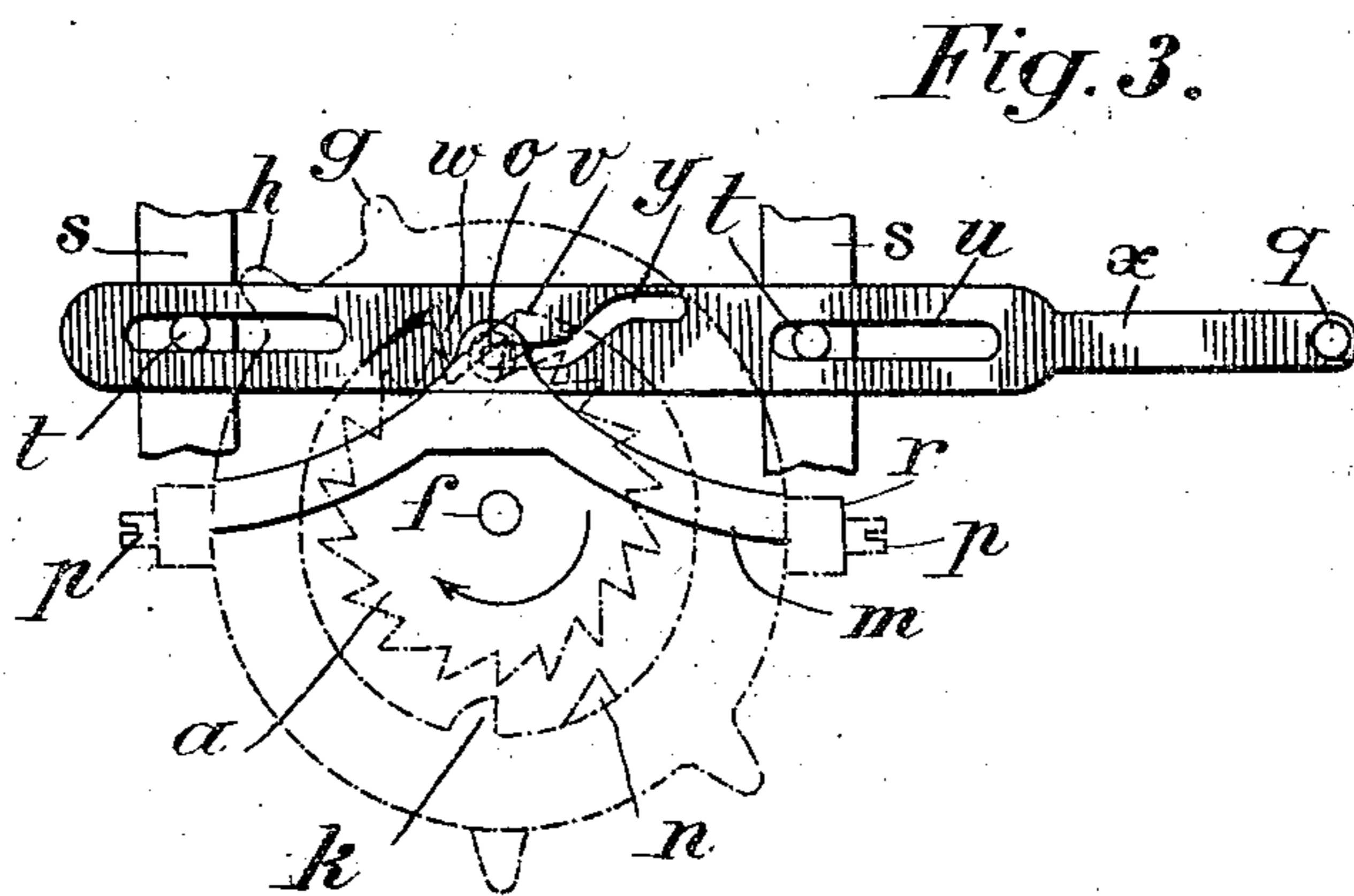
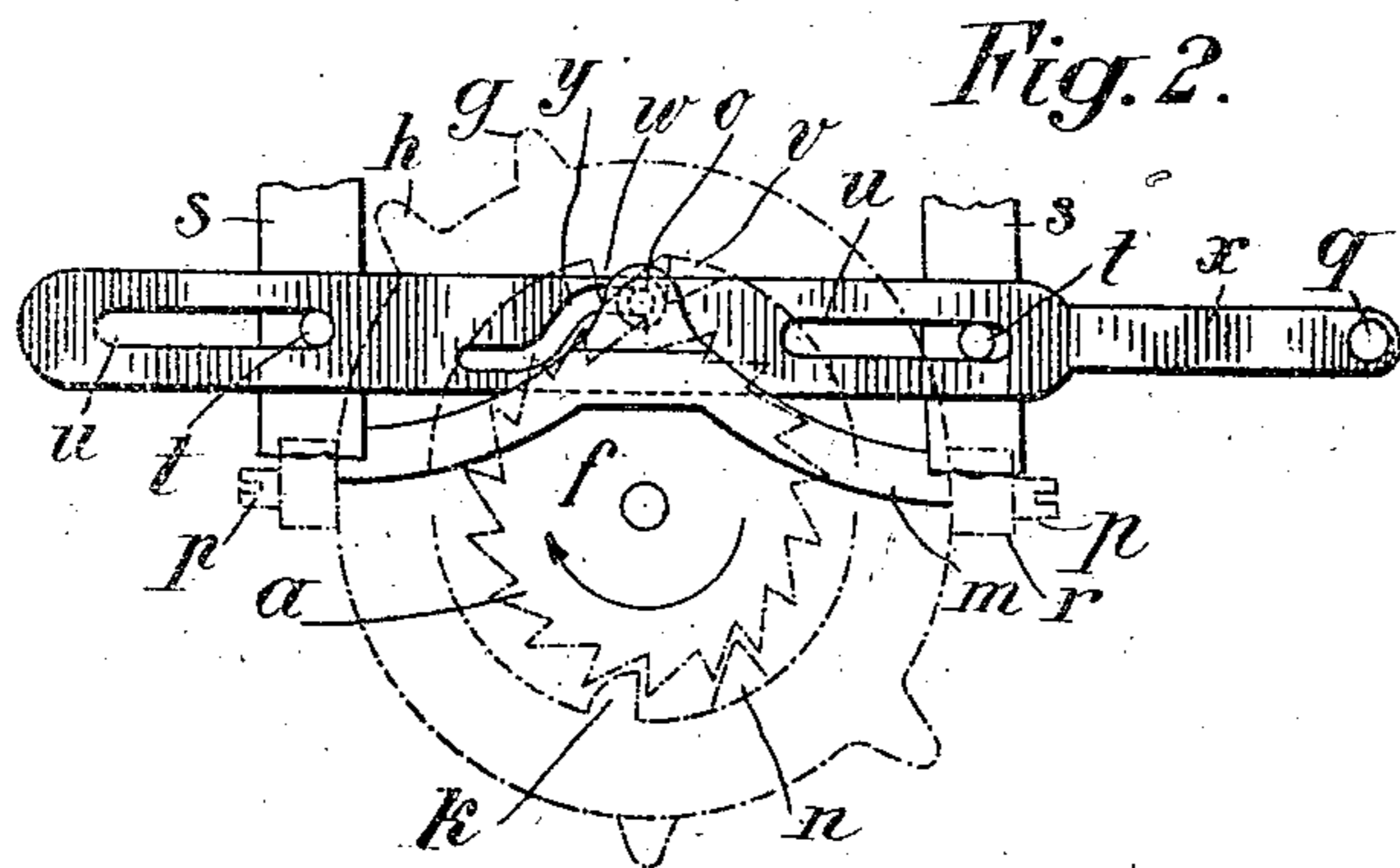
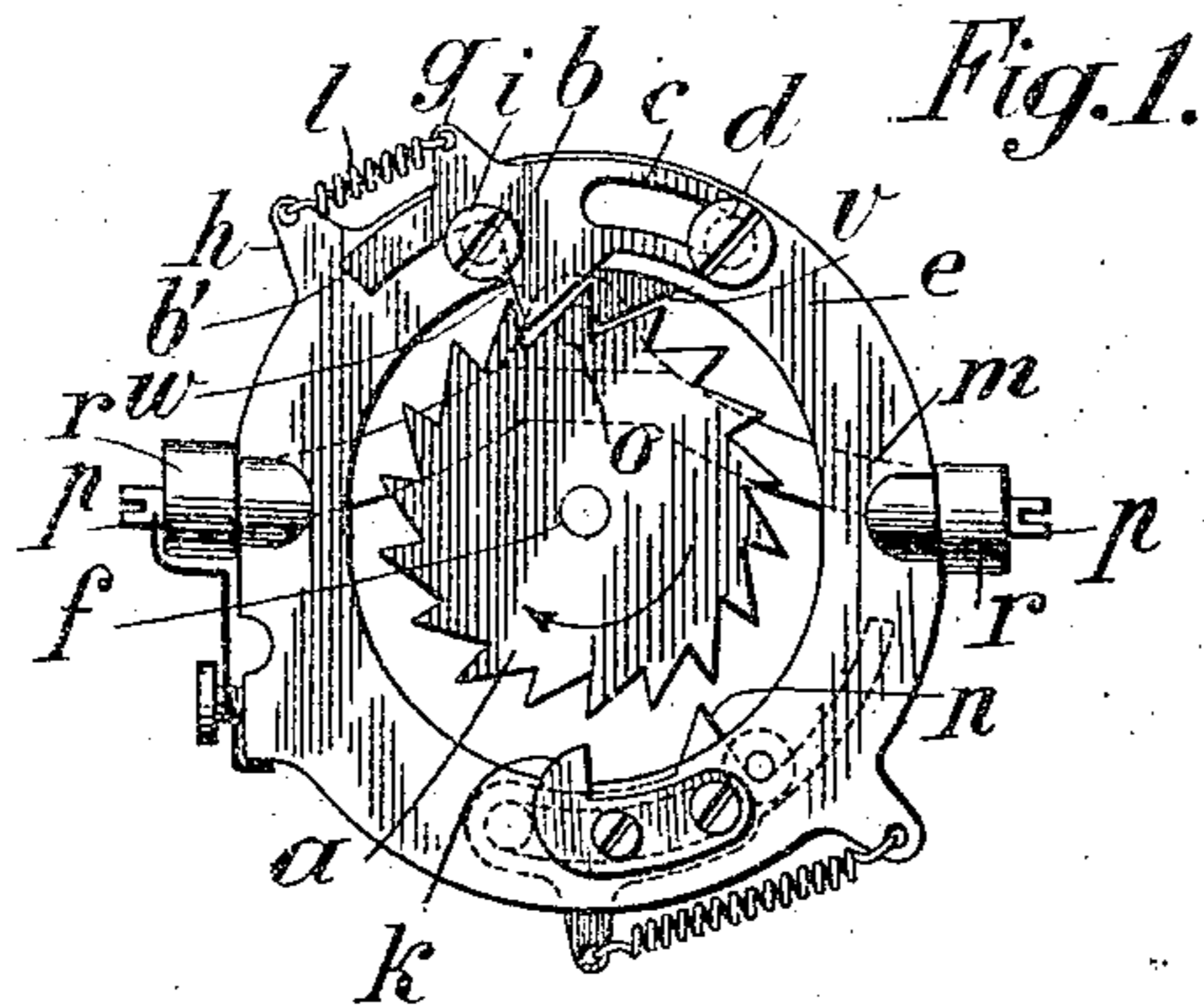


No. 886,557.

PATENTED MAY 5, 1908.

J. VÖLKER.
TYPE WRITING MACHINE.
APPLICATION FILED FEB. 15, 1906.

2 SHEETS—SHEET 1.



Witnesses:

C. W. Crawford

F. J. Ehlers

Inventor:

Jean Völker.

B. Singer

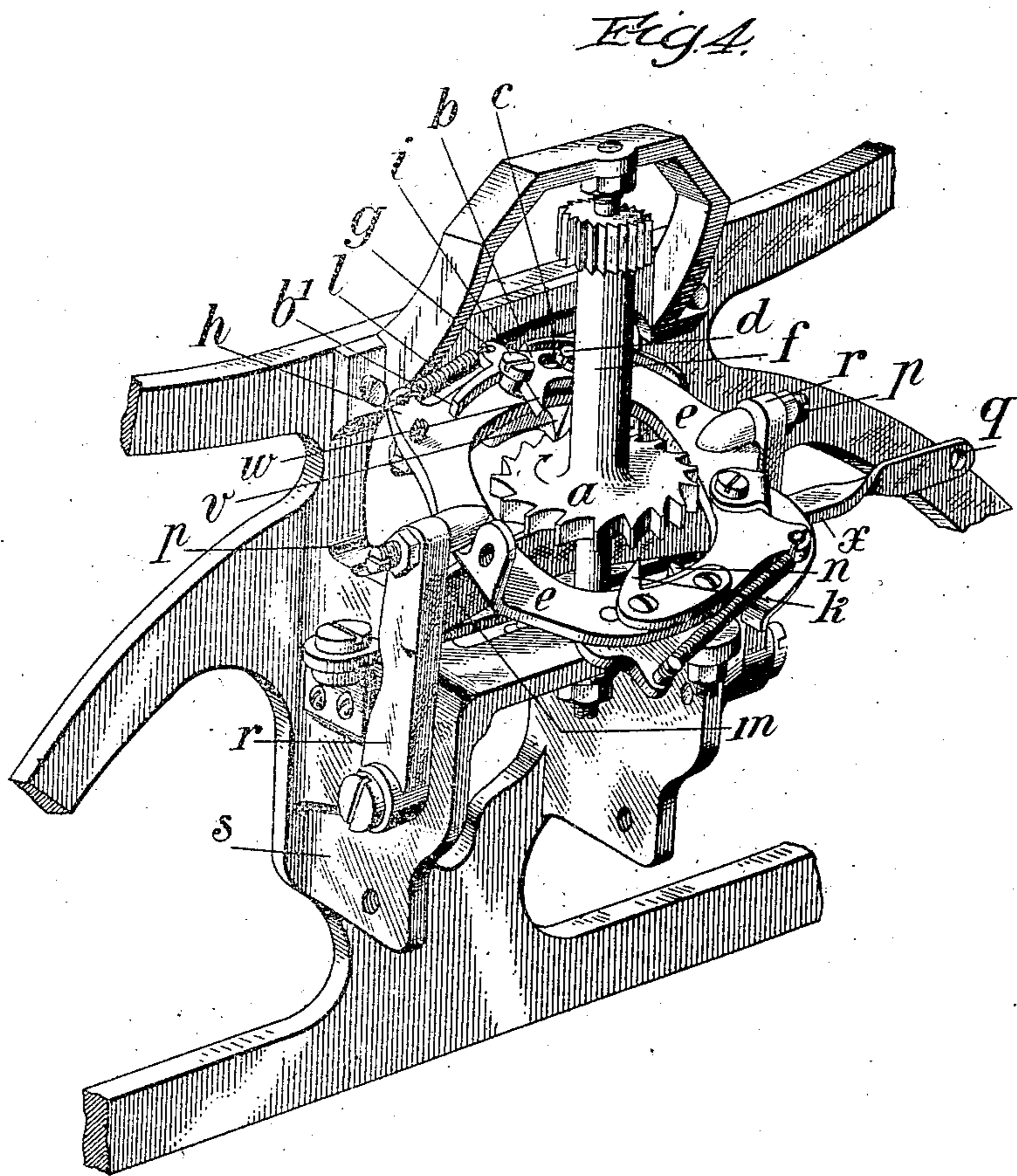
Attorney.

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2 SHEETS—SHEET 2.



Witnesses:

C. H. Crawford
J. J. Morghenthal

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UNITED STATES PATENT OFFICE.

JEAN VÖLKER, OF NEU-ISENBURG, GERMANY, ASSIGNOR TO THE FIRM OF PETER WEIL & CO., OF RÖDELHEIM, NEAR FRANKFORT-ON-THE-MAIN, GERMANY.

TYPE-WRITING MACHINE.

No. 886,557.

Specification of Letters Patent.

Patented May 5, 1908.

Application filed February 15, 1906. Serial No. 301,192.

To all whom it may concern:

Be it known that I, JEAN VÖLKER, manufacturer, a subject of the German Emperor, and resident of Neu-Isenburg, near Frankfort-on-the-Main, Germany, have invented certain new and useful Improvements in or Relating to Type-Writing Machines, of which the following is a specification.

This invention has reference to type-writing machines, and more particularly to letter-spacing mechanism therefor, in connection with tabulating work, which will enable the use of the ordinary spacing key to be dispensed with.

With ordinary typewriting machines when making a double space, it is necessary to depress the space-bar after each letter, thus causing inconvenience and mistakes. According to this invention, and in order to avoid these objections, a special mechanism is provided which may be used instead of the ordinary ratchet mechanism and which, at the depression of a letter-key causes the ratchet teeth to advance and to produce an equivalent forward movement of the carriage. The means for throwing the said mechanism into and out of gear may consist of a lever disposed in any convenient position on the machine.

This invention will be more clearly understood by reference to the accompanying drawings, in which:

Figure 1 is a plan of the driving gear provided with my auxiliary spacing device. Figs. 2 and 3 are plan views showing the means for effecting the forward motion of the carriage either by the ordinary or by my auxiliary letter-spacing gear. Fig. 4 is a perspective view of the device of my invention.

For the purpose of explaining the operation of my auxiliary device, it will be useful to refer to the ordinary mechanism by which the carriage is caused to move forward step by step for one division after each depression of a key. This is effected by so mounting the horizontal plate *e* as to be oscillated about the horizontal axis *p p* by suitable mechanism operated in connection with the keys. In a plane parallel to the axis of oscillation *p p* is arranged a slide *b* formed with a curved slot *c* concentric with the plate *e*, the concentric movement of the said slide being insured by a screw stud *d* engaging the slot *c* and another screw stud *i* in engagement with a finger piece *b'* of the slide *b*.

A tension spring *l* whose ends are attached to a lug *g* of the slide and to a lug *h* on the plate *e*, pulls the slide constantly towards its idle position, thus bringing the outer end of the slot *c* against the stud *d* and the stud *i* in contact with a tooth *w* formed on the inner side of the slide. To the lower side of the plate *e* is fixed a tooth *v* and during the oscillation of the plate, the teeth *w* and *v* are alternately brought in engagement with the teeth of the ratchet wheel *a* arranged in the center of the plate *e*.

The forward movement of the carriage is transmitted in the ordinary manner through the intervention of a rack and toothed pinion, to the vertical spindle *f* of the ratchet wheel *a* whereby the latter is constantly urged in the direction of the arrow. However, the rotation of the wheel *a* is prevented by the tooth *v* which at the normal or horizontal position of the plate engages in one of the teeth of the ratchet wheel. By depressing a key the portion of the plate *e* having the tooth *v* is turned downward and the tooth *w* of the slide *b* enters the next tooth of the ratchet wheel *a* owing to the disposition of the teeth *v* and *w* being such as to correspond with the teeth of the said wheel. When the tooth *v* is lowered so as to be free of the wheel *a* the latter turns in the direction of the arrow and, through the intervention of the tooth *w*, moves the slide *b* against the pull of the spring *l*. The amount of such displacement is limited by the slot *c* which latter corresponds to one division of the ratchet wheel so that the tooth *w* comes to a dead stop above the tooth *v* and keeps the ratchet wheel immovable. When releasing the key the plate *e* swivels back to its normal position and its fixed tooth *v* enters from below into the gap of the tooth in which the tooth *w* is engaged and the latter moves upward at the same time until it becomes disengaged from the wheel *a*. Hereupon the slide *b* is impelled forward by its spring *l*, so allowing the same cycle of movements to be repeated. This device therefore imparts to the carriage a forward motion for one division at each depression of either a letter-bar or the space-bar.

Thus far, the mechanism referred to, is known, but, in order to provide for a double space without the operation of the space-bar it will be necessary to employ a similar contrivance which will allow the ratchet wheel *a* to turn two teeth at each depression of a key.

For this purpose a similar engagement is provided consisting of teeth k and n arranged diametrically opposite to the ordinary escapement of the plate e and at a distance from each other equal that of two ratchet teeth. The oscillatory movement of the plate e upon the axis $p p$ produces opposite effects at opposite points of the plate, and for this reason the fixed tooth k corresponding to the tooth v is situated above the plate, while the slide with its tooth n which corresponds with the tooth w is situated below the plate. The slot of the auxiliary slide is twice as long as the slot c of the slide b .

Obviously it will be impossible to operate both escapements simultaneously and means must be provided for alternately engaging and disengaging the one or the other of these escapements, as may be desired. This is effected by means of a strap m fitted at its middle with a downwardly projecting pin o , and connected with the plate e . The plate e is supported by its pivot pins $p p$ in the free ends of arms r whose other ends are pivoted to the main frame of the machine.

The horizontal displacement of the plate e is obtained through the intervention of a slide bar x , to the end q of which is connected an operating lever or the like situated at the front of the machine. The slide bar is guided in a horizontal plane along the bars $s s$ of the main frame of the machine by means of studs $t t$ which engage in slots $u u$ of the said slide bar. The latter is further formed with a curved slot y in which the pin o of the strap m engages. The curvature of the slot y is such that the endwise motion of the sliding bar x will produce lateral displacements of the plate e in a direction at right angles to the movement of the bar x and thus cause either the teeth v and w to be brought in engagement with the ratchet a as shown in Fig. 3 for ordinary writing, or the teeth k and n with the same as shown in Fig. 2 for letter-spacing. The ends of the slot y are continued slightly in the direction of the bar x so as to form a lock for the plate e and prevent its unintentional displacement, the locking action being due to the fact that the bar x has to move a certain distance before the inclined portion of the slot affects the plate e .

Having now fully described my said invention, what I claim and desire to secure by Letters Patent is:

1. In a typewriting machine the combination with the ratchet wheel of the carriage motion controlling device, the oscillating frame surrounding said wheel and the ordinary escapement of the latter, of an auxiliary escapement allowing of the ratchet wheel advancing two teeth, and means for shifting said oscillating frame for throwing the ordinary and auxiliary escapement alternately in or out of gear, substantially as and for the purpose described.

2. In a typewriting machine the combination with the ratchet wheel of the carriage controlling device, the oscillating frame and the ordinary escapement of the latter, of an auxiliary escapement arranged inversely on the oscillating frame, opposite the ordinary escapement and adapted to allow of the ratchet wheel advancing two teeth at a time, and means for shifting said oscillating frame for throwing the ordinary and auxiliary escapements alternately in or out of gear, substantially as and for the purpose described.

3. In a typewriting machine the combination with the ratchet wheel of the carriage controlling device, the oscillating frame and the ordinary escapement of the latter, of an auxiliary escapement arranged inversely on the oscillating frame, opposite the ordinary escapement and adapted to allow of the ratchet wheel advancing two teeth at a time, and means for shifting the oscillating frame of the controlling device bodily in a horizontal plane to disengage the teeth of one of the escapements from the ratchet wheel and engage the teeth of the other escapement into the latter, and means for locking the oscillating frame in its operating position, substantially as and for the purpose described.

4. In a typewriting machine the combination with the ratchet wheel of the carriage controlling device, the oscillating frame and the ordinary escapement of the latter, of an auxiliary escapement arranged inversely on the oscillating frame, opposite the ordinary escapement and adapted to allow of the ratchet wheel advancing two teeth at a time, of arms supporting at one end the oscillating pins of the frame and oscillating on the other ends on the frame of the typewriting machine, of a strap rigidly connecting the two oscillating arms, of a downwardly projecting pin on the middle portion of the said strap and engaging an inclined slot of an operating bar slidably mounted on the framework of the typewriter, substantially as and for the purpose described.

5. In a typewriting machine the combination with means for effecting step-motion of the carriage, of an auxiliary spacing escapement, of oscillating arms, carrying the escapement frame, a strap rigidly connected with the said oscillating arms, a pivot downwardly projecting from the said strap and engaging the slot of the slidable operating bar; this slot being oblique in its middle part and at its end part parallel to the direction of motion of the operating bar, substantially as and for the purpose set forth.

6. In a typewriting machine, the combination with a ratchet wheel forming a part of a carriage controlling device, an oscillatory frame surrounding said wheel, a main escapement mounted thereon, an auxiliary escapement for said frame, said main and auxiliary escapements being disposed on said frame

at opposite points of said wheels and means for shifting said frame to alternately throw said main and auxiliary escapements into operative relation with said wheel.

5 7. In a typewriting machine, the combination with a ratchet wheel, a main escapement mechanism adapted to coöperate with said ratchet wheel at one point thereof, an auxiliary escapement mechanism adapted to co-
13 operate with said ratchet wheel at a point

opposite to said main escapement, and means for alternately throwing said main and auxiliary mechanisms into operative relation with said wheel.

In testimony whereof I have hereunto set 15
my hand in presence of two witnesses.

JEAN VÖLKER.

Witnesses:

JEAN GRUND,
CARL GRUND.