

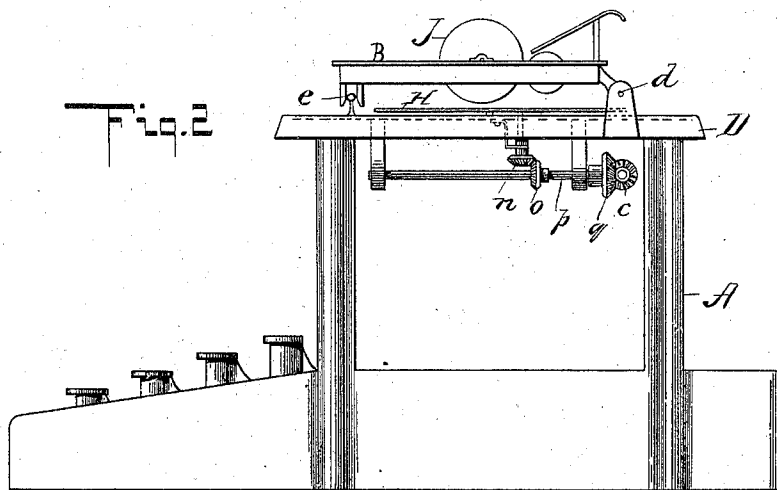
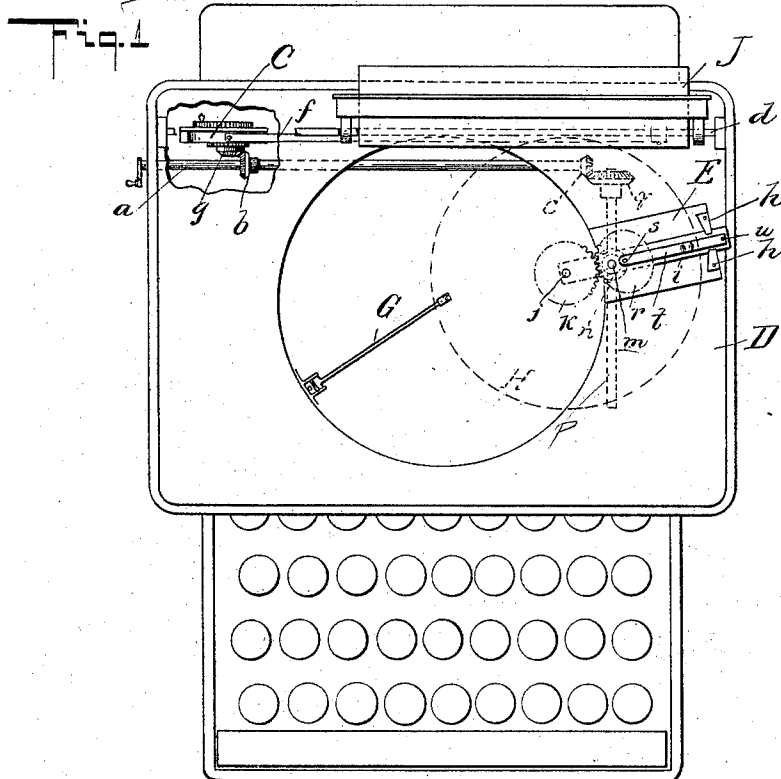
(No Model.)

3 Sheets—Sheet 1.

L. S. BURRIDGE & N. R. MARSHMAN.
TYPE WRITING MACHINE.

No. 575,146.

Patented Jan. 12, 1897.



WITNESSES:

Edmund H. Hance
Frederic C. Morse

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BY *Briesen & Knautz*

ATTORNEYS

(No Model.)

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Fig. 3

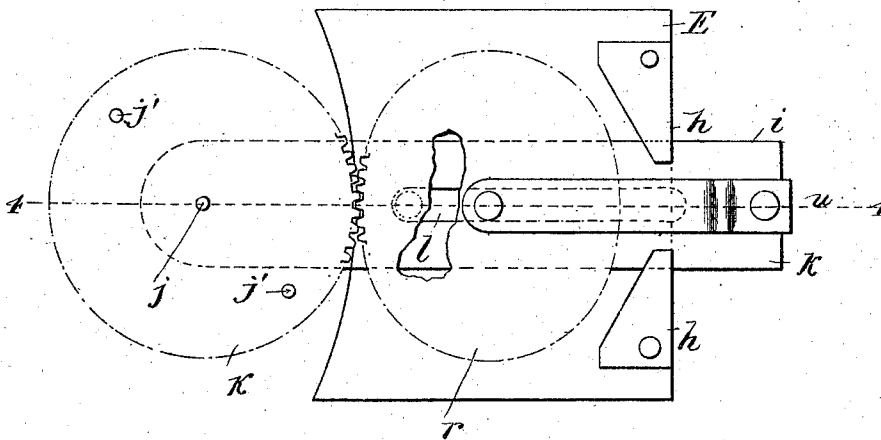
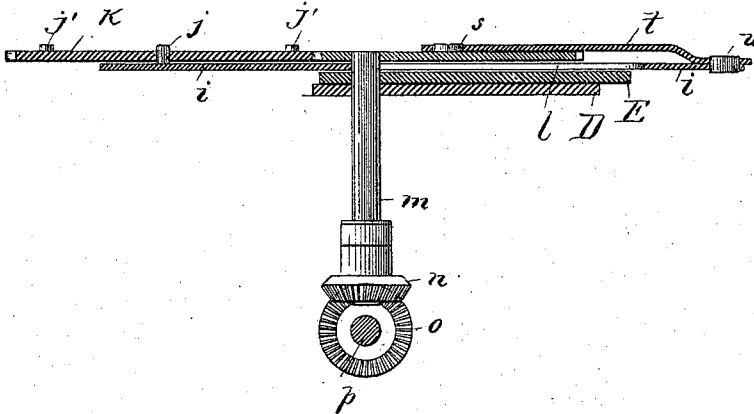


Fig. 4



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(No Model.)

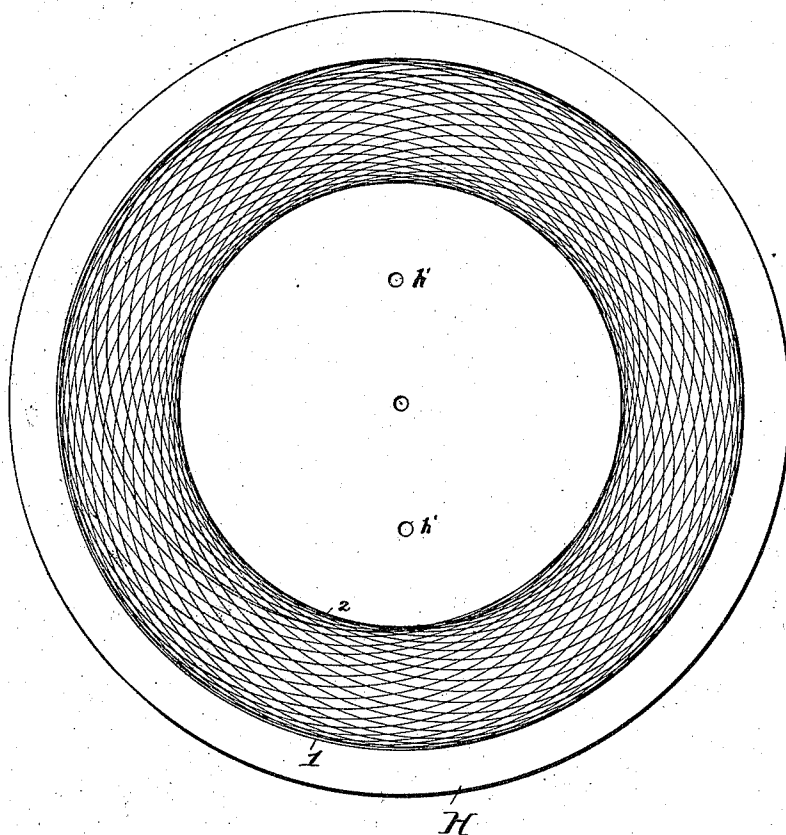
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Fig. 5



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ATTORNEYS

UNITED STATES PATENT OFFICE.

LEE S. BURRIDGE AND NEWMAN R. MARSHMAN, OF NEW YORK, N. Y.,
ASSIGNORS TO JOHN T. UNDERWOOD, OF SAME PLACE.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 575,146, dated January 12, 1897.

Application filed November 1, 1895. Serial No. 567,608. (No model.)

To all whom it may concern:

Be it known that we, LEE S. BURRIDGE and NEWMAN R. MARSHMAN, residents of the city, county, and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

Our invention relates to type-writing machines, and has reference more especially to a new and improved inking device and mechanism for shifting said inking device.

Our invention consists in the special matters hereinafter set forth and claimed.

Our invention will be understood by reference to the accompanying drawings, which illustrate one form thereof.

In the drawings, Figure 1 is a plan view of a type-writing machine embodying our invention. Fig. 2 is a side elevation thereof. Fig. 3 is an enlarged detail plan view of portions of the device for moving the ink-carrier. Fig. 4 is a section on line 4-4 of Fig. 3; and Fig. 5 is a plan view of a form of the inking device, showing the paths of travel of the points where the printing agent will strike.

In the drawings, A indicates the frame of a type-writing machine, carrying a winding-shaft *a*, upon which bevel-gears *b* *c* are carried.

B is the carriage of the machine, which moves on the back and front rods *d* *e* in the usual manner. This movement is effected during manipulation of the keys by the carriage spring-barrel C and a strap connection *f*, intervening between the said spring-barrel C and carriage B. This operation is well understood and need not be further described. Carried by the shaft of the spring-barrel C is a bevel-gear *g*, which meshes with the gear *b* on the winding-shaft *a*. Mounted upon the top plate D of the type-writer is a plate E, which is provided with guides *h* *h*, between which guides passes a slide *i*, carrying at or near one end a pin *j*, upon which a circular gear-wheel *k* is journaled. The slide *i* is slotted, as at *l*, for the passage of a vertical shaft *m*, which carries a gear-wheel *n* at its lower end, (see Fig. 4,) which gear-wheel meshes with the bevel-gear *o* on the shaft *p*, (see Fig. 2,) which also carries a gear *q*, meshing with the gear *c* on the winding-shaft *a*. Mounted upon the upper end of the shaft *m*

is an elliptical gear-wheel *r*. In the present instance this gear *r* closely approximates the circular form and is eccentrically mounted on its shaft *m*. This gear-wheel meshes with the circular gear-wheel *k* and is provided with a pin *s*, which is connected to the slide *i* by means of a link *t*, which is pivoted by the pin *u* to the slide *i* and works freely on the pin *s*.

G is the printing agent, which may be in the form of the usual type-bar now employed. Mounted and secured upon the gear *k*, so as to rotate therewith, is the inking device, shown in the present instance as a plate or disk H, of textile fabric, intervening between the printing agent and the impression-roller or platen J of the machine. For this purpose we preferably employ a flimsy edge-stiffened inking-sheet, such as is shown and described in our application for patent, Serial No. 567,607, filed November 1, 1895. This sheet is preferably connected to the disk by pins *j'*, extending upwardly from the wheel *k* and entering apertures *h'* in the disk H.

As the operation of the other parts is well known, we will describe simply the operation of the shifting mechanism for the inking device. As before explained, the inking device H is carried by the wheel K, and as the shaft *a* is rotated the shaft *p* will be thereby rotated, also rotating the vertical shaft *m*, which carries with it the elliptical wheel *r*. The elliptical wheel *r*, carried by the vertical shaft *m*, will rotate the wheel *k*, thereby also rotating the inking device H, and will also, in addition, impart to the wheel *k* and inking device carried thereby a motion of translation, by reason of the fact that the wheel *r* is eccentrically mounted on its shaft and the wheel *k*, with which it meshes, is carried by the freely-movable slide *i*. It is also to be observed that for every rotation of the inking-disk the said disk will be reciprocated back and forth only once. Hence the motion of rotation or peripheral speed of the disk will be faster than the bodily movement of translation or reciprocation, that is to say, the disk will rotate at a relatively fast rate of speed and the displacement of the center of rotation thereby will occur at a relatively slow rate of speed, the link connection between wheel *r* and the slide *i* serving to return the slide and wheel

k when r has turned into such position as to push k to its greatest distance from the center of rotation of r .

It will be obvious that as the point of strike of the printing agent or printing-point will always be in the same place the combined rotation and reciprocation of the disk will cause the printing agent to strike the said disk along paths which are eccentric to the axis of rotation of the disk. These paths, which we denominate the "paths of travel of the inking device," will lie within an annulus whose width will depend upon the extent of reciprocating motion imparted to the disk. This is clearly shown in Fig. 5, wherein a disk H is shown, having a zone or annulus bounded by concentric circles 1 2, whose distance apart depends upon the extent of "throw" of the elliptical wheel r . In the present instance, owing to the fact that the wheels k and r have not the same number of teeth, (one having seventy teeth and the other seventy-two teeth,) there will be thirty-five of these paths intersecting each other, so that in order that any given point in the disk may be moved from the printing-point and returned to it, it would be necessary to effect thirty-five revolutions of the disk.

It will be obvious that our mechanism may be greatly varied by those who may desire to enjoy the fruits of our invention, so therefore we do not limit ourselves to the construction shown. We would also have it understood that when hereinafter in the claims we make use of the word "disk" we mean to thereby include other shapes of plates, either regular or irregular.

What we claim, and desire to secure by Letters Patent, is—

1. A type-writer organization comprising a

printing agent and platen combined with an inking plate or disk, means for rotating the disk and mechanical means for imparting a reciprocating motion to the center of rotation of the disk.

2. A type-writer organization comprising a printing agent and platen combined with an inking-disk, means for rotating the inking-disk and mechanical means for producing a reciprocating motion of the center of rotation of the inking-disk along a rectilinear path.

3. A type-writer organization comprising a printing agent key-levers and a platen, an inking-disk, means for rotating the said inking-disk and means for automatically displacing the axis of the inking-disk by means of the action of the key-levers in such a manner that successive portions of the disk will be presented to the printing-point, said successive portions lying in an annular space between circles concentric with the center of rotation of the disk.

4. A type-writer organization comprising the following instrumentalities in operative combination, to wit: a printing agent and platen, an inking-disk, means for rotating the disk at a relatively rapid rate of speed and means for automatically displacing the center of rotation of the disk at a relatively slow rate of speed by means of the action of the key-levers, whereby the printing agent will be made to act upon curves lying eccentrically within a ring on the disk which ring is concentric to the center of rotation of the disk.

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