

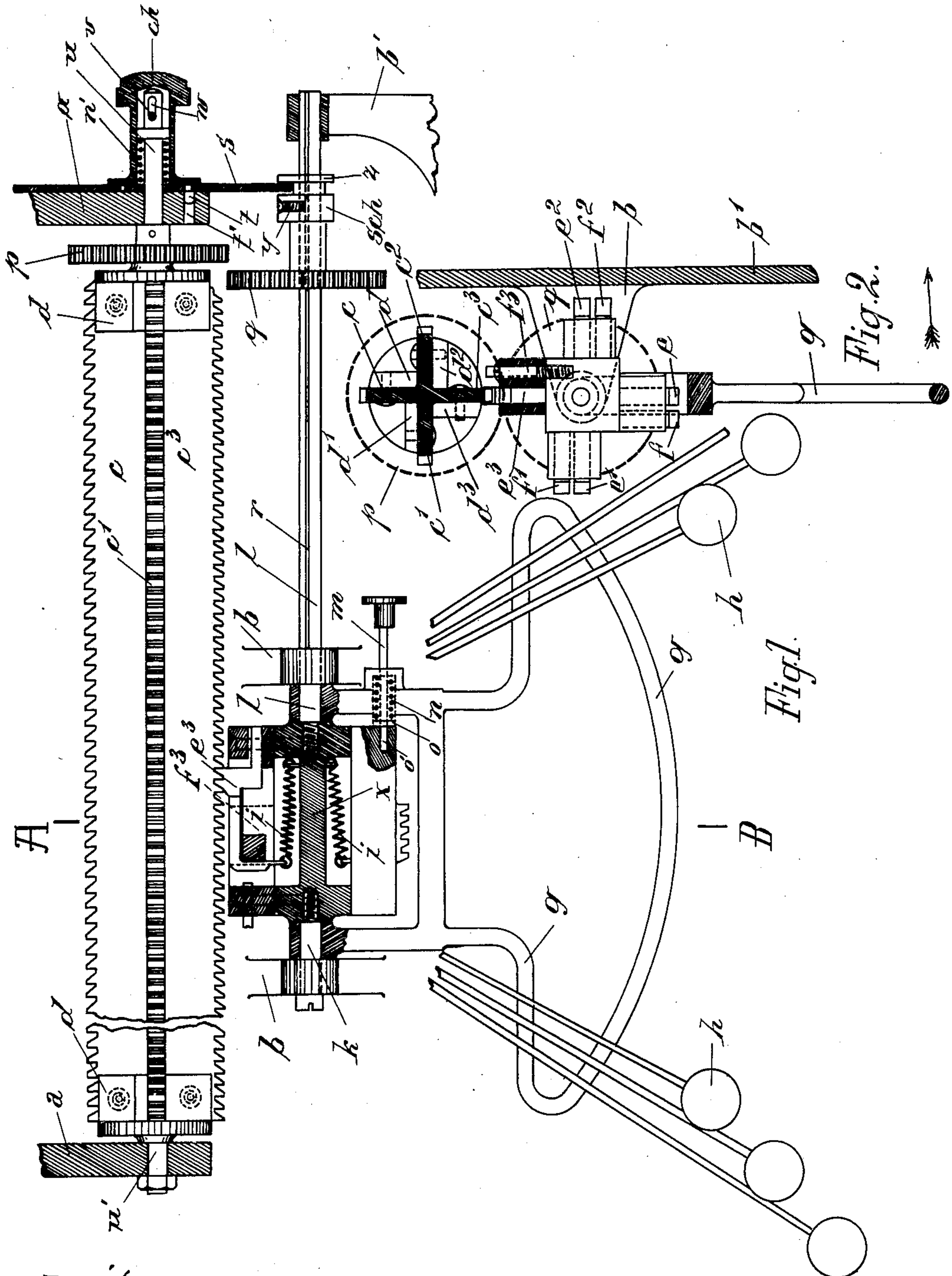
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PATENTED SEPT. 3, 1907.

F. SCHÜLER.

FEED MECHANISM FOR TYPE WRITERS.

APPLICATION FILED APR. 10, 1906.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

FRANZ SCHÜLER, OF BERLIN, GERMANY.

## FEED MECHANISM FOR TYPE-WRITERS.

No. 865,214.

Specification of Letters Patent.

Patented Sept. 3, 1907.

Application filed April 10, 1906. Serial No. 310,932.

To all whom it may concern:

Be it known that I, FRANZ SCHÜLER, engineer, a subject of the King of Prussia, residing at No. 24 Grimmstrasse, Berlin, Kingdom of Prussia, Germany, have invented certain new and useful Improvements in Feed Mechanism for Type-Writers; 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.

The object of my present invention is to adapt the carriage of a type-writing machine to be displaced uniformly throughout its movement through different letter spaces in writing, according to requirements, thereby varying the feed, the construction being such that the operating detent device engages direct with the rack secured to the carriage.

It is a well known fact that in the type-writing machines heretofore used, the operating detent, can only be adjusted, if at all, to omit one tooth of the rack. According to this invention it is rendered possible to adjust the carriage displacement or feed within a fraction or multiple of the pitch of the rack. This is of special importance for typewriters having an exchangeable set of type and type of various widths. In such cases it was heretofore necessary to exchange the toothed rack and the detents, which is not necessary in the present case.

My invention consists broadly in providing the carriage with a plurality of interchangeable escapement mechanisms, and, particularly the toothed rack or escape member with several sets of teeth having diverse pitches, which can be brought alternatively into engagement with the detents. These latter are also adjustable, so that they may fit the different pitches of the racks. Said series of teeth can be arranged beside each other, in which case a parallel displacement of the rack must be provided for. Of special importance however is the construction where the sets of teeth are arranged radially around a common axis, about which they can be rotated, in order to bring the desired series of teeth into the operating position. The detents are also preferably arranged around an axis, and it is, further, of great importance that the movements of the rack and detents should be rendered dependent upon each other.

My invention consists, further, of the combination of parts described in the following specification and set forth in the claims.

In the accompanying drawing illustrating one construction of the invention the toothed rack and the detents are each arranged radially around a rotatable axis.

Figure 1 is an elevation and part section of the toothed rack secured to the carriage and of the detent device, while Fig. 2 is a section on A—B of Fig. 1.

*a* is the carriage of the type-writing machine, in

which turn the spindles *u*, *u'*, carrying the rack or impulse member of the escapement. This latter has four different sets of teeth *c*, *c*<sup>1</sup>, *c*<sup>2</sup>, *c*<sup>3</sup>, arranged in the present case at right angles to each other, and secured to the spindles *u*, *u'* by angle pieces *d*. On the spindle *u* is secured a spur wheel *p* and a handle or button *ch*, adapted to be moved longitudinally, and provided with a pin *v*, which, by sliding in a slot *w* of the spindle *v*, limits the movement of said handle. To the handle *ch* is secured a disk plate *s* having a pin *t*, to receive which holes *t'* are provided in the carriage arm *a*. As evident from the drawing the handle *ch* can be pulled to the right as far as the slot will allow. At the same time the pin *t* is pulled out of the opening *t'* and the spindle *u* will be turned by the pin *v*, until another set of teeth, such of *c*<sup>1</sup>, is brought into the position formerly occupied by *c*<sup>3</sup>. The pin *t* then springs, under the influence of the spring *n'*, into another hole in the carriage *a*.

The detents are constructed as follows: *x* is a carrier provided with pins *k*, *l*, journaled at *b* in the frame *b'* of the machine. As diagrammatically shown in the drawing, on pressing down the keys *h* the bar *g* is also depressed, (see the arrow in Fig. 2) and the carriage is then moved see the arrow in Fig. 2. On the axis *k*, *l* four pairs of detents are radially arranged, whose pitches correspond with those of the sets of teeth *c*, *c*<sup>1</sup>, *c*<sup>2</sup>, *c*<sup>3</sup>. The movable detents *e*, *e'*, *e*<sup>2</sup> and *e*<sup>3</sup> are acted on by the springs *i*, while *f*, *f*<sup>1</sup>, *f*<sup>2</sup>, *f*<sup>3</sup> are the fixed detents. The bar *g* carries a pin *m* provided with a button, said pin being adapted to be pulled out of the hole *o'* of the detent carrier *x* against the tension of the spring *n*, acting on the collar *o*, whereupon the carrier can be turned. In the latter are disposed four such holes *o'*, into either of which the pin *m* can project in order to keep the carrier *x* in the proper position.

The spindle *l* is extended towards the right and journaled in the frame *b'* of the machine. On this spindle is fitted a toothed wheel *q* having collars *sch* and *z*, between which there is an annular groove. A screw *y* in the collar *sch* engages in a groove *r* of the spindle *l*, so that the toothed wheel *q* can be moved longitudinally but not rotated independent of the spindle *l*. In the groove between *sch* and *z* engages the circular disk *s* of the handle *ch*. When the latter is pulled to the right, the disk *s* moves the toothed-wheel *q* into engagement with the spur-wheel *p*. If now the carriage *a* is moved, the toothed-wheel *q* on the spindle *l* will also be moved by the disk *s*. The operation of the apparatus is therefore as follows: Supposing it is desired to change the carriage feed, the pin *m* is pulled to the right out of the hole *o'* whereupon the handle *ch* is pulled in the same direction, so that the pin *t* recedes out of the hole *t'*. The handle or button is then turned until the desired set of teeth comes into the operating



position. As, in moving the handle *ch* to the right, the toothed wheel *q* is brought into engagement with the spur wheel *p*, this latter will also turn the spindle *l* and carrier *x*, by means of the pin *y*, until the proper pair of detents is brought into engagement with the rack. When the handle *ch* is released, the pin *t* springs back and enters the corresponding hole *t'*. The same takes place in releasing the pin *m*, which enters the corresponding hole *o'*, so that both the rack and detents are firmly secured in the operating position. The wheels *p* and *q* are brought out of gear by the handle *ch* receding into its normal position.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is:—

1. The combination, with a typewriter carriage, of a plurality of independent escapement sets each comprising a separate ratchet member and a separate detent member, and means for bringing the different escapement sets alternately into operation.
2. The combination, with a typewriter carriage, of a feed mechanism comprising a plurality of diverse escape members and a plurality of corresponding detent members, and means for bringing the different pairs of the respective escape and detent members into operative relation to the carriage to vary the feed.
3. A feed mechanism for typewriting machines, comprising, in combination, a rack having several sets of teeth of different pitch, several detents one to fit each of said sets of teeth, and means for interchangeably bringing the different sets into use.
4. A feed mechanism for typewriting machines, comprising, in combination, a rack having several sets of teeth of different pitch arranged radially about a common

axis, several detents one to fit each of said sets of teeth, and means for interchangeably bringing the different sets into use.

5. A feed mechanism for typewriting machines, comprising, in combination, a rack having several sets of teeth of different pitch arranged radially about a common axis, several detents one to fit each of said sets of teeth and adapted to turn about a common axis, and means for interchangeably bringing the different sets into use.

6. A feed mechanism for typewriting machines, comprising a rack member having several sets of teeth of different pitch, adjustable detents arranged to fit each of said sets of teeth, means for bringing the different sets of teeth alternatively into operative position, and means for adjusting the detents to correspond to the change in teeth.

7. A feed mechanism for typewriting machines, comprising, in combination, an adjustable rack having several sets of teeth of different pitch, adjustable detents one to fit each of said sets of teeth, and means to simultaneously adjust said detents upon adjusting said sets of teeth.

8. A feed mechanism for typewriting machines, comprising in combination a rack having several sets of teeth of different pitches arranged radially about a common axis, detents to fit said sets of teeth and adapted to turn about a common axis, a handle to turn said rack and adapted to slide relatively to said rack, a spur-wheel adapted to turn with said detents, and means connecting said handle with the spur-wheel adapted to turn with said detents, when said handle is moved longitudinally in regard to said rack.

In witness whereof I have hereunto signed my name this 28th day of March 1906, in the presence of two subscribing witnesses.

FRANZ SCHÜLER.

Witnesses:

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WOLDEMAR HAUPT.