No. 866,064. PATENTED SEPT. 17, 1907.

R. A. POLLOCK.

RIBBON REVERSING MECHANISM.

APPLICATION FILED FEB. 6, 1906.

Fig. 1.

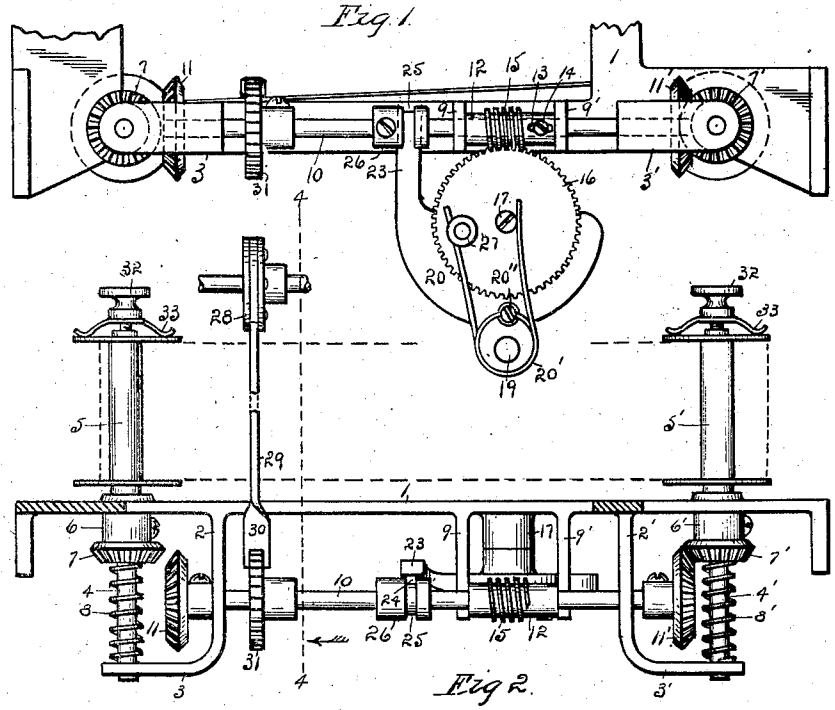

Fig 2.

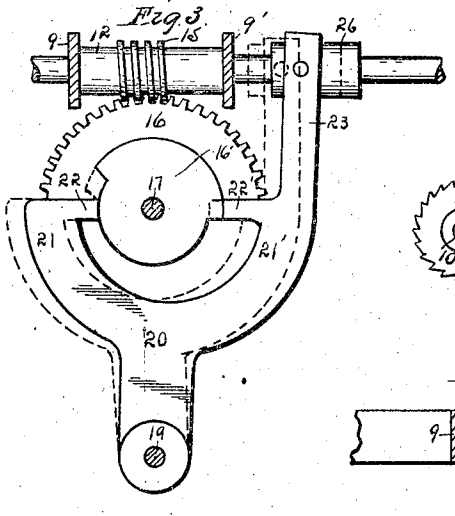

Fig. 3.

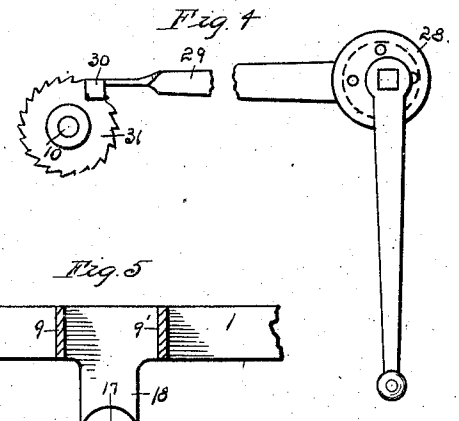

Fig. 4

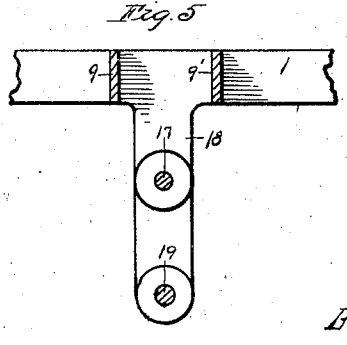

Fig. 5

Witnesses:

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# UNITED STATES PATENT OFFICE.

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## RIBBON-REVERSING MECHANISM.

No. 866,064. Specification of Letters Patent. Patented Sept. 17, 1907.

Application filed February 6, 1906. Serial No. 299,714.

*To all whom it may concern:*

Be it known that I, ROBERT A. POLLOCK, a citizen 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-Reversing Mechanism; and I do declare the following to be a full, clear, and exact description of the invention, 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, and to the letters and figures of reference marked thereon, which form a part of this specification.

My present invention relates to a ribbon reversing mechanism, and more particularly to a mechanism for automatically reversing the direction of travel of the impression ribbon of a typewriting, ticket printing, or similar machine. In accomplishing this object I have provided the improved details of structure which will presently be fully described and pointed out in the claims, reference being had to the accompanying drawings forming part of the specification.

In the drawings I have only shown the mechanism relating to my invention, and a means for connecting this mechanism with a main machine which machine may be of any suitable description.

In the drawings Figure 1 is a detail view in front elevation of the impression ribbon reversing shaft and operating mechanism. Fig. 2 is a top plan view of Fig. 1, also showing the ribbon drums and their carrying rods, and the pitman having an eccentric connection with the shaft of the main machine. Fig. 3 is a detail view of the cam and follower operating the ribbon shaft. Fig. 4 is a detail view of the pitman, eccentric, and ratchet shown in Fig. 2. Fig. 5 is a detail view of the bracket supporting the cam lever.

Projecting forwardly from a cross piece 1 on the frame of the main machine are the arms 2—2′ having lateral fingers 3—3′. Journaled in said fingers and in cross piece 1 are the shafts 4—4′ which extend backwardly beyond said cross piece and carry the ribbon drums 5—5′. Rigidly mounted on shafts 4—4′ are the collars 6—6′ of miter wheels 7—7′, and surrounding said shafts are the coiled springs 8—8′ which abut against the miter wheels and against the inner surface of fingers 3—3′ and yieldingly press collars 6—6′ against the outer surface of the brace 1. Extending through, and journaled in arms 2—2′ and revolving in grooves on a pair of brackets 9—9′ is a shaft 10. Rigidly secured to each end of shaft 10 is a miter wheel 11—11′ adapted to mesh with the adjacent wheels 7—7′, but said shaft being of such length that while one set of wheels are in mesh, the set at the opposite end of the shaft will be out of contact as indicated in Fig. 2. On shaft 10 between brackets 9—9′ is loosely mounted a sleeve 12, having a horizontal slot 13 through which is projected a stud 14, carried by shaft 10, and on sleeve 12 is a worm 15 which meshes with the teeth of a spur wheel 16 revolubly mounted on a stub axle 17 on a bracket 18 depending from brace 1.

Rigidly secured to, or integral with the inner face of wheel 16 is a cam 16′ and axially mounted on a stub axle 19 on bracket 18 is a lever 20 having the arms 21—21′ extending on each side of cam 16′, and each arm having a dog 22—22′, adapted to in turn be engaged by the swell of cam 16′ for the purpose of rocking lever 20. On one of said arms 21—21′ is a finger 23, which extends upwardly and is provided with a stud 24 which rests in a peripheral slot 25 in collar 26, integral with or rigidly mounted on shaft 10.

20′ is a forked spring carried on lug 20″ on lever 20 and extending upwardly on each side of a lug 27 on wheel 16.

28 is an eccentric mounted on the drive shaft of the main machine, and having a pitman 29, provided at its forward end with a blade 30, adapted to engage the teeth of a ratchet wheel 31 rigidly mounted on shaft 10.

In use the ribbon is wound on drum 5, and suitably fastened to its companion 5′. The drums are then slipped over their shaft, and set screws 32 carrying the springs 33 are adjusted to anchor the drums to their shafts, and the shifting mechanism arms arranged with the gear wheels 11′ on shaft 10 in mesh with the gear wheels 7′.

As the main machine is operated, the drive shaft will operate eccentric 28, and reciprocate pitman 29; the forward movement of said pitman forwarding ratchet 31 forwardly through a partial revolution, and the backward movement retracting said arm until blade 30 engages a succeeding tooth on said wheel. Wheel 31 being rigid on shaft 10, carries said shaft through a partial revolution at each reciprocation of the pitman, such revolution of shaft 10 causing the shaft 4 to be revolved, and the ribbon to be wound on drum 5′. The worm on collar 12 meshing with the gear wheel 16, carries said wheel through a partial revolution in the direction of the arrow, with each partial revolution of shaft 10. As the gear wheel revolves, lug 27 engages spring 20′ carried by collar 20, tensioning same in the direction of drum 5. As spur wheel 16 revolves, the cam 16′ is carried with it, and the follower finger 22′ is carried up the incline of the cam swell and around said swell until it reaches the edge of the jump off, at which point lug 27 will be in the position indicated in Fig. 1, when spring 20′ exerts its greatest tension to rock follower 20 in the direction of the drum 5. As wheel 16 continues to revolve, the cam is carried beneath finger 22′ which is snapped into its seat in the jump-off by the rocking of follower 20 through the action of the spring; the

movement of the follower throwing the shifting arm 23 in the same direction, shifting shaft 10 until wheel 11 is in mesh with wheel 7, and arm 5 is revolved upon further operation of the machine. As the spur wheel travels on around, the lug 27 engages the other member of the spring 20′, throwing the tension in the direction of drum 5′ so that as cam 16′ completes the next one half of a revolution, the finger 22 operates in the same manner as described with reference to finger 22′ and shaft 10 is shifted back to its original position; the parts reversing the direction of the ribbons travel, in this manner indefinitely.

While I have referred specifically to a ticket printing and vending machine, to which the present mechanism is applied, the utility of said mechanism in combination with other machines is readily apparent.

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

1. In a device of the class described, a pair of ribbon drums, a driving shaft adapted for alternately acting on said drums, a rocking lever adjacent to and having an arm in engagement with said shaft, a cam adjacent to, and adapted for engagement with said lever, a spur wheel rigid on said cam, a worm on said shaft engaging said spur wheel, and means for revolving said shaft.

2. In a device of the class described, a pair of ribbon drums, a driving shaft adapted for alternately acting on said drums, a rocking lever adjacent to and having an arm in engagement with said shaft, a cam adjacent to and adapted for engagement with said lever, a spur wheel rigid on said cam, a slotted sleeve loosely mounted on said shaft, a stud on said shaft projecting through said slot, a worm on said sleeve engaging said spur wheel, and means for revolving said shaft.

3. In a device of the class described, a pair of ribbon drums, a driving shaft alternately acting on said drums, a rocking lever adjacent to and having an arm in engagement with said shaft, a cam adjacent to said lever, fingers on said lever adapted for alternate engagement with said cam, means on said shaft for revolving said cam, a forked spring on said lever, and a lug on said cam adapted to alternately engage the separate spring members, for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ROBERT A. POLLOCK.

Witnesses:
JAMES ARMSTRONG,
FRED W. SMITH.