

(No Model.)

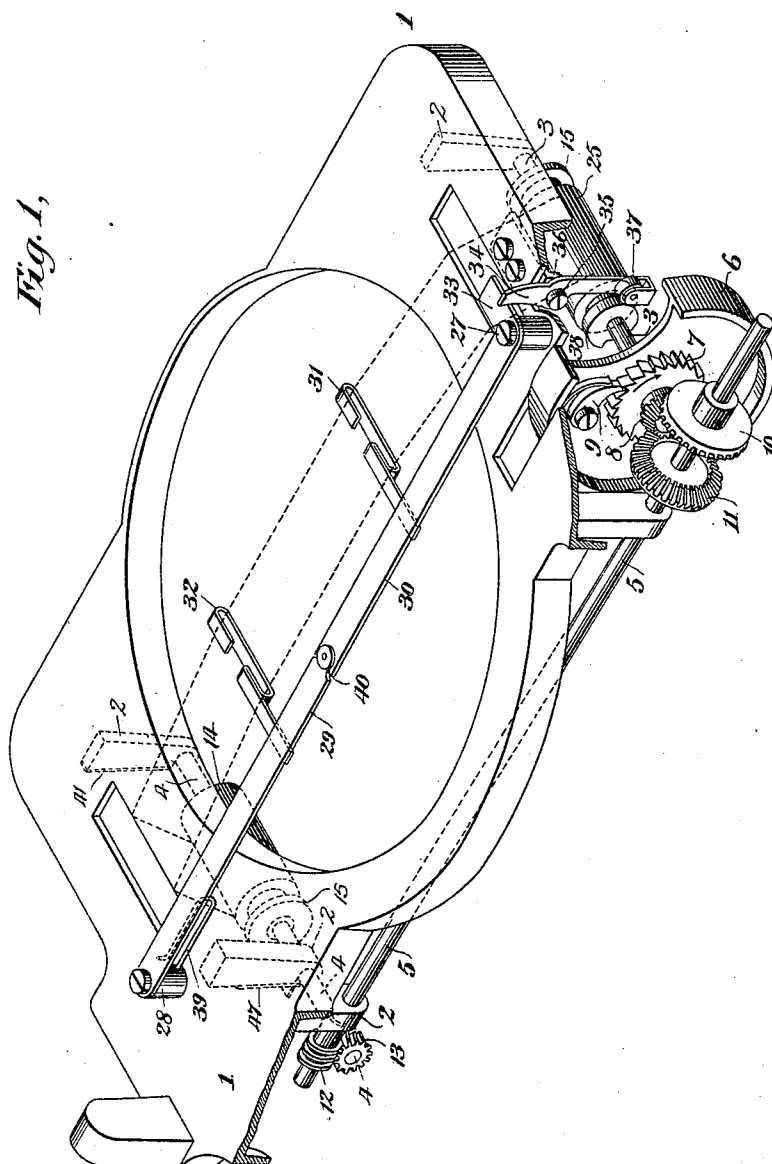
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L. P. DISS.
TYPE WRITING MACHINE.

No. 481,750.

Patented Aug. 30, 1892.

Fig. 1,



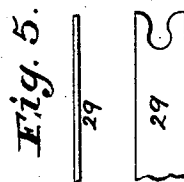
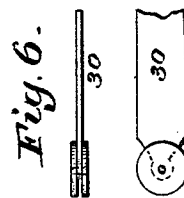
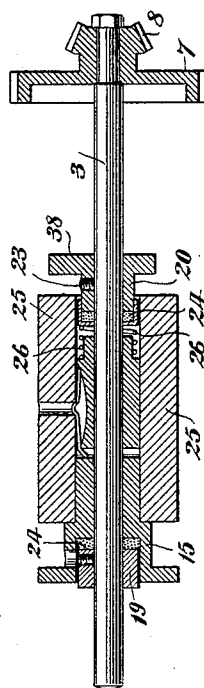
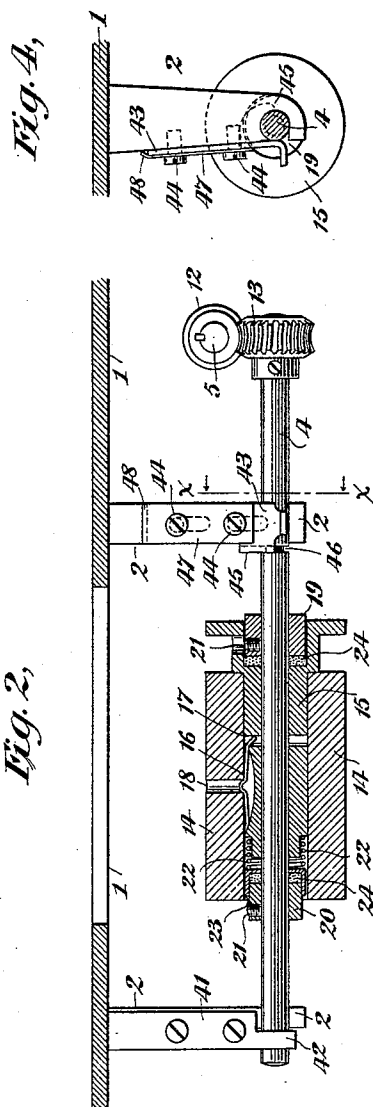
Witnesses
C. E. Ashley
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Inventor
Louis P. Diss
By his Attorney
H. D. Donnelly

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UNITED STATES PATENT OFFICE.

LOUIS P. DISS, OF ILION, ASSIGNOR TO THE REMINGTON STANDARD TYPE WRITER MANUFACTURING COMPANY, OF NEW YORK, N. Y.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 481,750, dated August 30, 1892.

Application filed January 21, 1892. Serial No. 418,780. (No model.)

To all whom it may concern:

Be it known that I, LOUIS P. DISS, a citizen of the United States, and a resident of Ilion, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates more particularly to that class of type-writers employing inking-ribbons; and it consists in the various features of construction and combinations of devices hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a perspective view of so much of a type-writing machine as is necessary to exhibit my improvements, part of the top plate of the machine being broken away and the ribbon shown in dotted lines. Fig. 2 is an enlarged sectional elevation taken at the right-hand side of the machine, and showing more particularly the construction of the ribbon-spool thereat and the mode of mounting it and its shaft. Fig. 3 is an enlarged vertical section taken at the left-hand side of the machine, and showing particularly the construction and mode of mounting of the ribbon-spool thereat. Fig. 4 is a vertical section taken at the line *xx* of Fig. 2. Fig. 5 is a detail view to illustrate one member of the gear-tooth connection between the ribbon-moving arms, and Fig. 6 is a detail view of the other member thereof.

In the several views the same part will be found designated by the same numeral of reference.

1 is the top plate provided with downward projections or supports 2, in which are formed suitable bearings for the spool-shafts 3 and 4 and for the long connecting-shaft 5, arranged at right angles to the spool-shafts. On the axis of the shaft 3 is oscillated the usual main-spring wheel 6, which is connected to and actuated alternately in opposite directions by the paper-carriage and the main driving-spring, (not shown,) as customary heretofore. To the shaft 3 is attached a combined ratchet-wheel 7 and beveled gear 8, and to the main-spring wheel 6 is pivoted a pawl 9, which engages the ratchet-wheel 7 in a manner such

that the oscillation of the main-spring wheel 6 will cause the combined ratchet-wheel and beveled gear and the shaft 3 to revolve always in the direction indicated by the arrow at Fig. 1. To the shaft 5 are fastened beveled gears 10 and 11 and a worm-gear 12. The worm 12 is constantly engaged with a worm-wheel 13, fastened to the spool-shaft 4. The beveled gears 10 and 11 are alternately brought into engagement with the beveled gear 8 by shifting or sliding the shaft 5 in opposite endwise directions by hand, whereby the shaft 4 is caused to revolve alternately in opposite directions.

The spool 14 at the right-hand side of the machine is preferably made of wood and is loosely fitted to a metallic sleeve 15, which is loosely fitted to the shaft 4 and is connected to the spool 14 by means of a spring-detent 16, which is bent at one end and forced into a hole 17 of the sleeve. The middle portion of the spring-detent is bent to form a projection, which enters a hole 18 in the wooden spool far enough to prevent its turning on the sleeve and yet allows the spool and the sleeve to be easily connected and disconnected by forcing each longitudinally in opposite directions.

On the shaft 4 are arranged collars 19 and 20, which are held firmly in position by means of set-screws 21, the collar 19 being arranged within a recess or housing at one end of the sleeve 15. The opposite end of the sleeve is reduced in diameter and provided with a coiled spring 22, which at one end bears against a shoulder formed on the sleeve and at its other end against a cup 23.

On the shaft 4, between the inner end of the collar 19 and the sleeve, is arranged a felt washer 24, and between the inner end of the collar 20 and the bottom of the cup 23 is arranged a similar felt washer 24. The pressure of the spring 22 between the collars 19 and 20 and the ends of the sleeve 15 causes the sleeve and the spool 14 to revolve with the shaft 4. It will readily be seen that the felt washers would serve the same purpose without the spring or the cup; but I prefer to use the spring with the washers, because it has greater elasticity and because by using the cup a better bearing for the felt washers is pro-

vided than would be obtained by the end of the spring. The spool 25 at the left-hand side of the machine and the sleeve 15 therefor are constructed and mounted upon the shaft 3 in the same manner that the spool 14 and its sleeve are mounted and arranged, excepting, however, that the spring 22 is enough stronger than the spring 26 to cause the ribbon-spool 14 to revolve with the shaft 4 and wind the ribbon from the spool 25 onto the spool 14 against the resistance of the spring 26, which has only sufficient strength to cause the spool 25 to revolve in the direction in which the shaft 3 revolves and wind up the ribbon which is unwound by and from the spool 14, which controls the endwise movements of the ribbon in both directions. By this arrangement the spool 25 is revolved in the opposite direction to that of the shaft 3 whenever the ribbon is being wound from the spool 25 to the spool 14, and when the movement of the ribbon is reversed the spool 25 will revolve in the same direction as its shaft 3, but much slower. This peculiar operation of the ribbon-spool 25, which is due to its being carried with its shaft by friction, is an important element in my device for the widthwise as well as the lengthwise movement of the ribbon. The ribbon-spool 14 is also carried with its shaft by friction, which is not essential to its proper working, as it would work just as well if it were keyed or fastened to its shaft by other means; but I prefer to carry it by friction, so that it may be revolved by hand without revolving its shaft, thereby facilitating the lengthwise movement of the ribbon, as where several colors are fastened together to bring either of them into use.

For the purpose of effecting a lateral movement of the ribbon I pivot to the top plate at 27 and 28 two arms 29 and 30, which are provided with ribbon supports and guides 31 and 32, formed or bent into C-shaped loops. The arm 30 is provided with an extension 33, arranged at right angles to said arm, which engages the upper end of a lever 34, pivoted at 35 to a plate 36, fastened to the top plate 1. The lower end of the lever 34 is provided with an antifriction roll 37 to bear against a cam or eccentric 38, which is connected to and is revolved with the shaft 3. Preferably this cam 38 is made integral with the collar 20. To the post or projection 28, at which the arm 29 is pivoted, is fastened one end of a spring 39, the other end of which is attached to the arm 29. The arms 29 and 30 have a gear-tooth connection at 40, by which the action of the spring 39 on the arm 29 will cause the end or extension 33 on the arm 30 to swing against the upper end of lever 34 and move the roll 37 against the cam 38. Now it will be seen that as the cam 38 is slowly revolved with the shaft 3 in the direction indicated by the arrow the ribbon supports and guides 31 and 32 will swing slowly in one direction until the high point of the cam has passed the roll 37, when by the force of the spring 39 they will

be quickly returned to their normal position and the roll 37 swung from the high to the low point of the cam. Thus the ribbon 50 will be moved slowly widthwise in one direction and quickly in the other, whereby the ribbon will receive the impressions of the type while moving sidewise in one direction only. It will be seen, also, that by the worm and worm-wheel connection of the shafts 4 and 5 shaft 4 will revolve much slower than the shaft 3, the purpose of which is to revolve the ribbon-spool 14 enough slower than the shaft 3 so that when the cam has made a full revolution (whereby one each of the slow and quick movements of the ribbon are effected) the ribbon will have moved lengthwise a distance not to exceed the width of a type. Thus the lines of the type impressions across the ribbon will be oblique and parallel to one another and close together.

For the purpose of detachably securing the shaft 4 to its bearing in the downward projections or hook-shaped hangers of the top plate I fasten to one of the hangers a cap-plate 41, the lower end 42 of which is made to bear on a point of the shaft beyond the bearing of the hanger, so that when the opposite end of the shaft is released the shaft will be free to swing outward. The opposite end of the shaft 4 is secured to its bearing by a slide 43, which is movably connected to the hanger by means of two screws 44, and is provided with a side projection 45, suitably formed to engage an annular groove 46, formed in the shaft 4. By means of the screws 44 I attach, also, a detent 47, which is made of thin sheet metal, and has one end 48 bent to extend over the end of the slide 43 to hold it in position against any usual jar; but it is capable of yielding to a slight pressure on the lower end of the slide, which is bent outward to form a finger-piece 49 for convenient manipulation.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writing machine, the combination of an inking-ribbon, a ribbon-spool shaft 4, arranged to revolve alternately in opposite directions, a ribbon-spool connected to said shaft to turn therewith in whichever direction said shaft may be rotated, a ribbon-spool shaft 3, arranged to turn always in the same direction, and a ribbon-spool frictionally connected to said shaft, so that it may turn either with said shaft or in a direction opposite to that of the rotation of said shaft, according to the direction of rotation of the opposite shaft and spool.

2. In a type-writing machine, the combination of an inking-ribbon, a ribbon-spool shaft 4, arranged to revolve alternately in opposite directions, a ribbon-spool frictionally connected to said shaft, so as to turn therewith in whichever direction said shaft may be rotated, but capable of being turned by hand independently of said shaft, a ribbon-spool shaft 3, arranged to turn always in the same direction, a ribbon-spool frictionally connected to

said shaft, but in a manner to have less friction or resistance than the first-mentioned spool, so that it may turn either with said shaft or in a direction opposite that in which said shaft turns, and an intermediate connecting-shaft transmitting the motion of shaft 3 and arranged to revolve in opposite directions and alternate the direction of revolution of the shaft 4 and its spool.

3. In a type-writing machine, the combination of an inking-ribbon, ribbon-spool shafts 3 and 4, ribbon-spools connected to said shafts, a beveled gear on the shaft 3, a worm-wheel on the shaft 4, and an intermediate shiftable shaft 5, provided at one end with a worm and at its other end with two beveled gears, the arrangement being such that the shaft 3, which rotates always in one direction, may rotate the shaft 4 through the shaft 5 alternately in opposite directions.

4. In a type-writing machine, the combination of an inking-ribbon, a spool-shaft arranged to revolve always in one direction, a ribbon-spool frictionally connected to said shaft and capable of revolving alternately in opposite directions, a spool-shaft arranged to have a slower movement than the first-named shaft and a movement alternately in opposite directions, and a ribbon-spool connected to said slower shaft to turn always therewith and wind and unwind the ribbon.

5. In a type-writing machine, the combination, with an inking-ribbon, a pair of ribbon-spool shafts, and a pair of ribbon-spools, of a horizontally-arranged pivoted arm having a ribbon-support and having a slow step-by-step movement in one direction and a quick rebounding movement in the opposite direction.

6. In a type-writing machine, the combination, with an inking-ribbon, a pair of ribbon-spool shafts, and a pair of ribbon-spools, of a horizontally-arranged pivoted arm having a ribbon-support and connected to one of said ribbon-spool shafts in a manner to be vibrated step by step through the rotations of said shaft.

7. In a type-writing machine, the combination, with an inking-ribbon, a pair of ribbon-spool shafts, and a pair of ribbon-spools, of a pivoted ribbon-carrier, a lever for moving the same, and a cam for actuating said lever.

8. In a type-writing machine, the combination, with an inking-ribbon, a pair of ribbon-spool shafts, and a pair of ribbon-spools, of a pivoted ribbon-carrier, a driving-cam, and an intermediate transmitting device for moving said carrier in one direction and a spring for moving said carrier in the opposite direction.

9. In a type-writing machine, the combination, with an inking-ribbon and a pair of ribbon-spools, of a pair of pivoted arms geared together at their inner ends and provided with ribbon-guides.

10. In a type-writing machine, the combination, with an inking-ribbon, a pair of ribbon-spool shafts, and a pair of ribbon-guides,

of a pair of pivoted arms geared together at their inner ends and provided with ribbon-guides and means connected with one of the spool-shafts for vibrating said arms and moving the ribbon laterally.

11. In a type-writing machine, the combination, with an inking-ribbon, a pair of ribbon-spool shafts, and a pair of ribbon-spools, of a pair of pivoted arms geared together at their inner ends and provided with ribbon-guides, means connected to one of the spool-shafts for vibrating said arms in one direction, and a spring for vibrating said arms in the reverse direction.

12. In a type-writing machine, the combination, with an inking-ribbon and a vibratory ribbon-carrier, of a pair of spool-shafts, one arranged to revolve slower than the other, and a ribbon-spool connected to each of said shafts, substantially as described, whereby the lines of type impressions on the ribbon will be oblique and parallel to each other and close together.

13. In a type-writing machine, the combination of an inking-ribbon, a vibratory ribbon-carrier, a spring for moving it in one direction, a lever and cam for moving it in the opposite direction, a ribbon-spool, a shaft for said spool, bearing said cam and revolving faster than its spool, a second ribbon-spool, and a shaft therefor arranged to revolve slower than the first-named shaft.

14. In a type-writing machine, the combination of pivoted arms provided with ribbon-guides, a spring, the lever, the cam, and the ribbon-spools, all arranged to operate substantially as and for the purpose set forth.

15. In a type-writing machine, the combination, with an inking-ribbon, of a rotating ribbon-spool shaft, a sleeve connected to said shaft, and a spool detachably connected to said sleeve by a detent arranged between the sleeve and the spool.

16. In a type-writing machine, the combination, with an inking-ribbon, of a rotating spool-shaft, a sleeve mounted on the said shaft by means of friction devices and capable of turning independently of said shaft, and a spool detachably connected to said sleeve.

17. In a type-writing machine, the combination, with an inking-ribbon, of a spool-shaft, a sleeve mounted on said shaft, a pair of collars secured to said shaft, a spring arranged to press said sleeve between the said collars, and a spool connected to said sleeve.

18. In a type-writing machine, the combination, with an inking-ribbon, of a spool-shaft, a sleeve mounted on said shaft, the collars, the cup, the washers, the spring, the ribbon-spool, and the spring-detent.

19. In a type-writing machine, the combination, with hangers, of a horizontally-arranged spool-shaft and a vertically-arranged confining-slide for said shaft.

20. In a type-writing machine, the combination, with hangers, of a horizontally-arranged spool-shaft, a vertically-arranged con-

fining-slide, and a detent or lock for said slide.

21. In a type-writing machine, the combination, with hangers, of a spool-shaft having
5 a groove and a confining-slide having a lateral projection to engage said groove and prevent endwise movement of the shaft.

22. In a type-writing machine, the combination, with hangers having hook-shaped

bearings, of a spool-shaft, the cap-plate 41, 10 arranged as described, and the slide 43.

Signed at Ilion, in the county of Herkimer and State of New York, this 18th day of January, A. D. 1892.

LOUIS P. DISS.

Witnesses:

FRANK S. HOEFLE,
A. D. RICHARDSON.