

No. 732,765.

PATENTED JULY 7, 1903.

H. N. MARVIN & H. CASLER.
REGULATING DEVICE FOR RIBBON FEEDS.

APPLICATION FILED FEB. 17, 1902.

NO MODEL.

2 SHEETS-SHEET 1.
FEED ROLLERS

Fig. 1.

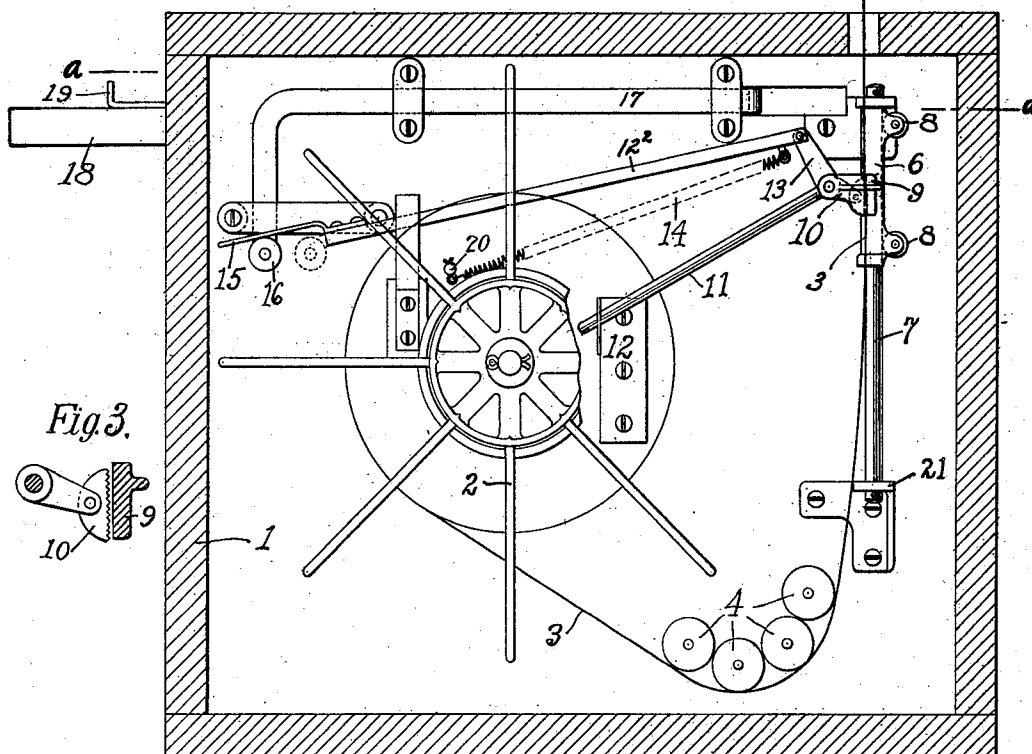


Fig. 3.

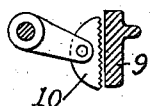
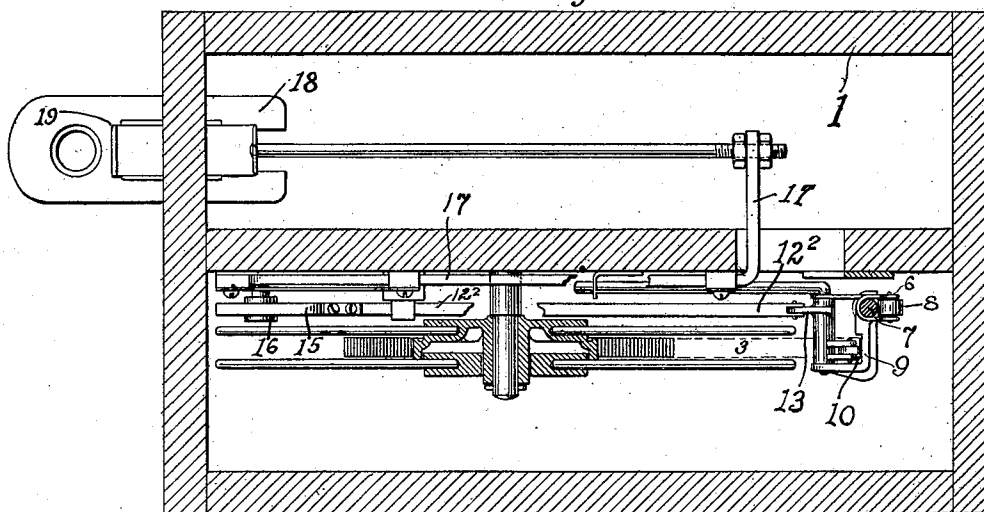


Fig. 2.



Witnesses:
Raphael Vetter

A. Dunham

Harry N. Marvin } Inventors
and Herman Casler }

by Kerr, Page & Cooper, Attys

H. N. MARVIN & H. CASLER.
REGULATING DEVICE FOR RIBBON FEEDS.

APPLICATION FILED FEB. 17, 1902.

NO MODEL.

2 SHEETS—SHEET 2.

Fig. 4.

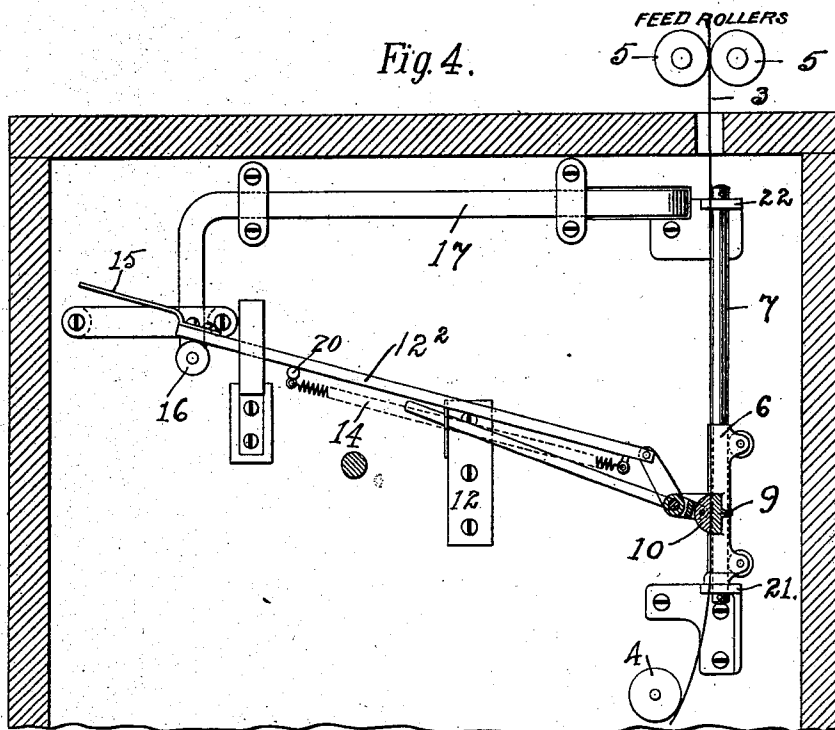
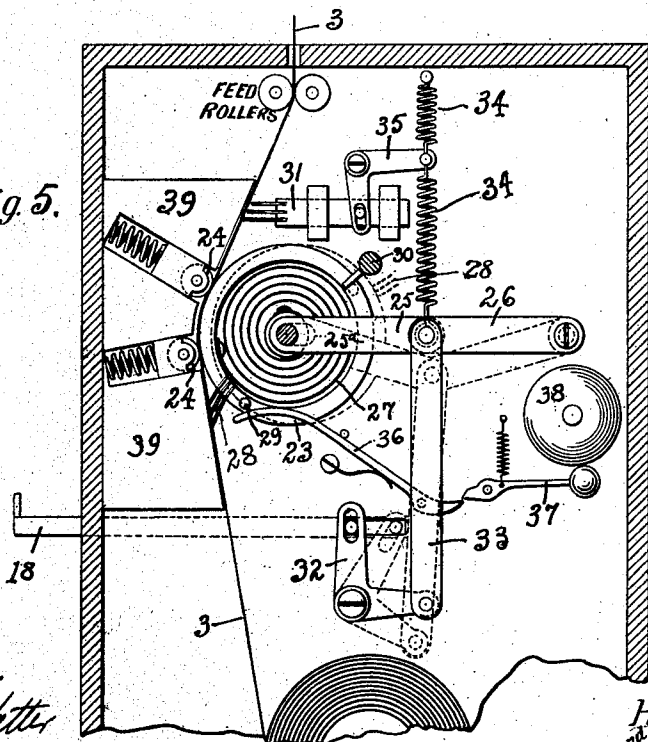


Fig. 5.



Witnesses:
Raphael H. H. H.
A. A. Dunham.

Inventors:
Harry N. Marvin
and Herman Casler.
by *Kerr, Page & Cocher.* Attys

UNITED STATES PATENT OFFICE.

HARRY N. MARVIN AND HERMAN CASLER, OF CANASTOTA, NEW YORK,
ASSIGNORS, BY MESNE ASSIGNMENTS, TO FANNIE E. CASLER, OF
CANASTOTA, NEW YORK.

REGULATING DEVICE FOR RIBBON-FEEDS.

SPECIFICATION forming part of Letters Patent No. 732,765, dated July 7, 1903.

Application filed February 17, 1902. Serial No. 94,394. (No model.)

To all whom it may concern:

Be it known that we, HARRY N. MARVIN and HERMAN CASLER, citizens of the United States, residing at Canastota, in the county of Madison and State of New York, have invented certain new and useful Improvements in Regulating Devices for Ribbon-Feeds, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, in which like figures of reference indicate corresponding parts.

In many forms of apparatus which employ strips or tapes of metal, pasteboard, paper, fabric, and the like the necessity frequently arises for some means to be used in connection with the strip or tape or with the apparatus for feeding the same which will operate automatically after a predetermined length of the tape has been delivered to prevent its further feed or withdrawal until by the manipulation or operation of suitable controlling mechanism the apparatus is brought into condition to permit the strip or tape to be again fed forward to the required amount. Such an apparatus is useful, for example, in connection with certain forms of coin-controlled vending-machines in which an extended strip or tape of any kind is operated upon or sold in successive lengths; but its essential features are obviously applicable to various machines in which it is desirable to limit the operation by a predetermined feed of the tape or to control the amount of feed for a given operation of the machine. The invention which forms the subject of our present application is an improved device of this nature, and for purposes of illustration we have shown it in the accompanying drawings as applied to a coin-controlled device designed to permit the delivery of a length of tape which can never exceed predetermined limits each time that the device is set in operative condition.

In the drawings, Figure 1 is an elevation, partly in section, of a device embodying our invention. Fig. 2 is a section on the line *a a* of Fig. 1. Fig. 3 is a detail showing the clutch for the tape. Fig. 4 is a view similar to Fig. 1, omitting some of the parts, but

with the tape-clutch at the opposite point in its travel. Fig. 5 shows our invention in a modified form.

Referring now to the first four figures, 1 represents a suitable box or casing, in which 2 is a rotatable reel or spool upon which a tape, ribbon, or strip 3 is wound. From this reel the tape is led around suitable idlers 4, which serve as guides to conduct it in the proper manner to the feed devices or point of utilization or removal. A pair of feed-rolls 5 are shown in the drawings as the means for drawing the tape forward.

Adjacent to the line of travel of the strip and mounted so as to move back and forth parallel thereto is a slide or traveler or feed controlling or limiting device 6. This traveler is shown as sliding on a rod 7, and it may be provided with antifriction devices, as rollers 8. Attached to the slide 6 so as to move therewith is a clutch, which engages the strip 3. This clutch is composed of a stationary jaw 9 and, hinged thereto, a movable or opening jaw 10. Pivotaly attached to the jaw 10 is a rod 11, secured at its opposite end in a bracket 12, the function of the rod 11 being to keep the traveler 6 from turning about the rod 7, thereby preventing the distortion or twisting of the ribbon or tape 3. The rod 11 works freely in a hole in the projecting part of the bracket 12 to permit angular movement of the rod in a vertical plane.

Attached to the jaw 10 is a short arm 13, the relation to the jaw being such (shown clearly in Fig. 1) as to form a bell-crank lever therewith. Pivoted to the other end of the arm 13 is a rod 12², a spring 14 being connected in such relation to the latter that its tension tends to depress the outer end thereof, thereby rocking the aforesaid bell-crank lever and closing firmly the jaw 10. It will be understood that in the normal operation of the device the tension of the spring is constantly exerted to keep the jaw 10 closed.

At the free end of the rod 12² is a short offset or extension 15, resting upon and supported by a pin or roller 16. This roller or pin 16 is carried by a longitudinally-sliding arm 17, which may be operatively connected,

as shown conventionally in Fig. 2, with a coin-controlled attachment 18 of any suitable kind which can be utilized to force the arm 17 forward only when containing a coin.

5 The operation of the device is as follows, assuming the parts to be in the position shown in Fig. 1: Upon inserting a coin in the attachment 18 the lever 19 thereof may be pushed forward, carrying to the right the 10 curved rod or series of rods 17. By this operation the pin 16 is moved to the position shown in dotted lines—i. e., abutting against the lever 12²—with sufficient force to overcome the tension of spring 14 and throw lever 12² 15 also slightly to the right. By this means the bell-crank lever 13 is vibrated so as to throw open the jaw 10, which theretofore was in close contact with the ribbon or strip 3. Upon opening the jaw 10 the clutch and the attached 20 traveler 6, which have been sustained by the ribbon or strip 3, are released and slide down the rod 7 by gravity until the traveler reaches stop 21. Just before this point is reached the rod 12² strikes against a pin 20, placed at any 25 convenient point in its line of movement and toward its rear end. This serves to raise the rear end of the rod and release it from the pin 16. The tension of the spring 14 (which has been overcome by the engagement of the pin 16 30 with the end of the rod 12²) again becomes effective to draw back rod 12², thus rocking the bell-crank lever 13 10, thereby closing the jaw 10 tightly upon the ribbon 3. The face of the jaw 10 may be corrugated, as shown in 35 Fig. 3, in order to insure good contact with the ribbon 3. The parts are now in the position shown in Fig. 4—i. e., ready to permit the upward or forward feed of the ribbon or strip through the feed-rolls 5. As the ribbon 40 is drawn up the traveler 6 and its attached and connected parts are drawn with it, permitting the strip 3 to be fed forward continuously until the traveler 6 strikes an upper stop 22, the parts being then in the position 45 shown in Fig. 1. No more ribbon can now be fed out until the jaws 9 10 are unlocked by the manipulation of the levers 17, &c., as previously described.

It will be apparent that the invention is susceptible not only of varied applications, but of 50 many modifications in design and arrangement of parts. One of these modified forms is indicated in Fig. 5. There the ribbon 3 as it is drawn from the reel passes around the periphery of a rotary traveler or feed-controlling device 23, against which it is held in frictional 55 contact by any suitable means, as by the spring-mounted idlers 24 24. The drum 23 is rotatably mounted, by means of its spindle, in elongated bearings, as indicated by dotted lines at 25^a, in order that it may be moved 60 bodily for a short distance away from the tape, the bearings 25^a being in the walls of the case or otherwise disposed independent of the toggle-jointed lever 25 26. The end of one of the 65 arms of the toggle-jointed lever 25 26 engages with the spindle of the drum 23, and a coiled

spring is inserted in or attached to said drum in any convenient manner, so as to impart to it a normal tendency to rotate it in a 70 counter-clockwise direction. Projecting from the periphery of the drum is a series of metal fingers 28 or other contact device, the function of which is to engage with the strip 3 when the drum is in the position shown in 75 full lines and hold it against further feeding. At any suitable point on the drum is a pin 29, which when the drum is revolved backward under tension of spring 27 contacts with a finger 30, projecting into its path to prevent further movement. Above the drum is 80 an auxiliary contact 31 for the strip 3, the function of which is to hold the strip 3 from feeding during the time when the drum 23 is drawn out of contact with it. A bell-crank 85 lever 35 is operatively connected with contact 31. A coin-controlled device 18 or other lever may be used to effect the release and resetting of the drum 23. As shown, this rod 18 is connected to a bell-crank lever 32, which 90 by a link 33 is attached to the center or angle of the toggle-joint 25 26. Means are provided, as a spring 34, for restoring the latter to normal position. This spring 34 if attached at some point midway of its length to the 95 bell-crank lever 35 may through the latter be utilized both to throw contact 31 against strip 3 when the drum is drawn out of its normal position by the rod 33 and also to restore 100 parts 31 35 to their normal position simultaneously with the reengagement of the periphery of the drum 23 with strip 3. If desired, an arm 36 in operative relation to the tongue 37 of a bell 38 may project into the path of 105 movement of the pin 29, so that as the latter approaches the position shown in full lines—i. e., when limit of permissible feed of the ribbon 3 is near—the bell 38 is by this means 110 sounded, so as to advise the user of that fact. The operation of this modified device is as follows: Assuming the parts to be in the position shown in full lines in Fig. 5, the limit 115 of permissible feed of the ribbon or strip 3 will then have been reached, for the fingers 28, pressing the ribbon 3 tightly against the block 39, will hold the ribbon from further 120 movement. In order to release the parts, the lever 18 must be pushed inward or to the right, whereby the bell-crank lever 32 is rocked, the link 33 drawn down, the toggle-jointed lever 25 26 pulled back, and the drum 125 23 drawn away, all to the several positions shown in dotted lines. As the drum 23 is drawn back the coiled spring 27 exerts its tension to rotate it from left to right until the 130 pin 29 strikes against the finger or stop 30, which limits the rotation of the drum in that direction. By the operation of the bell-crank lever 32 the auxiliary contact 31 is thrown into engagement with the strip 3, pushing it 135 against block 39, so, as explained above, as to prevent any drawing or feeding of the strip during the release and rotation of the drum. Immediately upon the release of pressure

upon lever 18 the spring 34 restores parts 31, 35, 25, 26, 33, and 32 to their normal positions and through the arm 25 throws the drum 23 again into frictional contact with strip 3, it being understood, however, that the stop 29 and contact-fingers 28 still are in the positions shown in dotted lines. As the strip 3 is now released it may be fed upward; but being held in frictional contact with drum 23 by the rollers 24 its feed causes the drum to rotate from right to left. When the spring-fingers 28 get almost into contact with the ribbon or strip again, the pin 29 strikes the arm 36, thereby causing the warning-bell to ring. The forward or upward feed of strip 3 is stopped when the fingers 28 clutch it again, and the next feed may be provided for, as before, by the operation of lever 18.

Manifestly longer or shorter feed may be provided for by a mere adjustment of the parts in either of the forms illustrated and described.

It will be understood that the various devices described and shown are typical merely and not of the essence of our invention.

What we claim is—

1. In a feed-limiting apparatus of the kind described, the combination with means for withdrawing or feeding a tape or strip, of a feed-controlling device independent of the means for feeding the tape, but movable with and to an extent proportional to the travel or feed of the tape, means for locking or arresting the tape, dependent for operation upon a movement of the controlling device of predetermined extent from an initial position, and means for releasing the tape and resetting the controlling device in its initial position from any point in its path of travel, as set forth.

2. In a feed-limiting apparatus of the kind described, the combination with means for withdrawing or feeding a tape or strip, of a feed-controlling device independent of the means for feeding the tape, but movable with and to an extent proportional to the travel or feed of the tape, means for gripping the tape and arresting its feed or delivery, dependent for such operation upon a movement of the controlling device of predetermined extent from an initial position, and means for releasing the tape and resetting the controlling device in its initial position from any point in its path of travel, as set forth.

3. In a feed-limiting apparatus of the kind described, the combination with means for withdrawing or feeding a tape or strip, of a locking device for arresting the tape or strip, independent of the means for feeding the tape, dependent for operation upon a movement of the tape of predetermined extent from an initial position, and means for releasing the locking device and resetting it in its initial position from any point in its path of travel, as set forth.

4. In a feed-limiting apparatus of the kind described, the combination with means for feeding a tape or strip, of a device for limit-

ing the feed of the strip independent of the means for feeding the same, comprising a traveler capable of movement in the direction of feed of the strip, means for normally holding the traveler in engagement with the strip, means for stopping positively the movement of the traveler at a predetermined point, and means for releasing the traveler from engagement with the strip and restoring it to initial position, as set forth.

5. A device for limiting the feed of tapes or strips comprising in combination a traveler capable of movement in the direction of feed of the strip, means for normally holding the traveler in engagement with the strip, means for stopping positively the movement of the traveler at a predetermined point, means for releasing the traveler from engagement with the tape or strip and restoring it to initial position, and means for preventing the feed of the strip during the period of such release, substantially as and for the purposes described.

6. In a mechanism of the character described, the combination with means for withdrawing or feeding a tape or strip, of means for limiting the feed or delivery of the tape or strip, independent of the means for feeding the same, comprising a device for gripping the tape or strip, means for causing the said device to be carried with the tape as the latter moves forward, means for arresting the gripping device at a predetermined point in its forward movement, means for releasing the gripping device from engagement with the tape, and means for restoring said device to initial position, as set forth.

7. In a mechanism of the character described, the combination of a device for gripping the tape or strip, means for causing the said device to be carried with the strip as the latter is drawn forward, means for arresting the said gripping device at a predetermined point in its forward movement, means for releasing said gripping device from engagement with said tape or strip, means for restoring said gripping device to initial position, and means for preventing the feed of the strip during the period of such release, substantially as and for the purposes described.

8. In a mechanism of the character described, the combination with means for feeding a tape or strip, of a traveler, means for maintaining said traveler normally in contact with the tape as it is fed forward, a stop for limiting the movement of the traveler at a predetermined point, and manually-operated means for causing the operative parts to be set at their initial positions, as set forth.

9. In a feed-limiting apparatus, the combination with means for feeding a tape or strip, of a traveler, means carried thereby for maintaining the same in contact with the tape or strip, a stop for limiting the movement of the traveler, manually-operated means for releasing the traveler from contact with the strip and permitting it to be restored to its

initial position, and automatically-operated means for causing the traveler to engage with the tape when said initial position has been reached, substantially as and for the purposes 5 described.

10 10. In a device for automatically limiting the feed of tapes or strips, the combination with means for feeding the tape, of manually-operated means for causing the operative parts to be set at their initial positions, a traveler, means for maintaining said traveler normally in contact with the tape or strip as

it is fed forward, a stop for limiting the movement of the traveler at a predetermined point, and means for indicating to the operator the 15 approach of the traveler to its forward limit of movement, substantially as and for the purposes described.

HARRY N. MARVIN.
HERMAN CASLER.

Witnesses:

ARTHUR PREVIN,
JOS. S. PICKEL.