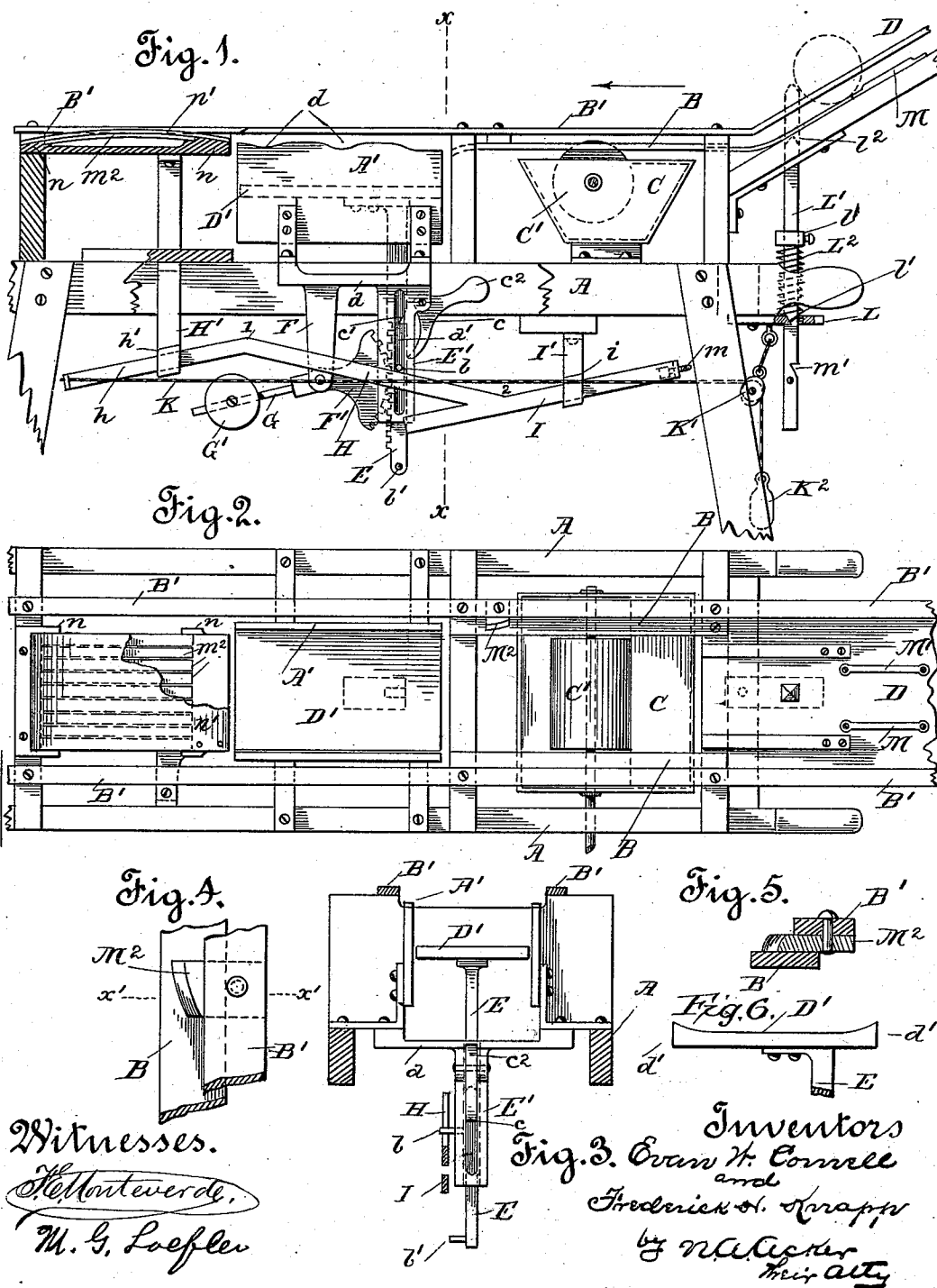


(No Model.)

E. W. CORNELL & F. H. KNAPP.
CAN LABELING MACHINE.

No. 548,866.

Patented Oct. 29, 1895.



Witnesses.
H. Monteverde,
M. G. Loeffler

Inventors
E. W. Cornell
and
Frederick H. Knapp
by *N. A. C. Kier*
att_y

UNITED STATES PATENT OFFICE.

EVAN W. CORNELL AND FREDERICK H. KNAPP, OF ADRIAN, MICHIGAN.

CAN-LABELING MACHINE.

SPECIFICATION forming part of Letters Patent No. 548,866, dated October 29, 1895.

Application filed October 4, 1894. Serial No. 524,924. (No model.)

To all whom it may concern:

Be it known that we, EVAN W. CORNELL and FREDERICK H. KNAPP, citizens of the United States, residing at Adrian, in the county of Lenawee and State of Michigan, 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 said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

The present invention relates to certain new and useful improvements in can-labeling machines, which consist in the arrangement of parts and details of construction, as will be hereinafter more fully set forth in the drawings, and described and pointed out in the specification.

Our invention relates more especially to mechanism for automatically raising the label-follower, whereby the top label of the pack is always maintained in position to be grasped or picked up by the can-body rolling thereover, and for automatically operating a spring-actuated stop-bar when the last label within the holding-receptacle has been exposed to the can-body, whereby the feed of the cans to the machine is stopped or prevented, and in a device for regulating the feed of dented cans to the machine, so as to present the perfect or undamaged portion of the body to the paste-applying wheel, whereby the label will be picked up by the true portion of the can-body and the labeling of a damaged or dented can may be secured equally as well as a perfect or true cylindrical body.

For a more full and comprehensive understanding of our invention reference must be had to the accompanying sheet of drawings, wherein—

Figure 1 is a view in side elevation of the machine, a portion thereof being broken away. Fig. 2 is a top plan view of the machine. Fig. 3 is a view showing a cross-sectional elevation of the machine, said view being taken on line $x x$, Fig. 1. Fig. 4 is an enlarged top-plan detail view of the guide for throwing the traveling can in true line with the label. Fig. 5 is a cross-sectional end elevation of the same, taken on line $x' x'$, Fig.

4; and Fig. 6 is a detail side elevation of the feed-follower for the labels.

The letter A indicates the frame of the machine; B, the tracks for conveying the cans to the label-holding receptacle A'; B', the guard-pieces for preventing the cans from slipping endwise from the machine; C, the paste-receptacle; C', the paste-applying roll, and D is the runway, by means of which the cans are fed to the machine. These parts being fully described in Letters Patent No. 514,705, granted to E. W. Cornell on the 13th day of February, 1894, need not be specifically described in the present specification, reference being made to said patent herein.

Within the label-holding receptacle works the follower or label-feed plate D', upon which the stack of labels rest. To the under face of said follower is bolted or screwed the downwardly-extending rack-bar E, which works through the hollow casing E', downwardly extending from the bottom a of the label-holding receptacle. From the rack-bar laterally projects the stud or pin b , which works within the elongated slot a' , cut in one side of the hollow casing E'.

From the bottom of the label-holding receptacle downwardly extends in advance of the hollow casing E' the arm F, to the lower end of which we fulcrum the segmental rack F', as shown. The teeth of this cam engage with those of the rack-bar E and serve to raise or lower the same in accordance with the throw imparted to the cam. From the fulcrumed end of the rack-cam extends the rod G, which has adjustably secured thereon the weight G'. This weight should be so adjusted as to overbalance the weight of the labels placed within the label-holder and upon the follower. Consequently when the proper amount or number of labels have been placed within the holding-receptacle the follower, unless otherwise retained, may be easily moved downward until it rests upon the upper face of the receptacle bottom, and will so remain until the labels begin to be removed. Immediately one label is removed the weight G' descends a given distance and this throws the opposite end of the segmental rack upward. Consequently the teeth of said cam engaging with the teeth of the rack-bar E like-

wise move or elevate the same, which carries or raises the follower or feed-plate sufficiently to bring the next label to a level with the traveling can. As each label is removed, the follower is elevated a distance equal to the thickness thereof. Consequently when the last label carried by the follower is exposed the segmental cam will have been thrown its full upward distance. However, the rack-bar is prevented from being moved from within its casing by means of the laterally-projecting pin or stud b' , which engages the lower end of the casing.

Within the upper forward portion of the hollow casing E' is secured the dog c , which engages the notch c' , cut in the upper portion of the rack-rod E , when the follower has been lowered its full distance and holds the rack-rod locked in its lowered position until the dog is released from engagement therewith by throwing the handle c^2 upward. The weight of this handle serves to throw the dog into engagement with the rack-bar automatically. By thus locking the rack-bar the follower is prevented from moving upward by jolting of the machine during the handling thereof.

The rack or follower lifting rod or bar E is locked or kept from downward movement by means of a longitudinally-movable inclined rod H , the rear end portion h of which is inclined downward from point 1 and works through guide-slot h' , cut within lower portion of strap H' , while the forward portion I inclines upwardly from point 2 and works through guide-slot or opening i , cut within the lower portion of strap I' . Upon the inclined portion of the longitudinally-movable bar or between points 1 and 2, rides the lug or pin b , which projects laterally from the rod E . Consequently after the rack-bar has moved upward a given distance it cannot descend, owing to the projecting pin b bearing upon the inclined rod H . Consequently while the rod E has a free upward movement it cannot descend. Hence the labels cannot give by pressure of the cans rolling thereover.

From the rear end of the inclined rod H extends the chain or cord K , the free end of which passes over the pulley-wheel K' , suspended from the frame of the machine, and has secured thereto the weight K^2 . This weight serves to exert a continual forward strain upon the rod H and tends constantly to move the same forward, but the rod is prevented from so doing owing to the laterally-projecting pin b bearing thereupon, which acts as a brake for the rod and prevents its movement until the rack-bar rises. Consequently the moment the rack-bar rises or lifts, as before described, the strain exerted upon the bar H by the weight moves the same forward a corresponding distance. It will be seen that while the longitudinally-movable bar serves to lock or hold the rack-bar in its raised position in order that it cannot descend the laterally-projecting pin of the rack-bar

likewise serves as a brake for the longitudinally-movable bar or rod H . While we have shown and described a weight for moving the rod H longitudinally, we do not wish to be understood as confining ourselves thereto, for we are aware of the fact that the same purpose may be accomplished by means of a spring.

Through the plate L , which is bolted to and projects forward from the frame of the machine, works the catch or stop rod L' . This rod is surrounded by a spiral spring L^2 , one end of which is connected to the collar l , secured to the rod, while the free end bears upon the face of the plate L . Within the rear face of this rod is cut a notch l' , which engages with the edge of the opening cut through plate L when the rod is moved its full downward distance, the position shown in Fig. 1. When thus retained, the pressure of the spring exerts an upward strain to said rod. The upper end of the stop-rod fits within an opening l^2 cut through the feed-runway D . When the catch-rod is thus held, the cans roll uninterrupted to the labeling-machine. However, it is necessary when the labels within the label-holding receptacle become exhausted that the feed of the cans automatically cease, else they will continue to travel through the machine and the paste from the cans becomes smeared over the machine, besides creating considerable delay in the re-handling of the cans, and the machine must be shut down until a new supply of labels is secured. In order to provide against these defects, we have so arranged the travel of the rod H that when the follower has been raised to or nearly its full height, so as to present the last or near the last label to the cans, the forward travel or stroke of the rod H will be such that the spur m , projecting from the forward end thereof, will press against the rear face of the stop-rod L' and release the notched portion l' of said rod from engagement with the plate L , when the resiliency of spring L^2 will force the same upward until the end thereof projects within the runway D , as shown by dotted lines, Fig. 1, and act as a stop for the cans in front of same. As the rod moves upward, the notch m' , cut in the front face of the rod, engages with the opposite edge of the plate L and prevents the rod being forced downward. The feed of the cans thus remains checked until the label-receptacle has been refilled without causing the machine to be stopped. In order to release the cans and start the feed thereof, it is only necessary to release the stop-rod from engagement with plate L , pull the same downward, and permit the notch l' to engage the said plate, as before described. It will thus be observed that the longitudinally-movable rod H not only serves to automatically lock the follower lifting-rod in its raised position, but also to operate the mechanism for stopping the feed of the cans upon the label-holding receptacle being exhausted of labels.

During the handling of the cans it oftentimes happens that the body thereof becomes indented. It is necessary in this class of machines that only the true or undamaged portion of the cans, when fed into the machine, come in contact with the paste-applying wheel, for if the indented portion of the can contacts therewith the can, when rolled over the label, will not place the same securely thereon, for only that portion of the can which is undamaged will apply paste to the label. Consequently the label is only partially secured. In order to overcome this trouble, we secure within the runway, near the front end thereof, the short metallic bars $M M'$. As the cans rotate in their travel toward the machine, if that portion of the can which would ordinarily come in contact with the pasting-roll, should it be indented or is mashed inward, the same will strike the bars $M M'$, which are properly spaced relative to the pasting-roll, and will not rotate over these bars, but will slide the length thereof. This slipping of the body causes the same to be delivered to the pasting-roll in such a position that the undamaged portion thereof is presented to the paste-roll and receives the paste. By the employment of these short parallel strips within the lower end of the runway we are enabled to perfectly apply the label to a can-body, however badly the same may be dented, so long as a portion of the body remains undamaged.

In connection with the effect of the employment of the bars $M M'$ it may be stated that the same are spaced apart, so that they will engage the sides of the can at points midway the center and ends, so that an effective indentation on either side will usually interfere with the shape of that portion of the can which strikes the bar, and as the same strikes the bar the can will slip rather than roll over it and thereby shift that point which has come in contact with the pasting-roll and present the advanced even surface adjacent to the dented portion to the pasting-roll.

Between the paste-applying wheel and the label-holding receptacle upon one of the tracks B we locate the inclined cam M^2 , the purpose of which is to throw the can in true line with the labels in case the same should come from the paste-wheel uneven. This cam will place the can in true line and thus prevent the label being imperfectly applied to the body. Without this cam or a similar contrivance there would be danger of the cans at times running to the labels at an angle thereto, which would cause the labels to be placed thereon at an angle or imperfectly.

The rear section of the machine constitutes a pressure-pad for pressing down the lap of the label. While it is desirable that said section should give somewhat, still it should be sufficiently firm to answer the purpose of securely pressing the lap or seam of the label. We have found that elastic strands are too

elastic to answer the purpose. Our pad we compose of a series of parallel elastic metallic strips m^2 , secured at each end to cross-strips n . These strips we cover with a sheet of leather, as shown at n' . A pad thus constructed has sufficient elasticity and firmness to answer all purposes and does not readily wear out, nor is it affected by paste deposited thereon.

It will be observed by reference to Fig. 1 that the top of the side walls of the label-holding receptacle we cut away, so as to form inclined shoulders or ridges d . This is to enable the can, as rolled thereon, to bear firmly upon the ends of the labels, so as to pick the same up. However, it is not necessary that the top be inclined, for by simply raising or increasing the thickness of the ends of the follower, as shown at d' , Fig. 6, the same result is accomplished, for the inclined or raised portion of the follower, when the labels rest thereon, will cause the ends of the labels to project above the intermediate portion thereof, hence permitting the rolling body to easily contact with the same while passing thereover. It is not necessary that the can contact with the depressed portion of the label, for only the ends thereof received the paste.

Having thus described our invention, what we claim as new, and desire to secure protection on by Letters Patent, is—

1. In a can labeling machine, the combination with the follower for raising the labels, of mechanism for automatically raising or elevating the same as the labels are removed from the holding receptacle, and of an automatic moving device comprising an incline plane and means for shifting the same for holding the follower locked in its raised position, whereby the same is prevented from moving downward by the pressure of the can passing over the labels.

2. In a can labeling machine, the combination with a label holding receptacle, of the feed runway for the cans, an actuated stop device projectible into the runway for stopping the feed of the cans to the machine when the label holding receptacle is empty or nearly so, and of mechanism for automatically operating the stop device for the cans when the label receptacle is empty or nearly so.

3. In a can labeling machine, the combination with a label holding receptacle, of a runway for the cans, means projectible into the runway for stopping the feed of the cans, and mechanism automatically actuated upon the labels in the receptacle becoming wholly or nearly exhausted, for actuating said means, substantially as described.

4. In a can labeling machine, the combination with the feed runway, of an actuated stop device located at the runway and projecting into the path of the cans, of the mechanism for operating the followers for the labels and of a device automatically operated by the follower mechanism for releasing the actuated

stop device for the cans as the label receptacle is emptied, whereby the feed of the cans to the machine is stopped.

5 In a labeling machine, the combination with the mechanism for raising the follower of the label receptacle, of the stop device for the cans, the inclined longitudinally movable rod for locking the follower in its adjusted position and for releasing the stop device and
10 mechanism for imparting movement to the inclined rod as the follower is raised substantially as described.

6. In a can labeling machine, the combination with a label holding receptacle, of a can
15 feed runway, a retractible stop device projectible into the runway and mechanism for automatically releasing the stop device when the last or nearly the last label has been removed from the receptacle.

20 7. In a can labeling machine the combination with the frame having a runway and a pasting device, of a label holding receptacle, a follower in the receptacle, means for progressively raising the follower as the labels
25 are removed and a lock against the down movement of the follower comprising a bar having an inclined surface engaging the follower, means for retaining the bar in its adjusted position and means for moving the bar
30 upon the movement of the follower, substantially as described.

8. In a can labeling machine, the combination with a label receptacle, the follower, the rack bar depending therefrom, the segmental rack cam for raising the rack bar of the
35 follower automatically, the longitudinally inclined movable rod engaged by the rack bar and by means of which the said rack bar is held in raised position and of mechanism for
40 forcing the inclined rod forward with the upward travel of the rack bar.

9. In a can labeling machine, the combination with the feed runway for the cans, a past-

ing roll, a label holding receptacle, and a follower in the receptacle, of a stop device working in the runway in advance of the pasting roll, a longitudinally moving locking rod for the follower and for operating the stop device upon the labels held within the receptacle becoming exhausted.

10. In a can labeling machine the combination with the frame having a runway and a pasting device, of a label holding receptacle, a follower in the receptacle, means for progressively raising the follower, as the labels
55 are removed and a lock against the down movement of the follower comprising a bar having a plurality of inclined sections, guides through which the sections pass and means for moving the bar longitudinally upon the
60 upward movement of the follower, substantially as described.

11. In a labeling machine for cans, the combination with the feed runway and paste applying device, of a device interposed therein
65 for causing such cans as may be indented to slide thereover, whereby the can is fed into the machine in a position to present the undamaged portion of the can to the paste applying device.

12. In a can labeling machine the combination with the label holding receptacle, of a vertically movable follower, means for raising the follower, a horizontally movable inclined plane engaging the follower, and means
75 for moving the inclined plane horizontally upon the upward movement of the follower, substantially as described.

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

EVAN W. CORNELL.
FREDERICK H. KNAPP.

Witnesses:

GEO. W. AYERS,
J. C. ROWLEY.