(No Model.)

M. FISHER.

TYPE WRITING MACHINE.

No. 448,760. Patented Mar. 24, 1891.

Fig. 1

Fig. 2.

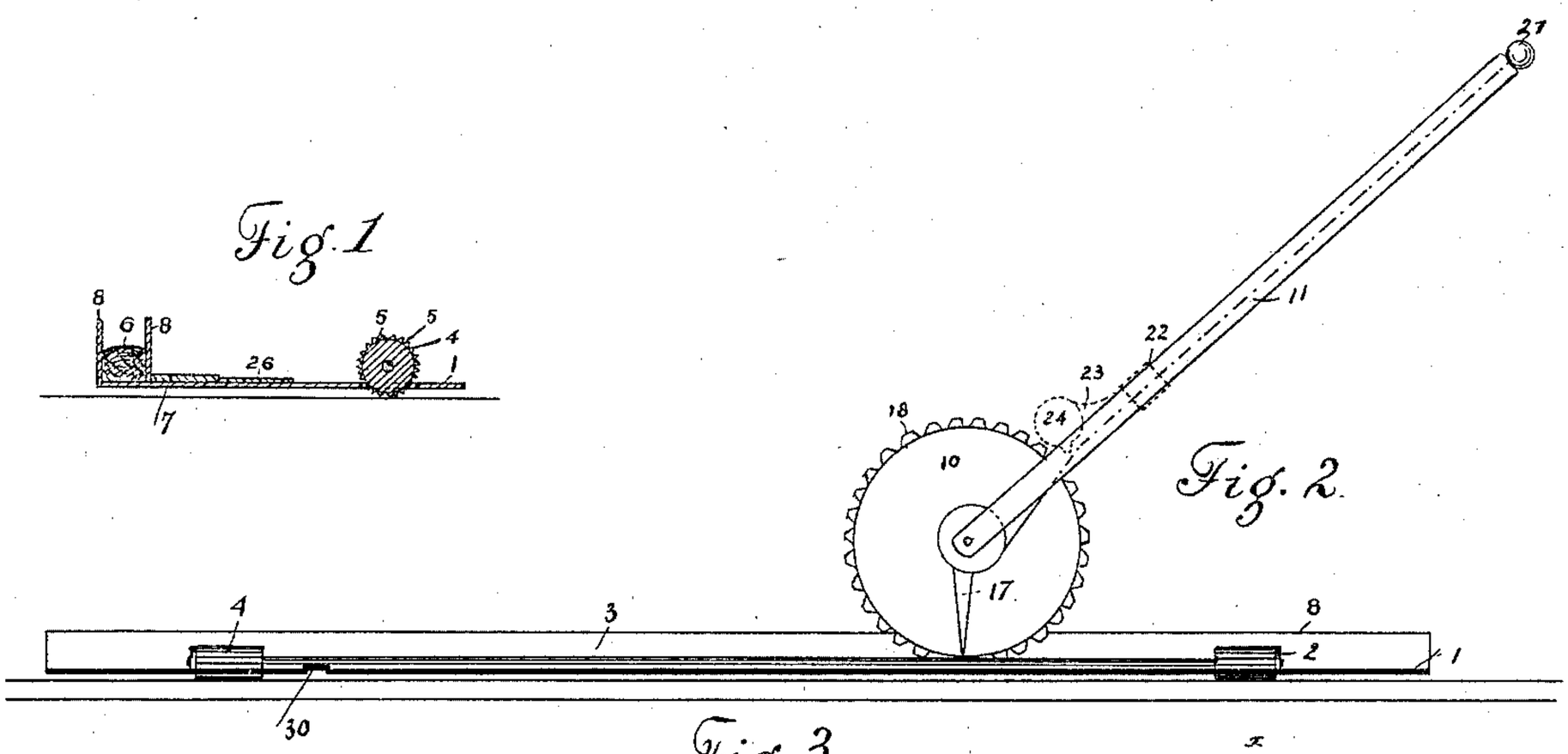


Fig. 3

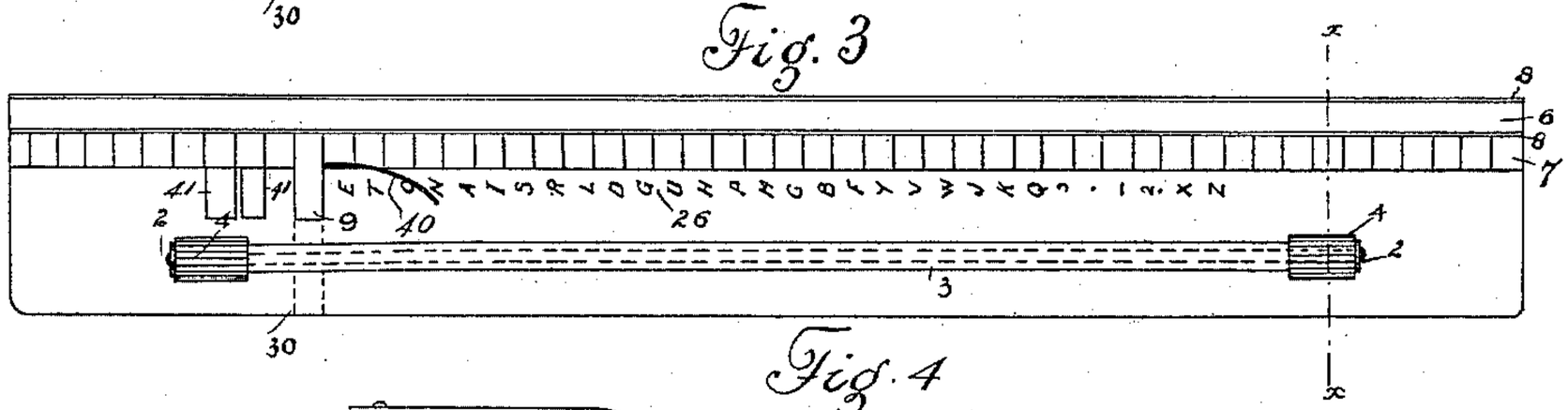


Fig. 4

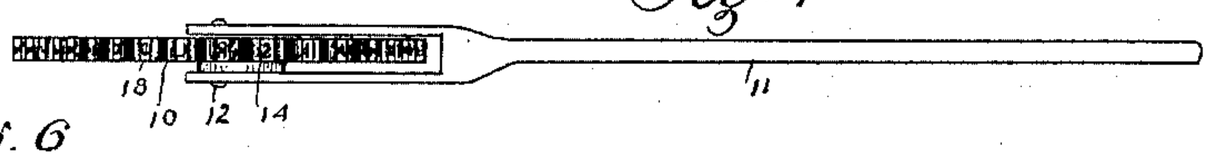


Fig. 6

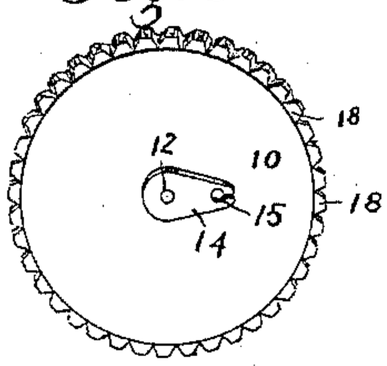


Fig. 7.

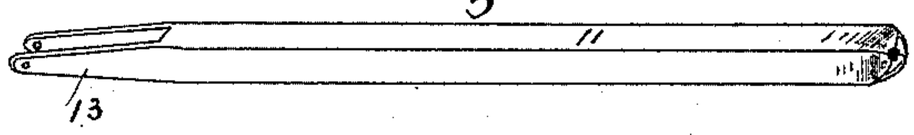


Fig. 5

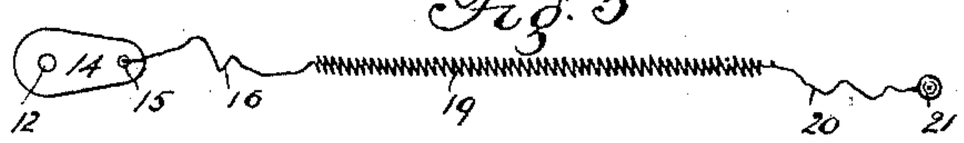


Fig. 8.

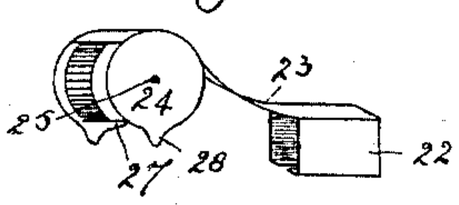
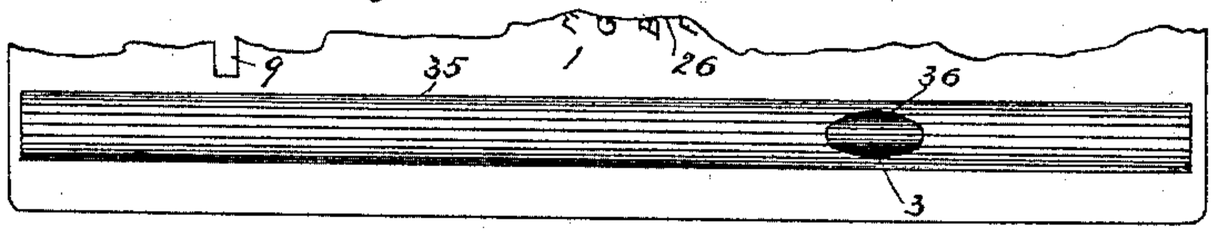


Fig. 9



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UNITED STATES PATENT OFFICE.

MIERS FISHER, OF DENVER, COLORADO.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 448,760, dated March 24, 1891.

Application filed September 1, 1890. Serial No. 363,722. (No model.)

To all whom it may concern:

Be it known that I, MIERS FISHER, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Type-Writing Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to a novel and improved form and construction of type-writing machine.

In the manufacture and use of machines of this class as hitherto constructed many difficulties have presented themselves, owing largely to their lack of simplicity, the skill required in their successful manipulation, the great number of parts which frequently become disarranged, and to the cost attending the manufacture of complicated machines.

The object therefore of my improvement is to produce a device of the class stated which shall be of simple construction, consisting of but few parts and those not liable to disarrangement, the device to be economical in cost and requiring but little skill in its successful operation.

The further object of my improvement is to produce a device which, while being perfectly reliable in operation and efficient for the purpose intended, shall be of such simple construction and so easily operated as to be a valuable equipment to persons unskilled in the use of the ordinary pen, and so inexpensive as to place it within reach of all.

To these ends my invention consists of the features and arrangements more particularly hereinafter set forth and claimed.

In the accompanying drawings is illustrated an embodiment of my invention, wherein—

Figure 1 is a cross-section on the line *x x*, Fig. 3; Fig. 2, a side elevation of the device, the parts being assembled and in position ready for operation; Fig. 3, a top view of the stencil-plate together with its attachments; Fig. 4, a top or edge view of the pen or stylus; Fig. 5, a detail view of a suitable spring mechanism for operating the stylus; Fig. 6, a perspective view of the disk of the stylus removed from the handle; Fig. 7, a perspective view of the handle of the stylus; Fig. 8, a perspective view of a suitable device for automatically inking the type of the stylus; Fig. 9, a top view of the stencil-plate partially broken away, showing the cap or shield for the spacing-roller.

Referring now to the views, the reference-numeral 1 designates the stencil-plate. Journaled in suitable standards or bearings 2, secured to plate 1, is an axle or shaft 3, provided with rollers or drums 4, rigidly mounted on the extremities thereof, said rollers or drums extending or protruding through suitable slots or apertures made therefor in stencil-plate 1. The peripheries of these rollers are provided with cogs, ribs, elevations, or corrugations 5, the number of cogs or corrugations on one being equal to that of the other, and the corresponding cogs or corrugations of the two drums or rollers occupying the same radial planes with reference to shaft 3. Thus it becomes apparent that whenever plate 1 is placed on a sheet of paper or other surface rollers or drums 4, protruding through the slots or apertures in plate 1, contact therewith, and as shaft 3, on which said rollers are mounted, is rotated plate 1 will be made to traverse the page or surface in a straight line, since both rollers travel across the page with the same rapidity.

Shaft 3, with its cylinders, may be termed the "spacing attachment" for the device, the space between the letters being measured by the distance apart of the teeth formed on the periphery of the cylinders. By reason of shaft 3 turning with the cylinders a person with his hand or fingers thereon is enabled to feel, as it were, each tooth touch the paper, and thus space accurately between the letters and words.

The shaft 3, with its cylinders, is provided with a cap or shield 35, having a finger-opening 36. The object of this shield is to support the hand and at the same time to prevent its tendency to move forward and hide the characters from sight, while the opening 36 allows the operator to keep one finger for controlling the feed always in contact with shaft 3.

The reference-numeral 6 designates a suitable ink-pad secured to the stencil-plate, the object thereof being to provide the stylus with ink, as hereinafter explained. As shown in Figs. 1 and 2, the ink-pad is placed in a groove made by flanges or tongues 8, extending upwardly from plate 1, said flanges serving as guides to the disk of the stylus as the same is being inked by rolling thereacross, while contiguous to and parallel with one of said flanges or tongues is a rack 7, one of the flanges or tongues 8 also serving as a guide for the disk of the stylus while it is traversing said rack. Rack 7 is adapted to serve as a guide to the stylus and to facilitate in the successful operation of the device.

A letter-board 26 or a space having the characters used on the machine indicated thereon and having said characters arranged in the order in which they most frequently occur, or in the order most convenient to the operator, is marked or stamped on the stencil-plate parallel and contiguous to rack 7 and on the side thereof opposite to that on which flange 8 is located, the different characters of the letter-board being placed opposite the notches or depressions of the cogged rack 7. Extending transversely across rack 7 and across a portion of plate 1 is a printing-slot 9, through which the impressions are made on the paper or other surface by the stylus or pen, as hereinafter set forth.

Extending backward from slot 9 and on the side of the cogged rack opposite tongue 8 is a flange 40 of any suitable length, forming a guide for the stylus as it enters the slot. This flange is preferably short and curved slightly outward as it extends backward, in order the better to direct the stylus and prevent deviation from its true course. Above slot 9 and at a suitable distance therefrom are the spacing-slots 41 41, two being shown, though any desired number may be employed. These slots are used for spacing between the lines. After a line is written the plate 1 is moved downward on the page until the letters of the written line appear in one of the slots above. If the lines are to be quite close together, the slot nearest the printing-slot 9 is used. If they are to be farther apart, the next slot above is used, and so on. By this means the distance between the lines is readily and accurately controlled. Forming a continuation of slot 9 across plate 1 and on the under side thereof is a shallow recess or groove 30. (Shown in Fig. 2, and in dotted lines in Fig. 3.) The object of this recess is to raise this portion of the plate from contact with the newly-printed letters, and thus avoid spreading the ink and marring the neatness of the work.

In Fig. 4 is illustrated a top or edge view of the stylus or pen, which consists of a revolving disk pivotally secured to one extremity of a suitable handle. In this case an approved form of construction of this stylus is shown, said form consisting of a revolving disk 10, pivotally secured in the forked extremity of a suitable handle 11 by means of a pin 12, passing through the wheel or disk 10 and through the arm 13 of the handle, said pin serving as a journal bearing or axis on or about which disk 10 revolves.

Rigidly secured to one side of disk 10 and adapted to rotate about pin 12 with said disk is an eccentric 14, while in the portion of eccentric 14 most remote from the center or from pin 12 is a slotted eye 15 or other approved means of securing one extremity of a cord or wire or its equivalent 16 thereto. It will, however, be observed that instead of the eccentric 14 an ordinary pulley may be used and a cord or wire 16 secured to its periphery; or any other suitable means which will serve as a drum about which cord or wire 16 may be wound as disk 10 is rotated may be employed instead of eccentric 14.

The reference-numeral 17 designates a suitable pointer or index, which may be rigidly secured to the disk or marked or painted on the surface thereof, as may be deemed advantageous and desirable.

Extending radially from the periphery of disk 10 are the cogs or projections 18, the extremities of which are provided with or fashioned into type, there being enough projections to provide the device with the number of characters required for the purpose for which it is designed, said number corresponding to the number of characters on the letter-board 26.

The characters on disk 10 are arranged in reverse order to those on the letter-board—that is, by starting the stylus with the pointer opposite any character on the letter-plate and running toward slot 9 the characters between said point and the slot will be printed in the reverse order of the arrangement on the letter-board. Then it becomes apparent that the distance from slot 9 to any given character on the letter-plate is the same as the length of the arc measured on the periphery of the wheel from the index or pointer 17 to the corresponding character thereon. Then, since the distance between slot 9 and any given character is equal to the arc measured on the periphery of disk 10 from pointer 17 to the corresponding character thereon it follows that if pointer or index 17, which marks the initial point of rotation on disk 10, is placed opposite a given character and said disk rotated or rolled to the slot 9 said character will be produced at the slot.

Recurring now to the handle 11, which is hollow, the reference-numeral 19 designates a spiral spring located therein. One extremity of said spring is secured to the handle in any suitable way, as by means of a cord or its equivalent 20 passing through an aperture in the free extremity thereof, where it is secured by means of a button 21 or in any approved manner, the opposite extremity of said spring being secured to eccentric 14 by means of an eye 15 or in any other way desired. Thus it will be observed that as disk 10 is ro-

tated about pin 12 eccentric 14, engaging cord or wire 16, winds the same therearound and distends spring 19. Then, on the release of wheel or disk 10 said spring 19 contracts, unwinding cord or wire 16 from around eccentric 14 and returning disk 10 to its normal or original position. It may be well here to note that I am not limited to this particular construction, inasmuch as spring 19, with cords 16 and 20, may be dispensed with, and a rubber strand or other suitable elastic or resilient means for returning disk 10 to its normal position substituted therefor, or cords 15 and 20 and spring 19, together with eccentric 14, may be dispensed with and any approved means of automatically returning disk 10 to and retaining it in its normal position employed.

In Fig. 8 is illustrated a device for automatically inking the type formed on or secured to the extremities of projections 18, said device consisting of a clamp or casing 22, adapted to fit around or clamp the sides of handle 11. Secured to or made integral with and extending upwardly from the upper portion of said casing 22 is a leaf-spring 23. To the upper extremity of said spring are secured the flanges 24, between which is mounted on a suitable axis 25 an ink-roller 27. The downwardly-projecting flanges or points 28 serve to keep the device in position on the disk at all times. In Fig. 2 the automatic inking device is shown in dotted lines in position on the stylus or pen, casing or clamp 22 securing it to the handle, while leaf-spring 23 holds roller 27 in contact with the periphery of disk 10.

Having thus set forth in detail the construction and operation of my improved machine, the general operation will now be fully understood. The stencil-plate 1 is placed at the left side of the page across which it is desired to write. Disk 10 is then inked by rolling over ink-pad 6, or by engagement with roller 27, as the case may be. The stylus is then placed on the cogged or ratchet rack 7 with pointer or index 17 opposite the character which it is desired to produce or impress on the paper through slot 9, the projection 18 of disk 10 entering the proper depression of said rack, and the stylus or pen then moved forward, the disk rolling over the cogged rack, while eccentric 14 winds up cord 16 and distends spring 19. When the stylus reaches the slot, the character which would engage a depression of the cogged rack correspondingly located makes its inked imprint on the paper by pressing through said slot. The stylus is then raised, when spring 19 or its equivalent quickly returns disk 10 to its normal position. Plate 1 is now moved forward one space by the hand and pointer 17 placed opposite the next character it is desired to print and the operation just described repeated.

In the operation of the device the disk 10 is made to traverse the cogged rack 7, the cogs or projections 18 entering and engaging the depressions of the cogged rack. It must be understood, however, that I am not limited to this particular construction, as I am well aware that disk 10 may be provided with a cogged rim or flange adapted to engage a cogged rack provided therefor instead of having projections 18 serve as cogs, or other similar means of carrying out the principle of my invention may be employed.

From the preceding description it will be observed that my improved type-writer possesses many advantages over those now in use or upon the market. For instance, my full-sized device may be carried easily in the pocket, being no longer than an ordinary lead pencil and sufficiently narrow to slip easily endwise into the pocket of the ordinary waistcoat or vest. Other points which may be mentioned are its simplicity of construction, ease of adjustment and operation, and cheapness. It may thus be made an instructive and entertaining toy for the child and a useful instrument for the mechanic or merchant. It requires no lubrication, no ink-ribbons, no outlay for repairs, since there is no appreciable wear and tear. There is no limit to the size of paper used and no skill required in its adjustment.

Having thus described my invention, what I claim is—

1. A type-writer consisting of a plate or card 1, having a row of characters formed thereon and provided with a slot cut through the plate or card at one extremity of the row of characters, in combination with a pen or stylus consisting of a handle and a disk pivoted thereon, the disk being provided with raised characters on its periphery, said characters corresponding with those on plate 1, but arranged on the disk in the reverse order or position, the disk being adapted to rotate on the handle as the pen or stylus is moved across the plate with the periphery of the disk in contact therewith, substantially as and for the purpose set forth.

2. In a type-writer, a plate having a row of characters formed thereon, a cogged, recessed, or toothed rack alongside said row of characters, and an opening in the plate at one extremity of said rack, in combination with a pen or stylus provided with a rotating disk having raised characters on its periphery, said characters corresponding with those on plate 1, but arranged on the disk in the reverse order or position, substantially as and for the purpose set forth.

3. In a type-writer, a plate having a row of characters formed thereon, a cogged, recessed, or toothed rack alongside said row of characters, a recess being opposite each character, and an opening cut through the plate at one extremity of the rack, in combination with a stylus or pen consisting of a hollow handle terminating at one extremity in a fork, a disk sup-

ported in said forked extremity and adapted to rotate therein, said disk being provided with raised characters on its periphery, said characters corresponding with those of the plate 1, but arranged on the disk in the reverse order or position, each raised character forming a projection adapted to enter a recess of the rack, a coiled spring located in the hollow handle, one extremity of said spring being connected with an eccentric or drum secured upon the disk, while the other extremity is connected with a button or its equivalent outside the free extremity of the handle, substantially as described.

4. In a type-writer, a plate having a row of characters formed thereon, a recess opposite each character forming in effect a rack, a slot or opening formed in the plate at one extremity of the rack, and suitable means of moving the plate forward in a direct line, in combination with a pen or stylus consisting of a disk with a pointer marked thereon indicating on the periphery the initial point of rotation, the periphery being provided with raised characters forming projections adapted to engage the recessed rack, said characters corresponding with those on plate 1, but arranged in the reverse order or position, a handle one extremity of which is fashioned for the reception of the disk and within which it rotates, and suitable means of maintaining the disk normally in a uniform position, substantially as and for the purpose set forth.

5. In a type-writer, a plate having characters formed thereon, a rack alongside the characters with a recess opposite each, a slot or opening at one end of the rack, and a roller journaled upon the plate and provided with a toothed spacing-cylinder secured to each extremity thereof, said cylinders protruding through suitable openings formed in the plate, in combination with a pen or stylus provided with a rotating disk having raised characters formed on its periphery corresponding with the characters on the plate, but arranged in the reverse order or position, and suitable spring mechanism whereby the disk is normally maintained in a uniform position, substantially as and for the purpose set forth.

6. A type-writer consisting of a plate having a row of characters thereon, an opening or slot at one extremity of said row, a roller journaled upon the plate and provided with a fluted spacing-cylinder secured to each extremity thereof, said cylinders protruding through suitable openings formed in the plate, and a cap covering said roller and provided with a finger-opening, as shown, in combination with a pen or stylus provided with a rotating disk having raised characters on its periphery, said characters corresponding with those on the plate, but arranged in the reverse order or position, and a pointer indicating on the periphery of the disk the initial point of rotation, and suitable means of normally maintaining the disk in a uniform position, substantially as and for the purpose set forth.

7. A type-writer consisting of a plate 1, having a row of characters thereon, an opening or slot at one extremity of said row, the plate being provided with a padded groove for inking the stylus, said groove extending, preferably, parallel with the row of characters, in combination with a pen or stylus provided with a rotating disk having raised characters on its periphery, said characters corresponding with those on plate 1, but arranged on the disk in the reverse order or position, substantially as and for the purpose set forth.

8. A type-writer consisting of a plate having a row of characters thereon, an opening or slot at one extremity of said row, in combination with a stylus consisting of a handle and a disk pivoted thereon, the disk being provided with raised characters, said characters corresponding with those on the plate, but arranged in the reverse order or position, the disk being adapted to rotate on the handle as the pen is moved across the plate with its periphery in contact therewith, and suitable means of inking the stylus, substantially as and for the purpose set forth.

9. A type-writer consisting of a plate having a row of characters formed thereon, a slot or opening cut through the plate at one extremity of said row, and a recess across the under side of the plate in line with said opening, in combination with a stylus consisting of a rotating disk and a handle, the disk being pivoted on the handle and provided with raised characters on its periphery, said characters corresponding with those on the plate, but arranged in reverse order or position, the disk being operated by placing its periphery in contact with the plate and moving the stylus forward, substantially as and for the purpose set forth.

10. A type-writer consisting of a plate having a row of characters formed thereon, a printing slot or opening 9, cut through the plate at one extremity of said row, and one or more line-spacing slots cut through the plate above slot 9, in combination with a stylus consisting of a handle and a disk or its equivalent having printing characters formed on its periphery, said characters corresponding with those on the plate, but arranged in reverse order or position, the stylus being operated by placing the periphery of the disk in contact with the plate and moving the same forward thereon, substantially as and for the purpose set forth.

11. A type-writer consisting of a plate having a row of characters formed thereon, a slot or opening 9, cut through the plate at one extremity of said row, and a guide-flange 40, extending backward from slot 9, in combination with a stylus provided with a disk or its equivalent having printing characters formed on its periphery, said characters correspond-

ing with those on the plate, but arranged in the reverse order or position, substantially as and for the purpose set forth.

12. A pen or stylus consisting of a handle, a disk pivoted thereon and having its periphery provided with raised characters adapted to print as the disk is rolled over a suitable surface, and means for returning the disk to the same relative position upon the handle after each printing act, as described.

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

MIERS FISHER.

Witnesses:
WM. MCCONNELL,
G. H. STOVER.