

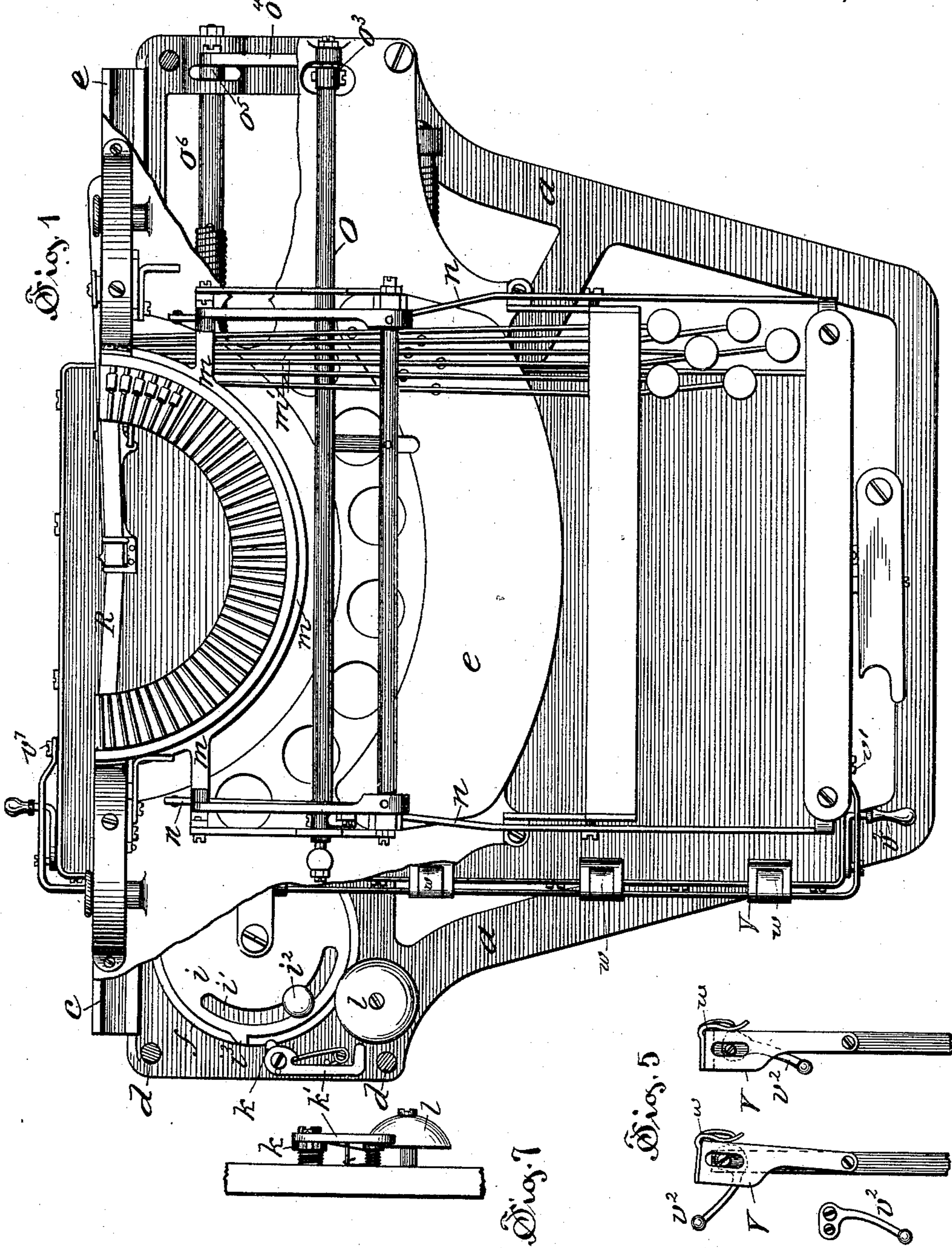
(No Model.)

3 Sheets—Sheet 1.

J. B. SECOR.  
TYPE WRITING MACHINE.

No. 464,944.

Patented Dec. 8, 1891.



Witnesses:  
A. R. Williams,  
A. B. Jenkins.

Inventor,  
Jerome B. Secor,  
By Simonds & Burdett,  
Atty

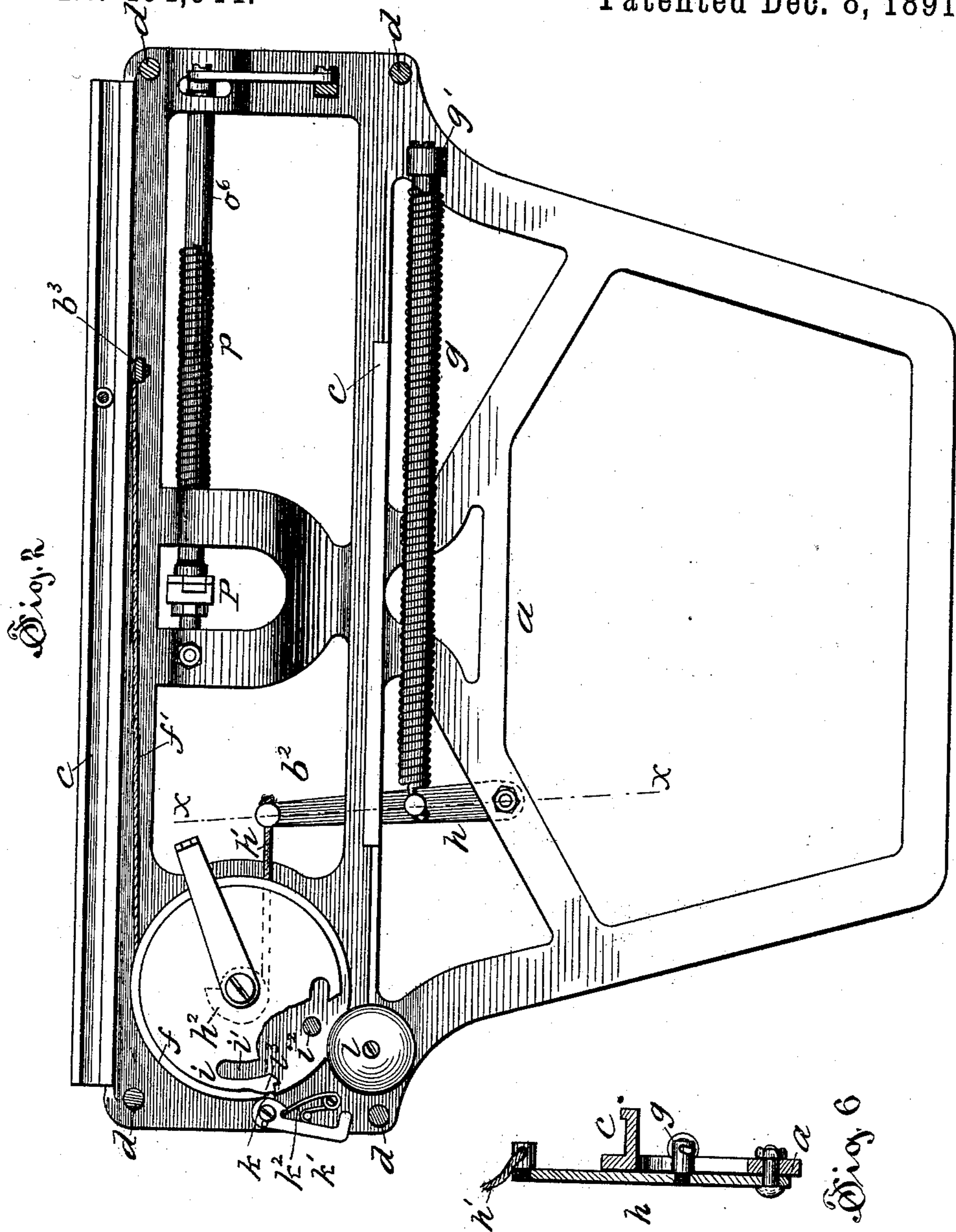
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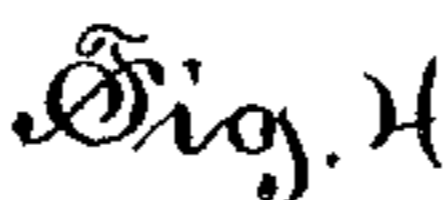
Inventor,

Jerome B. Secor  
By Simonds & Burdett,  
attys

3 Sheets—Sheet 3.

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Inventor,

Fig. 9

Jerome B. Secor  
By Simonds & Burdett,  
Atty

# UNITED STATES PATENT OFFICE.

JEROME B. SECOR, OF BRIDGEPORT, ASSIGNOR TO THE TYPOGRAPH COMPANY, OF HARTFORD, CONNECTICUT.

## TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 464,944, dated December 8, 1891.

Application filed November 28, 1888. Serial No. 292,155. (No model.)

*To all whom it may concern:*

Be it known that I, JEROME B. SECOR, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain  
5 new and useful Improvements in Type-Writing Machines, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

My within-described invention relates more  
10 particularly to the class of type-writing machines in which a flat platen is used as the paper-holder.

The object of my invention is to provide a type-writing machine or typograph with certain improvements in the platen-feed mechanism, in the ribbon-feed devices, and in the devices that determine the limit of lateral  
15 play of the platen, as more particularly hereinafter described, and pointed out in the  
20 claims.

Referring to the drawings, Figure 1 is a top or plan view of a typograph embodying my improvements, with parts broken away to show construction. Fig. 2 is a detail plan  
25 view of the bottom part of the frame or base of the typograph, with parts broken away to show construction. Fig. 3 is a detail view in end elevation, looking at the left-hand side of the machine. Fig. 4 is a like view looking  
30 at the right-hand side of the machine. Fig. 5 is a detail view of the edge of the platen, showing the paper-clamp in two positions, and a detail view of the clamp-lever. Fig. 6  
35 is a detail view in vertical section through the platen-feed lever on plane denoted by line  $x x$  of Fig. 2. Fig. 7 is a detail view in elevation of the bell and the hammer. Fig. 8  
40 is a detail view in elevation of the ribbon-feed rolls, the one on the left being shown in position for feeding and the one on the right shown with the pawls withdrawn. Fig. 9 is  
a detail view of the pawl-lever.

The typograph shown in the accompanying drawings is very similar in general plan, is  
45 the same in the use of a flat platen, and it has a part of its feed mechanism the same as the one shown and described in United States Patent to A. W. Cash, No. 372,516, dated November 1, 1887, and attention is called to said  
50 patent for a detailed description of the con-

struction and method of operation of the machine as a whole.

In the accompanying drawings, the letter  $a$  denotes the frame or base of the machine, that supports the platen-carriage  $b'$  on suitable  
55 guideways  $c$ , the platen  $b$  being in turn supported on this platen-carriage and having a lengthwise movement thereon that is imparted by feed mechanism  $b^2$ , that is substantially the same as that shown and described  
60 in the Cash patent above referred to. No detailed description of these parts is necessary herein. On the posts  $d$  that rise from the base is supported the top or plate  $e$ , that in turn bears on its upper side the type-bars  
65 and key-levers, the space-bar, and ribbon-feed mechanism.

The platen-carriage  $b'$  has a downward-projecting arm  $b^3$ , to which is secured a cord  
70  $f'$ , that is wound about the wheel  $f$  by the tension or pull of the spring  $g$ , that tends normally to hold the carriage at the left-hand end of its run. The spring  $g$  is fast at one end to a post  $g'$ , secured to the frame, while the other end of the spring is secured to the  
75 platen-feed lever  $h$ , one end of which is pivoted to the base  $a$ , while to the other end is fastened a cord  $h'$ , that winds upon a cam  $h^2$  that is secured to the wheel  $f$ . The above  
80 combination of parts is new in the interposition of the platen-feed lever  $h$ , that tends to equalize the pull of the spring upon the platen-carriage.

It is desirable to indicate the position of the platen, so as to tell when the end of a line  
85 of writing is nearly reached, and for this purpose there is connected to the wheel  $f$  a trip-arm  $i$ , that for convenience is made in the present instance in the shape of a disk, with a slot  $i'$ , through which passes the shouldered  
90 clamp-screw  $i^2$ , the latter serving as a means for securing the trip-arm to the wheel at various positions of adjustment. A knuckle  $i^3$  on the trip-arm is adapted to engage the pawl  
95  $k$ , borne on a vertical post fast to the base  $a$ , and projecting into the path of movement of the knuckle. This pawl is located just beneath and engages the spring-actuated hammer  $k'$ , so that as the wheel  $f$  is turned the  
100 hammer is thrown outward by the contact of

the knuckle with the pawl. The bell  $l$  is sounded by the pawl slipping off the knuckle, which allows the spring  $k^2$  to throw the hammer sharply against it. The pawl  $k$  is mounted loosely upon the post, is held in engagement with the hammer by means of the spring, and is free to turn backward to allow the knuckle to return past it in the manner common in trip devices of this class.

The bearer  $m$  is a semicircular piece that lies just back of the upright type-bars and overlies the ends of each one of the type-levers  $m'$ , and it has on opposite sides projecting arms that overlie the inner ends of the space-bar levers  $n$ . The said type-levers and space-bar levers are suitably fulcrumed on posts or other parts of the top  $e$ , and bear on their front ends finger-pads and a bar, respectively, conveniently arranged for use near the front part of the machine. In order that the platen-carriage may make the lateral movement to the left immediately after each depression of a key-lever or of the space-bar, the bearer  $m$  is pivoted to the lever  $o$ , that by the link  $o'$  is connected to the arm  $o^2$ , that is fast to the rock-shaft  $O$ , that is arranged across the top of the plate and extends below the type-levers, as shown in Fig. 1 of the drawings. At the right-hand end of the machine an arm  $o^3$ , fast to the rock-shaft, extends downward and by a link  $o^4$ , is connected to the upright arm  $o^5$ , fast to the detent-shaft  $o^6$ , that extends along the frame  $a$  between suitable bearings, as shown in Figs. 1 and 2 of the drawings.

The detent  $P$  is normally held by the spring  $p$ , with its fixed tooth in engagement with the rack-bar  $p'$ ; but immediately after the lifting of the bearer  $m$ , as by depressing the space-bar or a key-lever, the detent-shaft  $o^6$  is rocked by means of the connected levers and links described, so that the spring-pawl slips into engagement with the rack-bar and allows the platen-carriage to make a limited movement to the left under the pull of the spring  $g$ , the operation of which has been already described. This combination of parts for utilizing the movement of the bearer to operate the escapement is comparatively simple in construction and extremely durable and perfect in operation. In order to present a fresh part of the ribbon to each successive type as it is forced down upon it by the operation of the key-lever, the ribbon  $R$  is supported on the reels  $r$   $r'$  on opposite sides of the type-base, and one of the reels is rotated by means of the reel-feed  $S$ , one of which is appurtenant to each reel. The feed device is supported on a block  $s$ , fast to the post  $s'$ , directly in front of and in the plane of each reel that stands edgewise in suitable bearings on which it is free to turn.

In the reel-feed the arm  $s^2$  is pivoted to the block  $s$  and extends outward and downward, so that its outer end lies upon the top of the bearer, where it is held by the tension of the spring  $s^3$ . On the pivot that connects this arm  $s^2$  is also supported the stop-pawl  $t$ , while

the feed-pawl  $t'$  is pivoted to the inner end of the arm  $s^2$ , the forward ends of each of the pawls  $t$  and  $t'$  being held normally in engagement with the ratchet-teeth on the edge of one side of the ribbon-reel. When the bearer is lifted by the movement of the space-bar or of a key-lever, it lifts the outer end of the arm  $s^2$  and causes the pawl  $t'$  to turn the ribbon-reel, the stop-pawl  $t$  allowing one or more teeth to feed past its inner end, the weight of the outer end beyond the pivot keeping it in engagement with the ratchet-teeth. When the bearer trips, the arm  $s^2$  follows it and lifts the feed-pawl into engagement with other teeth farther back on the reel. The lever  $u$  is pivoted to the block  $s$  and is used to lift the arm  $s^2$  and the several pawls out of engagement with the bearer and with the ratchet-wheel, respectively, so as to allow one reel to turn as the ribbon is wound from it onto the opposite reel, one reel-feed being in operation on one side of the machine when the other is thrown out, as shown in Fig. 8 of the drawings.

In order to provide means for holding paper of different lengths upon the platen, I make use of the paper-clamp  $V$ , that consists of a metallic frame that extends along the left-hand edge of the platen, the ends of the frame being bent parallel to each other and pivoted to the opposite ends of the platen by means of the screws  $v'$ . The side part of this frame bears a number of compound spring-fingers  $w$ , that extend from the frame and overhang the top of the platen near the edge, one part of the spring-fingers turning downward and then upward at its outer end, while the other part (preferably the inner) is bent sharply downward, this arrangement of the parts of the spring-fingers giving great flexibility and holding-power to the finger.

In order to adapt the clamp to hold varying numbers of sheets of paper, the frame is made movable, as by means of the cam-lever  $v^2$ , that is pivoted to the platen, and has a pin projecting into a slot in the end of the clamp-frame, so that as the cam-lever is turned the frame will be lifted or depressed to loosen or unloosen the papers, as illustrated in Fig. 5 of the drawings. There may be two of such cams supported on opposite ends of a cam-shaft that is pivoted along the under side of the platen near one edge.

In the Cash type-writing machine shown in Patent No. 372,516 there is provided certain means for feeding the platen lengthwise for the purpose of spacing the lines of printing, and in this feed mechanism is a pawl  $l$ , borne on the end of the platen feed-lever and having a spring-pawl, the end of which engages teeth in a rack-bar  $2$ , that is fast to the platen. In its ordinary manner of operation the end of this spring-pawl engages each succeeding tooth and causes the platen to move a distance equal to the distance between the teeth; but in order to increase this distance the end of the pawl is made to skip one tooth and

engage the alternate teeth by means of a pawl-trip 3, that consists of a lever pivoted to the platen-carriage and having an arm 4 extending laterally, so as to make contact with the pawl, and another arm 5, that is connected by a wire 6 with a swinging handle 7. This lever-handle 7 is pivoted on the top of the space-bar lever 8 and has a spring end 9, that may be held on either the right or left side of the space-bar lever. When the end of this lever-handle is upon the right side, the pawl will engage each succeeding tooth; but when the lever-handle is held at the opposite limit of its play the pawl will skip one tooth and make wider space between the lines.

I claim as my invention—

1. In a type-writing machine, in combination with the frame, the bearer *m*, overlying the space-bar and the key-levers, the lever *o*, pivotally connected to said bearer and to the frame of the machine, the link *o'*, the rock-shaft *O*, arranged across the machine and having the downturned arm *o''*, connected by link *o''* with the arm *o''* of the detent-shaft *o''*, the detent fast to the shaft, and the platen-carriage bearing the rack, all substantially as described.

2. In combination with the frame of a type-writing machine, having the platen-guides, the platen-carriage having a transverse movement across the frame, the rotary wheel connected to the carriage by means of a cord, the carriage-feed spring *g*, and the lever *h*, with one arm pivoted to the base and the other arm connected by a cord *h'* to a wheel fast to the shaft of the wheel *f*, all substantially as described.

3. In combination with the frame of a type-writing machine, the laterally-moving platen-carriage, the cord wound about the periphery of a feed-wheel and connected at one end to the platen-carriage, the cord *h'*, wound about a wheel on the shaft of the first wheel and connected at its other end to the outer end of a lever, the lever *h*, and a spring *g*, connected to said lever between its fulcrum-point and the cord, all substantially as described.

4. In a type-writing machine, in combination with the wheel *f* of the platen-feed mechanism, the trip-arm *i*, having the slot *i'*, the clamp-screw for securing the trip-arm to the wheel, the knuckle borne by the trip-arm, the spring-pawl, the spring-actuated hammer *k'*, and the bell, all substantially as described.

5. In a type-writing machine, in combination with the ribbon-reel having the ratchet-teeth, the bearer *m*, the arm *s''*, pivoted to a support on the frame of the machine and extending outward into normal engagement with the bearer, the spring *s''*, to depress the arm, the feed-pawl pivoted to the said arm, and the stop-pawl pivoted to the arm-support, all substantially as described.

6. In a type-writing machine, in combination with the ribbon-reel having the ratchet-teeth, the bearer *m*, the arm *s''* in engagement with the bearer, the spring adapted to depress the arm, the stop-pawl pivoted to the arm-support, the feed-pawl pivoted to the inner end of the arm, and the lever *u*, pivoted to the arm-support and adapted to throw the arm and the pawls out of engagement with the bearer and the ratchet-teeth, respectively, all substantially as described.

7. In combination with the platen, the paper-clamp consisting of the frame extending along one side of the platen and pivoted to its opposite ends and having a slot near one end, the spring-fingers composed of the outer upturned parts and the inner downturned parts, and the cam-lever pivoted to the platen and bearing the pin engaging the slot in the frame, all substantially as described.

8. In combination with the paper-supporting platen, the paper-clamp having a frame pivoted to the platen at the opposite ends and bearing the compound spring-fingers consisting of the outer upturned and the inner downturned parts, all substantially as described.

JEROME B. SECOR.

Witnesses:

GEO. H. WOODS,  
IRA G. TODD.