No. 808,158. PATENTED DEC. 26, 1905.

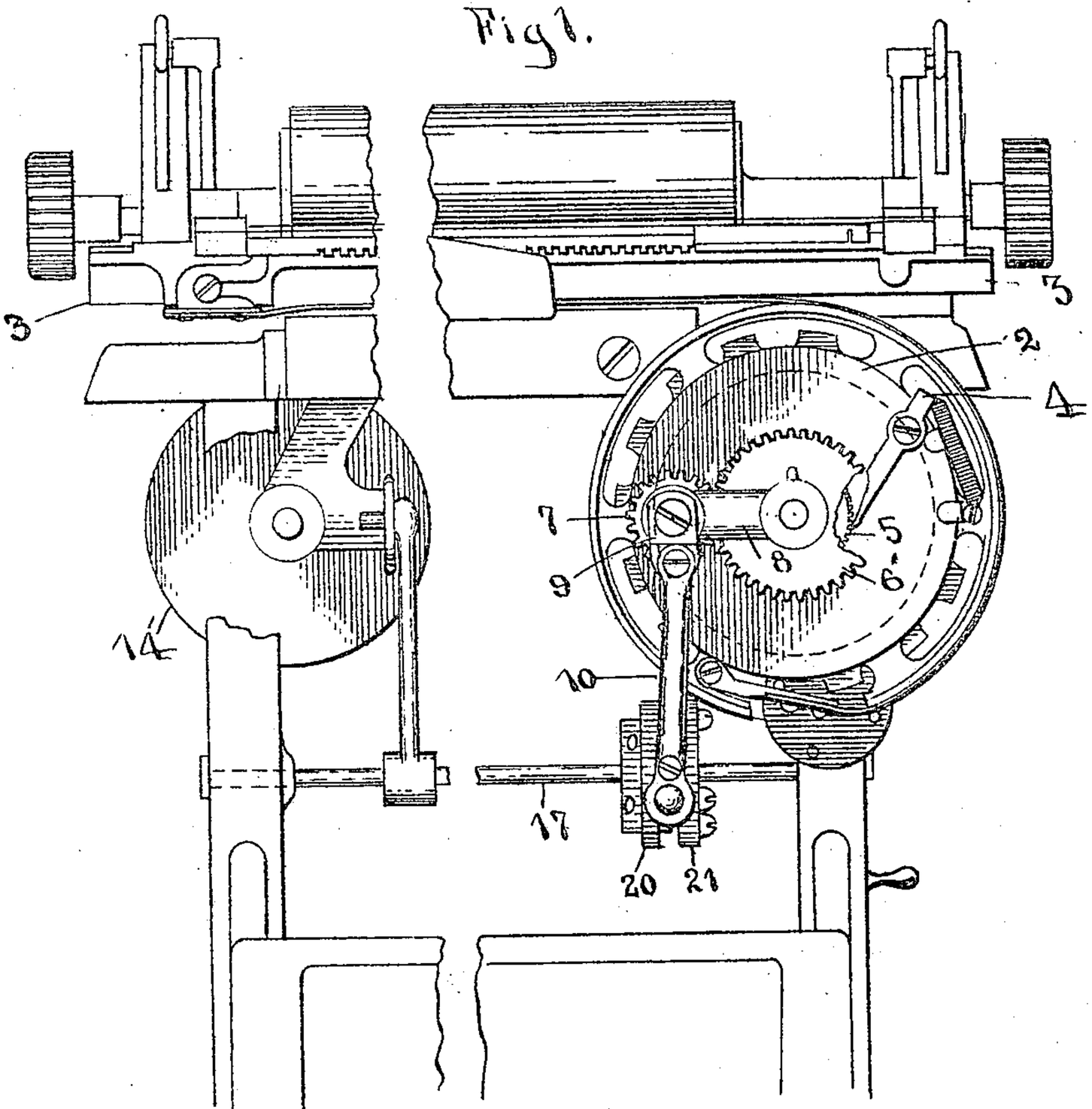
R. B. JONES & A. M. TAYLOR.

SHIFTING MECHANISM FOR TYPE WRITER RIBBONS.

APPLICATION FILED MAY 15, 1902.

2 SHEETS—SHEET 1.

Fig 1.



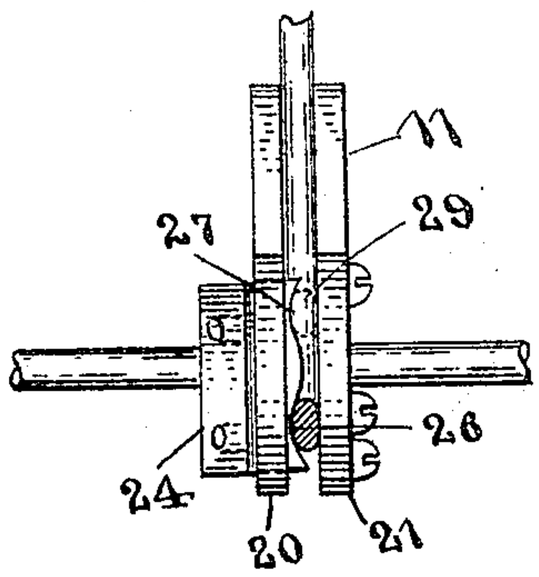


Fig 3.

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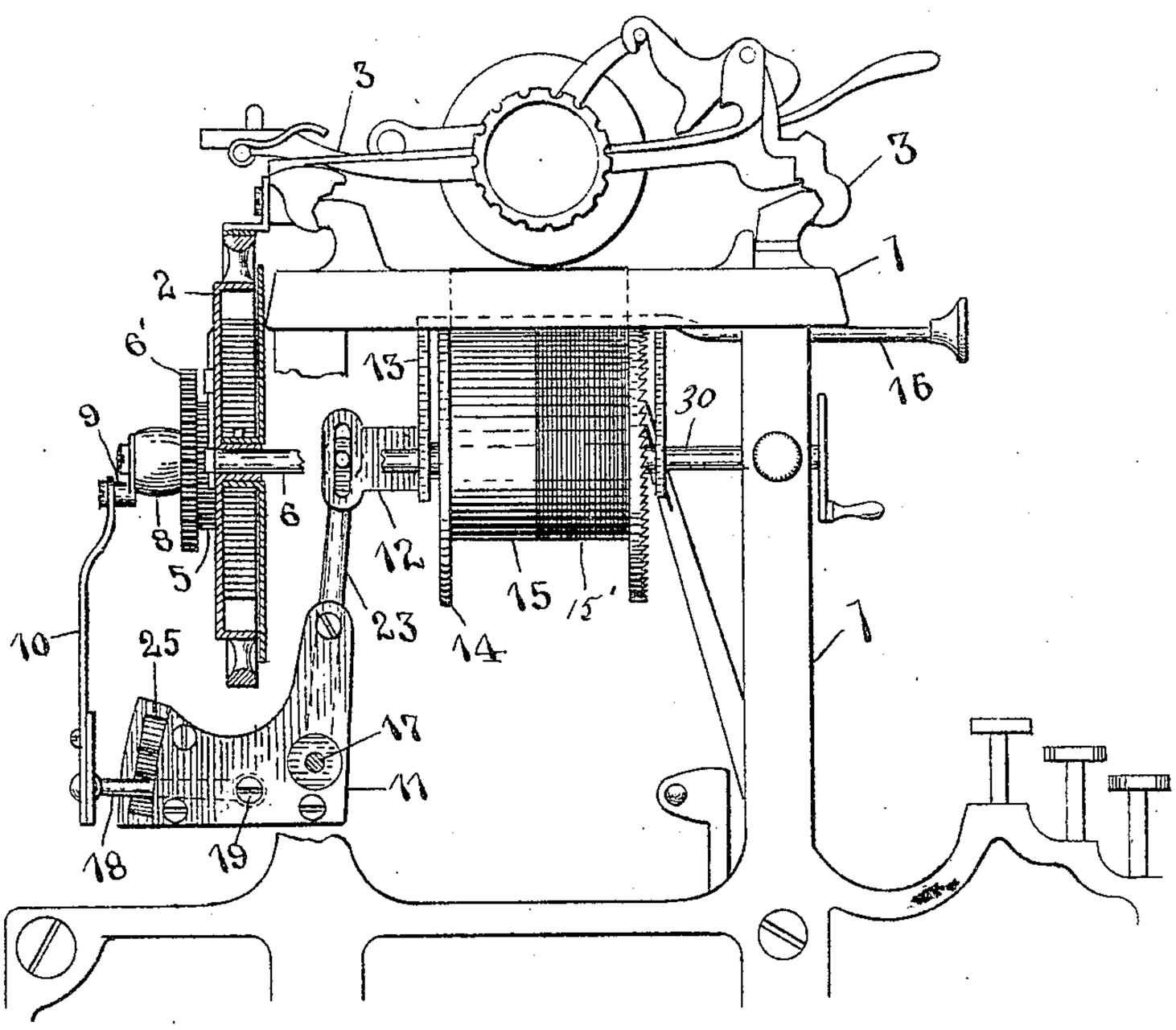
2 SHEETS—SHEET 2.

Fig 2.



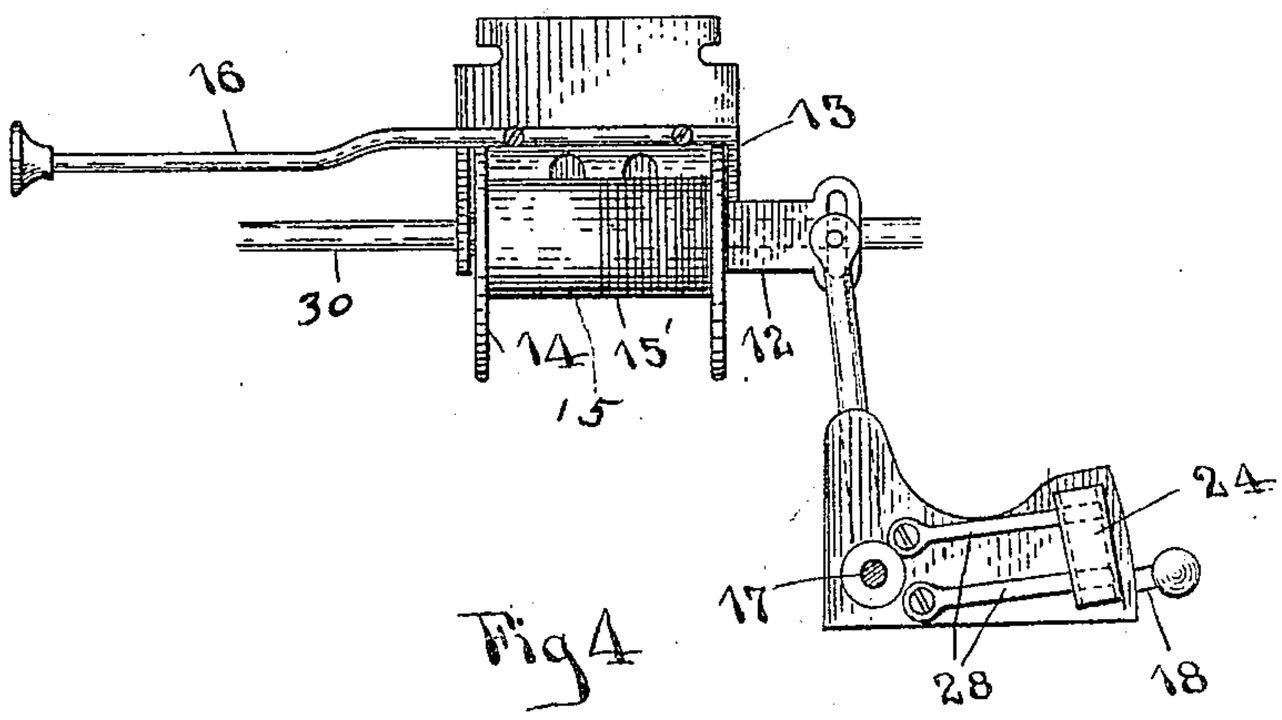


Fig 4

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UNITED STATES PATENT OFFICE.

ROGER B. JONES, OF PHILADELPHIA, AND ABRAHAM M. TAYLOR, OF MERION, PENNSYLVANIA; SAID JONES ASSIGNOR OF ONE-HALF OF HIS RIGHT TO SAID TAYLOR.

SHIFTING MECHANISM FOR TYPE-WRITER RIBBONS.

No. 808,158. Specification of Letters Patent. Patented Dec. 26, 1905.

Application filed May 15, 1902. Serial No. 107,447.

To all whom it may concern:

Be it known that we, ROGER B. JONES, of the city of Philadelphia, and ABRAHAM M. TAYLOR, of Merion, county of Montgomery, State of Pennsylvania, citizens of the United States, have invented certain new and useful Improvements in Shifting Mechanism for Type-Writer Ribbons, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

In general the object of our invention is to provide means whereby a multiplex type-writer ribbon or a ribbon having a plurality of stripes carrying inks of different characteristics is reciprocated, so that the contact of the type is confined to any one of the stripes and at the same time the ribbon is automatically reciprocated transversely, so as to bring the type into contact with different parts of a single stripe to prevent an uneven wearing of the ribbon.

A further object of our invention is to provide a device for accomplishing the above-named results and which at the same time may be easily applied or attached to different forms of type-writers having only the automatic reciprocating mechanism.

For a full and complete disclosure of our invention reference may be had to the following specification and to the accompanying drawings, forming a part thereof, in which—

Figure 1 shows a rear elevation of a machine including our shifting mechanism, parts being broken away for clearness. Fig. 2 is an end elevation of a machine, parts being shown broken away and the spring-drum for reciprocating the carriage being shown in section. Fig. 3 is an end view of the means for changing the relation between the reciprocating part of the machine and the ribbon-holder; and Fig. 4 is a side view of the same, taken opposite to that of Fig. 2 and also showing the manner of connecting to the ribbon-holder.

The same reference-numerals designate similar parts throughout the figures of the drawings.

1 indicates the frame of a type-writing machine, upon which are mounted the usual parts necessary for its operation. These include, among other things, a spring-drum 2 for reciprocating the carriage 3 as the letters and words are written. The spring-drum 2 carries a spring-actuated dog 4, which is adapted to engage a ratchet-wheel 5, mounted upon a projecting stud 6, attached to the frame of the machine. Connected to this ratchet-wheel 5 is a gear-wheel 6′, which meshes with a second gear-wheel 7, carried by the arm 8, which is rigidly attached to the stud 6. It will readily be seen that as the spring-drum rotates in a clockwise direction both gears will be rotated, but when the spring-drum moves in an anticlockwise direction the gears will not be affected. Upon the shaft which carries the gear-wheel 7 is mounted a crank-arm 9, to which is attached one end of the link 10, the lower end of said link being attached to the bell-crank lever 11, the details of which will be hereinafter described. The upper end of said bell-crank lever is attached to the arm 12, extending from the ribbon-spool holder 13, slidably mounted upon the shaft 30.

14 indicates a suitable ribbon spool or spools adapted to carry a multiplex ribbon or a ribbon consisting of a plurality of stripes 15 and 15′, comprising inks of different characteristics, such as red and black ink or copying and record inks.

The requirements of different kinds of type-writing demand that figures and letters be made in different colors—such as, for instance, in accounting where the profit or loss must be clearly shown without the necessity of resorting to words to indicate the same. It is also often desired to use a record and a copying ribbon upon a single machine without the necessity of changing from one ribbon to another by taking one out and inserting the other or by shifting the ribbons longitudinally from one to the other.

Our invention obviates the necessity of completely substituting one ribbon for another by providing a pair of ribbons or stripes on a single ribbon, whereby a simple transverse shifting of the ribbon-holders transfers the contact-point of the type from one ribbon to another, at the same time allowing of the usual automatic reciprocation of the ribbon. However, we do not wish to be limited to two ribbons, as it is obvious that a plurality of ribbons or a plurality of stripes upon a single ribbon may be used without changing the scope of our invention.

To accomplish the transverse shifting of the ribbon-holders to bring the different stripes into contact with the type, we employ the following construction in connection with the

automatic shifting mechanism already described. 16 indicates a shifting bar, which projects at the front of the machine and is attached at its inner end to the ribbon spool-holders. It will be seen that by pushing upon this shifting bar if the angle between the arms of the bell-crank lever 11 can be changed the ribbon-spool holder will be caused to assume a different position in relation to the type and at the same time will be reciprocated by the crank-arm 9. To this end the portion of the bell-crank lever 11 which is carried by the shaft 17 is made in two parts, the arm 18 being pivoted at 19 to the plates 20 and 21, which are attached to and form substantially a part of the arm 23. To hold the arm 18 in different positions between the plates 20 and 21, a dog 24 is provided which projects through an opening 25 in the plate 20 and is provided on its inner end with the notches or depressions 26 and 27. This dog is pressed inward yieldingly by the springs 28, which are attached to the outside of the plate 20 and enter openings in the dog 24, as shown in Fig. 4 of the drawings.

It will now be seen that by pushing upon the bar 16 the bell-crank lever 11 will be rotated upon the shaft 17 and the arm 18 thereby forced out of the notch 26 into the notch 27, as indicated by the numeral 29 in Fig. 3. This will cause the angle between the arm 23 and the arm 18 to change, and thereby the ribbon-holder will be allowed to assume a position more to the left than shown in Fig. 2, so that as said ribbon-holder is reciprocated by the oscillations of the bell-crank lever 11 the type will have such a relation to the ribbon that they will contact only with the right-hand stripe 15′, and therefore the writing will be done in the particular ink carried by that stripe. By pulling the bar 16 outwardly the action is reversed and the left-hand stripe 15 is brought into operation.

It is obvious that the dog 24 may carry more than two notches and a corresponding number of stripes be used upon the ribbon, by which the type-writing machine may be adapted to be used with three or more different kinds of inks.

In regard to the construction of the ribbon itself the same may be composed of a single integral piece having a plurality of stripes of different inks, or the ribbon may be composed of separate and detached parallel ribbons each containing the separate inks, but occupying the same space that the single integral ribbon would occupy. We do not wish to be limited to the exact details of construction herein set forth, for minor changes may be made without departing from the spirit of our invention, such as that of making the plates of the bell-crank lever integral when the same is to be sold with the machine or of making said parts separate, adapting them to be attached to a machine having only a single ribbon and the automatic shifting mechanism.

What we do claim, and desire to protect by Letters Patent of the United States, is—

1. In a type-writing machine, a ribbon, means for automatically reciprocating the ribbon transversely, and means for shifting the ribbon so that the contact of the type is confined to a portion only of the width of the ribbon, as the same is reciprocated by the said automatic means, said means for shifting the ribbon comprising a bell-crank lever provided with means for changing the relation between the arms of the said lever substantially as described.

2. In a type-writing machine, a ribbon, means for feeding the ribbon longitudinally, means for automatically reciprocating the ribbon transversely, and a bell-crank lever, provided with means for changing the relation between the arms of the said lever, to shift the ribbon so that the contact of the type is confined to a portion only of the width of said ribbon as the same is reciprocated by said automatic means.

3. In a type-writing machine, a ribbon, means for feeding the ribbon longitudinally, means for automatically reciprocating the ribbon transversely and a bell-crank lever between said automatic means and said ribbon, and means for changing the relation of the arms of the said lever one to the other, and intermediate connections between the bell-crank lever and the ribbon.

4. In a type-writing machine, the combination of a multiplex ribbon, holders for said ribbon, means for rotating said holders automatically, means for reciprocating said holders automatically and a bell-crank lever provided with means for changing the relation between the arms of said lever, interposed between said holders and said automatic shifting means, for changing the relation between said automatic shifting means and the holders to confine the contact of the type to different portions of the width of said ribbon as the same is reciprocated.

5. In a type-writing machine, the combination of a multiplex ribbon, holders for said ribbon, means for rotating said holders, automatic means for reciprocating said holders, a bell-crank lever, the arms of which are adjustable, located between said holders and said automatic means and spring-actuated means for holding said arms in an adjusted position.

6. The combination in a type-writing machine of a multiplex ribbon, means for feeding said ribbon longitudinally, and an automatically-actuated bell-crank lever provided with means for changing the relation of the arms of said lever one to the other to move different portions or sections of said ribbon to the printing-center of the machine.

7. The combination in a type-writing machine of a multiplex ribbon, a holder for said

ribbon and a bell-crank lever connected to said holders and provided with means for changing the relation between the arms of said lever and yielding means for holding said arms in an adjusting position.

8. In a type-writing machine, the combination with a multiplex ribbon, and a bell-crank lever, means for changing the relation between the arms of said lever, and connections between said ribbon and said lever, whereby different sections of said ribbon are brought to the printing-center.

9. In a type-writing machine, the combination of a multiplex ribbon, holders for said ribbons, means for rotating said holders, a rotatable part, a bell-crank lever, a link connecting said rotatable part and one arm of the bell-crank lever, connections between the other arm of the bell-crank lever and said ribbon-holders, said first-named arm being pivoted and a spring-pressed dog having a plurality of notches or depressions for holding said pivoted arm in different positions, substantially as described.

10. In a multiplex-ribbon type-writing machine, means for confining the operation of the printing-levers to a portion only of said ribbon, said means comprising a bell-crank lever, one arm of which is pivoted with respect to the other, means for holding said pivoted arm in a fixed relation to the other arm, and means for overcoming the tension of said spring to throw said arm into another position with respect to the stationary arm.

11. In a type-writing machine, a multiplex-ribbon holder, means for reciprocating said holder transversely and means for limiting said reciprocatory motion, comprising a bell-crank lever, means for adjusting one arm of said lever with respect to the other, yielding spring means for holding said movable arm in an adjusted position, and means for forcing said arms toward or away from each other to overcome said yielding means and to throw said adjustable arm into another position with respect to the fixed arm.

12. In a multiplex-ribbon type-writing machine, means for bringing different portions of said ribbon up to the printing-center, comprising a bell-crank lever, one arm of which is adjustable with respect to the other, and means for holding said adjustable arm yieldingly in its adjusted position.

13. In a type-writing machine, the combination of a bell-crank lever, means for changing the relation between the arms of said lever, and an inking-surface that is moved by said bell-crank lever.

14. In a type-writing machine, the combination of an inking-ribbon, means for feeding said ribbon longitudinally, an automatically-actuated bell-crank lever, means for changing the relation of the arms of said lever one to the other, and intermediate connections between the bell-crank lever and said ribbon.

15. In a type-writing machine, the combination with a ribbon-holder and means for automatically reciprocating said ribbon-holder transversely, of relatively movable arms, means connecting one of said arms to said automatic means, means connecting the other of said arms to said ribbon-holder, and means for changing the angular relation between said arms.

16. In a type-writing machine, the combination with a ribbon-holder, and means for automatically reciprocating said ribbon-holder transversely, of two pivoted arms, means connecting one of said arms to said automatic means, means connecting the other of said arms to said ribbon-holder, and means for changing the angular relation between said arms.

17. In a type-writing machine, the combination with the ribbon-holder 15 and means for automatically reciprocating said ribbon-holder transversely, of two pivoted arms 18 and 23, the link 10 connecting said arm 18 with said automatic means, the arm 12 connecting said arm 23 with said ribbon-holder 15 and spring-controlled means 24 for holding said arm 28 in different angular relations, with respect to the arm 23.

18. In a type-writing machine, the combination with a ribbon-holder and means for automatically reciprocating said ribbon-holder transversely, of two pivoted arms, means connecting one of said arms to said automatic means, means connecting the other of said arms to said ribbon-holder and spring-controlled adjusting means connected to said first-mentioned arm for changing the angular relation between said arms.

19. In a type-writing machine, the combination with the ribbon-holders, and means for automatically reciprocating said ribbon-holders transversely, of two pivoted arms, means connecting one of said arms with said automatic means, means connecting the other of said arms to said ribbon-holders, means for securing said arms together, and means for changing the angular relation between said arms.

20. In a type-writing machine, the combination with the ribbon-holders and means for automatically reciprocating said ribbon-holders, of a pivoted arm connected by suitable means with said automatic means, a second pivoted arm, connected by suitable means, with said ribbon-holders, means for reciprocating said second arm from the first-mentioned arm, and means for changing the angular relation between said arms.

In witness whereof we have hereunto set our hands this 14th day of May, A. D. 1902.

ROGER B. JONES.
ABRAHAM M. TAYLOR.

Witnesses:
FREDK. C. EBERHARDT,
EDW. W. VAILL, Jr.