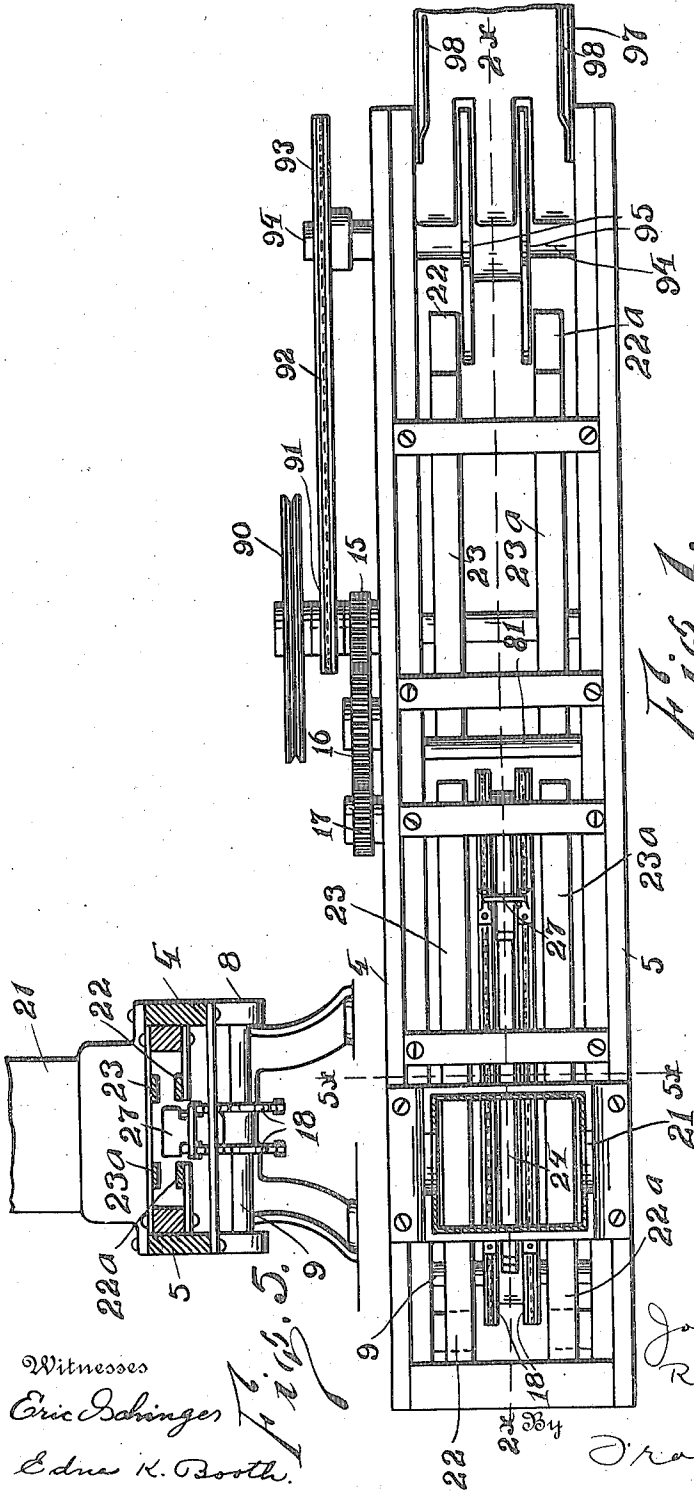


J. G. BIEHLER & R. KNOPP.  
 LABELING MACHINE.  
 APPLICATION FILED NOV. 4, 1914.

1,263,515.

Patented Apr. 23, 1918.  
 2 SHEETS—SHEET 1.



*Fig. 1.*

Witnesses  
*Eric Schiringer*  
*Edna K. Booth.*

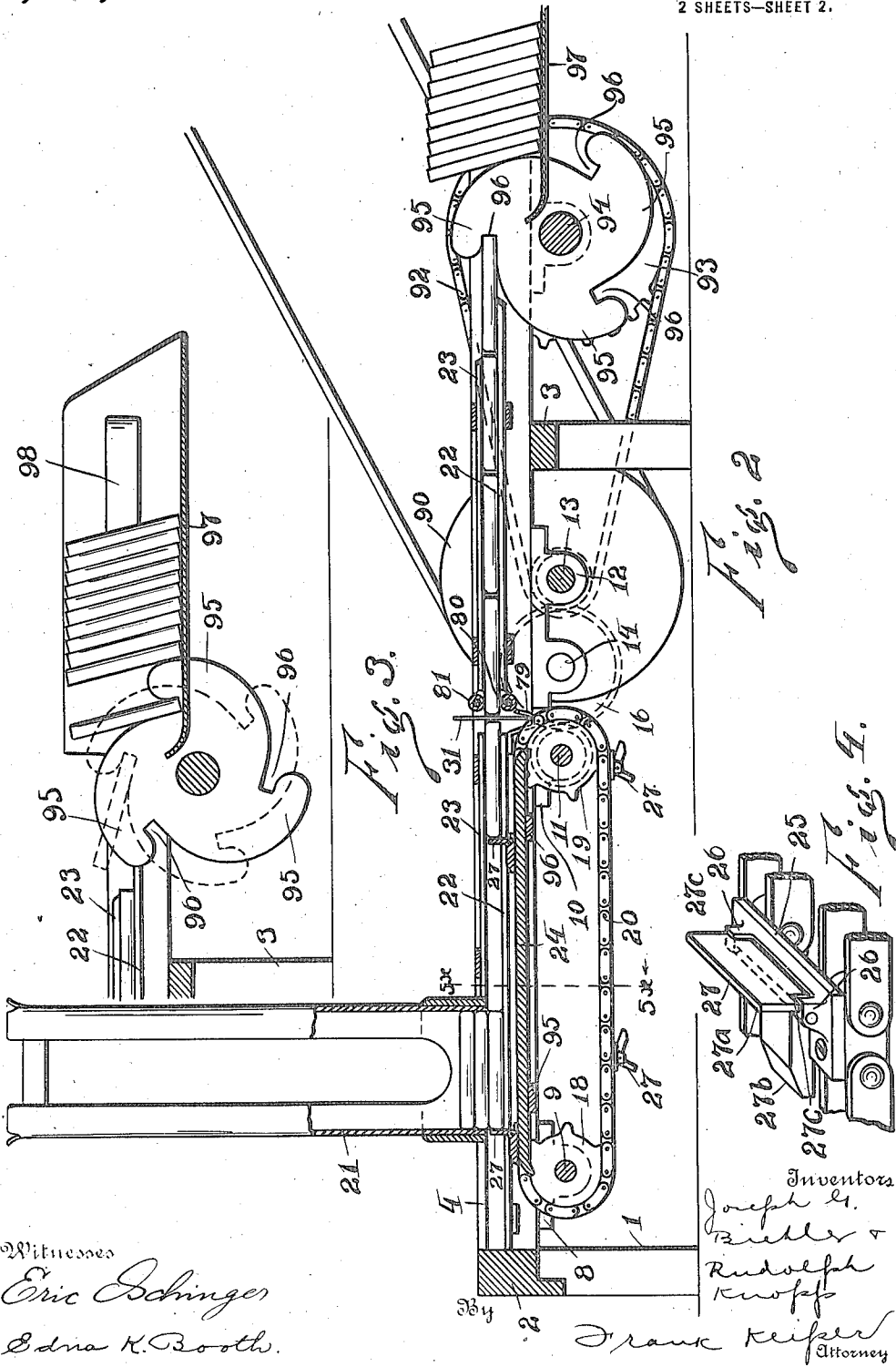
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# UNITED STATES PATENT OFFICE.

JOSEPH G. BIEHLER AND RUDOLPH KNOPP, OF ROCHESTER, NEW YORK.

## LABELING-MACHINE.

1,263,515.

Specification of Letters Patent. Patented Apr. 23, 1918.

Application filed November 4, 1914. Serial No. 870,303.

*To all whom it may concern:*

Be it known that we, JOSEPH G. BIEHLER and RUDOLPH KNOPP, citizens of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Labeling-Machines, of which the following is a specification.

The object of this invention is to provide a new and improved machine for applying labels to boxes, more especially for applying revenue stamps to cigarette boxes.

Another object is to provide an improved conveyer for feeding the packages through the machine, the labels being applied to them while the packages are being fed through.

Another object of the invention is to provide an improved device for causing the labels to adhere to the packages.

These and other objects of the invention will be fully illustrated in the drawings, described in the specification and pointed out in the claim at the end thereof.

In the drawings,

Figure 1 is a top plan view of the machine, or that part of it that constitutes the subject matter of this application.

Fig. 2 is a sectional elevation of the machine, the section being taken on the line 2<sup>x</sup>-2<sup>x</sup> of Fig. 1.

Fig. 3 is a detail view of the discharge chute of the machine, showing the cant or tilting wheel in a different angular position from that shown in Fig. 2.

Fig. 4 is a perspective view of the feeding device for the packages.

Fig. 5 is a vertical section on the line 5<sup>x</sup>-5<sup>x</sup> of Figs. 1 and 2.

In the accompanying drawings, like reference numerals refer to like parts.

This application is in part a division of our prior application No. 805,745, filed in the United States Patent Office December 10, 1913.

Reference numeral 1 indicates the frame of the machine, which frame consists of the end piece 2 and the supporting piece 3, which pieces are connected together by side bars 4 and 5, which side bars are connected at suitable intervals by cross bars.

Mounted on the bars 4 and 5 are bearings for various shafts as follows:

The bearing block 8 for the shaft 9 and the bearing block 10 for the shaft 11. Similar bearing blocks are provided on both sides of the machine for both of these shafts.

The bearing block 12 is provided in which is supported the main power shaft 13 and a similar block for supporting the jack shaft 14.

On the main power shaft 13 is provided a pinion 15 which meshes with the idler pinion 16 mounted on the shaft 14, which idler pinion meshes with the pinion 17 on the shaft 11. The shaft 14 is a short shaft which does not extend clear across the machine but the shafts 9, 11, and 13 do extend clear across the machine and for these shafts similar bearings are provided on both sides of the machine.

Mounted on the shafts 9 and 11 are the sprocket wheels 18 and 19, on which are mounted to travel the chains 20. It will be understood that there are two of the chains 20 as is shown in Fig. 1 and the sprocket wheels 18 and 19 are provided in pairs to correspond on their respective shafts. Mounted on the frame of the machine is the hopper 21 in which are contained the cigarette boxes or other packages on which the revenue stamps or labels are to be affixed. The chain 20 travels across the bottom of this hopper and operates to take the cigarette packages one at a time as follows:

Between the hopper and the chains are provided the guides 22 and 22<sup>a</sup> upon which the bottom package in the hopper rests. The chain 20 is adapted to travel under the open space between the guides 22 and 22<sup>a</sup>, see Fig. 5. To the right of the hopper are provided the guides 23 and 23<sup>a</sup> and the cigarette boxes as they travel from the hopper to the right, as shown in Fig. 2, pass between the lower guides 22 and 22<sup>a</sup> and the upper guides 23 and 23<sup>a</sup>.

Between the sprocket wheels and the chains is provided the stationary guide 24 supported by the cross bars 95 and 96. Mounted between the chains are the blocks 25 having the lugs 26 thereon, between which are pivotally mounted the swinging pusher plates 27, which plates are angular in cross section and are shown in perspective in Fig. 4. As is shown in Fig. 4 they have the upright head or member 27<sup>a</sup>, and the horizontal member or tail 27<sup>b</sup>. The horizontal member 27<sup>b</sup> is intended to slide along and make contact with the bar 24, (see Figs. 1, 2 and 4) holding the upper member 27<sup>a</sup> firmly in an upright position as it travels under the hopper, so that it can push the bottom package out from the hopper and

along over the guides 22 and 22<sup>a</sup> and then between these guides and the guides 23 and 23<sup>a</sup> from the hopper past the plates where the label is affixed. The pushers 27 are held in the position shown in Fig. 4 when traveling forward by the bar 24 which keeps them from falling back and they are also held up by the shoulders 27<sup>c</sup> which make contact with the lugs 26 which prevent them from falling forward. The bar 24 ends about even with the shaft 11 and leaves the pusher 27 free to swing back when the box has been pushed just beyond the rollers 80 and 81.

Each of the sprocket wheels 18 and 19 is provided with seven teeth and the chain 20 is provided with links that are any suitable multiple of this number, preferably as is shown in the drawing it is formed of twenty eight links. The chain is also provided with four pusher plates and the ratio of the gearing is such that the chain will feed one box for each revolution of the shaft 11 and for each revolution of the shaft 13. The pusher plates are spaced apart on the chain considerably more than the length of the blocks so that the boxes will be brought intermittently to the labeling mechanism, that is with an interval between the boxes as they are fed to the labeling mechanism although the operation of the feeding chain is continuous.

A label 31 is placed in an upright position in the pocket 79 by which it is held in position so that it stands across the path of movement of the package as it is fed forward by the chains. As the packages are carried forward by the chains 20 heretofore described the forward end of the package engages with the middle of the label and carries the label forward with it. The label is carried against the rollers 80 and 81 which are spaced just far enough apart to permit the passage of the packages between. It will be understood that the forward side of the label, as shown in Fig. 3, will be dry or uncoated, while the rear side of the label will be coated with an adhesive. The rollers 80 and 81 serve to double the label over the package and press the label down on the package as the package moves forward between them. The pushers 27 on the feed chains carry the packages forward beyond the pocket 79, (see Fig. 3) so as to leave the pocket open to receive another label for the next preceding package. The next package as it is fed along picks up this label and carries it forward, pushing the preceding package ahead of it and in this manner the packages are fed successively through and the labels are affixed to the package firmly pressed on top of the packages by the bars 23 and 23<sup>a</sup> and the bottom of the packages by the bars 22 and 22<sup>a</sup> after they leave the rollers.

Mounted on the shaft 13 is the driving pulley 90 and the sprocket wheel 91. Around this sprocket wheel travels the chain 92 which engages with the sprocket wheel 93. The sprocket wheel 93 has three times as many teeth therein as the sprocket wheel 91 so that the shaft 94 driven thereby makes one third of the revolutions that are made by the shafts 13 and 11.

On the shaft 94 are keyed a pair of disks making a tilting or cant wheel which operates to receive the boxes therein horizontally and deliver the boxes therefrom vertically. Each of these disks has three cams thereon and at the end of each cam is a pocket 96. The shaft 94 is placed so that the pockets are on a horizontal line with the guides 22 and 22<sup>a</sup> so as to receive therein the packages as they are fed forward along the guides. The cant wheel is also mounted to revolve between the guides 22 and 22<sup>a</sup>, the guides 23 and 23<sup>a</sup> being shortened to permit of the lifting of the boxes by the wheels. The cams where they end in the pockets are tangential so as to present a horizontal surface continuous with the guides 22 and 22<sup>a</sup> as the box travels along over the ends of the guides into the pockets. The boxes are engaged by the sides of the pockets and are lifted as the wheel rotates, the pockets being of such a width as to firmly embrace the boxes as the boxes are positively pushed into the pockets by the feeding chains 20. As the wheel rotates the boxes are carried to an upright position, in which position they are stripped from the pocket by the receiving chute 97, which at its rear end is slotted to receive the disks. This chute arrests the movement of the package and separates it from the wheel and the cams that follow on the wheel push the box forward along the chute and leave it in an upright position. The wheel rotates at such a speed that the boxes are rapidly discharged one after another into the receiving chute in an upright position and are pushed along the chute. To hold the boxes with sufficient firmness in an upright position the sides of the receiving chute are provided with the springs 98 which press on the ends of the boxes and keep them from falling back on the wheel after being pushed forward by the cams, leaving room in front of the wheel for the following box as it is brought forward by the wheel and deposited on the chute, the position of the boxes in which they are left by the cam being shown by the second box at the left hand end of the chute 97 in Fig. 3 and the position of the box as left by the pocket being shown by the first box at the left hand end of the chute in Fig. 3.

The machine is preferably operated and the wheel is rotated at a speed of about 180 boxes per minute and if operated at this

speed or even a considerably lower speed the springs 98 may be dispensed with because the wheel will place boxes in the chute 97 faster than the preceding boxes can fall back after the cams 95 have passed beyond them.

It will be seen that the cant wheel is much narrower than the packages handled thereby and the chute 97 and is open between the disks so that the chute engages with the packages at three points to separate them from the wheel although the wheel could be made solid between the disks, in which case the chute would engage with the packages outside of the chute only.

Three pockets and three cams are provided on the wheel 95 because of the ratio of the gearing in the sprocket wheels 91 and 93, it being the object to present a pocket on the wheels 95 for a box as fast as a box is shoved forward from the magazine by the chains 20. This wheel operates to take the packages as they are fed end to end in a long line and place them side by side in a correspondingly short row.

The chute 97 may be raised or lowered

with a variation in its effect on the position of the boxes discharged therein. If raised the boxes will incline back at the top and if lowered the boxes will incline forward at the top. The springs 98 may be dispensed with if the wheels 95 deliver the boxes rapidly, as in that case the succeeding box is delivered before the preceding box has time to fall back and block it.

We claim:

The combination of a set of upper and lower guides, means for feeding packages end to end between said guides, the upper guides being cut away at the end to permit the tilting of the packages from the guides, means operating in said cut away portions for tilting the end packages in succession and depositing them side by side in a vertical position.

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

JOSEPH G. BIEHLER.  
RUDOLPH KNOPP.

Witnesses:

ELEANOR M. CORCORAN,  
EDNA K. BOOTH.