

No. 641,311.

Patented Jan. 16, 1900.

J. MACLEAN.
LABELING MACHINE.

(Application filed Mar. 8, 1899.)

(No Model.)

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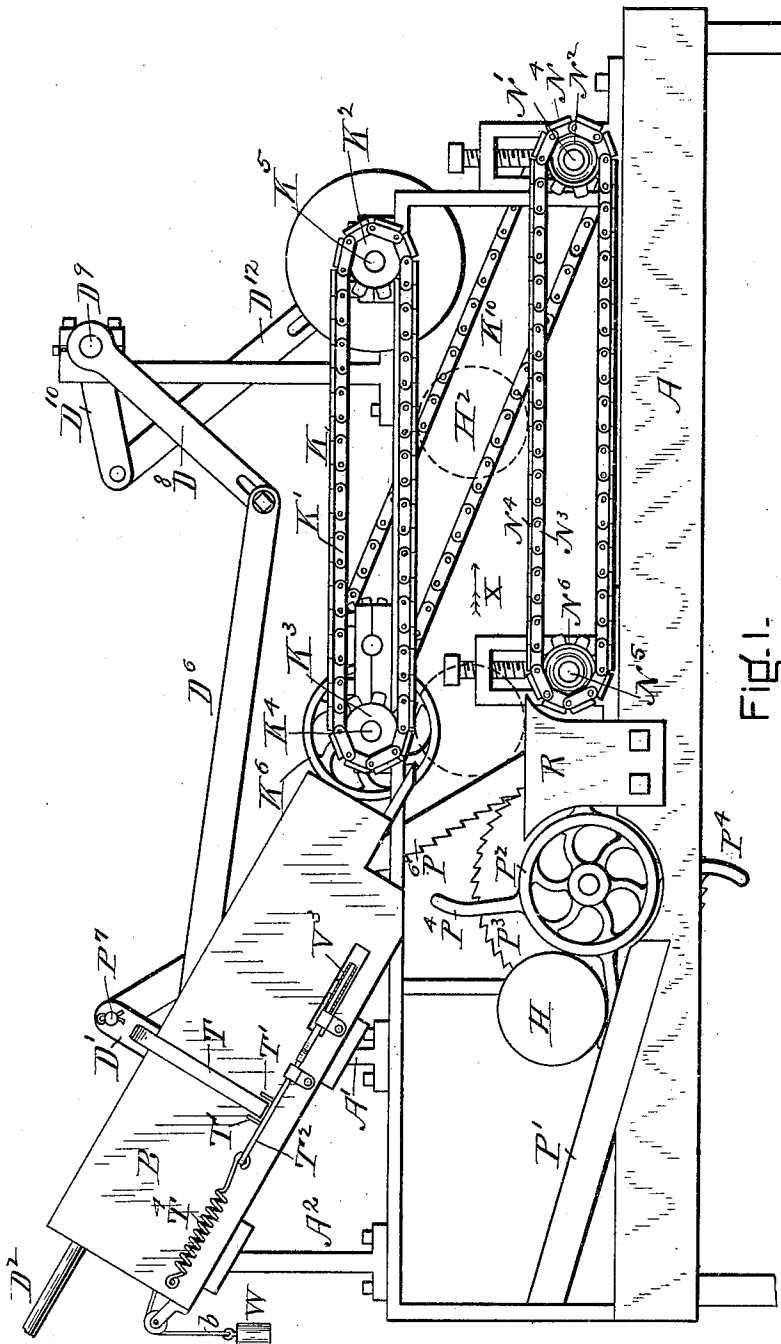


FIG. 1-

WITNESSES
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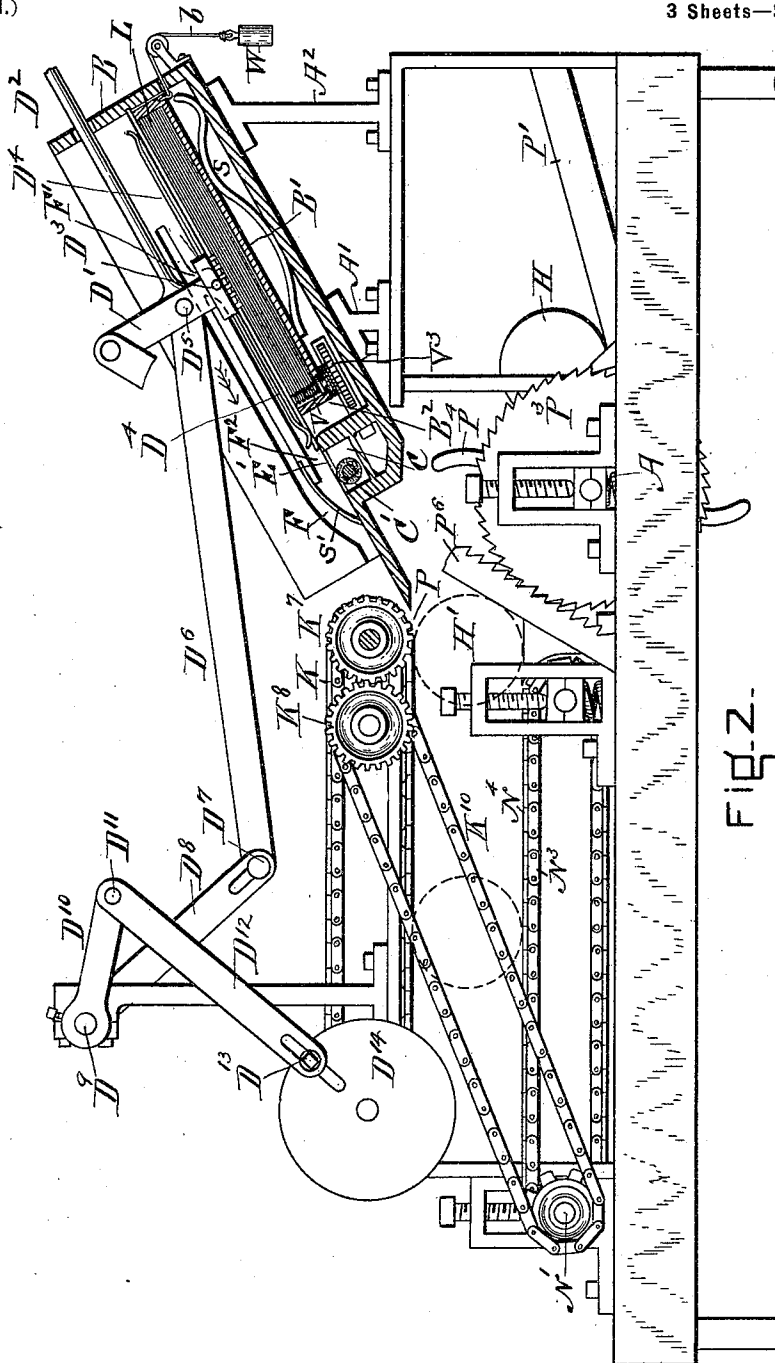
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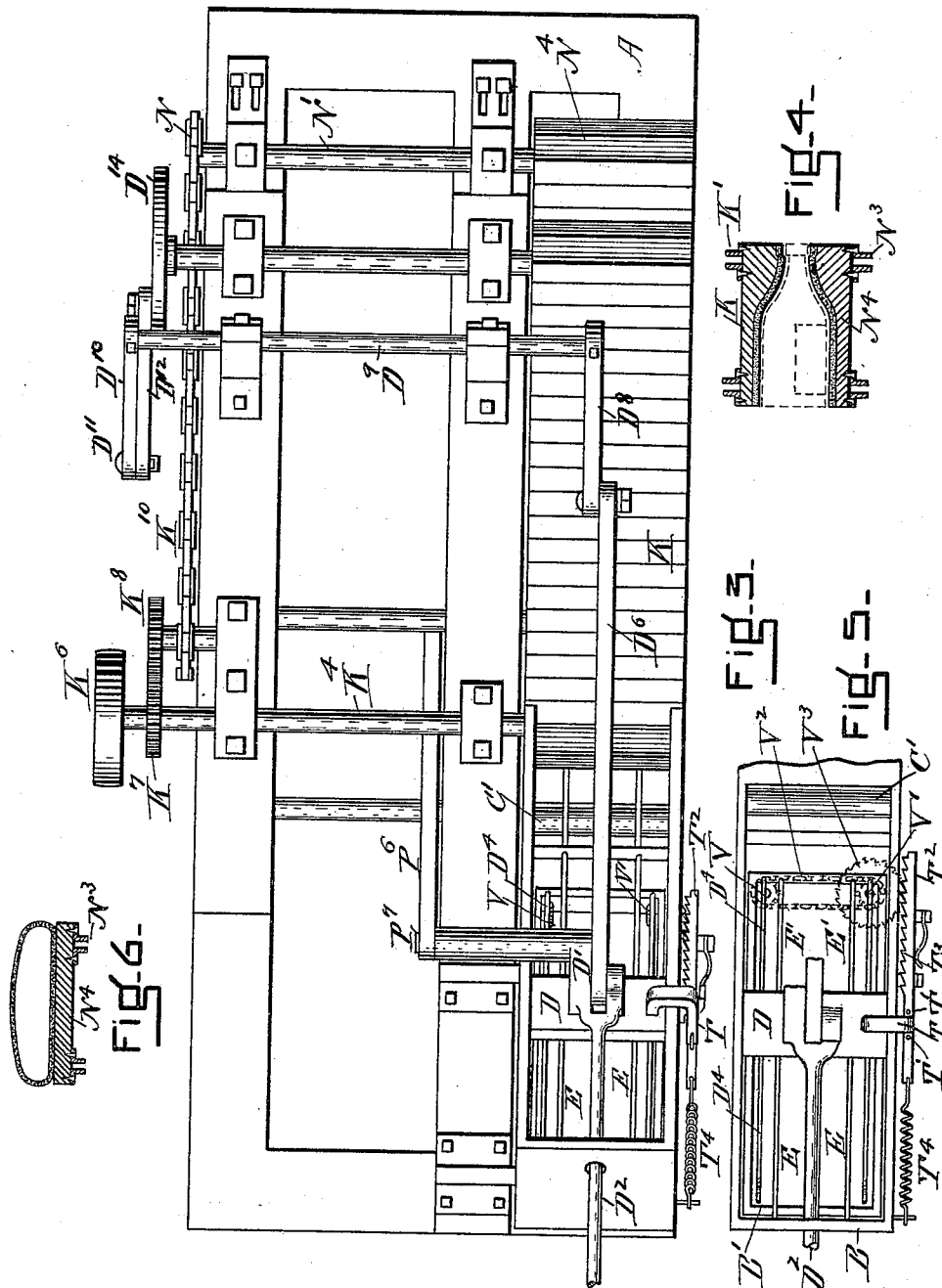
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3 Sheets—Sheet 3.



UNITED STATES PATENT OFFICE.

JAMES MACLEAN, OF BOSTON, MASSACHUSETTS.

LABELING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 641,311, dated January 16, 1900.

Application filed March 8, 1899. Serial No. 708,247. (No model.)

To all whom it may concern:

Be it known that I, JAMES MACLEAN, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Labeling-Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to the construction and arrangement of parts of a machine adapted to automatically cause labels to be spread with an adhesive and applied to a bottle, jar, can, or other article, as may be desired, the object being to make a cheap, exact, and rapid working automatic machine for labeling all kinds of utensils. This object I attain by the mechanism shown in the accompanying drawings, in which—

Figure 1 is a front elevation of my machine. Fig. 2 is a rear view of my machine, a part being represented as cut out to exhibit more clearly the construction. Fig. 3 is a plan of my invention; Fig. 4, details; Fig. 5, details of label-box; Fig. 6, a section of pneumatic apron.

In the drawings the frame of the machine is indicated by A. The casing B is secured to the frame by standards A' A' and contains a box B' for the labels and a smaller compartment C for holding the paste or other adhesive matter.

I will now describe the device for taking the labels from the label-box B', carrying them to the paste device, and then to the bottle or can or other article to which they are to be affixed. (See Fig. 2.)

The labels L are placed in the sliding-box B', which rests upon a spring S, or, if desirable, mechanically-operated screws may be substituted for the spring. The labels are held in place by spring-wires E, which rest lightly on them. A label-carrier D has upon its under side a roughened surface or short-pointed pins, so as to engage with the labels. This carrier has also projecting from its sides both to the front and to the rear wires D⁴ D⁴, which serve to hold the label flat while it is being taken from the box and carried over the wires E' E' and the pasting-roller C' in the paste-box C. The label-carrier D has attached to it a standard D' and a guide-rod

D². The carrier D, standard D', and guide D² are rigidly connected to each other, so that the carrier cannot tilt. Projecting from each end of the label-carrier are trunnions D³, which traverse in slots, as shown at F F' F², Fig. 2, formed on the inside of the casing B. The lower slot F² is so located as to admit the label-carrier to move (in the direction of the arrow) in the plane of the top label in the box, so as to slide the label over the paste-roller and along the wires E' to the point P—that is, to such a position that the front edge of the label will be caught between the bottle or can H' and the apron K. As soon as the label is taken by the apron K the label-carrier D begins to move back—that is, in a direction opposite to the arrow; but in its back movement the trunnions D³ engage with the switch-spring S' and are lifted so as to slide in the upper slot F, thus lifting the label-carrier and keeping it above the paste and above the label in the box at or near the rear end of the upper slot F. A cross-slot F' unites it with the lower slot F², thus allowing the label-carrier D to drop onto the label—that is, to occupy the position shown in Fig. 2. By allowing the label-carrier to drop onto the label the short pointed pins will penetrate the label to some extent, and thus be sure to engage with it sufficiently to cause it to move with the carrier. The sliding label-box B' is held normally by the cord b and weight W in the position shown in Fig. 2; but when the label-carrier D has engaged with one of the labels and begins to move forward the whole box will move with it, the weight W being very light, so that but slight force will move it. This motion of the box will continue until the end B² of the box comes in contact with the division C, this arrangement allowing time for the carrier to connect with the label.

Motion is given to the label-carrier by the crank-disk D¹⁴, acting through the adjustable crank-pin D¹³, link D¹², pivot D¹¹, arm D¹⁰, rocker-shaft D⁹, arm D⁸, pivot D⁷, link D⁶, and pivot D⁵.

To assist in freeing the labels from the front edge of the box B', I have the following-described device, (see Fig. 5.) Two or more very finely threaded screws V V are

placed in the box in such a manner that the labels will engage with the screw-threads, so that the turning of the screws will lift the labels—that is, the edge of the label that is at the top will be forced above the edge of the box, so as to slide over. The screws V V do not move lengthwise, but simply turn intermittently. These screws are turned by means of a moving rack T², the teeth of which engage with the teeth of the pinion V³ and, acting through the said pinion and chain belt, cause the screws V V to rotate. The teeth T³ of the rack and the pinion V³ are so inclined that the rack in its back stroke will not cause the pinion to rotate, but will slide on it, the rotation being in one direction only.

The mechanism for automatically placing the bottles or other articles to be labeled within the field of action of the labeling device proper consists of an inclined chute P', upon which the article H is placed and on which it will roll or slide down until it comes in contact with the feed-roller P², and as this feed-roller rotates one set of arms P⁴ will take the article (see Fig. 1) and carry it up and over onto the table R and force it along until it comes within the action of the moving aprons K' K and N³ N⁴, and both, moving in the direction of the arrow X, will carry the article along, as will be explained. An intermittent action is given to the feed-roller P² by a rack P⁶, which acts on the ratchet-wheel P³. The upper end of the rack P⁶ is connected to an arm extending from the standard D' by the pivot P⁷. As the standard D' is attached to the label-carrier, it is evident that the forward motion of the feed-roller P² will correspond in time with the motion of the label. Thus the label will be brought forward at the same time that the article to be labeled will be, and as the aprons move forward the label will be pressed accurately and smoothly and the labeled article will be carried forward between the aprons until it passes beyond the end of the upper apron and rests free upon the lower apron, from which it may be taken, or the continued movement of the lower apron will deliver the article upon a table, chute, or other receptacle.

The endless moving aprons may be like simple wide belts of leather, canvas, felt, or rubber, if desired. For some kinds of work I use a pneumatic belt—that is, a hollow elastic tube is inflated and used as a belt or moving apron; but I prefer to make them as shown in the drawings—that is, chain belts, as K' and N³, are mounted upon sprocket-wheels, and lag-pieces, as K and N⁴, are attached to the links.

The lower apron has two chain belts mounted upon sprocket-wheels, like N⁶ and N². These sprocket-wheels, two of each, are mounted upon their respective shafts N' and N⁵, Fig. 1. Lag-pieces N⁴ are attached to the links and extend across from one chain to the other, the length of the lag-piece being equal to the width of the apron. These lag-pieces

may be covered with some soft material, like felt or soft rubber. For ordinary work the faces of the lag-pieces may be flat, as shown in Figs. 1, 2, and 3. The flat straight lags are adapted to be used for all articles that are cylindrical and rotate as they traverse between the aprons. They are also to be used with articles that present flat surfaces and pass between the aprons without turning, in which case both of the aprons move with the same speed; but in case the article being labeled is cylindrical and has to rotate then one of the aprons must move faster than the other, or one apron may remain stationary. The upper apron is made in all respects like the lower one—that is, it has sprocket-wheels K² K³, mounted upon shafts K⁴ and K⁵, chains K', and lag-piece K.

Motion is given to the aprons by the driving-pulley K⁶ on the shaft K⁴. (See Fig. 1.) The motion is transmitted through the shaft K⁴ to the sprocket-wheels (one of which is shown at K³, Fig. 1) on said shaft and thence to the upper apron and through the gears K⁷ K⁸, chain belt K¹⁰, sprocket-wheel N, and shaft N' to the lower apron. The relative velocities of the upper and lower aprons may be changed by changing the size of the gears K⁷ and K⁸.

In Fig. 4 I have shown in section two lag-pieces, one, K, from the upper apron and one from the lower N⁴. These lag-pieces may be made of any desired section, so as to fit any shaped bottle, can, or other article.

I claim—

1. In a labeling-machine, a label feeding and pasting mechanism, in combination with endless aprons provided with lags having faces that unite to form a continuous working surface for the said aprons, the said lags being so formed as to constitute moving tables, the surfaces of which conform to the shape of the bottle, whereby the label is pressed down so as to come in contact with the surface of the said bottle however irregular; substantially as and for the purpose set forth.

2. In a labeling-machine a label-box adapted to hold the labels, a label-carrier with mechanism for giving a reciprocating motion to the carrier, trunnions upon said carrier adapted to work in ways, said ways provided with a switch whereby the carrier is forced to traverse in one plane in its forward movement and to be lifted above said plane in its backward movement, substantially as and for the purpose set forth.

3. In a labeling-machine a label-box a label-carrier and two sets of guiding-ways connected by cross-ways at their rear ends as described whereby the carrier at the end of its back stroke abruptly drops onto the label, said carrier and mechanism for giving motion to it, substantially as and for the purpose set forth.

4. In a labeling-machine, a horizontally-sliding label-box having a retracting cord and

weight, and adapted to be moved horizontally
to a limited degree by the label-carrier, there-
by allowing the label-carrier time to engage
with the label; and said label-carrier and
5 mechanism for operating the same; substan-
tially as and for the purpose set forth.

In testimony whereof I have signed my

name to this specification, in the presence of
two subscribing witnesses, on this 27th day of
February, A. D. 1899.

JAMES MACLEAN.

Witnesses:

JOTT GRANT,

ELIZABETH MACKINNON.