

No. 774,638.

PATENTED NOV. 8, 1904.

F. H. ARMSTRONG.

# CARRIAGE FEEDING MECHANISM FOR TYPE WRITING MACHINES.

APPLICATION FILED MAY 12, 1904.

NO MODEL.

3 SHEETS--SHEET 1.

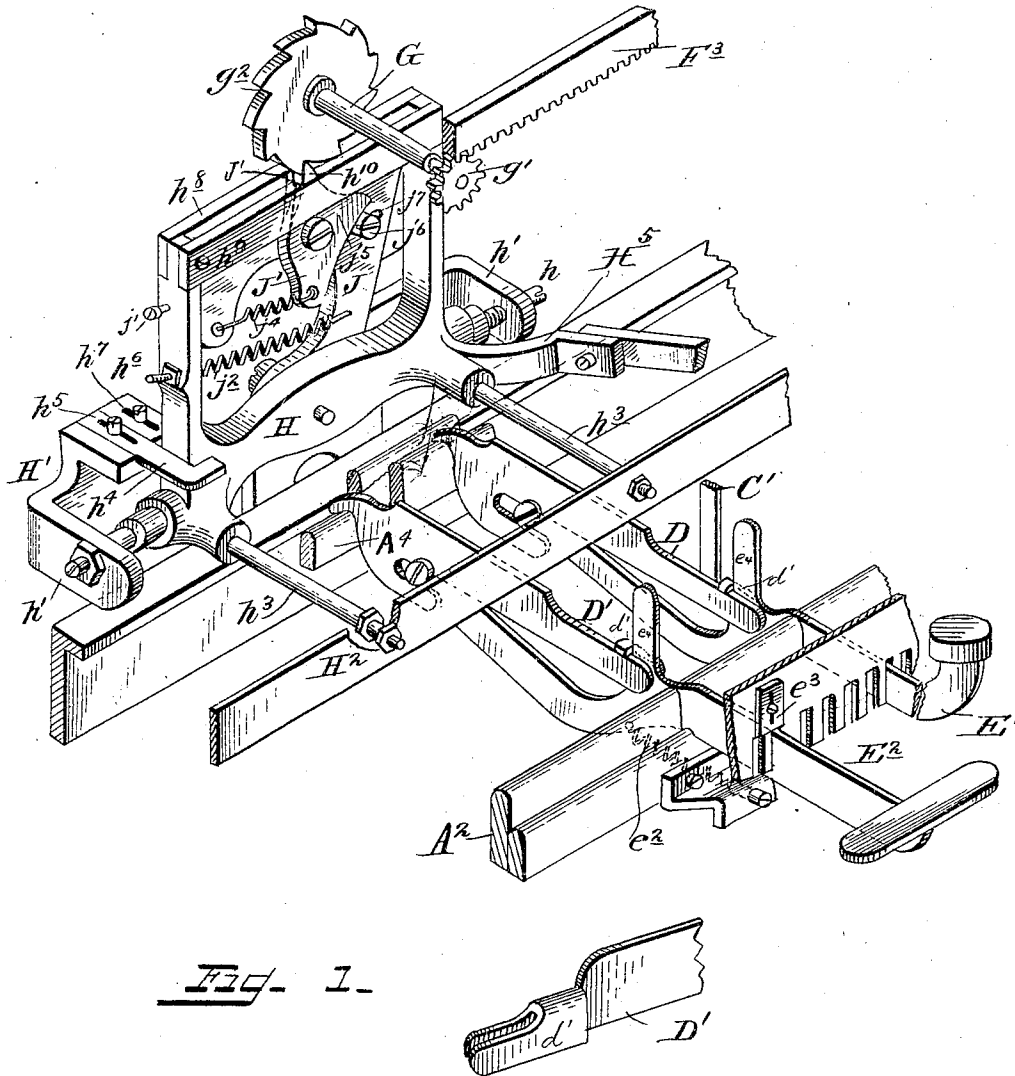


Fig. 1.

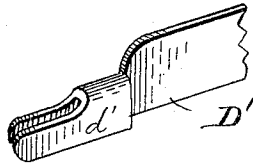


Fig. 2.

Witnesses

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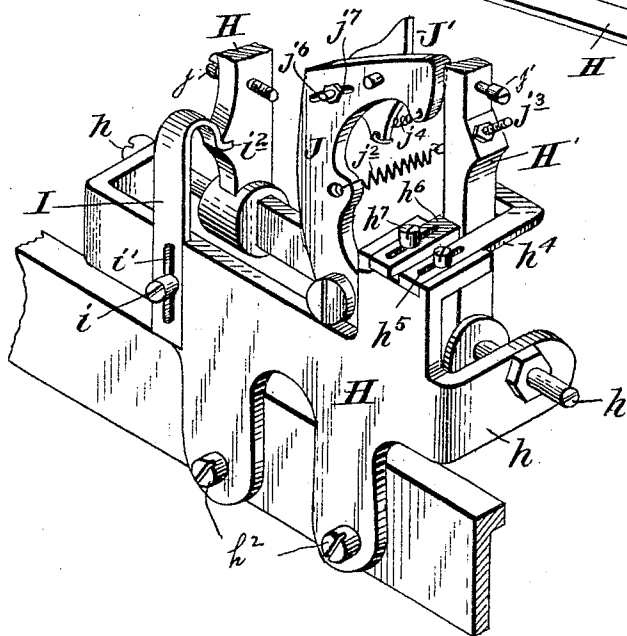
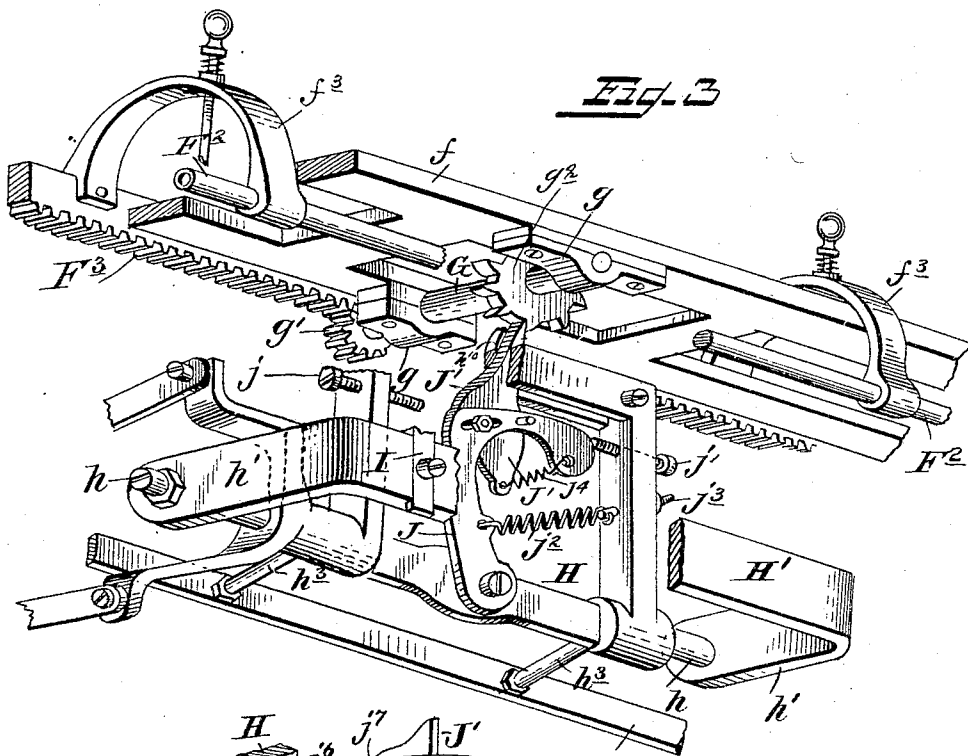
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3 SHEETS—SHEET 3.

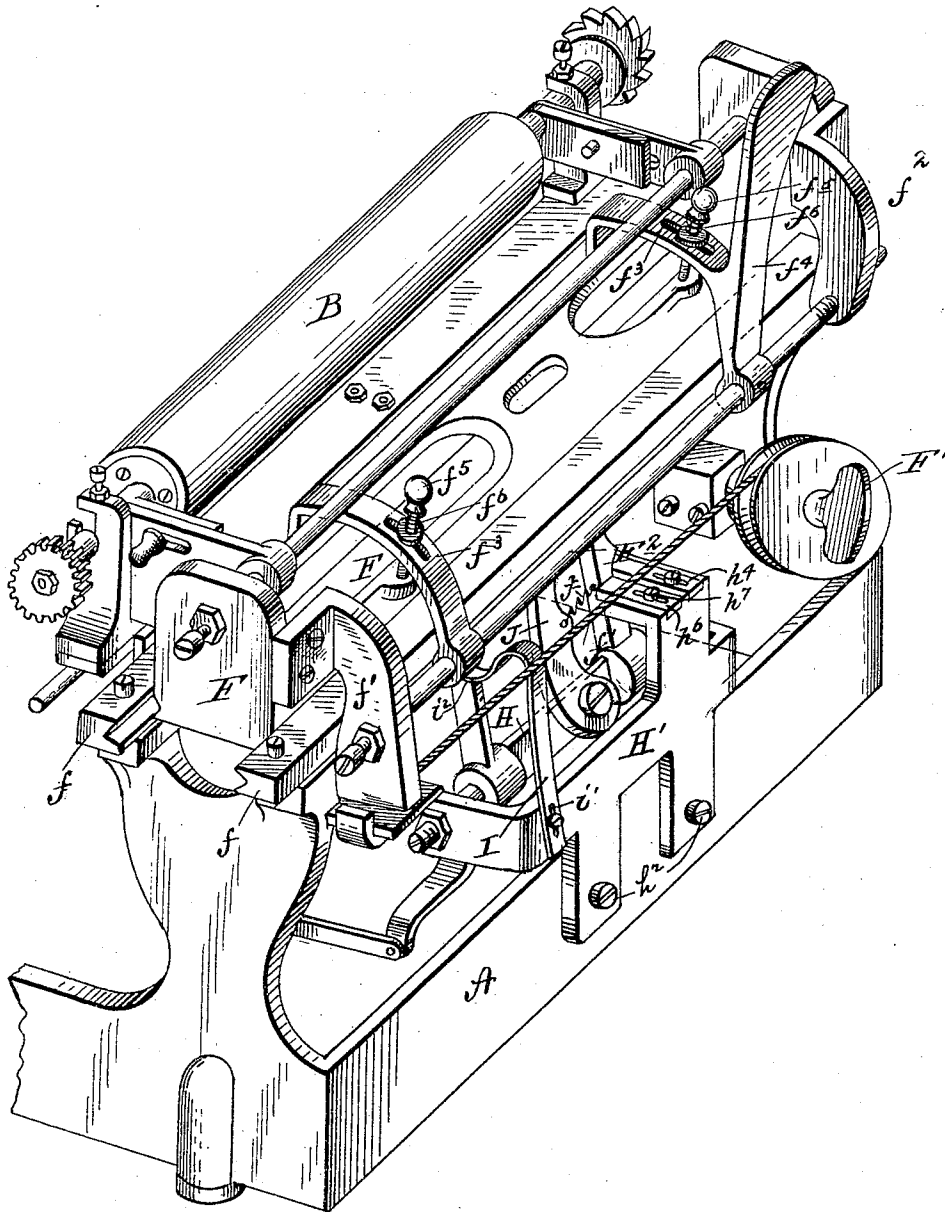


Fig. 5.

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# UNITED STATES PATENT OFFICE.

FRANK H. ARMSTRONG, OF AUBURN, NEW YORK.

## CARRIAGE-FEEDING MECHANISM FOR TYPE-WRITING MACHINES.

SPECIFICATION forming part of Letters Patent No. 774,638, dated November 8, 1904.

Application filed May 12, 1904. Serial No. 207,523. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK H. ARMSTRONG, a citizen of the United States, residing at Auburn, Cayuga county, New York, have invented certain new and useful Improvements in Carriage-Feeding Mechanisms for Type-Writing Machines, of which the following is a specification.

My invention relates to mechanism for giving the carriage its step-by-step feed.

The object of the invention is to provide a simple and effective feed mechanism, as will be hereinafter fully described, and pointed out in the claims. This object I accomplish by the construction shown in the accompanying drawings, in which—

Figure 1 is a front perspective of my improved feed mechanism. Fig. 2 is a detail of a portion of one of the levers. Fig. 3 is a rear perspective of the feed mechanism. Fig. 4 is a detail perspective of a portion of the mechanism shown in Fig. 3, and Fig. 5 is a rear perspective to more fully show the carriage.

A designates the frame of the machine, such, for instance, as that shown in my Patent No. 717,794, dated January 6, 1903, and provided with the front and rear fulcrum-bars  $A^2$   $A^4$  for the levers  $E'$   $D$ , by which the type-bar links  $C'$  are actuated, all as shown in said patent.

$D'$  and  $E^2$  are connected spacing-levers constructed like the levers  $D$   $E'$ . Lever  $E^2$  is pressed down in front of its fulcrum by a spring  $e^2$ , and the upward movement of its free end is limited by an adjustable stop  $e^3$ .

All of the levers  $D$   $D'$  are fulcrumed at their rear ends on the rear cross-bar  $A^4$ , while the levers  $E'$   $E^2$  are fulcrumed on the forward cross-bar  $A^2$  and connected at their rear ends to the levers  $D$   $D'$  by a pin-and-slot connection, as in the said patent, so that upon depressing the levers  $E'$   $E^2$  the levers  $D$   $D'$  will be rocked vertically. A further description of these parts is deemed unnecessary.

$F$  designates the carriage, mounted to slide on a suitable guideway  $f'$   $f$  and propelled from right to left by means of a cord  $f'$ , connecting it with a spring-drum  $F'$ . In brackets  $f^2$   $f^2$  at the rear of the carriage is mounted a rock-shaft  $F$ , on which are mounted two

curved slotted arms  $f^3$   $f^3$ , which extend forwardly over the carriage to the front side thereof, where they project down and carry the carriage-actuating rack  $F^3$ . One of these arms,  $f^3$ , has a finger-lever  $f^4$ , by means of which the rack  $F^3$  may be raised to release the carriage. The arms  $f^3$   $f^3$  are guided on adjustable screws  $f^5$   $f^5$ , threaded at their lower ends into apertures in a longitudinal bar of the carriage, these screws extending through the slots in arms  $f^3$   $f^3$  and provided above the arms with springs  $f^6$   $f^6$ , which press the arms and rack down to place. By turning the screws the tension of the springs may be regulated.

$G$  designates a transverse shaft journaled in bearings  $g$   $g$  on the under side of carriage guide or support  $f$  and provided at its forward end with a pinion  $g'$ , meshing with rack  $F^3$ , and provided at its rear end with a ratchet or escapement wheel  $g^2$ .

$H$  designates the rocking escapement-frame, pivoted at its lower corners by means of pointed screws  $h$   $h$  to the ears  $h'$   $h'$ , projecting forwardly from a bracket  $H'$ . The bracket  $H'$  and the escapement carried by it may be readily removed and replaced by means of the screws  $h^2$   $h^2$ , which secure it to the rear cross-bar of the frame  $A$ . (See Fig. 4.) The frame  $H$  is pressed forward by a plate-spring  $I$ , adjustably secured at its lower slotted end by a screw  $i$ , extending through slot  $i'$ , the upper bowed end of the spring engaging a notch  $i^2$  in one arm of the frame. The frame  $H$  is rocked rearwardly from levers  $D$   $D'$  by means of a cross-bar  $H^2$ , mounted adjustably between the nuts on the forward ends of two arms  $h^3$   $h^3$  and lying across the upper edges of said levers, as shown in Fig. 1. The forward movement of frame  $H$  is limited by an adjustable angle-arm  $h^4$ , secured to the upper edge of bracket  $H'$  by a screw-and-slot connection  $h^5$ , and the rearward movement of the frame is limited by an adjustable stop  $h^6$ , also secured to the upper edge of the bracket by a screw-and-slot connection  $h^7$  and lying behind the rocking frame, (see Fig. 4,) so that the movement of the escapement-frame may be exactly controlled.

The upper member of the escapement-frame

H is formed of parallel spaced members  $h^8$   $h^9$ , and on the upper side of the inner member  $h^9$  is formed a tooth  $h^{10}$ , normally out of engagement with the ratchet  $g^2$ , but adapted  
 5 when the frame is rocked rearwardly to engage a tooth of the ratchet and release said ratchet when the frame is again pressed forward by its spring.

J is an angular escapement-pawl lever pivoted at its lower end to the lower cross-bar of the escapement-frame and having the throw of its upper end controlled by two screw-stops  $j$   $j'$ , as clearly shown in Fig. 3, said lever being normally drawn toward stop  $j'$  by a spring  
 15  $j^2$ , the tension of which may be regulated by screw  $j^3$ . To the upper end of this lever J is pivoted the escapement-pawl J', the lower end of the pawl being pulled to the left by a spring  $j^4$ , the movement of the pawl being  
 20 limited by its shoulder  $j^5$ , engaging a stop-screw  $j^6$ , adjustable in a curved slot  $j^7$  in the lever J. The nose of pawl J' projects up above the frame H into engagement with the ratchet and locks it against rotation until the  
 25 frame is pressed rearward from the key-lever mechanism, at which time the pawl will be pressed out of engagement with the ratchet and the tooth  $h^{10}$  will be thrown into engagement with the ratchet. When pawl J' is released from the ratchet, the spring  $j^2$  and lever J will carry it to the left into line with the next tooth-space on the ratchet now locked by tooth  $h^{10}$ . As soon as the key-lever is released the spring I will throw the frame forwardly, when the tooth  $h^{10}$  will release the  
 35 ratchet and the pawl J' will engage it. When the carriage is retracted, the ratchet  $g^2$  will be rotated in a reverse direction and the pawl J' will yield against the action of its spring  $j^4$ .  
 40 B is the platen and a portion of the shifting mechanism, which forms the subject-matter of an application filed May 13, 1904, Serial No. 207,797.

The arm  $H^5$  on the escapement-frame is to  
 45 actuate a ribbon-spool shaft. (Not shown.)

It will be noticed that the levers D D' are formed at their front ends with integral forks  $d'$ , formed, as shown in Fig. 2, to embrace the upwardly-projecting guide-arms  $e^1$  on levers E' E<sup>2</sup>.  
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Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writing mechanism, the combination with the carriage, a rock-shaft mounted longitudinally of the carriage, slotted arms mounted on the shaft and extending forwardly over the carriage, and one having a lever, a rack mounted on the forward ends of the arms,  
 60 screws extending down through the slots in the arms into engagement with the carriage and springs on the screws above the said arms, a short shaft having a pinion meshing with said rack, and an escapement mechanism controlling said shaft.

2. In a type-writing machine, the combination with the carriage-controlling shaft and the ratchet, of a forwardly-swinging escapement-frame having a cross-bar, a fixed tooth on the upper bar of the frame to engage the ratchet  
 70 when the frame is rocked rearwardly, a spring-pressed pawl-lever mounted in the frame, a spring-pressed pawl mounted on said lever with its nose projecting above the top of the frame alongside of said fixed tooth to engage  
 75 the ratchet when released by said fixed tooth and a key-lever mechanism including vertically-movable inner members across the upper edges of which said cross-bar extends for direct operation thereby.

3. In a carriage-feeding mechanism, the combination of the swinging escapement-frame having forwardly-projecting arms threaded at their free ends, a cross-bar having transverse apertures at its ends through  
 85 which said threaded ends pass, and nuts on the said threaded ends at opposite sides of the cross-bar for securing said bar adjustably on the arms, with a lever mechanism including vertically-movable inner members, the upper  
 90 edges of which engage the lower side of the cross-bar.

4. In a carriage-feeding mechanism the combination with an attaching-bracket having inwardly-projecting ears, of an open rectangular  
 95 frame pivoted between said ears and provided on its upper edge with a fixed tooth, a pawl-lever pivoted within the frame and provided at its upper end with a spring-controlled pawl projecting up alongside said fixed tooth, stops  
 100 adjustable in the upper ends of the side bars of said frame between which stops the upper end of the pawl-lever swings, a longitudinally-adjustable stop mounted on the upper edge of the bracket in rear of one arm of the said  
 105 pivoted frame, a second longitudinally-adjustable stop also on the upper edge of the bracket and provided at its forward end with a lateral arm projecting in front of the said frame-arm and means for actuating the said rocking  
 110 frame.

5. In a carriage-feeding mechanism, the combination with the rocking escapement-frame having forwardly-projecting arms provided with a cross-bar, of a lever fulcrumed  
 115 at its rear end, and extended under said cross-bar; the lower edge of the lever having a longitudinal open slot and provided at its front end with an integral fork, a finger-lever, fulcrumed between its ends and having a lateral  
 120 pin or stud at its rear end entering said slot; said finger-lever also having an upwardly-extending arm embraced by said forked end, and a spring holding the finger-lever in place substantially as set forth.

6. In a carriage-feeding mechanism, the rocking escapement-frame having an operating cross-bar, and provided at its top with spaced parallel members removably bolted thereto; the inner member having a tooth or  
 130

projection, a pivoted spring-pressed pawl-  
lever mounted on the frame, a spring-pressed  
pawl pivoted to the lever and projecting up  
between the said spaced members alongside  
5 said tooth, and an adjustable stop on the pawl-  
lever against which said pawl rests; substan-  
tially as and for the purpose described.

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

FRANK H. ARMSTRONG.

Witnesses:

W. H. HARRIS,

H. E. GALLINGER.