

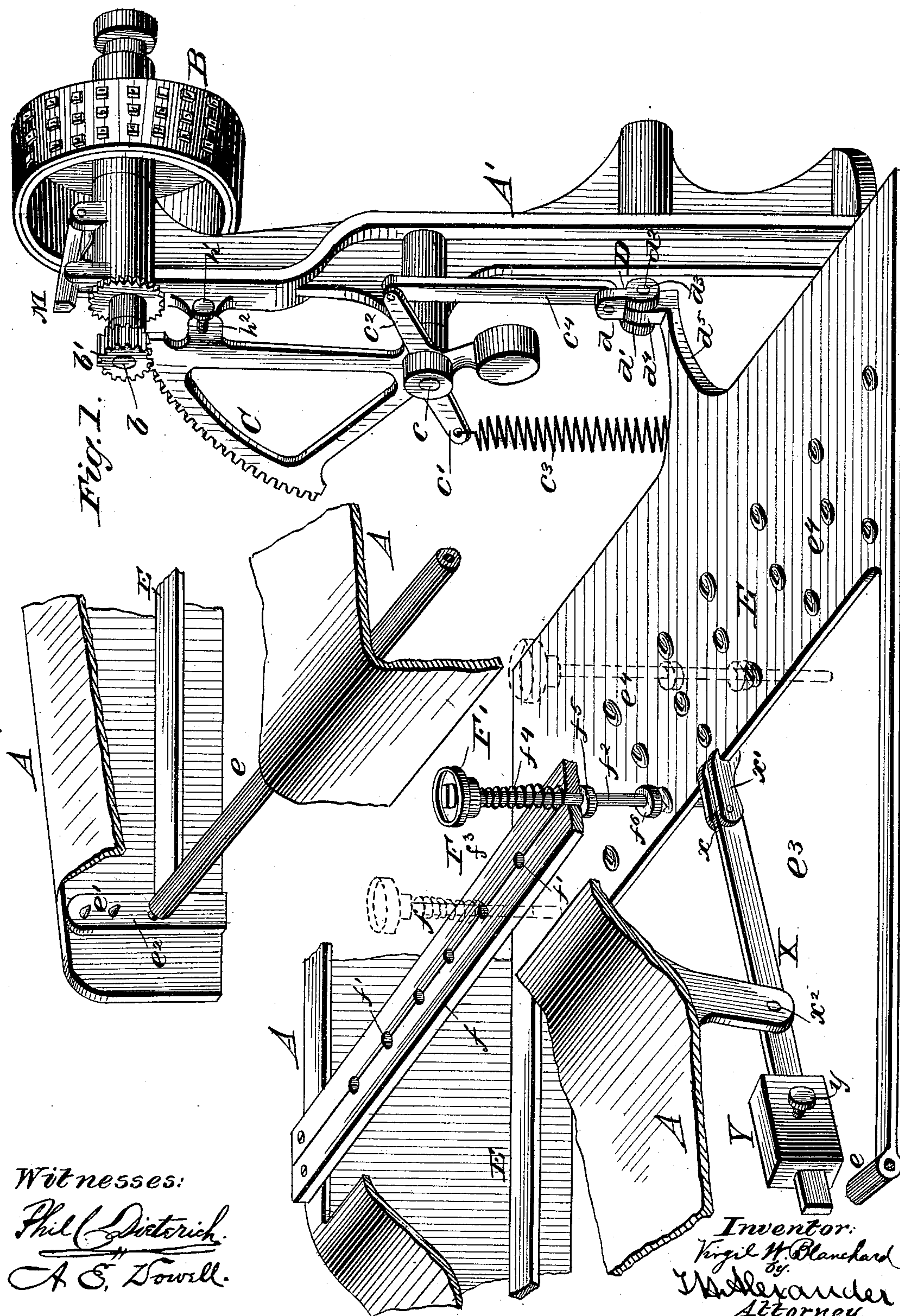
(No Model.)

2 Sheets- Sheet 1.

V. W. BLANCHARD.
TYPE WRITING MACHINE.

No. 373,637.

Patented Nov. 22, 1887.



Witnesses:

Phil (Dieterich).

A. E. Lowell.

Inventor.

Virgil W. Blanchard

*W. Alexander
Attorney.*

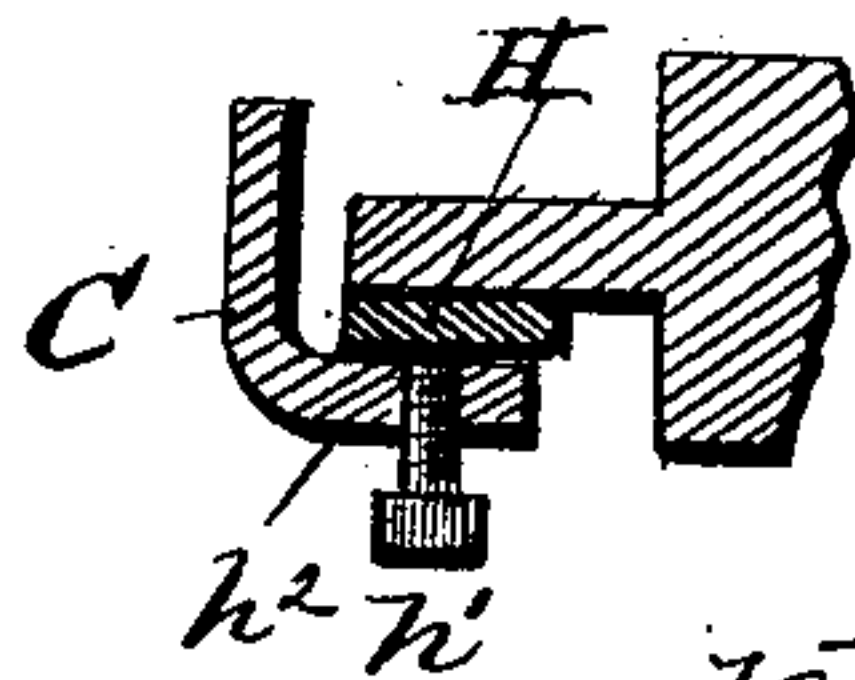
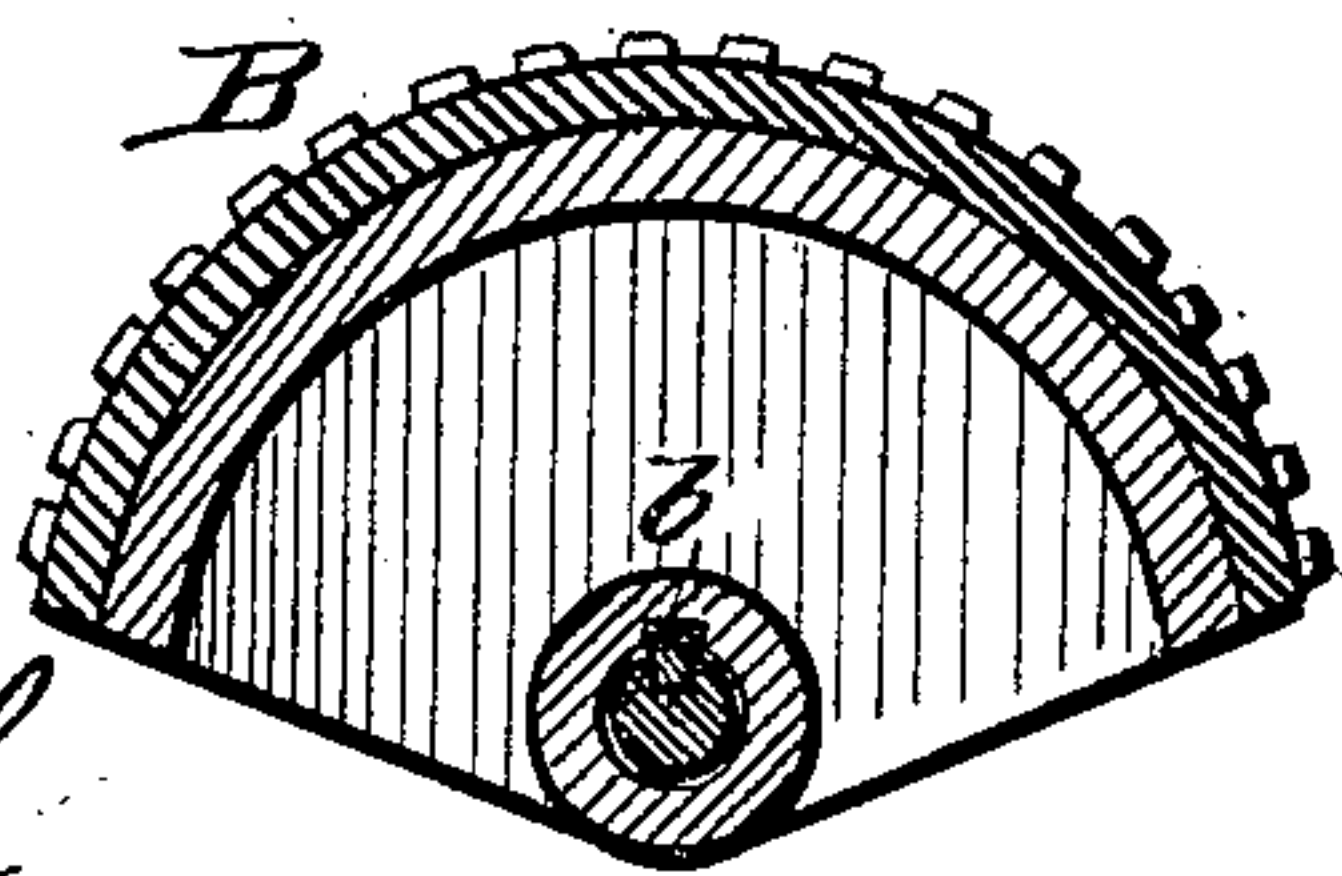
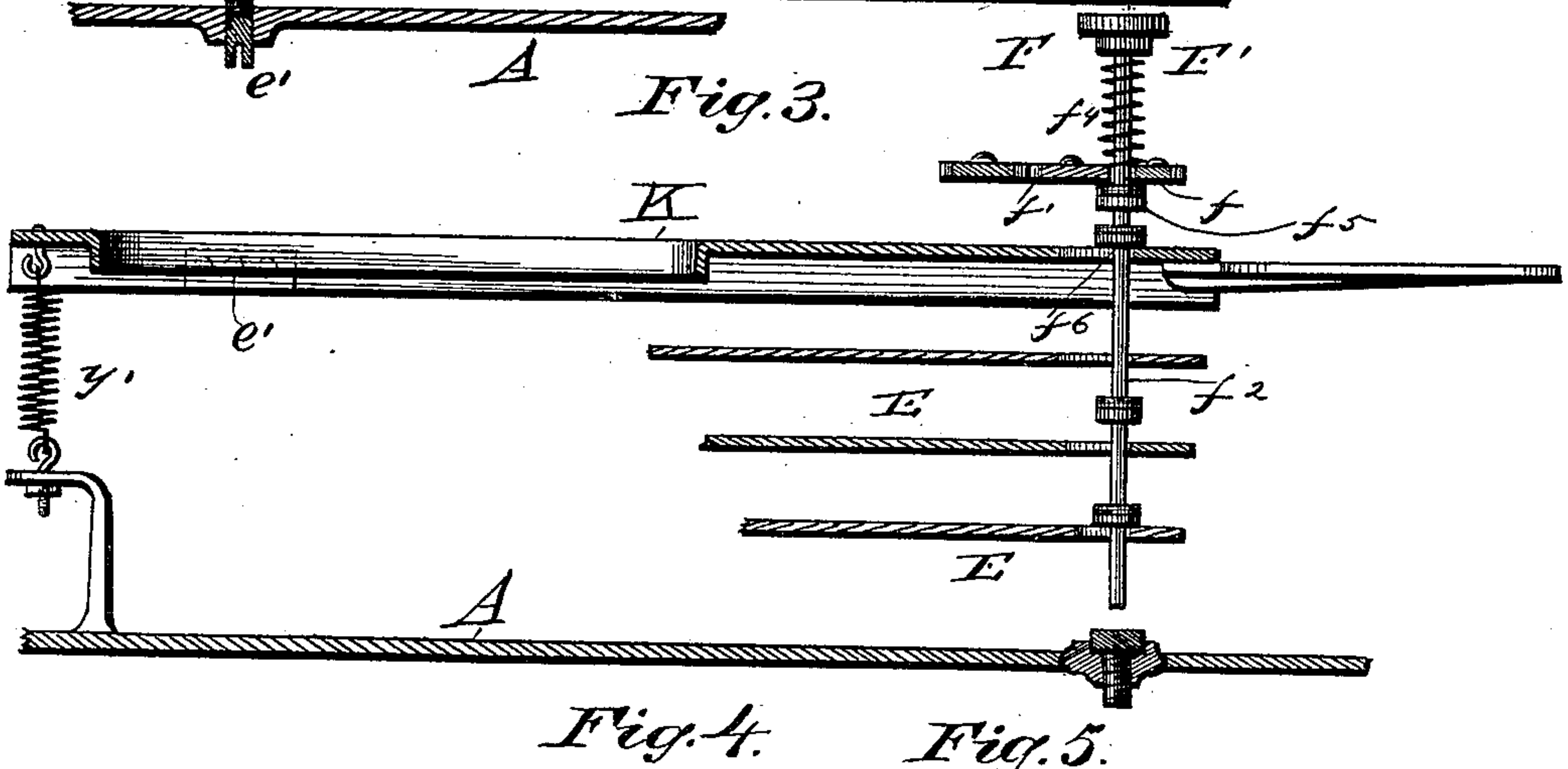
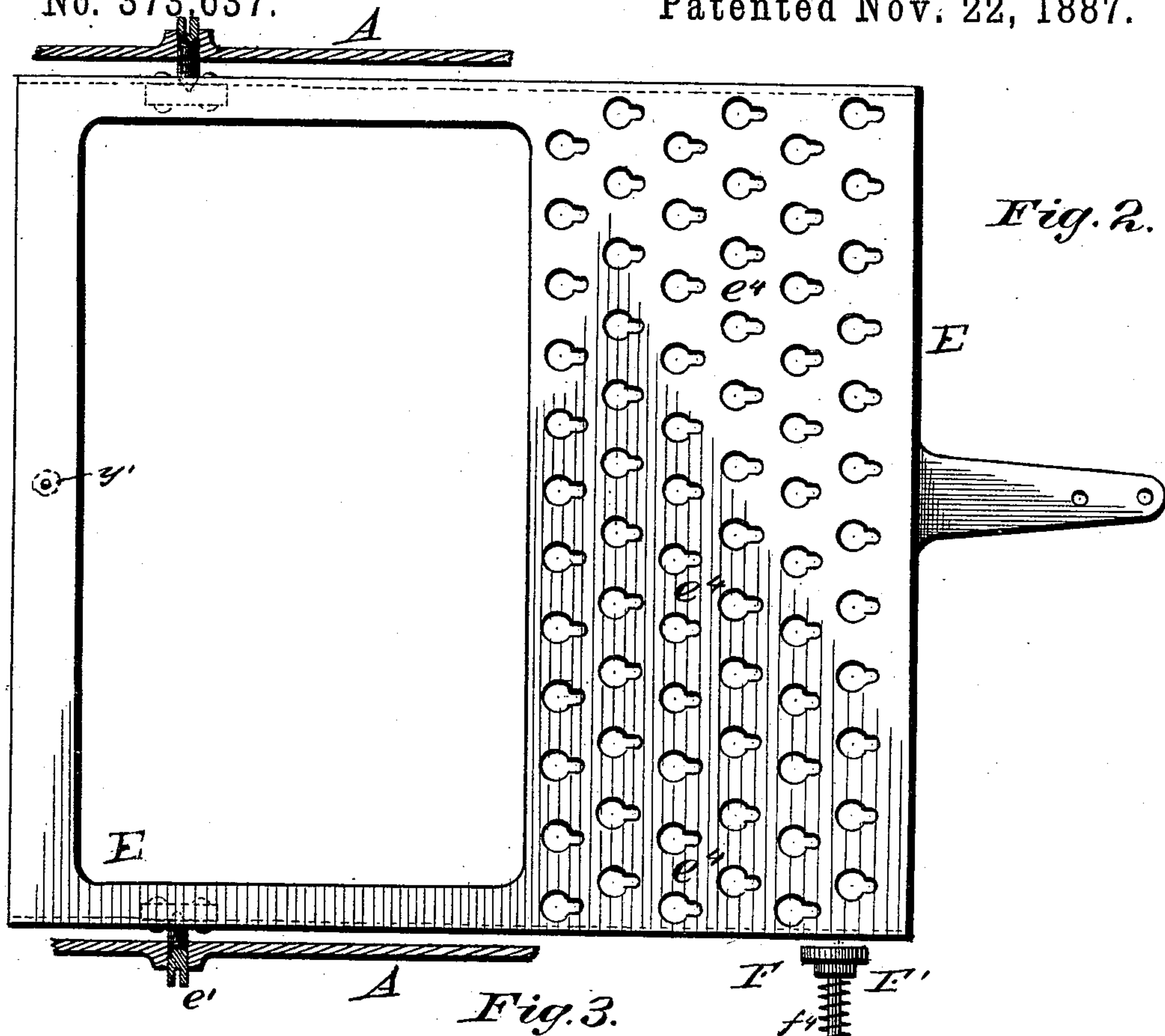
(No Model.)

2 Sheets—Sheet 2.

V. W. BLANCHARD.
TYPE WRITING MACHINE.

No. 373,637.

Patented Nov. 22, 1887.



Witnesses:
Phil C. Dutton
A. E. Dowell

Inventor:
Vigil H. Blanchard
by
W. Alexander
Attorney.

UNITED STATES PATENT OFFICE.

VIRGIL W. BLANCHARD, OF NEW YORK, N. Y., ASSIGNOR TO C. GODFREY PATTERSON, OF SAME PLACE.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 373,637, dated November 22, 1887.

Application filed January 2, 1886. Serial No. 187,439. (No model.)

To all whom it may concern:

Be it known that I, VIRGIL W. BLANCHARD, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Type-Writing Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification, in which—

Figure 1 is a perspective view of a portion of a type-writer embodying my invention. Fig. 2 is a plan view, partly in section, of one of the key-plates. Fig. 3 is a vertical section of a portion of the machine. Figs. 4 and 5 are details.

This invention relates to improvements in type-writing machines, pertaining especially to the mechanism by means of which the type-cylinder is rotated; and it consists in the construction and novel arrangement of the parts, hereinafter described, and pointed out in the appended claims.

In a type-writer whose automatic mechanism is operated by means of collared key-stems acting on counterpoised pivoted key-plates it is preferable to revolve the type-cylinder by a single key-plate, as will be hereinafter described.

Referring to the accompanying drawings by letter, A designates the frame of the type-writer, having the vertical pillar A' rising from the rear edge of the same.

B is a cylinder, the shaft *b* of which turns in proper bearings made upon the upper end of the pillar A'. If preferred, the cylinder may not be made complete, but may be only a segment, as shown in Fig. 4. The cylinder has raised letters upon its removable shell at proper intervals, which letters correspond to those on the keys, hereinafter described. Each key moves the cylinder a proper distance for the letter corresponding to that upon its head to be in proper position for making an impression.

b' is a pinion on the inner or front end of the shaft *b*, and turning the said shaft by its rotation.

C is a segmental rack, made on the arc of a

circle the center of which lies in the axis of the shaft *c* of said rack. The rack C engages with the pinion *b'*, and thereby turns the shaft *b*.

c' and *c''* are diametrically-opposite arms of the frame of the rack C. The end of the arm *c'* has connected to it the upper end of a spring, *c'''*, the lower end of which is connected to a proper point of the frame of the machine. The end of the arm *c''* has pivoted to it the upper end of a link-bar, *c⁴*, the lower end of which is pivoted to the hinge-piece *d* of a composite joint, D. The piece *d* has an upward extension, upon which the lower end of the link-bar *c⁴* is pivoted, so that the said bar can turn laterally with reference to the machine. The lower part of the piece *d* is recessed vertically at *d'*, and on each side of the recess has bearings *d''* made in it for the reception of the pin *d'''*, which runs through a knuckle or upward extension, *d⁴*, on the end of an arm, *d⁵*, extending from the center of the rear edge of the key-plate, hereinafter described.

E is the key-plate, preferably of rectangular form, and having the front edge, *e*, enlarged and bored at its ends to receive the cone-points *e'*, the outer ends of which pivot in uprights or standards *e''*, rising from the frame of the machine.

e³ is a rectangular opening made in the key-plate E and running from its front edge, *e*, rearward.

e⁴ *e⁴* are perforations arranged in transverse lines in the key-plate E, the perforations in each line being preferably equidistant, and the lines of perforations also preferably equidistant.

X is a lever having its inward end, *x*, pivoted in a bracket, *x'*, secured to the edge of the opening *e³*, having its middle portion pivoted at *x''* on a depending arm from the frame of the machine, and having on its outer arm the sliding weight Y, which may be fixed in position on the lever by a screw, *y*.

F is a key-board adapted to have lines of keys F', each of which line stands over and corresponds in position with a line of perforations, *e⁴*, in the key-plate. All of the keys F' are of similar construction, except that the collars *f⁶* are at different heights on the key-stems, 100

and only a sufficient number of keys are shown to enable the operation of the machine to be understood.

f is a transverse bar of the main frame of the machine, and $f' f'$ are vertical openings therethrough. Through each opening f' passes the stem f^2 of a key F' , and surrounding the said stem above the bar f , and between the same and the head f^3 of the key, is the coiled spring f^4 . The stem f^2 of the key passes through a perforation e^4 of the key-plate and is guided thereby.

f^5 is a collar on the stem f^2 , which collar strikes against the under surface of the bar f and limits the motion of the key upward. The stem f^2 is provided with a lower collar, f^6 , which strikes against the upper surface of the key-plate and depresses the same when the key is depressed.

The operation of the machine is as follows: The stems f^2 of all the keys F' in the complete machine pass through the key-plate F , as described, and the collars f^6 on the several key-stems are arranged at varying distances above the plate F , or so that they will impinge against this plate at different points of movement of said stems, which all have the same amount of vertical play, so that a different amount of impulse or depression will be given plate F by the keys corresponding to the various characters in a row on the type-cylinder. Now, it is obvious that if varying movements are imparted to plate F , as described, it will, through its connections, oscillate segmental rack C through a greater or less arc on its shaft c and the rack will impart a greater or less rotatory movement to the type-cylinder, so that different characters will be brought uppermost or into printing position. Then, if one stem f^2 has its collar f^6 set to impart only a very slight degree of movement to plate F , the type-cylinder B will, through its connections with said plate, have but a slight partial rotation imparted to it—enough to bring the first character in a row on its face into printing position. Then, if another collared key-stem is arranged to give a full amount of movement to plate F , the type-cylinder B will be sufficiently rotated to bring the last character in the row into printing position, so that it is obvious by properly adjusting the collars on the several stems of the bank of keys I can impart only a proper and required degree of movement to plate F and type-cylinder B to bring the proper character on said cylinder corresponding to the depressed key into printing position. Upon the release of each key the plate F is returned to its normal position by the described means, and thereby the type-cylinder is also returned to its zero or normal position, the return of the latter being expedited by the spring c^3 .

H is a block of rubber, leather, or other suitable material secured to a stud on the main frame of the machine. A set-screw, h' , engages in a threaded opening in the arm h^2 of the segmental rack C , and its point can be

brought into contact with the said block of elastic material, so as to adjust the type-cylinder to different positions by limiting the return movement of rack C , and thereby stopping the return-revolution of cylinder B .

M is a locking device on the shaft of the type-cylinder. This device forms no part of the present invention, but is included in my application for patent filed December 29, 1886, Serial No. 187,011.

Fig. 2 shows a modification of the mode of pivoting the key-plate E , which consists in the employment of screw-threaded cone-points e , which are tapped through the frame A and enter conical recesses in pieces secured to said key-plate. As these bearings wear, the cone-points can be set up. These adjustable pivotal bearings e may be located at any desired distance from the front edge of the key-plate. The spring c^3 , the weight Y , and lever X are omitted and a spring, y' , substituted. The spring y' connects the front edge of the key-plate to a part of the frame of the machine. The key-plate E moves the type-wheel each time that a collared key is depressed upon it. The key-plate has the special function of actuating the type-cylinder, and the latter returns automatically to its normal position, the weighted lever X and the spring c^3 returning it by their united action. When the described modification K is used, the type-cylinder is returned by the spring y' .

Having described my invention, I claim—

1. The combination of the key-plate having its front edge pivoted upon the frame of the machine, the weighted lever connected with and counterpoising said frame, the type cylinder or segment having its shaft journaled in the frame of the machine, the pinion on said shaft, the segmental rack meshing therewith and made on the arc of a circle described from its pivotal point, and the link-bar connecting the vibrator with an arm extending from the segmental rack adjacent to its pivotal joint, so as to rotate the type-cylinder when the key-plate is depressed.

2. The combination of the key-plate, the lever pivoted upon the main frame of the machine, having the end of one arm pivoted on the key-plate and an adjustable weight on the other arm, the keys actuating the key-plate and having their collared stems passing through the perforations thereof, the segmental rack having the end of one arm connected by a link-bar with the key-plate and the end of an opposite arm connected by a spring to the frame of the machine, the type-cylinder, and the pinion on the type-cylinder shaft arranged to mesh with the segmental rack, substantially as specified.

3. The combination of the key-plate, the segmental rack connected therewith, the pinion on the type-cylinder shaft, the type-cylinder, the buffer secured to the main frame, and the adjusting-screw passing through a lug on the frame of the segmental rack and having its end in position to abut against said buffer

and hold the type-cylinder in proper position when at rest, substantially as specified.

4. The combination of the main frame A, provided with the pillar A', the type-cylinder B, having its shaft bearing on said pillar, the pinion b' on the shaft of the type-cylinder, the segmental rack-frame C, provided with the arms c' c^2 , the spring c^3 , the link-bar c^4 , the pivoted perforated vibratory plate E, 5 the counterpoise-lever X, provided with the 10

weight Y, and the key F', all constructed and arranged substantially as shown, and for the purpose described.

In testimony that I claim the foregoing as my own I affix my signature in presence of 15 two witnesses.

VIRGIL W. BLANCHARD.

Witnesses:

T. H. ALEXANDER,

A. E. DOWELL.