

(No Model.)

2 Sheets—Sheet 1.

C. E. JOHNSON.

RIBBON REVERSING MECHANISM FOR TYPE WRITING MACHINES.

No. 521,288.

Patented June 12, 1894.

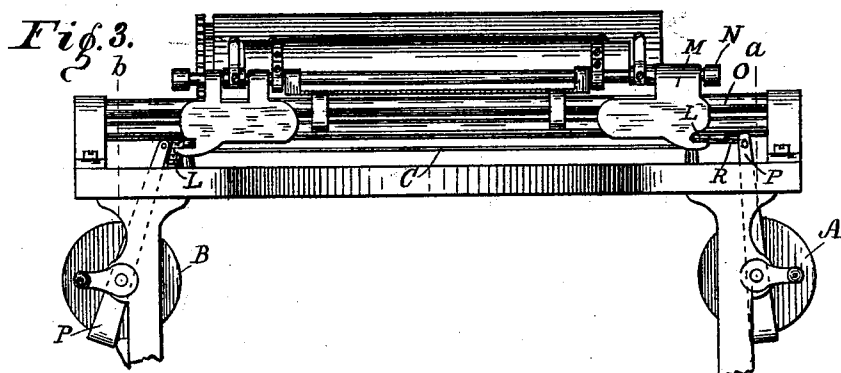


Fig. 2.

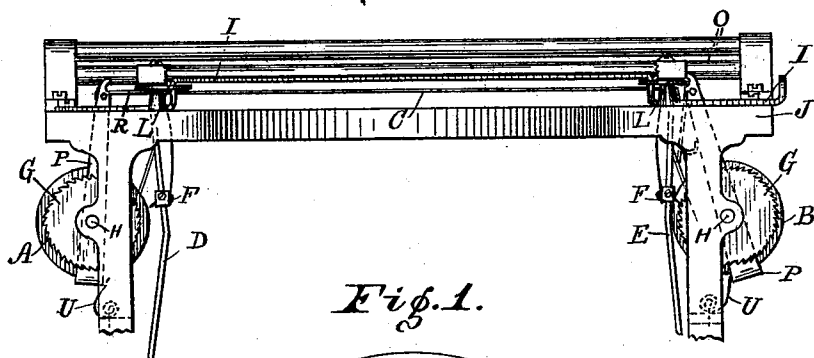
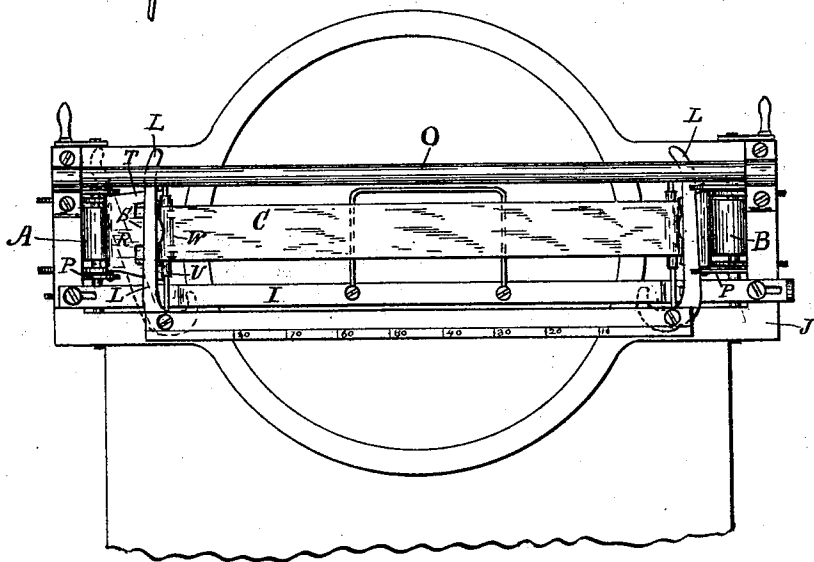


Fig. 1.



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2 Sheets—Sheet 2.

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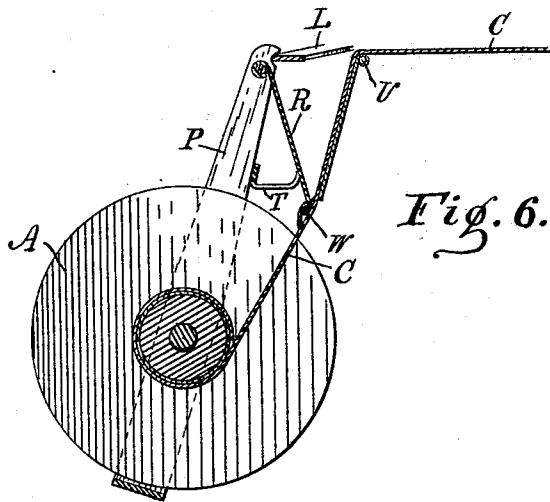


Fig. 6.

Fig. 4.

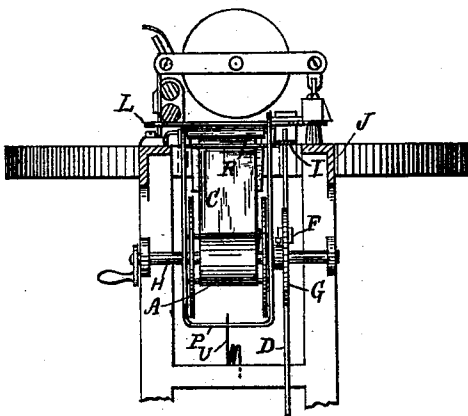
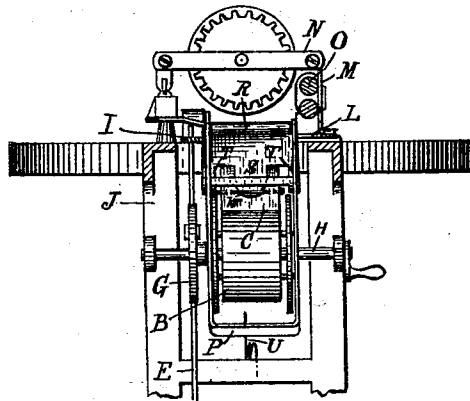


Fig. 5.



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CHARLES ELWYN JOHNSON, OF MOUNT JACKSON, INDIANA.

RIBBON-REVERSING MECHANISM FOR TYPE-WRITING MACHINES.

SPECIFICATION forming part of Letters Patent No. 521,288, dated June 12, 1894.

Application filed January 14, 1892. Serial No. 418,010. (No model.)

To all whom it may concern:

Be it known that I, CHARLES ELWYN JOHNSON, a citizen of the United States, residing at Mount Jackson, in the county of Marion and State of Indiana, have invented a new and useful Type-Writing Machine, of which the following is a specification.

My invention relates to an improvement in the mechanism for moving the ink-ribbon in type-writing machines of that class in which the ribbon is mounted upon two reels and is wound alternately from one reel on to the other. In this class of type-writing machines, mechanism is provided for turning either of the ribbon reels automatically when the type-keys are struck; the turning mechanism of the reel being thrown into engagement by the hand of the operator when the end of the ribbon is reached.

The object of my improvement is, to provide means whereby the direction of the movement of the ribbon may be automatically changed by the ordinary movements of the machine, and without especial attention of the operator.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a top or plan view of a type-writer having my invention attached thereto, the carriage being removed; Fig. 2 a front elevation of the same, the scale-bar being broken away; Fig. 3 a rear elevation, with the carriage in position, but with the mechanism by which it is driven detached; Fig. 4 a view looking toward the left from the dotted line *a* in Fig. 3; Fig. 5 a sectional view looking toward the right from the dotted line *b* in Fig. 3, and Fig. 6 a central sectional view, on an enlarged scale, of the ribbon-reel, ribbon and those parts of my invention which are mounted thereon.

In the drawings A, and B, represent the ordinary ribbon-reels of a type-writing machine.

C, is the ribbon, which is secured at its opposite ends to the reels.

D, and E, are rods to which a vertical reciprocating movement is imparted from the type-keys of the machine, (not shown) in the usual well known manner. Each of the rods D and E, is provided with a fixed pawl F

which is adapted to engage the teeth of the ratchet-wheel G, which is mounted upon the reel-shaft H. The upper ends of the rods engage the shifting bar I, which is mounted on the top of the machine frame J, in such a manner as to have a limited longitudinal movement thereon; the whole arrangement being such that one of the pawls F may be thrown into engagement with its adjacent ratchet-wheel and the other pawl simultaneously disengaged from its ratchet wheel by the longitudinal movement of the bar I, the reel which is engaged being turned so as wind the ribbon thereon by the reciprocating movement of the rod, all of which is common and well known in this class of type-writing machines.

For the purpose of shifting the reel-driving mechanism into engagement with either of the reels, when the ribbon has been unwound therefrom, without the especial attention of the operator, I provide means whereby a shifting-lever shall be automatically thrown, by the movement of the ink-ribbon, at any predetermined point of its movement, into the path of movement of the platen-carriage of the machine, or suitable abutment or catch-plates secured thereto, so that the reel-turning mechanism will be shifted by the movement of said carriage, substantially as hereinafter set forth. The mechanism for this purpose being alike for both of the reels, a description of one will be sufficient.

L, is a lever pivoted to the machine frame so as to swing in a horizontal plane thereon, and having its short end arranged to engage the bar I, while its longer end extends into the path of an abutment or catch-plate M, which is secured to the platen-carriage N, which is arranged to traverse the way O, in the usual well known manner. This lever L, being of thin material, and mounted loosely upon its pivot, is capable of a vertical movement, as well as a swinging or horizontal movement, which is sufficient to enable its outer end to be raised into the path of the catch or abutment on the carriage. While the form shown is a preferable one, any device capable of these movements would subserve the same purpose in my invention.

The longer end of lever L, stands normally in a plane below the abutment or catch-plate

M, as illustrated in Fig. 5, and at the left hand of Fig. 3. When the lever is in its normal position it is not affected by the movements of the platen-carriage. For the purpose of raising lever L into the path of the abutment or catch-plate, I mount upon the reel-shaft, so as to swing thereon in a vertical plane, a light frame P.

Suspended from the upper end of frame P, above the ribbon C, is a plate R, which is hinged at one end to the frame and is provided at its free end with a central tongue S, and at its edges with arms T, bent backward so as to rest against the edge of frame P, and limit the movement of the plate in that direction. The lower end of frame P rests against a light spring U, attached to the machine frame, by means of which the tongue of the plate R is held normally with a light pressure against the surface of the ink-ribbon C, as it rises from the reel to pass over the guide V.

An ordinary pin W, is inserted transversely in the ribbon in such a manner as to leave its central portion exposed, to form an obstruction on the surface of the ribbon, as clearly shown in Figs. 1 and 5.

In operation, the pin W, being inserted near the end of the ribbon, and plate R, being in the position shown in Fig. 6, as the pin in the ribbon moves upward it engages the tongue S of plate R, and, as it continues to move, the free end of the plate is raised to a horizontal position, coming first into contact with the underside of lever L, and then raising the longer end of said lever until it comes in contact with, and is stopped by the carriage-way. At this point, the ribbon continuing to move, the pin W passes out of engagement with the plate R, and, the arms T resting against the ribbon-guide V, lever L is held in this position until it is engaged by the abutment or plate M on the platen-carriage, and is moved by the movement of the carriage to the position indicated by dotted lines at the left-hand of Fig. 1. By this movement of the lever, bar I, is shifted toward the left, thus disengaging the reel-turning mechanism at one end of the ribbon and putting it into engagement with the reel from which the ribbon has been unwound. The bar I is again shifted toward the right by means of a similar shifting-lever, like mechanism on the other reel, and a pin near the opposite end of the ribbon. The movement of the ribbon in the opposite direction brings plate R back to its normal position, and the upper end of frame P, pushes lever L back to its normal position also.

Certain features or devices employed by me in automatically reversing the ribbon feed are not broadly claimed herein, the same being claimed in my application, Serial No. 459,312, pending concurrently herewith, in which also such devices are shown in a more perfect form, and are more fully described.

I claim as my invention—

1. The combination with the platen-carriage, the ink-ribbon, and the ribbon-moving mechanism of a type-writing machine, a shifter connected with said ribbon-moving mechanism, an obstruction, as a pin or bar, secured to the surface of the ribbon, and intermediate connecting mechanism connecting said pin or bar and said shifter, whereby the shifter is brought by the movement of the ribbon into the path of movement of the platen-carriage, and the shifter operated by the movement of the carriage, as set forth.

2. In a type-writing machine, the combination of the pair of reels mounted at opposite sides of the machine-frame, the ink-ribbon passing from one reel to the other, driving mechanism for turning the reels, the shifting-bar connected with said driving mechanism and arranged to throw the driving-mechanism simultaneously into engagement with one and out of engagement with the other of said reels, the platen-carriage arranged to traverse said frame, the lever pivoted to the frame, having one end arranged to engage the shifting-bar and the other end adjacent to the path of said carriage, the pin or like projection secured to the ink-ribbon, and intermediate connecting mechanism connecting said pin and said lever, whereby the lever is brought into the path of the platen-carriage by the movement of the ribbon, substantially as and for the purpose set forth.

3. In a ribbon reversing mechanism for type-writing machines, the combination of the pair of reels, the ink-ribbon wound thereon and extending from one reel to the other, mechanism for driving the reels, the shifting-bar arranged to shift said driving mechanism from one reel to the other, the swinging frame mounted on the reel-shaft, the plate pivoted to one end of said frame, arranged with its free end in contact with the ink-ribbon, and adapted to engage a projection thereon, the shifting-lever pivoted to the main-frame and arranged to operate the shifting-bar, and the platen-carriage arranged to traverse the main-frame, all arranged to cooperate as set forth, whereby the shifting-lever is brought by the movement of the ribbon into the path of the platen-carriage substantially as and for the purpose set forth.

4. The combination, in a typewriting machine, of an ink ribbon, means for feeding the same, an enlargement on said ribbon, a movable device controlled by said enlargement and capable of being interposed in the path of the carriage for automatically reversing the ribbon, and means for effecting such interposition.

5. The combination, in a typewriting machine, of the ribbon, mechanism for shifting the ribbon embodying a pivoted frame having a hinged or pivoted tongue or projection which extends to alongside said ribbon, and a catch or enlargement on said ribbon adapted

ed to engage with said tongue, whereby the mechanism may be operated and the shifting of the feed thereby effected.

5 6. The combination, in a typewriting machine, of the ribbon, mechanism for shifting the ribbon, a traveling carriage bearing projections, intermediate mechanism between the ribbon and the carriage, a catch or enlargement on the ribbon near its end adapted
10 to engage with said intermediate mechanism and throw the same up into the path of the projections on the traveling carriage.

7. The combination, in a typewriting machine, of the ribbon, the ribbon spools, frames or levers pivoted on the spool shafts, the ribbon shifting mechanism, a hinged or pivoted tongue or projection which extends to along- 15 side the ribbon, and a catch or enlargement on said ribbon adapted to engage with said tongue, substantially as set forth.

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