

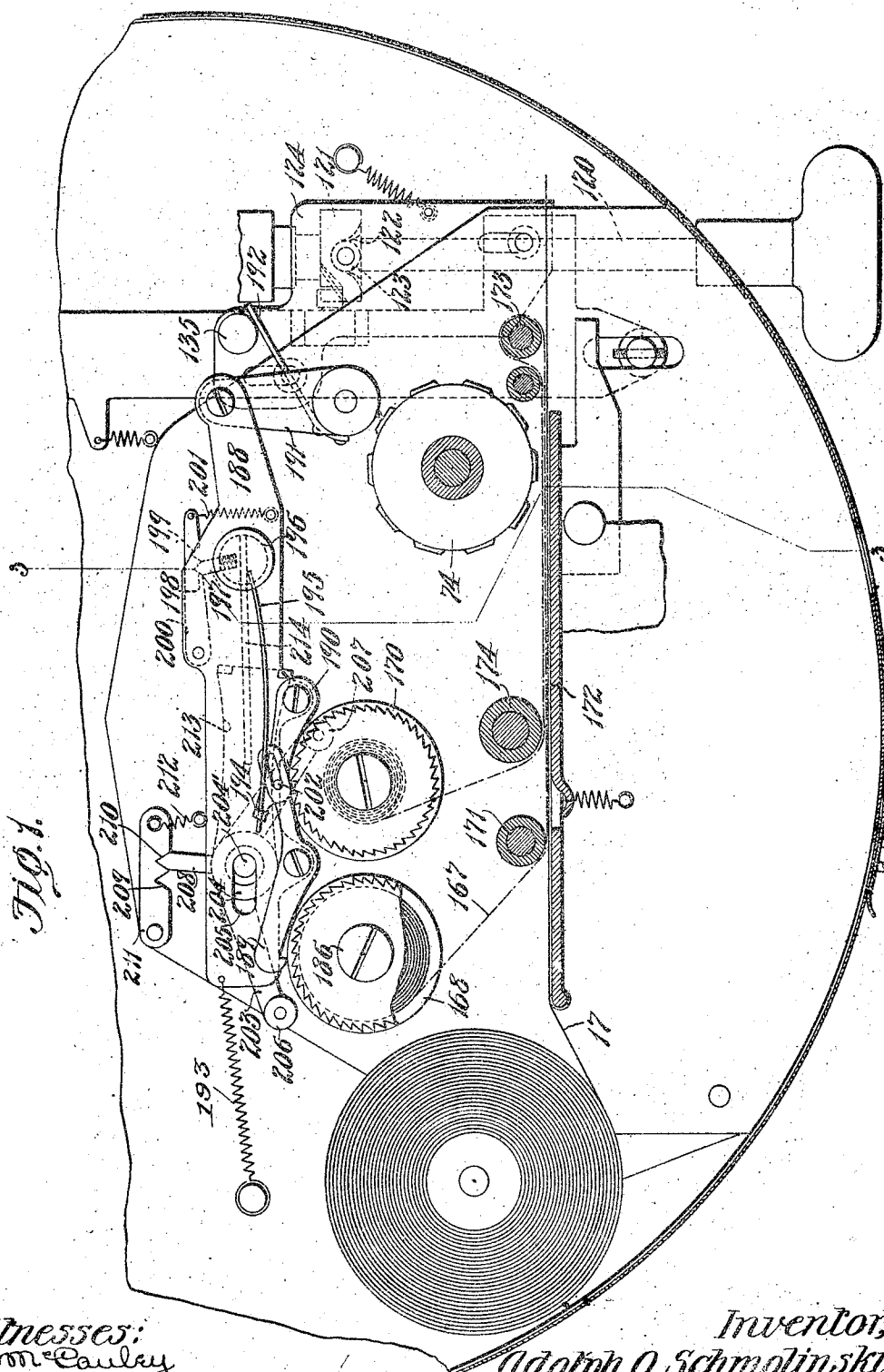
No. 852,850.

PATENTED MAY 7, 1907.

A. O. SCHMOLINSKI.
RIBBON FEEDING MECHANISM.

APPLICATION FILED JAN. 28, 1907.

3 SHEETS—SHEET 1.



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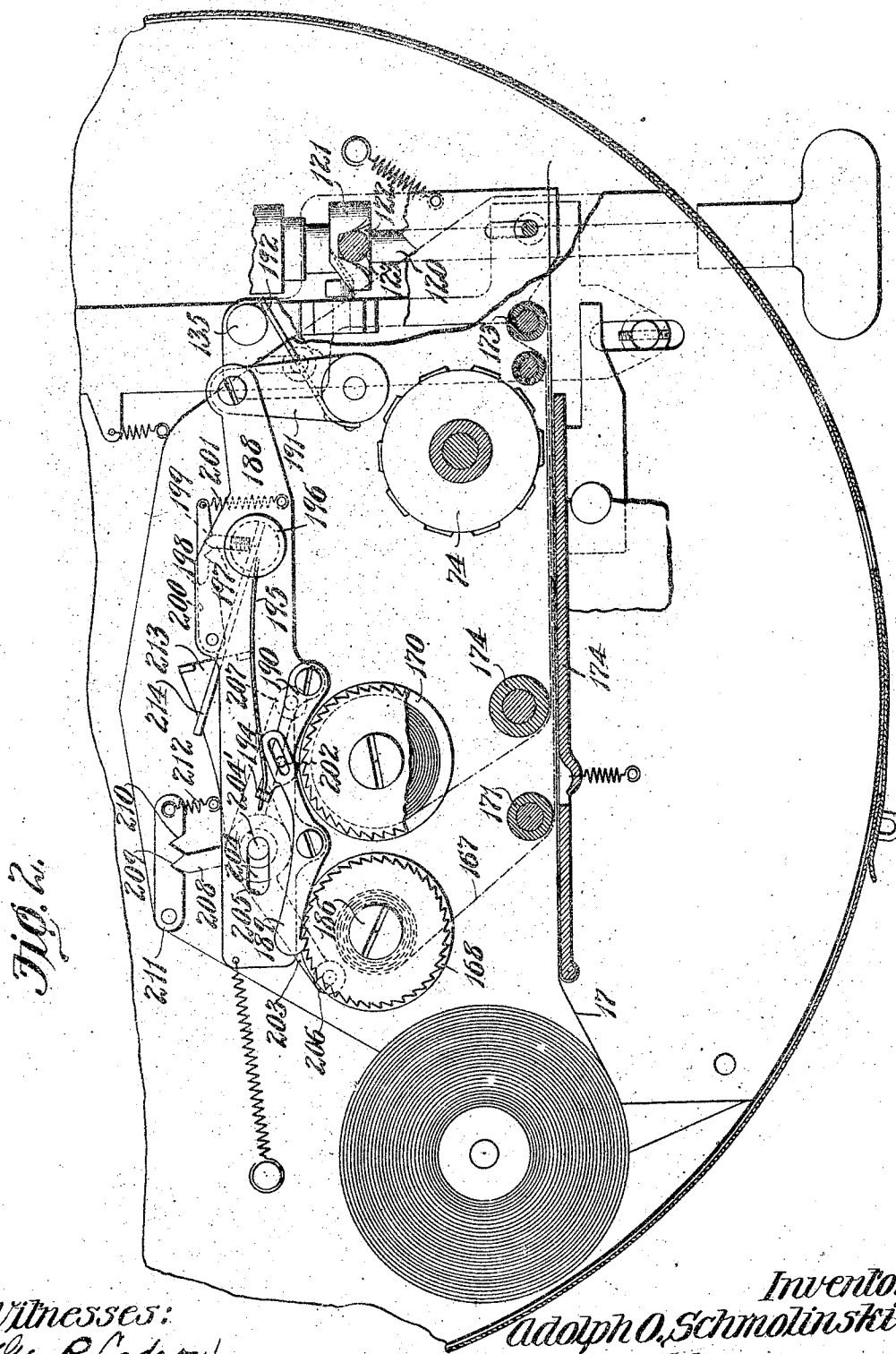
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

FIG. 4.

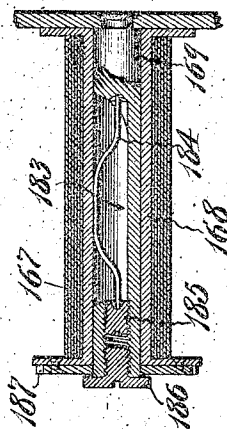
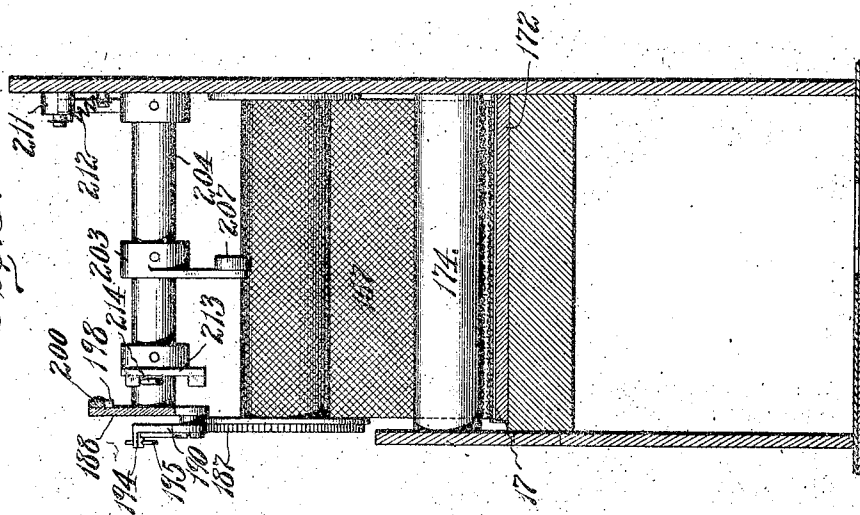


FIG. 3.



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UNITED STATES PATENT OFFICE.

ADOLPH O. SCHMOLINSKI, OF ST. LOUIS, MISSOURI, ASSIGNOR TO SECURITY REGISTER & MANUFACTURING COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

RIBBON-FEEDING MECHANISM.

No. 852,850.

Specification of Letters Patent.

Patented May 7, 1907.

Application filed January 28, 1907. Serial No. 354,488.

To all whom it may concern:

Be it known that I, ADOLPH O. SCHMOLINSKI, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Ribbon-Feeding Mechanism, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation of a ribbon-feeding mechanism embodying my invention; Fig. 2 is a view similar to Fig. 1 showing the parts in a different position; Fig. 3 is a vertical sectional view taken on the line 3—3 of Fig. 1; and Fig. 4 is a detail sectional view of one of the spools on which the inking ribbon is wound.

This invention relates to mechanisms for feeding inking ribbons and has for its object to provide means for feeding a ribbon from one spool onto a second spool, and thereafter automatically change the direction of feed so that the ribbon will be rewound from the second spool onto the first spool.

I have herein shown my invention in connection with a fare register having type wheels for printing the condition of the register on a strip of paper but it will be obvious that my invention is not limited to this particular purpose and could be used equally well with any printing mechanism inked by means of a ribbon.

The particular type of fare register with which this ribbon feeding mechanism is used is shown and described in my pending application Serial No. 319,616, filed May 31, 1906, to which reference may be had for a more detailed description of the operation of the resetting shaft which in the embodiment of my invention herein shown constitutes the means for imparting movement in one direction to the member that carries the pawls which feed the ribbon-carrying spools. I wish it to be understood, however, that I do not consider my invention limited to this particular means for actuating the pawl-carrying member as numerous other devices could be used for this purpose.

Referring to the drawings which represent the preferred form of my invention applied

to the printing mechanism of a fare register, 17 designates the strip of paper on which the condition of the register is printed by totalizer adding wheels 74, said strip resting on a plate 172. The inking ribbon 167, which is employed to enable the type on the adding wheels to make a permanent ink impression on the strip of paper, is wound on a spool 168 carried by a shaft 169 that projects outwardly from a stationary plate and a second rewinding spool 170 similar in construction to the spool 168. The inking ribbon is led from the spool 168 under a guide roller 171 over the upper face of the strip of paper which rests on the plate 172, thence around a roll 173 and back underneath a roll 174 to the rewinding spool 170.

The spools on which the inking ribbon is wound are of novel construction as well as the mechanism employed for actuating said spools. One of the spools is shown in section in Fig. 4 and referring to said figure it will be seen that the shaft 169 on which the spool is mounted is provided with a slot 183 in which a spring 184 is located. Said spring bears against the inside of the hub or barrel of the spool and thus prevents the spool from turning too freely on its shaft. The force with which the spring engages the hub of the spool can be varied by turning a screw threaded plug 185 in which one end of the spring is seated, the shaft 169 being also provided with a cap screw 186, the head or flange of which is of greater diameter than the shaft and thus prevents the spool from moving endwise of the shaft when said cap screw is in operative position.

A ratchet 187 is fastened to one flange of each spool and the mechanism for actuating said spool consists of a sliding member or plate 188 provided with pawls 189 and 190 which co-operate with the respective ratchets of the two spools. The righthand end of said sliding plate (looking at Fig. 1) is connected to a rock arm 191 provided with an arm 192 which extends under a stud or roll 135 on a plate 124 which is depressed whenever the resetting shaft 120 is operated, said shaft carrying a cam 121 provided in its lower side with a recess 122 which receives a pin 123 on the sliding plate 124. Accordingly, each time the resetting shaft is operated the arm 191 will be rocked and the slide plate 188

will be actuated to cause the pawl thereon which is then in engagement with its co-operating ratchet to impart a slight rotary movement to the spool and thus carry a different section of the inking ribbon into alignment with the type of the totalizer wheels, the slide plate 188 being returned to starting position by means of a spring 193.

It is desirable that the direction in which the inking ribbon is fed should be reversed after most of the ribbon has been wound from the spool 168 onto the spool 170 and to this end the pawls on the slide plate 188 are constructed in the following manner: Referring to Fig. 1 it will be seen that the pawl 190 is in engagement with its co-operating ratchet. This pawl 190 is provided at its outer end with a lug 194 through which a spring 195 extends that is fastened at its other end to a rock stud or shaft 196 journaled in the slide plate 188 and the tendency of said spring is to hold the pawl 190 in engagement with its ratchet, the rock shaft 196 being provided with inverted V-shaped teeth 198 and 199 formed in a locking dog 200 pivoted to the slide plate and actuated by a coiled spring 201 whereby the rocking stud 196 is held in either of two positions. The pawl 190 is provided with a pin 202 which extends through an elongated slot in one end of the pawl 189. A device 203 of approximately bell crank shape is adjustably connected to a sleeve 204 which is oscillatingly mounted on a fixed stud 204', the end of which projects through an elongated slot 205 in the slide plate 188 and rollers 206 and 207 are mounted in the opposite ends of said device 203 for bearing respectively on the inking ribbon wound on the spools 168 and 170. A pointed pin 208 projects upwardly from the sleeve 204 and co-operates with inverted V-shaped notches 209 and 210 formed in a pivotally mounted locking dog 211 which is forced downwardly by a spring 212 and thus holds the device 203 in either of two positions. The sleeve 204 is provided with a laterally extending arm 213, shown in dotted lines in Fig. 1, which has two contact lugs, and projecting between these contact lugs is an arm 214 fastened to the rocking stud 196. When the pin on the rocking stud 196 is in engagement with the notch 198 of the locking dog 200, the pawl 190 will be held in position to engage and actuate the ratchet of spool 170 each time the slide plate is moved forwardly. When a certain amount of the inking ribbon has been wound on the spool 170, the roll 207 in the end of the device 203 will bear on said ribbon, and as said spool continues to fill the device 203 will be rocked, thereby causing its pointed pin 208 to ride out of the notch 210 in the locking dog 211 and pass into the notch 209 in said dog. As the side walls of said notch are inclined a quick movement

will be imparted to the device 203 which causes the lower lug on the arm 213, carried by the sleeve 204 to which the device 203 is connected, to engage the arm 214 fixed to the rock stud 196 and rock it upwardly, thereby causing the spring 195 to be elevated and thus move the pawl 190 into an inoperative position with respect to the ratchet which it operates, the pin on the rock stud 196 sliding into the other notch 199 of the locking dog 200 and thus holding the pawl 190 inoperative. As the pawl 190 moves out of engagement with its ratchet, the pin on said pawl co-operating with the slot in the pawl 189, moves said pawl 189 into operative position so that it will engage and actuate the ratchet of the spool 168, each time the slide plate 188 moves forwardly. This pawl 189 is moved into an inoperative position and the pawl 190 moved into an operative position when the spool 168 becomes filled with the ribbon, in the same manner as described with reference to pawl 190 as the device 203 is provided with a roll 206 which engages the ribbon that is wound onto the spool 168.

From the foregoing description it will be seen that I have constructed a ribbon feeding mechanism which is entirely automatic in its operation and causes the ribbon to be fed from one spool to another as the spools become filled.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A ribbon-feeding mechanism comprising a supply spool, a rewinding spool, a reciprocating member carrying pawls co-operating with ratchets on said spools, a rocking member having one of its ends arranged in alignment with the supply spool and its opposite end in alignment with the re-winding spool, which member is adapted to be engaged and actuated by the ribbon that is wound onto the spools, a locking device for said rocking member, and means actuated by said rocking member for moving the pawls into and out of operative position; substantially as described.

2. A ribbon-feeding mechanism comprising a supply spool and a rewinding spool, each provided with a ratchet, a reciprocating member provided with a pawl for each of said ratchets, a rocking member carried by said reciprocating member and connected to said pawls, a locking device for said rocking member, a pivotally mounted member having its opposite ends located in alignment with the spools whereby said pivoted member is actuated by the ribbon which is wound thereon, a locking means for said pivotally mounted member, and means for transmitting the movement of said pivotally mounted member to the rocking member which is connected to the pawls; substantially as described.

3. In a machine of the class described, a ribbon-carrying spool, a shaft on which said spool is mounted, a spring mounted in a slot in said shaft for engaging the interior of said spool, and a screw-threaded plug arranged in one end of said shaft and having the end of the spring mounted therein; substantially as described.

4. A ribbon-feeding mechanism comprising a supply spool, a rewinding spool, a reciprocating member provided with pawls for co-operating with ratchets on said spools, a rocking member mounted on the reciprocating member and being in yielding engagement with one of said pawls, a connection between said pawls, and a pivotally mounted device adapted to be actuated by the ribbon wound on said spools for imparting movement to said rocking member; substantially as described.

5. A ribbon-feeding mechanism comprising a supply spool, a rewinding spool, a movable member provided with pawls for actuating said ratchets, a connection between said pawls, a rocking member for moving said pawls into and out of operative position, a locking device for said rocking member, and means actuated by the ribbon wound on said spools for imparting movement to said rocking member; substantially as described.

6. A ribbon feeding mechanism comprising a supply spool, a rewinding spool, a reciprocating member carrying pawls for actu-

ating said ratchets, a device carried by said member for moving both of said pawls to carry them into and out of engagement with their co-operating ratchets, means for locking said device, a member adapted to be actuated by the ribbon wound on said spools for imparting movement to said device, and means for locking the member last referred to; substantially as described.

7. A ribbon-feeding mechanism comprising a supply spool, a rewinding spool, a reciprocating member carrying pawls for actuating said ratchets, a connection between said pawls, a rocking member mounted on the reciprocating member and provided with a yielding arm that is connected to one of said pawls, a yielding locking device for said rocking member, a pivotally mounted member having its opposite ends arranged in alinement with said spools and adapted to be actuated by the ribbon wound thereon, means on said pivotally mounted member for actuating the rocking member, and a yielding locking device for said pivotally mounted member; substantially as described.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this 27th day of October 1906.

ADOLPH O. SCHMOLINSKI.

Witnesses:

WELLS L. CHURCH,
GEORGE BAKEWELL.