(No Model.)

C. SPIRO.

TYPE WRITING MACHINE.

No. 331,337. Patented Dec. 1, 1885.

Fig. 1.

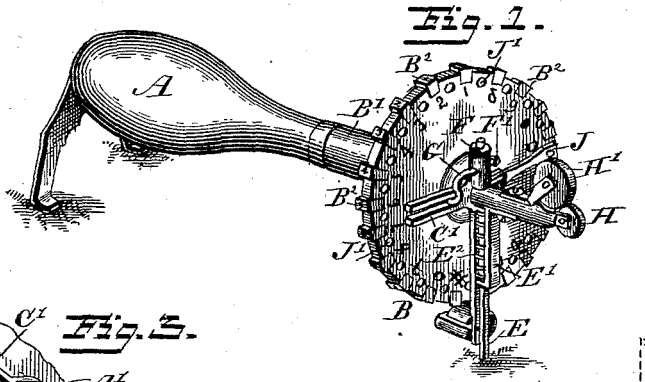


Fig. 3.

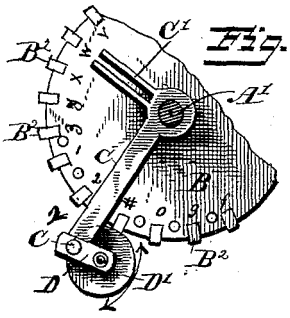


Fig. 2.

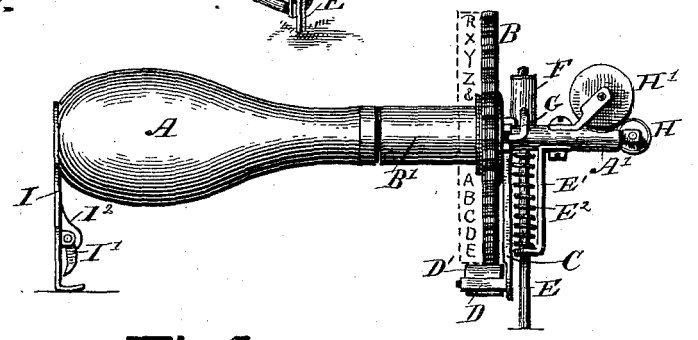


Fig. 4.

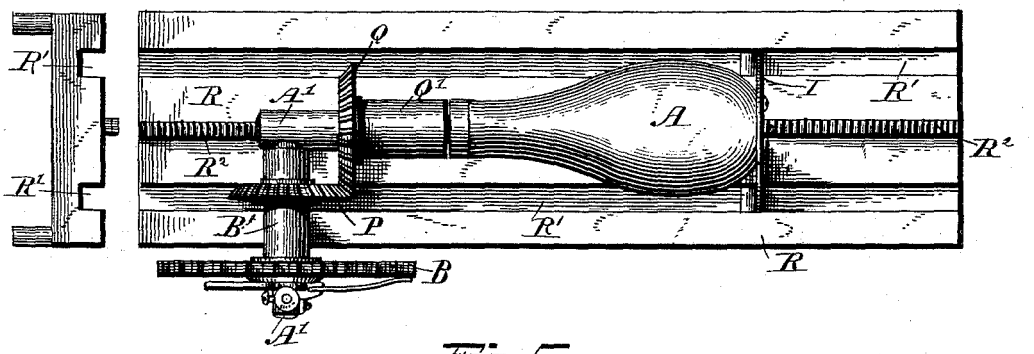
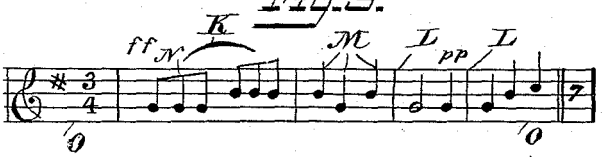


Fig. 5.



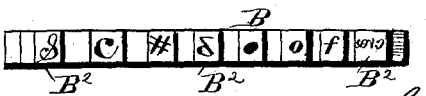


Fig. 6.

WITNESSES

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CHARLES SPIRO, OF NEW YORK, N. Y.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 331,337, dated December 1, 1885.

Application filed June 12, 1885. Serial No. 168,484. (No model.)

To all whom it may concern:

Be it known that I, CHARLES SPIRO, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Music Type-Writers, of which the following is a specification, reference being had to the accompanying drawings.

This invention has relation to type-writers; and among the objects in view are to provide a type-writer which is extremely simple, of the fewest number of parts possible, and adapted to be used in the hand independent of any base or guide, and provided with an independent device whereby straight and curved lines and other characters than those depending upon a printing-surface may be made—that is, lines and characters other than those produced by the type or printing-characters of the printing-wheel of the writer.

Other objects and advantages of the invention will be set forth in the following description thereof, and its novel features will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a perspective of my type-writer. Fig. 2 is a side elevation of the same; and Fig. 3, a detail in front elevation, upon an enlarged scale. Fig. 4 represents a modified form of my type-writer removably mounted upon a suitable base. Fig. 5 is an illustration of one class of work my type-writer is capable of producing, and Fig. 6 is an elevation or edge view of the type-wheel employed in producing such work.

Like letters indicate like parts in all the figures.

In writing music the characters employed are required to be upon different lines, in contradistinction to the work of an ordinary type-writer, which is produced upon a single line, and therefore one of the main requisites, as well as one of the novel features of my invention, is that it is adapted to be carried in the hand, so as to be operated effectively to print characters having any relative position desired, the invention being such that the operator is not confined to any given straight line while operating the same, by reason of the fact that all of the printing-characters, selecting devices, inking and feeding mechanisms of the entire machine are mounted upon a handle capable of being held or grasped by the operator when using the writer, and permitting a selection of desired printing-characters by the same hand that holds or grasps the handle, while at the same time no part of the machine obstructs a clear view of the work accomplished by it.

Referring to the drawings, A represents the handle, upon which all of the devices embodied in an operative machine are mounted, comprising a type-wheel, B, having a hub, B′, projecting from one side thereof and mounted upon the spindle A′ of the handle, which may be either straight or, for purposes hereinafter described, angular. The type-wheel B, when thus constructed and mounted, can (by means of the thumb and forefinger applied to the sleeve B′, while the remaining fingers of the hand grasp the handle A and the sleeve) be rotated so as to bring any of the printing-characters B^2, arranged on the periphery of the wheel, to the printing-point. There is mounted upon the spindle A′ next to the type-wheel an inker-lever, C, which has a slotted arm, C′, projecting substantially at a right angle from the lever, and at the end thereof which is loosely mounted upon the spindle, while at its opposite end the lever C is provided with a pivotally-attached frame, D, which carries the inking-roller D′, pivotally mounted in said frame. The pivot of the frame D is shown at C^2, and it will be observed that this means for supporting the inking-roller admits of the same being moved toward or away from the printing-characters, as is indicated by the double-headed arrow in Fig. 3, the object being to render the roller adjustable for the purpose of bringing it into a more or less close contact with the printing-characters B^2 on the type-wheel. The bearing of the frame D on the pivot C^2 is designed to be snug, so as to retain the inking-roller in an adjusted position, and, if desired, a spring may be secured to the outer end of the frame D and to the arm C above the frame, so as to constantly and in a yielding manner draw the inking-roller upon the face of the type, and to permit of its yielding for any imperfect circular arrangement of the type or printing-characters. In advance of the inking-arm an inker-operating rod, E,

of polygonal form in cross-section preferably, is passed vertically through the spindle A′, and through a guide, E′, depending therefrom, there being also a coiled spring, E^2, arranged between the lower end of the guide and the under surface of the spindle and upon the rod E, the lower end of the spring being in any suitable manner secured to the rod. Above the spindle there is adjustably mounted upon the rod a collar, F, the screw F′ serving to bind the collar in any adjusted position. From the collar there projects laterally a lug, G, which is adapted to enter the slotted portion C′ of the inker-arm. At the extreme end of the spindle A′ is a marking-wheel, H, against which an inking-roller, H′, bears with sufficient force to transfer ink to the marking-wheel. At the rear end of the handle is a bracket or standard, I.

As thus far described, the operation of the type-writer is as follows: By reason of the upward pressure of the spring E^2, the type-wheel is, when not otherwise affected, supported above the surface upon which it is desired to print, the bracket or standard I also resting upon the same, or upon a table near the same. The handle A is grasped, as before described, by the hand, and the type-wheel rotated to bring a desired character to the lowest point in the periphery of the wheel. In rotating the type-wheel the inking-roller, being in contact with the printing-characters, inks all which pass or are brought to the same. Now, by applying a downward pressure to the handle, the spring E^2 yields, and the spindle at the printing end of the handle moves downward, while the rod E, remaining stationary, through the medium of its lug working in the slotted arm C′, swings the inker-arm C backward and upward from beneath the type-wheel as the latter descends by reason of the pressure, so that the printing-character is brought into contact with the paper. A removal of the downward pressure permits the spring E^2 to elevate the type-wheel and to return the inker to its normal position by reason of the lug and slotted arm. During the downward and upward movements of the type-wheel the entire apparatus is rested upon bracket I. Projecting from the spindle is a spring-detent, J, which takes into the depressions J′, shown on the face of the type-wheel, so that it aids in selecting the characters to be printed, which may be done when the machine is elevated to present the face of the type-wheel in a position to read the indicating-letters thereon, any indicating-letter appearing in close proximity to the detent showing that the character for printing said letter is at the printing-point of the wheel.

Any well-known suitable arrangement of the indicating-letters may be substituted for that shown—as, for example, a circular flange projecting at right angles from the rear face of the wheel, near its periphery, as indicated by dotted lines in Fig. 2, may be employed to carry the indicating-letters.

When it is desired to make lines either straight or curved, sketches, and other characters other than those for which printing-surfaces are provided on the periphery of the type-wheel, it is only necessary to grasp the handle somewhat in the manner of holding a pen or pencil and apply the marking-wheel H to the paper, the inker H′ thereof keeping it supplied with ink.

Now, when the type-wheel B is provided with musical characters, as shown in Fig. 6, it will be seen that the slur K, the bars L, the stems M of the notes, and the connecting-lines N thereof may all be formed with the marking-wheel; so, also, may the lines O of the staff itself be drawn with the marking-wheel; but as music-paper in blank form—that is, having the lines of the staff already printed—is an article of commerce, this use of the marking-wheel is not always required.

When it is desired to print the words of the music either in verse form or in line form beneath the musical characters, ordinary alphabetical printing-characters may be provided in the wheel B, or a separate wheel may be mounted upon the machine for that purpose. In doing this work, and for facilitating the maintenance of a straight printed line, I use a construction which I have illustrated in Fig. 4, an end elevation and plan—viz., a simple base upon which the machine may be placed, so that said base shall act as a guide to insure straight-line work.

I deem it proper to state that I do not confine my invention to its use with such base, although for the purpose stated I deem the base a novel and useful feature of my invention.

In using my type-writer in connection with the base I modify it by forming its spindle A′ in part at right angle to the handle A, and mount the type-wheel B upon the angular portion of the spindle, as clearly shown. To its hub B′, I secure a miter-gear, P, and on the straight portion of the spindle A′, I mount a miter-gear, Q, having a hub, Q′, in a convenient position to be rotated by the thumb and forefinger of the hand of the operator when grasping the handle. In this manner motion is communicated by the miter-gears to the type-wheel, so that desired printing-characters may be selected.

The remaining elements of the type-writer are substantially the same as hereinbefore described. The base R is provided with two parallel longitudinal grooves, guides, gibs, or ways, R′, into which the feet of the standard I are placed. It is also provided with an ordinary rack, R^2, extending from end to end and parallel with the ways. Upon the standard I is pivotally mounted a pawl, I′, which, when in connection with the rack R^2, is forced into contact therewith by a spring, I^2. Now, it will be seen that in raising the type-wheel end of the handle A, while it rests upon the lower end of the support I in the bottom of the ways R′, there will be a sufficient movement of the

pawl I′ to cause it to travel over one or more teeth of the ratchet R^2, so that in depressing the opposite end of the handle to make the impression the entire writer is by the action of the pawl moved from left to right along the base, and in this manner the spacing of the work produced by the type-wheel may be accomplished.

If desired, the pawl and ratchet may be dispensed with and the spacing be performed by the hand of the operator; and so, also, if desired, and when the type-wheel is provided with ordinary printing-characters designed to be printed in straight lines, as in ordinary composition, the marking-wheel and its inker may be dispensed with.

Instead of having the support I made separate from the handle A, the latter may be enlarged in diameter at its larger end, or curved downwardly, to act as a support which will permit the handle to be free and moved in all directions.

Having described my invention and its operation, what I claim is—

1. In a type-writer, the combination of a handle having a support at one end, a spindle at the other end, and a type-wheel mounted on the spindle and provided with a hub to be rotated by the thumb and forefinger while the handle is in the hand of the operator, substantially as specified.

2. In a type-writer, the combination of a handle with a support arranged at one end thereof to rest and move upon the surface to be printed, a rotatable type-wheel mounted on the other end of said handle, and inking mechanism, substantially as specified.

3. In a type-writer, the combination of a handle provided with a support arranged to rest and move upon the surface to be printed, a rotatable type-wheel mounted on a spindle at the end opposite to the support, inking mechanism, substantially as described, and a marking-wheel mounted at the extremity of the spindle, substantially as specified.

4. In a type-writer, the combination of a handle, a type-wheel, and an inker-arm loosely mounted thereon, an inker-operating and handle-supporting rod, and a spring, substantially as specified.

5. The combination of a handle free to move in all directions, a type-wheel having musical characters on its periphery, and provided with a hub for its rotation, inking mechanism, substantially as described, and a marking-wheel, substantially as specified.

6. The combination, with a handle free to move in all directions, of a type-wheel rotatably mounted thereon, an inker-arm, and an ink-roll adjustably mounted thereon, and a rod for operating the inker-arm, substantially as specified.

7. The combination, with a base having a guide and rack-bar, of a handle having at one end a support removably arranged within the guide, a pawl, an angular spindle, a type-wheel rotatably mounted thereon, and an intermediate gear having a hub for rotating the type-wheel, substantially as specified.

8. The combination, with the handle A, free to move in all directions, of the type-wheel B, having the hub B′, the inker D, inker-arm C, having the slotted arm C′, the inker-operating rod E, the lug G, and the spring E^2, substantially as shown and described.

9. The combination of the handle A, type-wheel B, having hub B′, inking mechanism, substantially as described, marking-wheel H, and inker H′, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES SPIRO.

Witnesses:
R. BAZAN FRENDENTHAL,
EDWD. H. WESTERFIELD.