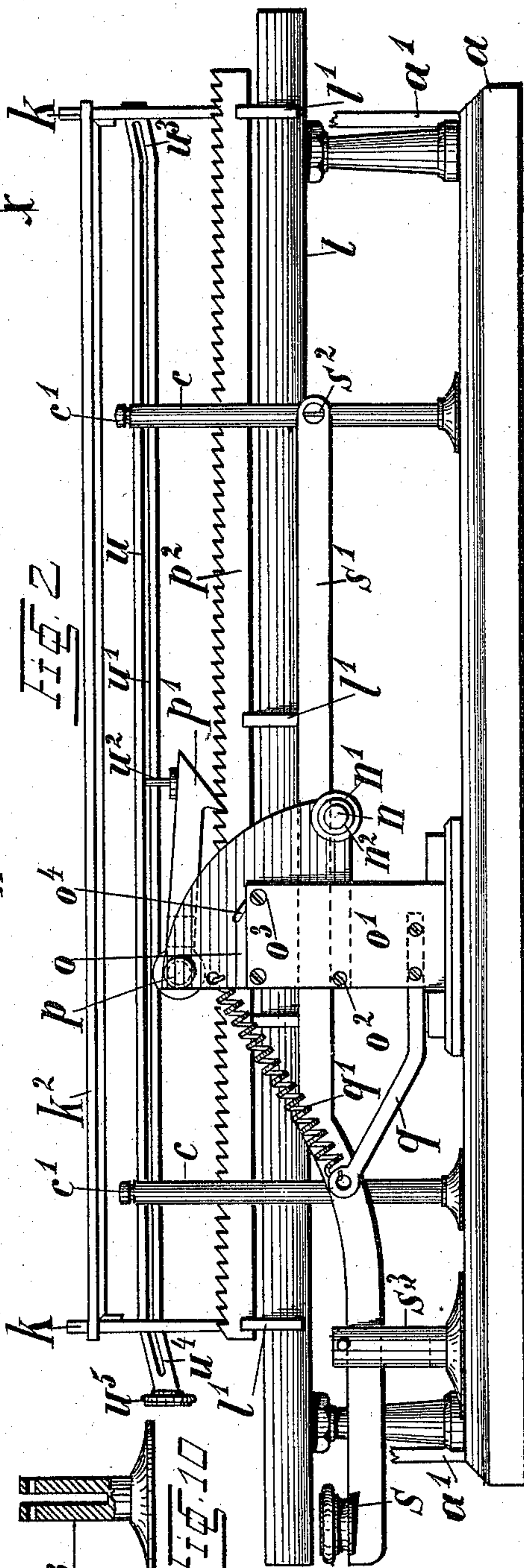


3 Sheets—Sheet 1.

Patented Nov. 17, 1896.



Man Frankbach  
Herrmann Herd

*Inventor:*  
*Richard Toepfer.*  
*By O. B. Reichelt.*  
*Attorney.*



(No Model.)

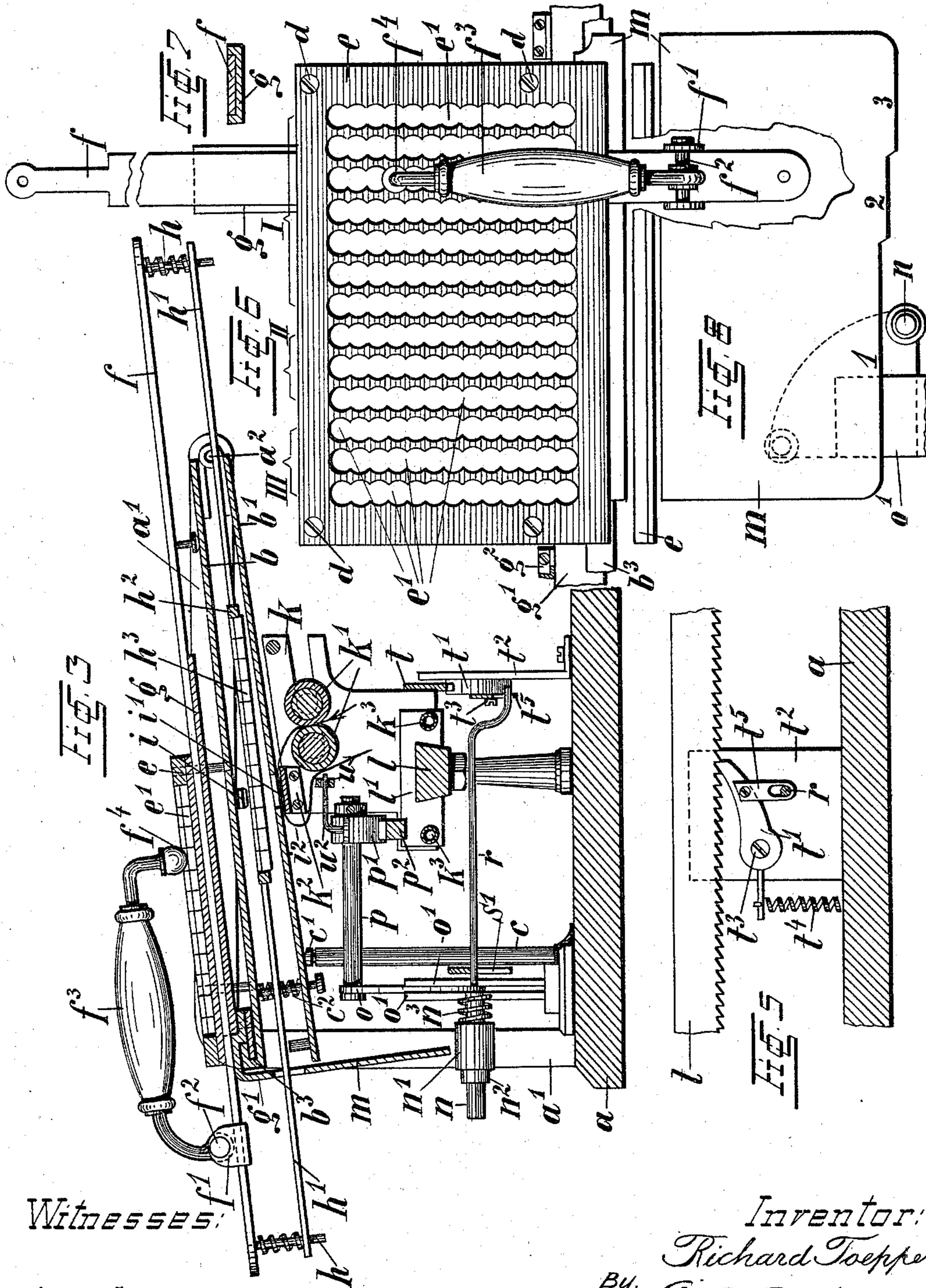
3 Sheets—Sheet 2.

R. TOEPPER.

TYPE WRITING MACHINE.

No. 571,414.

Patented Nov. 17, 1896.



Witnesses:

Mr. Frankham  
Herman Herch

Inventor:  
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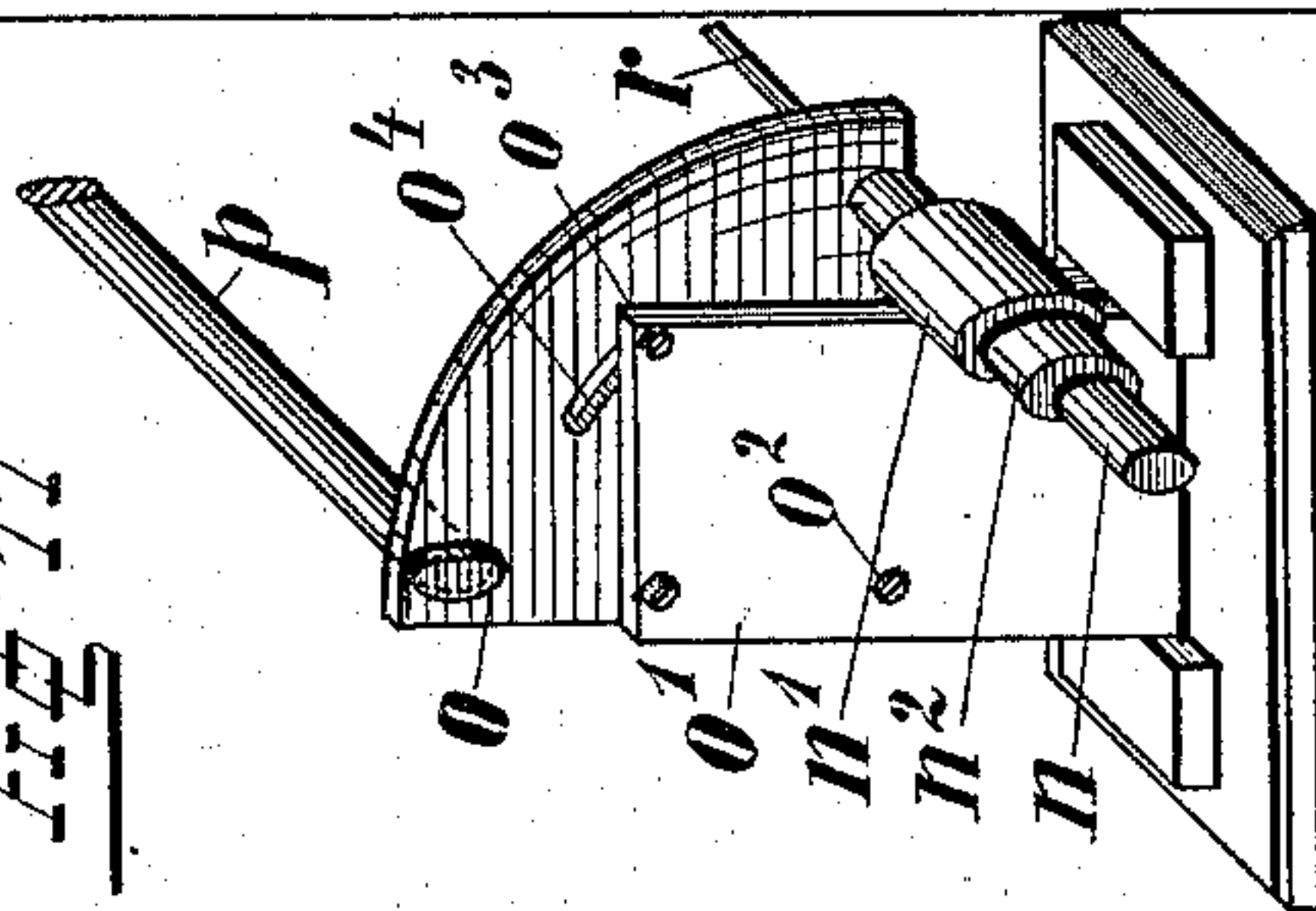
3 Sheets—Sheet 3.

TYPE WRITING MACHINE.

Patented Nov. 17, 1896.



Max Frankau  
Herman Herold



*Inventor:*  
*Richard Toepper*  
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# UNITED STATES PATENT OFFICE.

RICHARD TOEPPER, OF NAUMBURG-ON-THE-SAALE, GERMANY.

## TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 571,414, dated November 17, 1896.

Application filed October 10, 1895. Serial No. 565,287. (No model.)

*To all whom it may concern:*

Be it known that I, RICHARD TOEPPER, merchant, a citizen of the Kingdom of Prussia, German Empire, and a resident of Naumburg-on-the-Saale, in the Kingdom of Prussia and German Empire, have invented certain new and useful Improvements in Type-Writing Machines, (Case B,) of which the following is a specification.

10 The present invention relates to a type-writing machine having on its type-plate letters, combinations of letters, syllables, words, and other characters which by a single pressure on a key are impressed upon the  
15 paper, a space being moved by the paper-carriage to correspond with the length of the type or character printed.

In the accompanying drawings, Figure 1 represents a plan view of the spacing mechanism, and Fig. 2 an elevation thereof. Fig. 3 shows a section through the whole machine on line  $x x$  of Fig. 1. Fig. 4 is a plan view partly broken away; Fig. 5, a detail in elevation of the safety or detent feed mechanism; 25 Fig. 6, a plan detail of the sign-indicating board, pressing-lever, and their immediate connections; Fig. 7, a detail cross-section of the bar and its guide to which the pressing-lever is attached; Fig. 8, a detail plan of the recessed spacing-plate, partly broken away, and its contact-bolt. Figs. 9 and 10 are respectively a side elevation and a sectional elevation of the spacing-levers-supporting post; Fig. 11, a perspective view in detail of the feed-pawl, 35 and Fig. 12 a perspective detail of the section plate which carries the feed-pawl-supporting bolt and also the bolt which is pressed upon by the recessed spacing-plate.

40 The construction of the machine and its mode of operation is substantially as follows:

My invention relates to that class of machines wherein a vibratory lever is made to traverse over a type-indicating board with its index to come opposite the sign or character to be printed, and the lever then pressed upon thus printing the respective corresponding letter or sign character on the paper beneath, the return movement of the printing-lever serving to effect the spacing to cause it  
50 to conform to the length of the type imprinted.

The pressing-lever and imprinting mechanism

are illustrated in Fig. 3, which clearly shows the bottom plate  $a$ , upon which is mounted two angle-frames  $a'$ , that form the main frame of the machine. These frame- 55 pieces  $a'$  carry at their free ends two plates  $b$  and  $b'$ , hinged thereto at  $a^2$ , (see Figs. 3 and 4,) the lower plate  $b'$  resting on the columns  $c$ , the height of which may be altered at will by means of the screws  $c'$  attached to their ends. The 60 springs  $c^2$  keep both plates  $b$  and  $b'$  at a certain distance from each other. On the plate  $b$  is fastened the sign-indicating board  $e$  by means of set screws  $d$ , as represented clearly in Fig. 6, and also as partly broken away in 65 Fig. 4, the said screws  $d$  at the same time serving as stay-bolts to hold the sign-indicating boards  $e$  and  $b$  at a certain distance from each other.

The sign-indicating board  $e$  consists of a 70 rectangular piece of sheet metal provided with a number of holes  $e'$ , underneath which the letters and combinations of letters, syllables, words, or sign-characters are arranged in rows in such manner that the rows marked 75 I (see Fig. 6) contain only one letter or character, those marked II two letters, and finally those marked III three letters.

Below the sign-indicating board  $e$  a bar  $f$  carries lugs  $f'$ , which support the pressing-lever  $f^3$ , pivoted by bolt  $f^2$  thereon, said lever 80  $f^3$  being adapted to have its button  $f^4$  coincide with the holes  $e'$  of the indicating-board  $e$ . The bar  $f$  (shown in cross-section, Fig. 7) may be moved longitudinally on guide  $g$ , and 85 as the said guide is fastened to the cross-bar  $g'$  underneath the indicating-board  $e$  it may also be moved at right angles to the direction of its movement on guide  $g$ , so that this combination of movements permits the button  $f^4$  90 of the pressing-lever to be brought over any letter or sign of the sign-indicating board  $e$ . The bar  $g'$  is guided at its front edge by means of the turned-up edge  $b^3$  of the plate  $b$  and at the rear edge by means of two small angle- 95 irons  $g^2$ , screwed onto plate  $b$ .

Bars  $h'$  are suspended from both ends of the bar  $f$  by means of pins  $h$  in such manner that the said bars  $h'$  reach underneath the plate  $b$  and support the frame  $h^2$  which carries the rubber type-plate  $h^3$ , and carry the 100 latter to coincide with the traverse of the



pressing-lever  $f^3$ . Above the type-plate  $h^3$  and on the under side of plate  $b$  is arranged a stud  $i$ , which presses the type that happens to be underneath it through the hole  $i'$  of the plate  $b'$  against the paper sheet  $i^2$  by bearing down upon the pressing-lever  $f^3$ .

The paper runs between the rubber rollers  $k'$ , mounted on the carriage  $k$ , then over the cross-bar  $k^2$  and back, in the manner illustrated. The carriage is formed of the two exterior side plates  $k$ , which support the rollers  $k'$ , and are connected to each other by the bar  $k^2$  and the bolts  $k^3$ , guide-bearing plates  $l'$  on bolts  $k^3$  serving to support and guide the carriage more truly and securely on the said guide-bar  $l$ .

The spacing is accomplished by pressing down upon the lever  $f^3$  and concurrently upon the plate  $m$ , Figs. 3, 4, and 6, which plate is connected by means of bolts with the cross-bar  $g'$ , and is bent downwardly therefrom at a right angle to move a bolt  $n$  on the frame which carries the feed-pawl, the said plate  $m$  having, as illustrated in Fig. 8, three different recesses, viz., recess 1 pertaining to the rows I, recess 2 to rows II, and recess 3 to rows III, as will hereinafter appear.

In order to minimize the friction caused by pressing down upon the lever  $f^3$  and bring the plate  $m$  into contact with the bolt  $n$ , a hollow cylinder  $n'$  is fitted over the bolt  $n$  to turn thereon and is held in position at one end by the regulating-nut  $n^2$  and at the other by the spring  $n^3$ . The bolt  $n$  projects from an angle-lever or sector  $o$ , fulcrumed in  $o^2$  on the uprights  $o'$  and guided by the screw  $o^3$  in the slit  $o^4$ , as clearly shown by Fig. 12. In the upper end of the angle-lever  $o$  is screwed a horizontal bolt  $p$ , which supports at its end the pawl  $p'$  in position to engage with a rack-bar  $p^2$ , fastened to the guide-bearing plate  $l'$  of the carriage  $k$ . When the lever  $f^3$  is pressed down, the plate  $m$  presses down the bolt  $n$ , and thereby causes a movement of the angle-lever  $o$ , the pawl  $p'$  slides over the teeth of the rack-bar  $p^2$ , and on the return movement of the lever  $o$  displaces said rack-bar for a distance of as many teeth as it had traversed in the downward movement of said angle-lever. Thus when the plate  $m$ , with the projection 1, has its position above the bolt  $n$ , that is to say, when the pressing-lever  $f^3$  rests on a sign of the rows I, the angle-lever  $o$  is pressed down as far as required in order to let the pawl  $p'$  pass over one tooth only. On the return of the angle-lever  $o$  a spacing is given equal to the pitch of the teeth of the rack-bar, that is, equal to the length of a type representing one letter. When the pressing-lever  $f^3$  lies above a sign of the rows II, the plate  $m$  assumes its position with the projection 2 above the bolt  $n$ , the stroke of the angle-lever being then long enough to allow the pawl  $p'$  to pass over two teeth of the rack-bar  $p^2$ , whereby the paper-carriage

is moved the length of two characters or letters. When finally the pressing-lever lies above a sign of the rows III, the plate  $m$  lies with its projection 3 above the bolt  $n$ . The downward pressure of the angle-lever will then be sufficient to cause the pawl  $p'$  to pass over three teeth of the rack-bar  $p^2$ , whereby the paper-carriage is moved the length of three characters or letters. The backward movement of the angle-lever  $o$  is caused by the spring  $q'$  connecting said lever with a bracket-arm  $q$ , secured to the upright  $o'$  of the frame.

The levers  $s'$ , carrying the spacing-keys, rests upon the extension  $r$  of the bolt  $n$ , and is pivoted at  $s^2$  on the column  $c$  and guided at its movable end in a slit in the post  $s^3$ , and serves to operate the feed-pawl  $p'$ , but its movement is only sufficient to allow the paper-carriage to be moved at each operation the distance of one letter or sign character.

A safety or detent feed mechanism (shown in Fig. 5) consists of a second rack-bar  $t$ , which is attached to the rear end of the carriage  $k$ , and a pawl  $t'$ , actuated by the bolt  $n$  or its projection  $r$  respectively and coincidently with the action of the actuating feed-pawl  $p'$  upon the rack-bar  $p^2$ . The pawl  $t'$  is pivoted at  $t^3$  on the plate  $t^2$ , and is pressed against the said rack-bar by the spring  $t^4$ , and connected with the projection  $r$  by means of the loop  $t^5$  in such a manner that on the latter going downward the pawl  $t'$  becomes disengaged from the said rack-bar  $t$  by the action of the parts  $r$ ,  $n$ , and  $o$ , respectively, and also will reengage therewith when going back, thereby checking the backward movement of the carriage while the feed-pawl is moving backward upon its rack.

In order that the pawl  $p'$  may be lifted from the rack-bar  $p^2$  and the carriage moved back by hand without obstruction, the bar  $u$  (shown in Fig. 2) is provided with a long slot  $u'$ , which serves as a guide for the finger  $u^2$  on the pawl  $p'$ , and the ends of said bar are bent upward at  $u^3$  and downward at  $u^4$ , and so supported on the carriage  $k$  that it may be pushed endwise by means of the button  $u^5$ , and slide on said oblique surfaces  $u^3$  and  $u^4$  to thus raise and thereby disengage the pawl  $p'$  from the rack-bar  $p^2$ , so that the carriage  $k$ , with its appliances, may be slid back to its initial point, and upon releasing said bar  $u$ , by removing the finger from the button  $u^5$ , the pawl will again engage with its rack-bar ready for a forward movement of the carriage.

In order to have the type which corresponds with the position of the pressing-button  $f^4$  appear properly above the stud  $i$ , the single type are so arranged on the rubber type-plate  $h^3$  that in a longitudinal as well as in an oblique direction they, the said signs on the type-plate, are arranged inversely to the sign letters or characters of the indicating-



board *e*, the whole type-board being so far displaced in the backward direction that in its end position the foremost row of types lies below the last row of signs of the indicating-board.

I claim as my invention and desire to secure by Letters Patent—

1. A type-writing machine such as described, comprising means for effecting different lengths of spacing movements of the paper-carriage and consisting of a plate *m*, provided with a plurality of recesses and operating-faces, the bolt *n* actuated by said plate, the angle-lever *o*, the pawl *p'*, connected therewith, the rack-bar *p<sup>2</sup>*, the spring *q'* for actuating the lever *o*, the length of so many teeth moved by the paper-carriage being governed by the projecting faces of the said plate, substantially as described.

2. A type-writing machine such as described in combination with a movable paper-carriage, a pawl *p'* connected therewith, a rack-bar *p<sup>2</sup>* connected with the frame of the machine, a bar *u* having inclined ends *u<sup>3</sup>* and *u<sup>4</sup>* supported in frame *k*, and having a slit *u'* for guidance of the finger *u<sup>2</sup>* connected with

pawl *p'* and for disengaging said pawl from the rack, substantially as described.

3. A type-writing machine such as described, comprising means for effecting the feed of the paper-carriage, consisting of a vertically-movable plate, an angle-lever *o*, pawl *p'* rack-bar *p<sup>2</sup>*, bolt *n*, bar extension *r* and second rack-bar *t* with its pawl *t'*, pivot *t<sup>3</sup>*, spring *t<sup>4</sup>* and loop *t<sup>5</sup>*, all combined and arranged for joint operation, substantially as described.

4. A type-writing machine of the class described, comprising the base and angular end frame plates, the top and bottom plates hinged to said frame-plates, the adjustable columns *c*, the paper rolls *k'*, supported upon a movable carriage, and a presser-arm frame adapted to move upon said carriage and carrying index and type boards all combined to operate, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

RICHARD TOEPPER.

Witnesses:

W. HAUPT,  
CHAS. KRUGER.