(No Model.)

C. F. TAYLOR.

TYPE WRITING MACHINE.

No. 514,517. Patented Feb. 13, 1894.

Fig. 1,

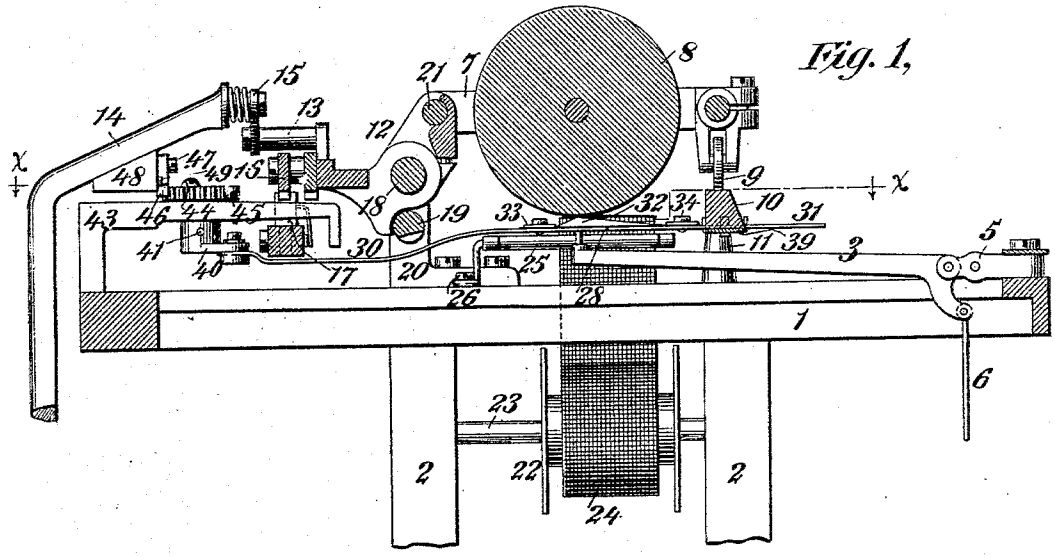


Fig. 2,

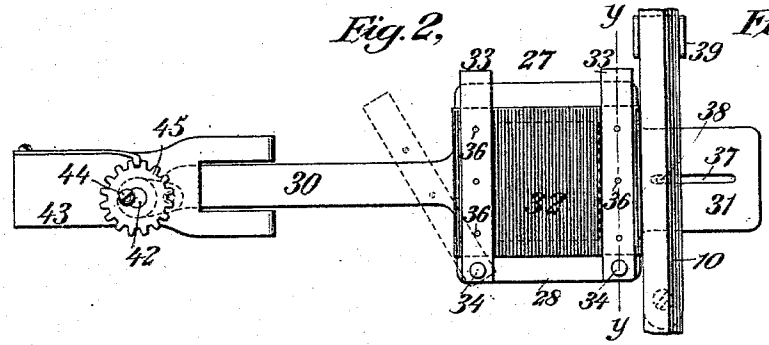


Fig. 5,

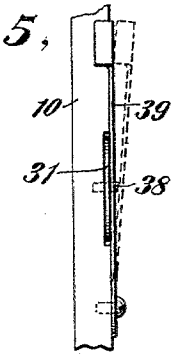


Fig. 3,

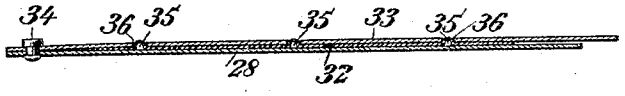
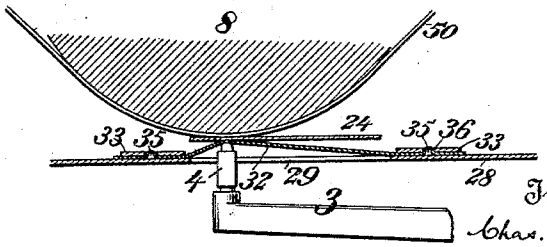


Fig. 4,



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CHARLES FAYETTE TAYLOR, OF NEW YORK, N. Y.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 514,517, dated February 13, 1894.

Application filed May 27, 1893. Serial No. 475,752. (No model.)

To all whom it may concern:

Be it known that I, CHARLES FAYETTE TAYLOR, a citizen of the United States, and a resident of New York city, in the county of New York 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 to that class of type writing machines employing inking ribbons, and has for its main object to prevent the type from becoming filled or clogged with particles of ink or other matter from the ribbon and hence to improve the quality of the impressions, and to these ends consists primarily in interposing an automatically-movable shield between the ribbon and the type to prevent the face of the type from coming into contact with the surface of the ribbon, and my invention consists furthermore in certain other features of construction and combinations of devices, all as will be hereinafter more fully described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a central vertical section of as much of a type writing machine as is necessary to illustrate my invention. Fig. 2 is a partial top view, taken at the line *x*, *x* of Fig. 1. Fig. 3 is an enlarged vertical section taken at the line *y*, *y* of Fig. 2. Fig. 4 is an enlarged sectional view to illustrate the arrangement and operation of the shield; and Fig. 5 is a front detail view of the spring, &c.

In the several views the same parts will be found designated by the same numerals of reference.

I have illustrated my invention in connection with the machine known as the "caligraph," to which I have applied it in practice, but it will of course be understood that my improvements may be carried out in any machine in which there is an inking ribbon.

1 designates the top-plate or type-ring of the machine supported by a suitable frame work 2; 3 a type-bar or lever provided with a type 4 and pivotally mounted in a hanger 5 on said type-ring and provided with a rod 6, which as usual is connected at its lower end to a key-lever (not shown).

7 designates the paper-carriage, which contains a cylindrical platen 8, and is provided at its front side with an anti-friction roller 9 that travels upon a track or way 10, supported by a post 11 at each end. The rear side of the carriage is connected by a yoke 12, having a stud 13, to a driving arm 14, the connection being made directly by a link 15 pivoted at one end to the upper end of the driving arm, and at the other end to the said stud. The driving arm extends, as heretofore, to the base of the machine, and is there provided with a driving-spring (not shown).

The yoke 12 is provided with a combined feed rack 16, with which co-operates a vibratory dog 17 The yoke 12 surrounds a guide-rail 18, and partially embraces a stop-rail 19 beneath, both of said rails being supported in brackets, as 20, secured one at each side of the machine to the frame-work. The carriage is connected to the yoke through a hinge rod 21, by which the platen may be lifted for inspection of the work, &c.

At each side of the machine is arranged a ribbon-spool 22, to turn freely upon a ribbon-spool shaft 23, and to said spools are connected the ends of an inking ribbon 24, which ribbon passes from said spools over guides or supports 25 fastened by screws 26 at each side of the machine. The ribbon, between the guides or between the spools, is arranged to travel in a horizontal plane, and beneath the vertical axis of the platen, as heretofore.

The machine thus far described will be recognized by those skilled in the art as involving the construction of the machine known as the "caligraph."

27 designates as an entirety a holder or carrier which is composed preferably of a rectangular frame 28 having a large central opening 29, a rearwardly extending bar or shank 30, and a forwardly extending tongue 31. The said holder or carrier is provided with a shield or guard 32 of a size slightly larger than that of the opening in the holder, and which is detachably secured or held thereto preferably by means of two arms 33, pivoted at 34 on top of the frame. The frame is provided along its front and rear members or bars with several small blunt upwardly extending pins or projections 35, and each of said arms 33 is provided with several small perforations 36 to register with said pins or projections. The shield or guard is secured in position by lay-

ing it upon the frame and upon the pins or projections while the arms 33 are swung aside, as indicated at Fig. 2 by the dotted lines, and then said arms are turned back to overlie the shield and cause portions of the same to be forced up into the perforations 36 by the pins 35, as indicated at Figs. 2, 3 and 4, the arms 33 having a downward inherent spring action. By this means the shield may be firmly secured to the holder or carrier at its front and rear sides and without puncturing.

The carrier may be made of sheet-metal, and the shield may be made of thin vulcanized rubber, silk, cloth, paper, or other fabric, or it may be a piece of membrane, which latter I have thus far successfully used in practice.

The holder or carrier is supported at its front end by the tongue 31, which is slotted longitudinally at 37 to embrace a guide-pin 38 which enters a hole tapped in the track 10, the tongue 31 resting upon a leaf-spring 39 on the under side of the track, disposed longitudinally thereof and tending to keep the tongue in proper working position, yet permitting its removal by a depression of the spring. The carrier is supported at its rear end by the attachment of its shank 30 to a pin on a crank or eccentric 40, the hub of which is secured by a pin 41 to a shaft 42, which extends vertically through and has a bearing in a bracket 43. Upon the upper end of said shaft is secured, by a screw 44, a toothed wheel or ratchet 45, which is adapted to be rotated intermittently by a pawl 46, which is pivoted at 47 upon a block 48 secured to the driving arm 14. Projecting from said block on the left side of the pawl is a stop-pin 49, which holds the pawl firmly against vibration during the periods at which it is to actuate the toothed wheel or ratchet.

The pawl and ratchet mechanism, including the crank or eccentric, is provided for the purpose of periodically moving the shield to provide a new or fresh surface or spot for the type to strike against, in order to prevent undue wear, and the making of holes in the shield. The shield is moved slightly to bring a different spot or portion to the impression point preferably during the return of the carriage to the right for the beginning of a new line, but this movement may be made to occur more or less frequently, according to the desire of the manufacturer.

In operation it will be understood that since the ribbon passes between the shield and the paper 50 on the platen, or since the shield is interposed between the ribbon and the type at the impression point, the types as they are successively actuated to print are prevented from coming into direct contact with the surface of the ribbon and hence cannot receive therefrom ink or inky particles of matter, and thus become filled or clogged, as common heretofore. The blow of the type is easily transmitted through the thin shield and ribbon, and a clear and clean cut impression may be left upon the paper.

At Fig. 1 one of the types is at the printing point, and the flexible shield is shown, in elevation, as lifted or raised under the blow of the type, and this same action is shown again more plainly in section at Fig. 4.

According to the manner in which I have shown my invention carried out, the types all strike the shield at the same spot during the travel of the carriage from right to left, or during the entire line written. On the return of the carriage, however, from left to right, for the commencement of a new line, the pawl 46 engages a tooth of the ratchet wheel 45 and partially rotates the said wheel and the crank or eccentric connected thereto. By reason of the connection of the shield-carrier to the crank or eccentric it is caused to move when the latter is, and hence a new or fresh spot of the shield is brought to the impression point. Since the crank or eccentric turns always in the same direction, the shield is carried first backward during a half revolution of the crank or eccentric, and then forward during the remainder of the movement, the shield moving one step for each return movement of the carriage. It will of course be understood that during the return movement of the carriage the driving arm 14 is pulled with the carriage toward the right, and during its sweep in this direction, the pawl 46 is caused to engage with the ratchet-wheel, which is arranged about in line with the impression point, or at the center of the machine widthwise, and effect a rotation of said wheel the distance of one tooth. And it will also be understood that during the step-by-step movements of the carriage from right to left the ratchet wheel is not engaged by the pawl, which when moving in this direction, vibrates or tilts on touching said wheel and simply drags or bobs loosely over the teeth thereof.

It will be observed that the work of shifting the shield is done by the hand at the time of throwing the carriage for the commencement of a new line and thus no extra duty or friction is placed upon the spring or weight which pulls the carriage to the left in the act of writing or upon the rack and dog. This avoids placing any extra weight upon the key-lever which actuates the type bar and therefore does not put any additional strain upon the fingers in writing.

When it may be desired to clean or align the types, or the like, the shield-carrier may be displaced or removed by pressing down the spring 39, whereupon the shield-carrier may be detached or swung to one side or rearwardly out of the way.

It will be seen that by my invention much neater and cleaner work may be performed than heretofore, as the types do not strike the ribbon directly and cannot become clogged or filled, and thus produce indistinct, blurred or shadowy impressions. It will also be seen

that by making the shield or carrier automatically movable it may be made to last for a considerable length of time. When worn out it may of course be easily replaced and at practically no cost.

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

1. In a type writing machine, the combination with a platen, an inking ribbon, and the types, of an automatically movable shield arranged to prevent the types from coming into direct contact with the ribbon.

2. In a type writing machine, the combination with a platen, an inking ribbon, and the types, of a shield adapted to be periodically moved by the platen driving mechanism.

3. In a type writing machine, the combination with a platen, an inking ribbon, and the types, of a shield arranged to be moved one step at each return movement of the platen.

4. In a type writing machine, the combination with a platen, an inking ribbon, and the types, means for driving the platen, a shield, a shield-carrier, and means for moving said carrier adapted to be actuated by the platen driving means.

5. The combination of a platen-carrier, a driving arm therefor, an inking ribbon, a series of types, a shield, a shield-carrier, a pawl-and-ratchet-mechanism, and a crank or eccentric for moving said shield-carrier.

6. In a type-writing machine, the combination with a paper-carriage, a driving mechanism therefor, an inking ribbon, and the types, of a shield arranged between the inking ribbon and the types, a shield-carrier, and means for moving the same connected to the carriage driving mechanism.

7. In a type writing machine, the combination with a paper-carriage, a driving arm therefor, an inking ribbon, and the types, of a shield arranged between the ribbon and the types, a shield-carrier, a crank or eccentric attached thereto, a ratchet-wheel, and a driving pawl connected to the carriage driving arm.

8. In a type writing machine, the combination with a platen, an inking ribbon, and the types, of a shield, and a shield-carrier consisting essentially of a frame or open support and provided with means for holding the shield thereupon.

9. In a type writing machine, the combination with a platen, an inking ribbon, and the types, of a shield and a shield-carrier consisting essentially of a frame, a shank, a tongue, and shield-clamping or holding devices.

10. In a type writing machine, the combination with a platen, an inking ribbon, and the types, of a shield and a shield-carrier consisting essentially of the frame provided with pins, the shank, the tongue, and the pivoted perforated holding arms.

11. In a type writing machine, the combination with a paper-carriage, a platen, an inking ribbon, and the types, of a shield between the ribbon and the types, and means for shifting said shield automatically by the moving of said carriage to the right.

12. In a type writing machine, the combination with a platen, an inking ribbon, and the types, of the interposed shield, and a shield-carrier removably arranged at the impression point.

13. In a type writing machine, the combination of a paper-carriage, a platen, the track or way 10, the pin 38, the spring 39, the inking ribbon, the types, the interposed shield, and the shield-carrier having the slotted tongue 31.

Signed at New York city, in the county of New York and State of New York, this 15th day of May, A. D. 1893.

CHARLES FAYETTE TAYLOR.

Witnesses:
IDA C. MACDONALD,
HAROLD P. BROWN.