brush J the following motions, viz: The brush is held back in rear of the roll G' during about a quarter-revolution of the cam. It is then moved inward to the label and back again, during the next quarter-revolution, and so on.

The cans to be labeled are fed to the machine by being rolled down the inclined table B. They are held normally by means of fingers d^6 , which project up through openings in the table. These fingers are secured to a cross-bar d^7 , the ends of which are secured to

the short arms of two bent levers *h*, one of which is pivoted to each side of the machine. The long arms of these levers *h* extend obliquely downward and are tripped regularly by two knock-off fingers *f*¹², secured to a hub on the end of the arbor *f*⁸. The long arm of each lever *h* is connected with the frame of the machine by a spring *h*⁶, which retains it in its normal position.

The can is fed through the machine by means of the feed-belt *F*, which runs parallel with the bed of the machine over two pulleys *F*¹ and *F*². The pulley *F*¹ is secured to an arbor *e*¹, journaled in a frame *E*, the inner end of which frame is pivoted to lugs *e*, attached to the frame. Between the journal-box and the end of the frame *E* is an upward-projecting rest *e*³. A swinging frame *f* is pivoted to the arbor *e*¹ between the sides of the frame *E* and the pulley, and two rods *f*⁷ are secured to this frame and connect it with the sleeves *F*³, to which the pulley *F*² is journaled.

Each of the sleeves *F*³ is adjustable longitudinally on the rod *f*⁷, and is held in place by the nut *F*⁴. A stop *l*¹, Fig. 3, projects from each side of the frame *f* and is adapted to bear against the rest *e*³ when the frame *f* is tilted backward to permit access to the bed of the machine, so that the several parts may be properly adjusted.

The frame *E* is raised and lowered, as here shown, by means of an adjusting-screw *e*², the lower end of which rests on a bracket *e*¹.

The pulley *F*¹ is rotated by means of a sprocket-wheel *f*², connected by a sprocket-chain *f*³ to the sprocket-wheel *f*⁴ on the end of the main shaft *f*⁶.

In order to avoid accumulating the paste which tends to adhere to the belt *F* in small quantities from the pasted label and is liable in time to peel the latter off when half applied, we secure at or near each edge of the belt a narrow strip *f*¹¹. These strips bear on the ends of the can as it rolls through the machine, and if any paste adheres to them it will not be sufficient to pull off the label.

The operation of the machine is as follows, viz: The labels are placed in a pile on the holder *I*, one end resting against the evener *v*³, which is placed vertically, so that the top label will overhang slightly on the other end. The cans are fed down the table *B* by a suitable arrangement, and rest in turn against the fingers *d*⁶. One of the knock-off fingers *f*¹² trips the lower end of the lever *h* and depresses the fingers *d*⁶, releasing the can, which rolls under the pulley *F*² and is caught by the belt *F* and rolled along through the machine. About the time the can starts the cam *k*⁶ allows each of the levers *K* to draw forward, pushing in the brush, as already described, and pasting simultaneously both ends of the top label. The paste is applied at greater or less distance from the end, as desired, and the brush lifting itself squarely from the end prevents the spilling of the paste. The can is fed along until it catches the end of the la-

bel, which adheres to it. As the edges of the can pass over the fingers *d* they are pushed back, releasing the top label as the can proceeds and immediately springing back into place. The label is thus folded around the can, the last end overlapping the first end, the tension caused by the flange on the upper end of the evener holding the last end of the label and drawing the latter tightly about the can as it is pulled out.

As will be seen, the machine is provided with adjustments in all parts to fit it to cans of different sizes.

The length of the can is accommodated by adjusting the guides *a a* laterally. The point of applying the paste is regulated by changing the position of the pivot *k*⁷ in the slot *k*, whereby the lever *K* is thrown a greater or less distance in or out, and also by shifting the position of the brush-guide *C* in or out to correspond with the throw of the brush.

For different sizes of labels different holders are to be used, and it is to be noted that this is the only part which is not adjustable for different sizes of cans.

The amount of paste taken by the brush is regulated by raising or lowering the paste-pan by means of the adjusting-screws *g*⁷, thus bringing the pasting-roll into more or less close contact with the brush.

The height of the belt above the bed of the machine is regulated at one end by the screw *e*² and at the other by the adjustable arm *F*³. The belt is tightened by extending the length of the rod *f*⁷ by means of the screw *F*⁴.

It is evident that many changes and alterations may be made in the machine herein shown and described without departing from the spirit of our invention as set out in the claims.

We claim—

1. In a machine for labeling cans, the combination of a label-holder, pasters for applying paste to the ends of the label, and a feed-belt for rolling the can over said label, substantially as described.

2. In a machine for labeling cans, the combination of a label-holder, a weight-actuated lever for forcing the same upward, pasters, and a feed-belt for rolling the can over said label-holder, substantially as described.

3. In a machine for labeling cans, the combination of a label-holder, pasters for applying paste to the ends of the labels, a swinging frame pivoted by one end to the top of said machine and substantially parallel with the bed and extending the entire length thereof, pulleys journaled to the ends of said frame, and a feed-belt adapted to run on said pulleys, substantially as described.

4. In a can-labeling machine, a short swinging frame pivoted to one end of the machine, a pulley, as *F*¹, journaled thereto, a frame pivoted to the arbor of said pulley and extending the length of the machine, a pulley *F*², journaled at the other end of said frame, a feed-belt adapted to run over said pulleys,

and a rest or bearing for supporting the free end of said last-named frame, substantially as described.

5 In a machine for labeling cans, a holder
for retaining the labels in the bed of the machine, combined with a reciprocating pasting-
brush held normally below the level of the
bed of the machine, guides for directing the
motion of said pasting-brush from its normal
10 position to a point above the end of the label,
thence dropping upon the end of said label,
and back to its normal position, substantially
as described.

6. In a can-labeling machine, a holder for
15 retaining the labels in the bed of the machine,
combined with a reciprocating pasting-brush
held normally below the level of the bed, guides
for directing the motion of said paste-brush
from its normal position upward to a point
20 above the end of the label, thence dropping
upon the label near the end, thence back to
the extreme end, and up and back to its normal
position, substantially as described.

7. The combination, with the main frame and
25 the label-holder arranged therein, of the arms
pivoted to the frame and carrying fingers projecting
through the frame and over the lateral
edges of the label-holder, and springs secured

to the frame and bearing on said arms to press
them normally inward, the fingers being provided
with rounded tops, whereby they will
be pushed outward by the can as it passes
thereover, substantially as described. 30

8. The combination of the label-holder, the
fingers projecting over the lateral edges of the
same, said fingers tapering inward and having
an upper convex surface, whereby they
will be pressed outward by the ends of the
can, and springs for pressing said fingers normally
inward, substantially as described. 35 40

9. A belt above the bed of the machine and
parallel therewith for feeding the cans, and a
cushion on said bed for compressing the paste-
joints, substantially as described.

10. In a can-labeling machine having recip-
45 rocating brushes, the brush-guides provided
with integral ledges to support the cans in
their passage to and from the labels.

In testimony whereof we affix our signatures
in presence of two witnesses.

JOHN C. TAYLOR.
ALBION P. BENJAMIN.
GEORGE F. ALLEN.

Witnesses:

J. E. HARRIS,
E. C. TAYLOR.