R. B. CRAIG & A. COFFMAN.

RIBBON FEEDING MECHANISM.

APPLICATION FILED APR. 12, 1909.

943,624.

Patented Dec. 14, 1909.

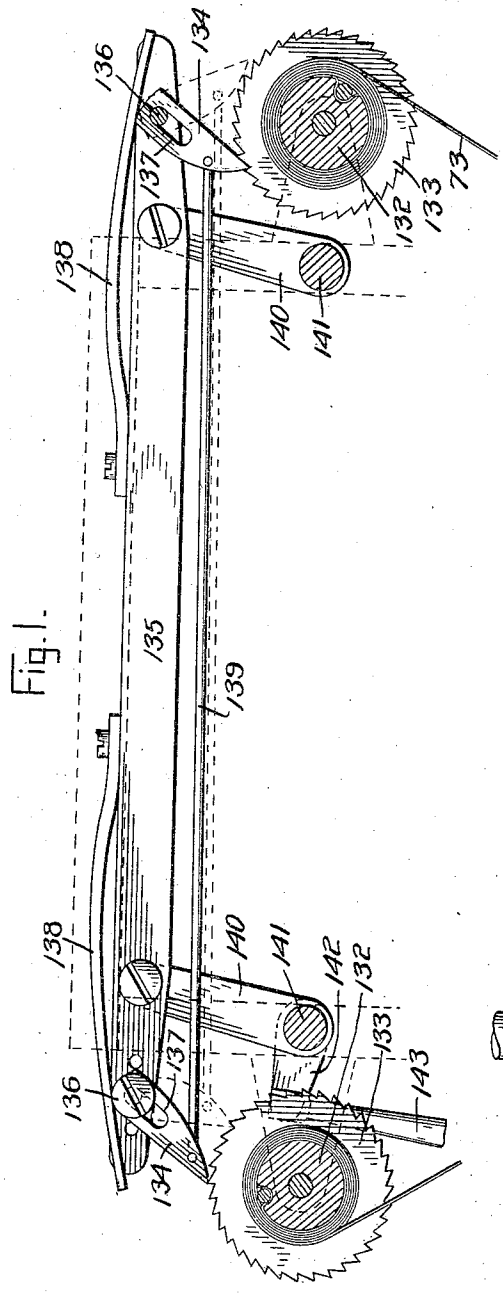

Fig. 1.

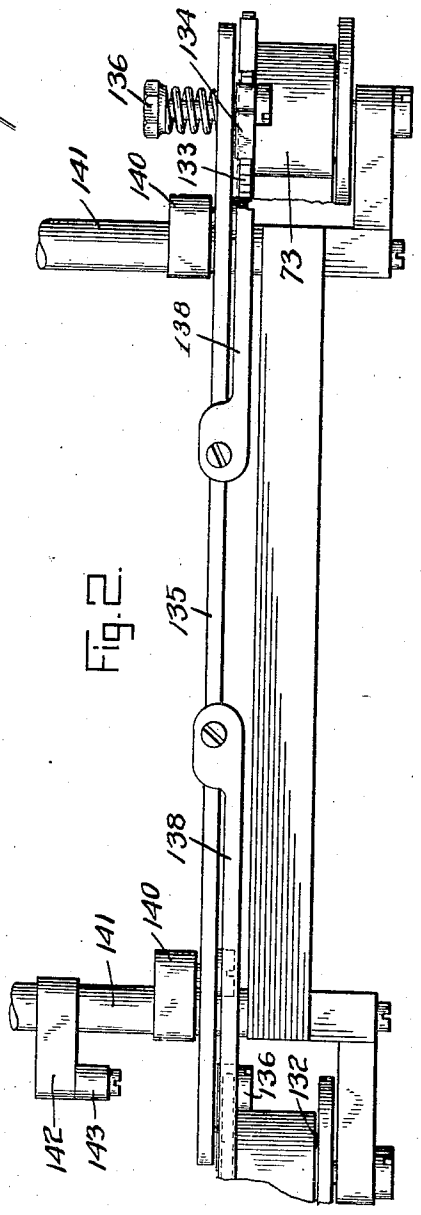

Fig. 2.

Witnesses

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UNITED STATES PATENT OFFICE.

ROBERT B. CRAIG AND ALBERT COFFMAN, OF KANSAS CITY, MISSOURI, ASSIGNORS TO AUTOMATIC VENDING MACHINES COMPANY, OF KANSAS CITY, MISSOURI, A CORPORATION OF THE TERRITORY OF NEW MEXICO.

RIBBON-FEEDING MECHANISM.

943,624. Specification of Letters Patent. Patented Dec. 14, 1909.

Original application filed November 30, 1903, Serial No. 465,182. Divided and this application filed April 12, 1909. Serial No. 489,456.

To all whom it may concern:

Be it known that we, ROBERT B. CRAIG, and ALBERT COFFMAN, citizens of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Ribbon-Feeding Mechanisms, of which the following is a specification.

The present invention relates to improvements in ribbon feeding means for printing mechanism and is designed with especial reference to machines of the automatic vending type, as disclosed in our co-pending application Serial No. 465,182, dated November 30, 1908, and of which the present case forms a divisional application.

The purpose of the invention is to provide novel means for feeding the inking ribbon wherein the same is automatically reversed in its direction of feed when the ribbon has reached the limit of its travel in one direction.

With this object in view the invention embodies the further novel features disclosed in the course of the following extended description, and set forth in the appended claims; reference being had to the accompanying drawing wherein is shown the idea in its preferred embodiment.

In the said drawing,—Figure 1 is a front view of the automatically reversing feed mechanism for the inking ribbon; and, Fig. 2 is a plan view of the same.

Referring to the drawing in further detail, the numeral 73 designates a ribbon adapted to be wound upon a pair of bobbins 132 provided with ratchets 133 which receive the pawls 134 on a horizontally reciprocating bar 135. Pawls 134 are pivoted upon screws 136 through the medium of slots 137 that permit the pawls to rise upon their pivot screws. They are held normally downward by springs 138. A coupling rod 139 connects the pawls and spaces their free ends at such distance that when either pawl is in driving relation to its ratchet, the other pawl is in idle relation to its ratchet, so that the active pawl will drive and wind the ribbon upon the bobbin being driven, while the idling pawl will drag over its ratchet and permit the ribbon to unwind from the bobbin controlled thereby.

The angle of a pawl relatively to the reciprocating bar 135 when the pawl is in driving position, is such that the thrust upon the pawl is approximately in the line of the slot through which the pawl is fitted to its pivot pin. From this circumstance, it results that when the ribbon is wholly unwound from the bobbin opposite to that upon which it is being wound, and its end is anchored fast to the empty bobbin, the resistance of the engaged ratchet causes the pawl to rise up relatively to its pin 136 and rock over and change its angular position relatively to the ratchet. Inasmuch as it is connected to the pawl that was idling up to this point, it shifts the angle of the latter, also, whereupon the previously acting pawl becomes the idling pawl and that which was previously inactive now assumes driving relation to its own ratchet and the winding of the ribbon is reversed.

The bar 135 is reciprocated, or in a manner oscillated, by mounting it upon a pair of parallel arms 140 projecting from rock-shafts 141, one of which shafts has an arm 142 connected by a pitman 143 with a rotating part of the machine to which the mechanism is fitted. It is intended that this connection shall be such that with each revolution of the rotating part the operating arm 143, acting in the manner just described, will, through the mechanism just described, intermittently feed the ribbon one step at a time.

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

1. A ribbon feeding mechanism comprising winding spools, ratchets having driving connection therewith, a reciprocating bar carrying pawls loosely mounted thereon and adapted to intermittently engage the ratchets and drive the spools, means connecting the active ends of the pawls whereby to effect positive alternate operative and inoperative positions thereof, and means for effecting such positions of the pawls upon the unwinding of one of the spools.

2. A ribbon feeding mechanism comprising winding spools, ratchets having driving connection therewith, a reciprocating bar carrying pawls loosely mounted thereon and adapted to intermittently engage the ratchets, means connecting the operative

ends of the pawls for keeping the active pawl in positive engagement with its ratchet and the inactive pawl out of engagement with its ratchet, and means for causing the active pawl to over-ride its ratchet and bring the inactive pawl into operation to effect reverse winding of the ribbon.

3. A ribbon feeding mechanism comprising winding spools, ratchets having driving connection with said spools, pawls adapted to drive said ratchets, a reciprocating bar carrying said pawls, the pawls and ratchets being oppositely acting, said pawls being yoked together at their active or engaging ends so that when either ratchet resists driving motion of its pawl, the pawl yields and trips on the ratchet for the purpose of shifting the position of the pawls and reversing the wind of the ribbon.

4. In a ribbon feeding mechanism, the combination of the spools, the driving ratchets for the spools, the pawls coöperating with said ratchets, the bar connecting the pawls at their active or engaging ends and the reciprocating bar upon which the pawls are mounted; the pawls being connected directly to the bar through the medium of slots and pins, and the bar being provided with springs for depressing the pawls into engagement with their ratchets.

5. In combination with the spools, their ratchets, and the coöperating pawls; the reciprocating bar upon which the pawls are directly mounted, the bar connecting the pawls at their active or engaging ends, the parallel arms supporting said reciprocating bar, the rock shaft from which said arms project and a crank arm extending from one of said shafts and having suitable connection with driving mechanism for the purpose set forth.

6. A ribbon feeding mechanism comprising winding spools, ratchets having driving connection therewith, a reciprocating bar carrying pawls, said pawls having direct slot and pin connection with the bar whereby the pawls have loose movement thereon, a yoke connecting the active or engaging ends of the pawls, springs carried by the reciprocating bar and engaging the pivoted ends of the pawls to hold the pawls in operative or inoperative position, and means for causing the acting pawl to disengage from its ratchet or bring the other pawl into operation to effect reverse winding of the ribbon.

The foregoing specification signed at Kansas City, Mo., this 3rd day of March, 1909.

ROBERT B. CRAIG.
ALBERT COFFMAN.

In presence of two witnesses:
V. HUNDLEY,
O. BURKE.