T. M. FOOTE.

AUTOMATIC LABELING MACHINE.

APPLICATION FILED APR. 15, 1913.

1,090,388. Patented Mar. 17, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

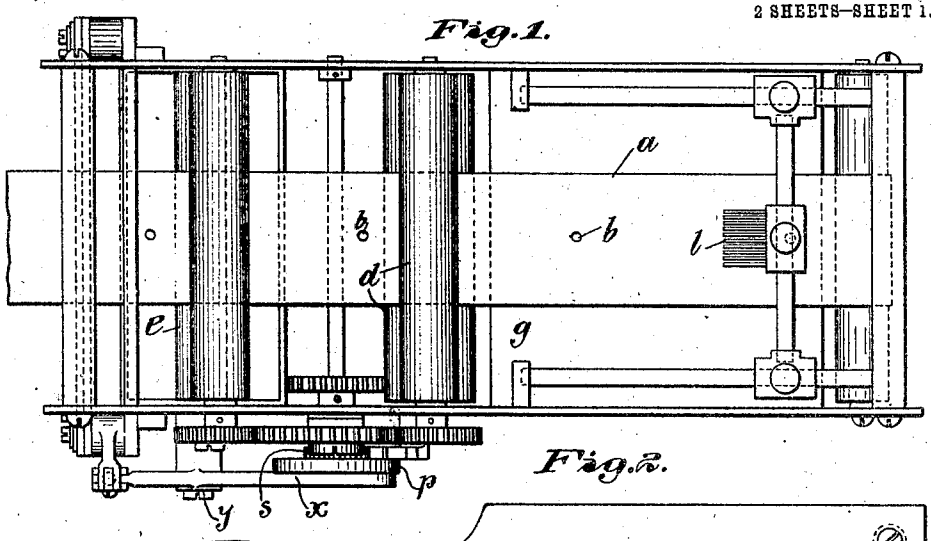
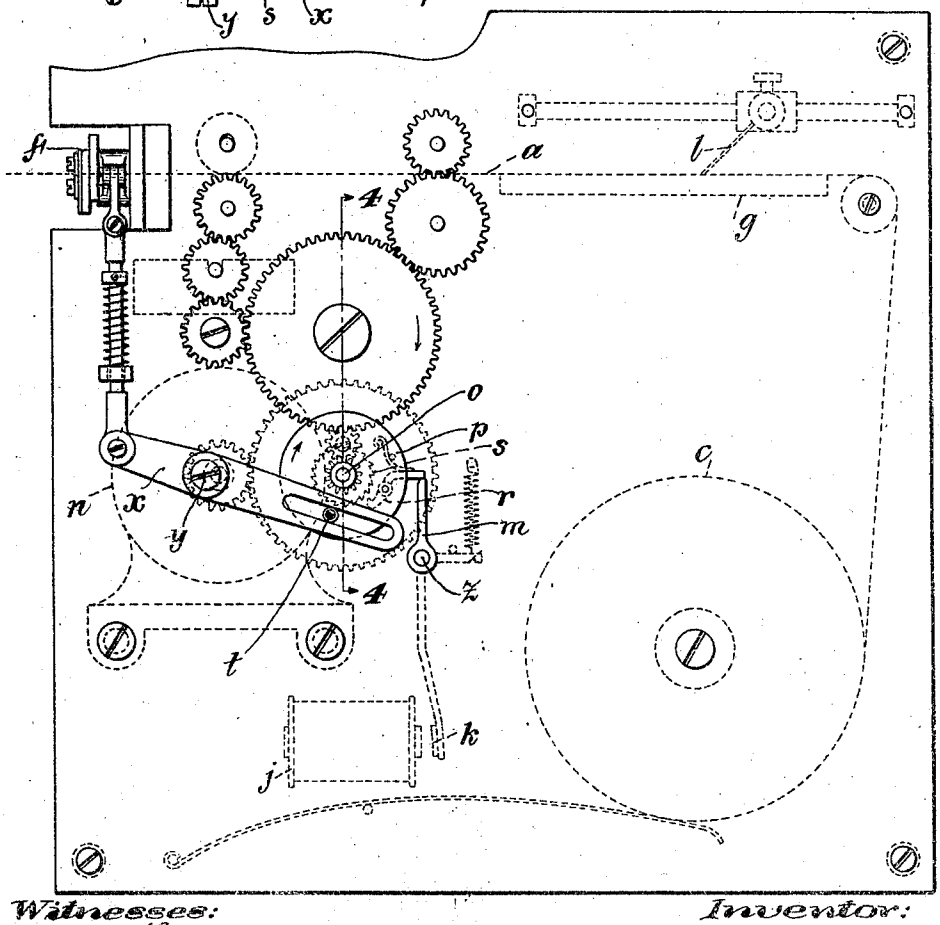


Fig. 2.



Witnesses:
John W. Thompson
Manuel Whittemore

Inventor:
Theodore M. Foote,
by Emery, Booth, Janney and Varney
his Attys.

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2 SHEETS—SHEET 2.

Fig. 3.

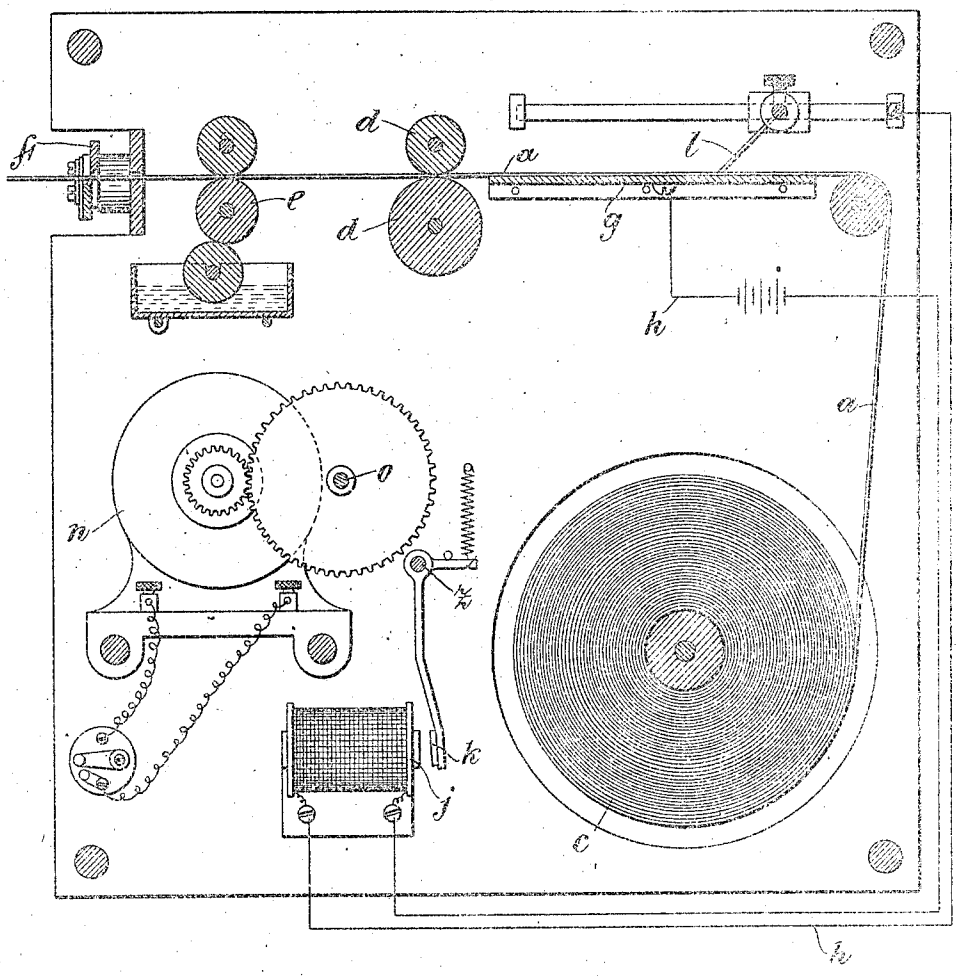
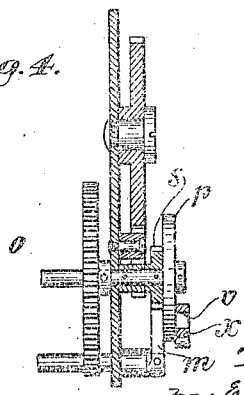


Fig. 4.



Witnesses:
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Marvel Whittemore.

Inventor:
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UNITED STATES PATENT OFFICE.

THEODORE MARSHALL FOOTE, OF ALLSTON, MASSACHUSETTS, ASSIGNOR TO NATIONAL BINDING MACHINE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

AUTOMATIC LABELING-MACHINE.

1,090,388. Specification of Letters Patent. Patented Mar. 17, 1914.

Application filed April 15, 1913. Serial No. 761,175.

To all whom it may concern:

Be it known that I, THEODORE MARSHALL FOOTE, a citizen of the United States, and a resident of Allston, in the county of Suffolk and State of Massachusetts, (whose post-office address is Allston, Massachusetts,) have invented an Improvement in Automatic Labeling-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The object of the present invention is to provide a practicable label serving machine which will automatically feed and cut labels of uniform length. Devices hitherto used for this purpose have been unsuccessful because they were not adapted to automatically cut the printed strip at the proper places to produce an entire label at each cut. It is obvious that a comparatively slight variation in the length of the portion severed will cause the knife to cut through the printed matter of the labels, instead of at each end thereof. This not only wastes labels but necessitates frequently stopping the machine to readjust the feed.

The present invention obviates the difficulties heretofore experienced in the art by providing a machine in which the cutting mechanism, the feeding mechanism, and the strip of labels to be served are so related that the cutting mechanism can operate only at definite and constant intervals upon the strip regardless of variation in the rapidity of feeding.

One form of device for accomplishing this result is illustrated in the drawings, of which,

Figure 1 is a plan view showing a perforated strip operatively threaded in the machine, Fig. 2, is an elevation showing the knife operating and strip feeding mechanism, Fig. 3, an elevation showing a strip threaded in the machine, a motor for operating strip feeding mechanism, feed and moistening rolls in section, and an electrical circuit diagrammatically, and, Fig. 4, a detail view in section on line 4—4 of Fig. 2, of the mechanism by which the knife is made to operate.

A strip *a* having perforations *b* is mounted as shown in Figs. 2 and 3, so as to be drawn from a roll *c* by means of feed rollers *d*, thence over a moistening roller *e* to a position for severance by a knife *f*. Between the roll *c* and the knife *f* the strip passes across a contact *g* in an electrical circuit *h* which includes also an induction coil and magnet *j*, an armature *k*, and an adjustable brush *l* to close the circuit with the contact *g* thus magnetizing the magnet *j*. A motor *n* furnishes power to drive a shaft *o* which in turn drives the feed rollers *d* and the moistening roll *e* through suitable intermediate gears.

A disk *p* loosely mounted upon the shaft *o* is equipped on one side with a pivoted spring latch *r* adapted to engage a ratchet wheel *s* fixed upon the shaft *o*. On the other side of the disk is a crank pin *t* adapted to engage a slot *v* in a lever arm *x* pivotally mounted at *y*. The armature *k* is pivotally mounted at *z* with a projecting arm *m* spring held in normal engagement with the latch *r*.

In operation, the feed rollers *d* draw out the strip at a suitable speed across the contact plate *g* as previously described. During this operation, the circuit *h* remains open except when one of the perforations registers with the brush *l*. This closes the circuit and causes the armature *k* to be attracted to the magnet *j*, thus releasing the latch *r* which immediately engages the ratchet wheel *s*. The disk *p* then rotates with the shaft *o*, acting upon the lever arm *x* to operate the knife *f* by means of the crank pin *t*. When the latch returns to its normal position, it again encounters the projecting arm *m* of the armature *k*, which has meanwhile been released from the magnet upon breaking of the circuit by interposition of the web of the strip, and is thereby released from engagement with the ratchet wheel *s*.

The brush *l* is adjustably mounted with relation to the contact in order to provide for handling of labels of different lengths, it being obvious that the distance from the knife to the point of contact must bear some fixed proportion to the length of the label. That is, if the perforations occur between each two labels, the knife must be at least the length of one label from the perforation through which the circuit is being closed, or any suitable multiple thereof. This distance having been carefully ascertained for any given strip of labels, it will be seen that the knife will always cut a label of the required length regardless of any variation in the speed of the feed rollers.

The foregoing description has to do with a device in which the circuit is normally open.

It is conceivable that the same result may be accomplished by permitting the circuit to remain normally closed and the knife to operate when the circuit is broken. For this purpose, the tape may be made with projections along its edges or with relatively long interior slots and short intermediate bridges to break the circuit. For simplicity of operation, however, and economy in preparation, the perforated strip, used in combination with a normally closed circuit is preferred. It is also obvious that the present device may be operated by hand if so desired instead of by a motor. The knife may be of any suitable design and may be given various positions relative to the other elements without departing from the concept of the invention.

I claim as my invention:

1. In a label serving device, the combination of an electrical circuit, a strip adapted to alternately make and break the circuit, means to sever portions of the strip, and means operatively connected with the electrical circuit to feed the strip and operate the severing means.

2. In a label serving device, the combination of an electrical circuit having a contact and a brush, a strip adapted to be passed between the contact and the brush, a knife, means operatively connected with the electrical circuit to feed the strip and operate the knife, and means on the strip whereby the circuit is periodically completed.

3. In a label serving device, the combination of an electrical circuit having a contact and a brush, a perforated strip, a knife, means for moving the strip continuously across the contact, means for operating the knife, and means between the electrical circuit and the knife operating means to actuate the latter.

4. In a label serving device, the combination of an electrical circuit, a strip constituting means to alternately make and break the circuit, a knife, a motor, means operatively connected with the motor to feed the strip, and means connected with the motor and the electrical circuit to operate the knife.

5. In a label serving device, the combination of a strip, an electrical circuit normally held open by the said strip, means in the strip to periodically close the circuit, a knife, and means operatively connected with the circuit to actuate the knife.

6. In a machine for cutting off labels and the like from the end of a strip, the combination of feeding means for the strip, severing means, an electric circuit to control the operation of the severing means, and means controlled by the movement of the strip to open and close said circuit.

7. In a machine for cutting off labels and the like from the end of a strip, the combination of continuously-operating feeding means, intermittently-operating severing means, and an electric circuit to control the operation of said severing means and having a pair of terminals normally arranged to close the circuit, the said strip being fed between said terminals and having mutilations at intervals to permit the closing of the circuit.

8. In a machine for cutting off labels and the like from the end of a strip, the combination of feeding means for the strip, severing means, an electric circuit to control the operation of the severing means, a plate across which the strip is fed by the feeding means, a contact member normally resting against the strip on said plate and adjustable toward and from the severing means, the said plate and contact member being included in said circuit, and the said strip being provided with mutilations at intervals to permit the closing of the circuit through said contact member and plate.

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

THEODORE MARSHALL FOOTE.

Witnesses:

JOHN R. MOULTON,

LUCIUS E. VARNEY.