

J. RABER.
TYPE WRITING AND RECORDING MACHINE.
APPLICATION FILED FEB. 19, 1909.

1,172,733.

Patented Feb. 22, 1916.

2 SHEETS—SHEET 2.

Fig. 5.

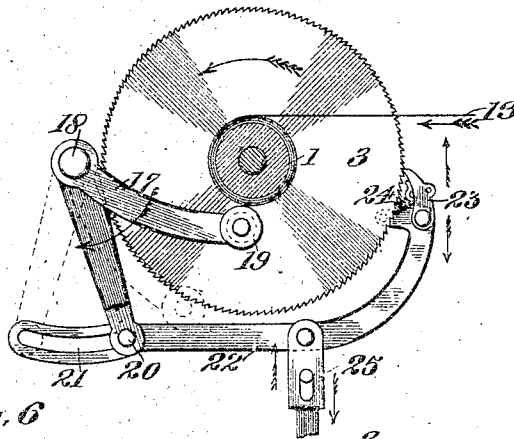


Fig. 6.

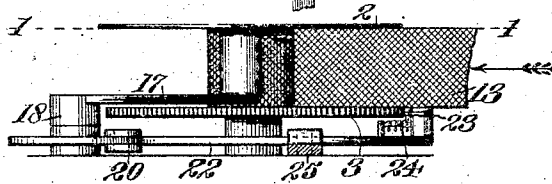
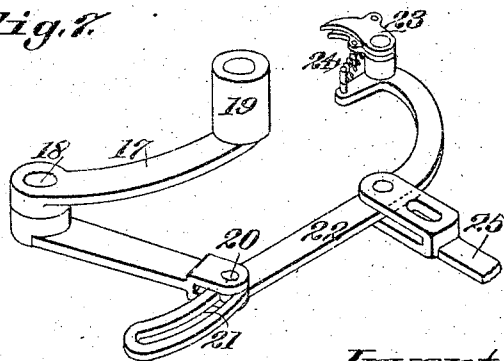


Fig. 7.



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UNITED STATES PATENT OFFICE.

JOSEPH RABER, OF POPLAR BLUFF, MISSOURI, ASSIGNOR, BY MESNE ASSIGNMENTS,
TO THE DALTON ADDING MACHINE COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

TYPE-WRITING AND RECORDING MACHINE.

1,172,733.

Specification of Letters Patent.

Patented Feb. 22, 1916.

Application filed February 19, 1909. Serial No. 478,967.

To all whom it may concern:

Be it known that I, JOSEPH RABER, a citizen of the United States, residing at Poplar Bluff, Missouri, have invented a new and useful Type-Writing and Recording Machine, of which the following is a specification.

This invention relates to typewriting and recording machines in which inking ribbons are used, and more particularly to mechanism for moving the ribbon during the operation of the recording devices.

Heretofore in machines of the character referred to, it has been usual to rotate the ribbon spool a fixed distance at each operation of the recording type, irrespective of the quantity of ribbon wound on the spool. This operation, it is obvious, results in unequal movement of the ribbon, since when the ribbon is winding onto the small core of the spool it requires a greater rotation of the spool to take up a given quantity of ribbon than it does when the spool is more nearly filled.

The object of this invention is to provide a mechanism for use in the class of machines referred to, operable effectively to move the ribbon a given distance across the printing point, irrespective of the quantity wound on the spool on which a ribbon is winding.

Figure 1 is a sectional view of a spool adapted for use in a recording machine, showing my improved ribbon-feed mechanism in combination therewith. Fig. 2 is a side elevation thereof. Fig. 3 is a perspective view of the operating levers whereby the movement of the ribbon is regulated. Fig. 4 is a perspective view of clutch device which may be used instead of pawl and ratchet devices for rotation of the spool. Fig. 5 is a sectional view of a spool and operating mechanism in which the pawl carrying lever is pivoted to the operating link and is provided with pin-and-slot connection with the regulating lever. Fig. 6 is a side elevation thereof. Fig. 7 is a perspective view of the operating levers detached from the spool.

The spool body or core 1, which is secured on the spool shaft in any convenient manner, is provided on one end with a retaining flange 2 and on the opposite end with a wheel 3. The body of the spool on which the ribbon is intended to wind is embraced between the flange 2 and the wheel 3. In

some machines, such, for instance, as front strike typewriters, the spools 1 are supported on vertical shafts, while in others, such as the typewriters of the basket type, the spools are supported on horizontal shafts. This invention is adapted for use in connection with either type of machines, and it is immaterial whether the spool is mounted vertically or horizontally.

A lever 4 is pivoted to some stationary part of the machine adjacent to the spool, and has one arm extending between the flange 2 and the wheel 3, said arm being provided on its free end with a roller 5. The other arm of the lever 4 is pivoted to one end of the link 6, whose opposite end is connected to an operating link 7 by a pin 7^a, and which is arranged to be oscillated longitudinally at each operation of the recording type. The means for accomplishing this operation is immaterial, as it may be effected by many well understood devices. A lever 8 is pivoted at 9 to some stationary part of the machine and extends alongside of the wheel 3, having a pawl 10 pivoted to its free end bearing upon the periphery of the wheel 3 and engaging with the teeth thereon. A spring 11 connecting the pawl 10 with the lever 8 holds said pawl in engagement with the wheel and prevents accidental displacement thereof. A slot 12 in the lever 8 receives the pin 7^a on the end of the operating link 7, constituting pin-and-slot connection between these parts. From the foregoing it is plain that oscillation of the operating link 7 will result in oscillation of the lever 8 and effect rotation of the spool through the medium of the pawl 10, causing the ribbon 13 to wind onto said spool. The roller 5 bearing against the outer roll of the ribbon as it winds onto the spool, will cause the lever 4 to move outwardly as the spool becomes filled, causing the opposite arm of said lever to move the link 6 and the operating link 7 nearer the free end of the lever 8. There is equal movement of the link 7 at all operations, so that as the connection between the operating link and the lever 8 approaches the free end of said lever, the movement of the latter will diminish; the decrease in such movement being gradual as the spool becomes more nearly filled. It is obvious therefore that the quantity of the ribbon wound on the spool determines the scope of

movement of the operating lever 8, said lever being moved a greater distance as required to wind an equal quantity of the ribbon onto the spool when the spool is empty, as is wound by less movement of the lever when the spool is partially filled.

A clutch device, as shown in Fig. 4, may be used to operate the spool instead of the pawl and ratchet shown in Fig. 1. The clutch device comprises a clutch member 14, in the form of a cam, pivoted to the end of the lever 8 and held against movement in one direction by a pin 15. A spring 16 is arranged to actuate the member 14 from the pin 15 so that when the lever 8 moves in one direction the cam member will slide over the periphery of the wheel 3, but when the lever moves in the opposite direction the cam will make frictional engagement with the wheel, and rotate the spool.

In the construction shown in Figs. 5, 6 and 7, a lever 17, pivoted at 18, has one arm carrying a roller 19 between the flange 2 and the wheel 3. The other arm of said lever is bifurcated and has a pin 20 passing through an arcuate slot 21 in a lever 22. The lever 22 carries pawls 23, which are held in engagement with the wheel 3 by a spring 24. An operating link 25 is pivoted to the lever 22 between the lever 17 and the pawl 23 whereby said lever will be operated by the link. As the ribbon winds onto the spool the lever 17 is operated and moves the same toward the end of the lever 22, thereby increasing the distance separating the pivot 20 from the operating link 25. This causes the end of the lever 22 to be moved in inverse proportion to the quantity of ribbon on the spool, whether the spool be operated to wind or unwind the ribbon with respect thereto. In this construction the pivot 20 on which the lever 22 operates is movable, while in the construction shown in Fig. 1 the pivot 9 remains stationary and the operating link moves with respect to the pivot.

I am aware that there may be modifications and alterations in the construction and arrangement of the parts embodying this invention without departure from the spirit and scope of the invention, and I do not restrict myself to identical features of construction or arrangement, but,

What I claim and desire to secure by Letters Patent is.

1. In a recording machine, the combination with a revoluble spool adapted to receive the windings of a ribbon, and a ratchet wheel for revolving said spool, of a support, a lever of the third class pivoted to said support, a pawl pivoted to said lever and engaging said ratchet wheel, an actuator connected to said lever intermediate said support and said pawl for oscillating said lever and said pawl to rotate said

ratchet wheel, a bell-crank lever actuated by the windings of the ribbon on said spool, and a connection between said bell-crank lever and said actuator for moving said actuator toward and away from said support, whereby said spool will be actuated varying distances proportionate to the quantity of ribbon wound thereon by uniform movement of said actuator.

2. In a recording machine, the combination with a revoluble spool adapted to receive the windings of a ribbon, and a ratchet wheel for rotating said spool to wind the ribbon thereon, of a lever, a pawl supported by said lever and engaging said ratchet wheel, an actuator connected to said lever for actuating said lever, a stationary support, a bell crank lever pivoted on said stationary support, and a connection between said bell crank lever and said actuator for varying the extent of movement of said first named lever by uniform movement of said actuator.

3. In a recording machine, the combination with a spool adapted to receive the windings of a ribbon, and a ratchet wheel for rotating said spool to wind the ribbon thereon, of a stationary support, a lever pivoted upon said stationary support, a pawl on said lever engaging said ratchet wheel, an actuator connected to said lever between said pawl and said support, a bell crank lever under control of the ribbon wound on said spool, and a link operated by said bell crank lever for varying the position of said actuator with respect to said pawl to vary extent of movement of said first named lever in proportion to the quantity of ribbon wound on said spool and by uniform movement of said actuator.

4. In a recording machine, the combination with a spool adapted to receive the windings of a ribbon, and a ratchet wheel for rotating said spool, of a lever of the third class a pawl pivoted upon said lever and engaging said ratchet wheel, an actuator connected to said lever for actuating the same, a bell crank lever under control of the ribbon wound on said spool, and a connection between said bell crank lever and said actuator for moving said actuator toward and away from said pawl to vary extent of movement of said pawl by uniform movement of said actuator.

5. In a recording machine, the combination with a spool adapted to receive the windings of a ribbon, and a ratchet wheel for rotating said spool, of a support, a lever pivoted upon said support and having a slot therein, a pawl supported by said lever in engagement with said ratchet wheel, an actuator for actuating said lever, a bell crank lever controlled by the windings of the ribbon on said spool, a link connected to said bell crank lever, and a member connecting said link with said actuator and extending

into said slot, whereby said actuator will be moved toward and away from said pawl to vary extent of movement of said pawl proportionate to the quantity of ribbon wound on said spool by uniform movement of said actuator.

6. In a recording machine, the combination with a spool arranged to wind up a ribbon, of a lever of the third class provided with a longitudinal slot, an actuator for actuating said lever, a member on said actuator extending into said slot, means for actuating said spool from said lever, a bell-crank lever actuated by the windings on the spool, and a connection from said bell-crank lever for moving said actuator away from the pivot of said lever in the proportion in which the ribbon winds on said spool to vary extent of said first-named lever by said actuator.

7. In a recording machine, the combination with a spool arranged to wind up a ribbon, of a support, a lever pivoted on said support and provided with a slot, a longitudinally movable actuator connected into said slot for actuating said lever, means for actuating said spool by said lever, a bell-

crank lever controlled by the ribbon winding on said spool, and a link constituting a connection from said last named lever to said actuator for moving said actuator toward and away from said pivot.

8. In a recording machine, the combination with a spool, of a lever for actuating said spool, a pivot upon which said lever operates, an actuator connected to said lever for actuating said lever, a bell-crank lever, means for actuating said bell-crank lever by the windings on said spool, and a link for actuating said actuator from said bell-crank lever for varying the relative positions of said pivot and said actuator effectively to vary the scope of movement of said lever in proportion to the quantity of ribbon wound on said spool by uniform movement of said actuator.

In testimony whereof, I hereunto affix my signature to this specification this first day of February, 1909, in the presence of two witnesses.

JOSEPH RABER. [L. S.]

Witnesses:

CHARLES PICKLES,
JOSEPH J. STEINECKER.