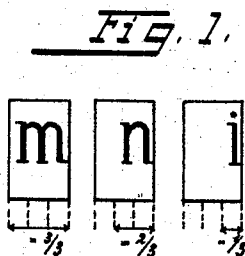
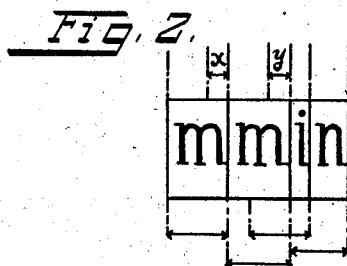
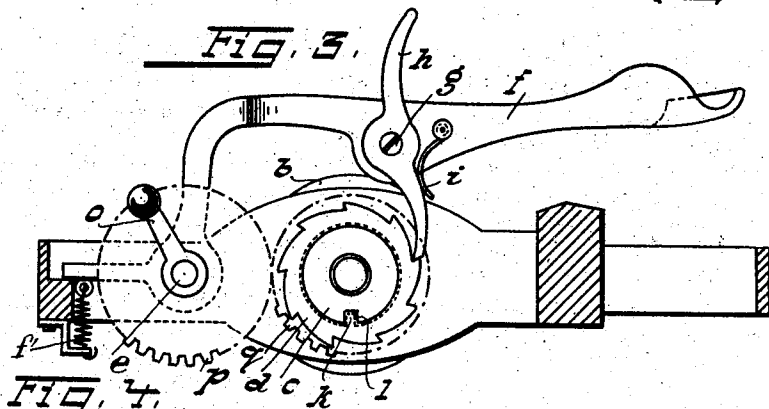
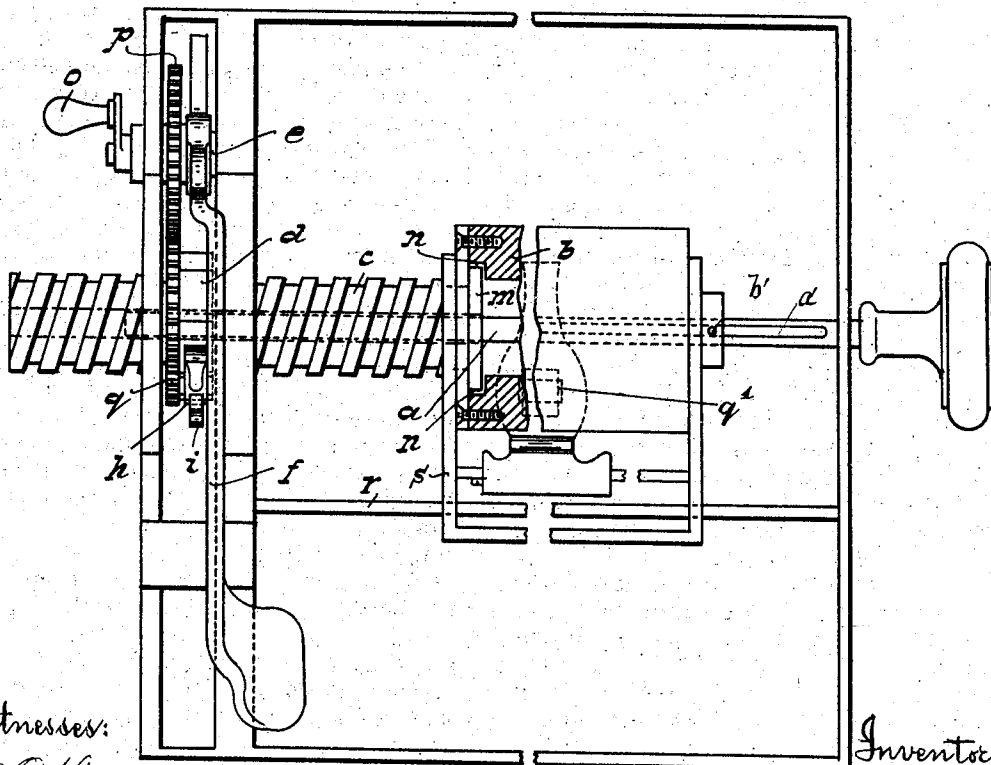


No. 781,441.

PATENTED JAN. 31, 1905.

M. MAYER.
 WRITING MACHINE.
 APPLICATION FILED MAY 6, 1904.



Witnesses:

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UNITED STATES PATENT OFFICE.

MAX MAYER, OF MUNICH, GERMANY.

WRITING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 781,441, dated January 31, 1905.

Application filed May 6, 1904. Serial No. 206,750.

To all whom it may concern:

Be it known that I, MAX MAYER, a citizen of the Empire of Germany, residing at Munich, Germany, have invented certain new and useful Improvements in Writing-Machines; and I do hereby 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.

My invention relates to improvements in writing-machines, and has for its object the provision of means whereby equidistant spacing between letters of different size may be attained.

An objection common to the ordinary type-writer is that notwithstanding the different letters occupy unequal space upon the paper the spacing of the machine is nevertheless uniform, resulting in gaps between the smaller characters, such as "i," "l," "t," and the punctuation-marks; while the larger characters, such as "m," "w," and the like, are unduly crowded or the characters are themselves deformed. This objectionable feature renders the type-written page less readily legible, as the comprehensive glance of the eye, recognizing the word as a whole and resulting from familiarity with the appearance of the printed page of books, newspapers, &c., is disturbed.

My improvement, by which this objection is overcome, is based upon the fact that if the face of the type-bar be divided into thirds, each third being considered as a unit, it is found that the smaller characters "i," "l," "t," &c., referred to occupy but one-third of the surface, or one unit, the largest characters "m," "w," &c., occupy three units, and the majority of the characters occupy two-thirds of the space, or two units. The rational method of procedure, then, is to adjust the spacing of the carriage to two units to correspond to the space suited to the characters occupying two-thirds of the type-face and then by a supplemental shifting move the paper roll or platen to the right or left one unit to compensate for the modified amount of space required by the smaller and larger characters. This diverse size of the letters and the principle by which a shifting to the right or left will result in a

word in which the letters are evenly spaced 50 and the means by which I accomplish this shifting will be rendered clear by an inspection of the accompanying drawings, in which—

Figures 1 and 2 are diagrams illustrating, 55 respectively, uneven and even spacing. Fig. 3 is a side elevation of such portion of a type-writer carriage as pertains to my improvement; and Fig. 4 is a top plan, partly in section, of the parts shown in Fig. 3. 60

Referring to the drawings more in detail, *a* is the shaft of the paper roll or platen *b*, being capable of longitudinal displacement relative thereto and fixed against relative rotary movement by means of the slot *a'* and 65 pin *b'*. It will thus be seen that the platen *b* can be given a longitudinal movement independent of the carriage. To accomplish such movement, I provide a screw-spindle *c*, mounted loosely upon the axle *a* of the platen *b*. 70 This spindle is provided with helical threads which engage a peripheral groove in a ratchet-wheel *d*, which is mounted concentrically of said spindle upon the carriage. Upon the pivot *e*, carried by the carriage, a lever *f* is 75 pivotally mounted, one arm being under the influence of a spring *f'* and the other arm carrying upon a pivot *g* a pawl *h*, one end of which is pressed in contact with the toothed face of the ratchet *d* by means of the spring *i*. 80 Rotary movement of the spindle *c* under friction of the ratchet *d* is prevented by the pin *h*, fixed in the carriage and projecting into a slot *l*, which extends longitudinally of the spindle *c*, while the spindle is coupled to the 85 platen *b* in such manner as to permit rotary movement of the platen by providing on the end of the spindle a flange *m*, adapted to engage a groove *n* in the platen. To accomplish reverse movement of the spindle when necessary, a crank *o* is operatively connected with 90 a toothed wheel *p*, mounted on the pivot *e*, which toothed wheel meshes with a second toothed wheel *q*, carried by the ratchet-wheel *d*, the pawl *h* being thrown out of engagement 95 during the reverse movement. The pressure-roll *q'* must of necessity in this type of machine move with the platen, and I therefore

arrange a bar *r* upon the carriage-frame and slidably mount thereon a stirrup *s*, which carries the platen and the pressure-roll.

By an examination of Fig. 2 it will be readily seen that the letter "m" occupying three units of space and the automatic carriage movement providing for a shift of two units it becomes necessary to shift the paper roll or platen one unit to the left in addition, that as the letter "i" occupies but one unit of space it is necessary to shift the platen one unit in the opposite direction, and that as the letter "n" occupies two units of space the movement of the carriage corresponds therewith and no supplemental shifting of the platen is necessary. In the act of writing, therefore, uniformity of spacing is accomplished in the manner following: Before striking the letters occupying one unit of space the lever *f* is operated and the ratchet *d* is moved one tooth, and as a result the spindle *c*, with the platen *b*, travels longitudinally one unit of space to the right. If, then, a large letter occupying three units of space is to be printed, the usual space-bar is depressed, resulting in a movement of the carriage two units to the left, and the lever *f* is then depressed, moving the platen one unit to the right, when, taking into consideration the automatic forward movement of the carriage two units of space to the left, the net result is a movement of the platen three units to the left, corresponding to the space occupied by the letter. If, however, a character occupying two units of space is printed, the automatic forward movement of the carriage to the left corresponds therewith and no supplementary shifting of the platen is required.

Many modifications of constructional details will readily suggest themselves to the skilled mechanic which come well within the spirit of my invention as set out, and I do not, therefore, desire to be limited to the specific arrangement shown.

Wherefore, having thus fully disclosed my invention and the manner of its operation, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a type-writer, the combination with the carriage, of a paper roll or platen longitudinally displaceable thereon, a shift-lever, and mechanism connected therewith for displacing the platen upon the carriage to a definite extent.

2. In a type-writer, the combination with the carriage, of a paper roll or platen longitudinally displaceable thereon, a shift-lever, and mechanism connected therewith for displacing the platen to a definite extent in a direction opposed to the movement of the carriage.

3. In a type-writer, the combination with the carriage, of a paper roll or platen longitudinally displaceable thereon, a screw-spindle

connected with the platen, a ratchet in threaded engagement with the spindle and fixed to the carriage, and means for actuating the ratchet whereby the platen will be displaced relative to the carriage.

4. In a type-writer, the combination with the carriage, of a paper roll or platen longitudinally displaceable thereon, a screw-spindle, a swivel connection between the spindle and platen, a ratchet mounted in the carriage and having threaded engagement with the spindle, and means for actuating the ratchet.

5. In a type-writer, the combination with the carriage of a paper roll or platen longitudinally displaceable thereon, a screw-spindle, a swivel connection between the spindle and platen, a feather-and-groove connection between the spindle and carriage, a ratchet mounted on the carriage and having threaded engagement with the spindle, and means for actuating the ratchet.

6. In a type-writer, the combination with the carriage, of a paper roll or platen longitudinally displaceable thereon, a screw-spindle, a swivel connection between the spindle and platen, a feather-and-groove connection between the spindle and carriage, a ratchet mounted on the carriage and having threaded engagement with the spindle, and means for actuating the ratchet, comprising a lever and a spring-pressed pawl.

7. In a type-writer, the combination with the carriage, of a paper roll or platen longitudinally displaceable thereon, a screw-spindle connected with the platen, a ratchet in threaded engagement with the spindle and fixed in the carriage, a lever-and-pawl mechanism for actuating the ratchet whereby the platen will be displaced step by step in one direction relative to the carriage, and a crank mechanism whereby the platen may be displaced in the opposite direction.

8. In a type-writer, the combination with the carriage, of a paper roll or platen longitudinally displaceable thereon, a swivel connection between the spindle and platen, a feather-and-groove connection between the spindle and carriage, a ratchet mounted in the carriage and having threaded engagement with the spindle, a lever-and-pawl mechanism for actuating the ratchet step by step in one direction, and a crank and toothed-wheel mechanism for actuating it in the opposite direction.

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

MAX MAYER.

Witnesses:

ABRAHAM SCHLESINGER,
ULYSSES J. BYWATER.