

No. 657,978.

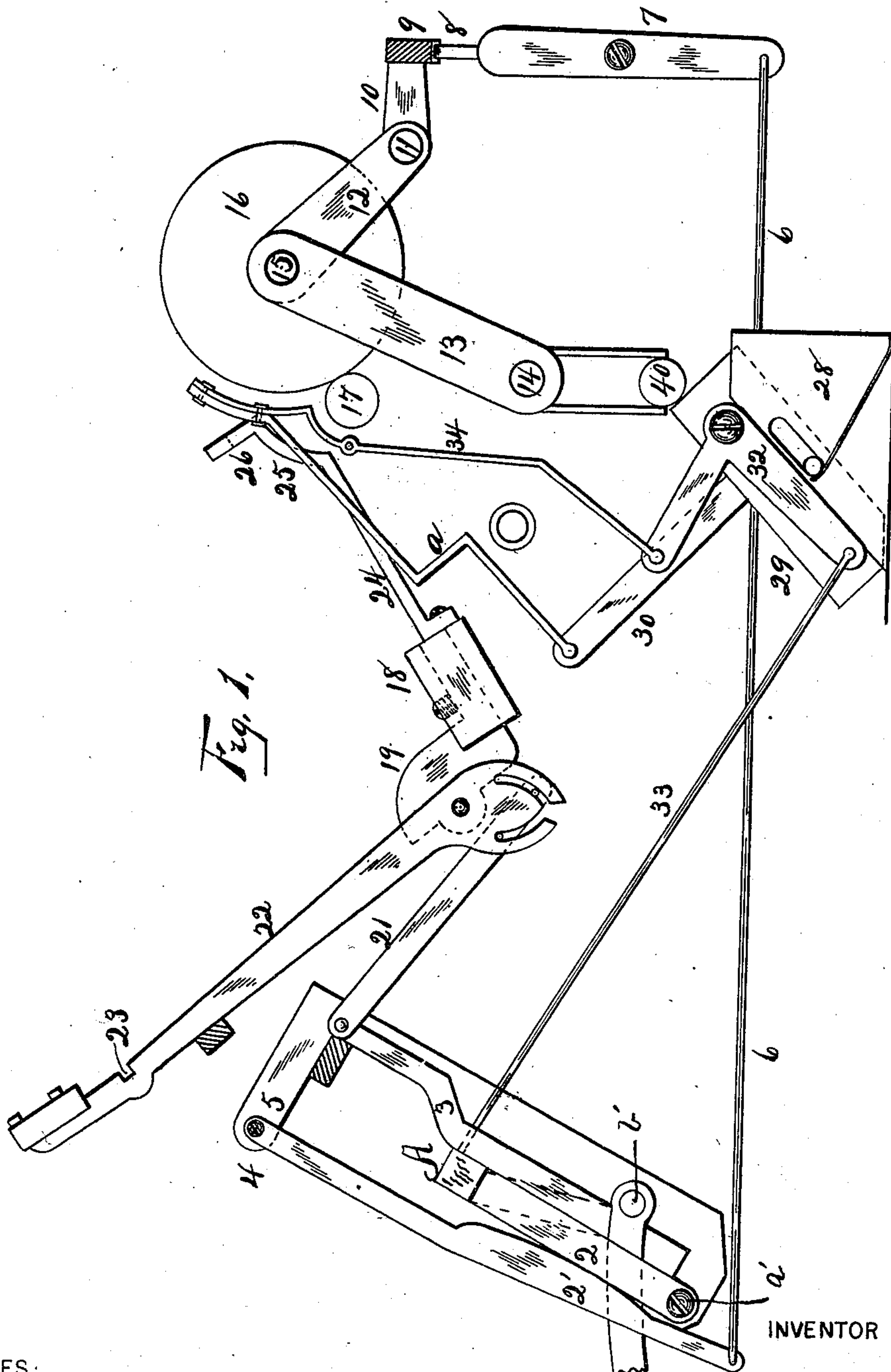
Patented Sept. 18, 1900.

E. E. BARNEY.
TYPE WRITING MACHINE.

(Application filed July 18, 1898.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES:

C. Schoenbeck
M. A. Franklin

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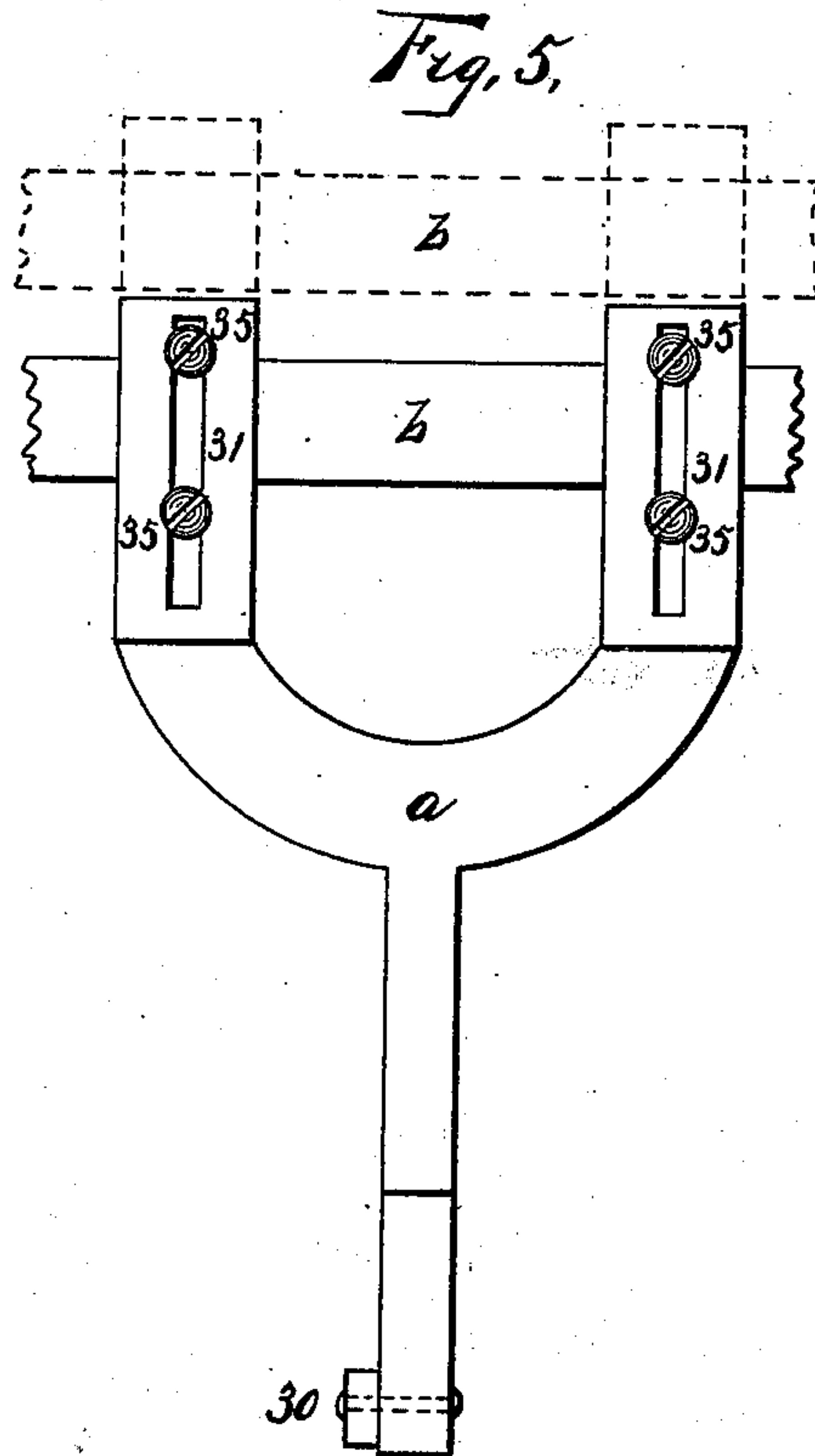
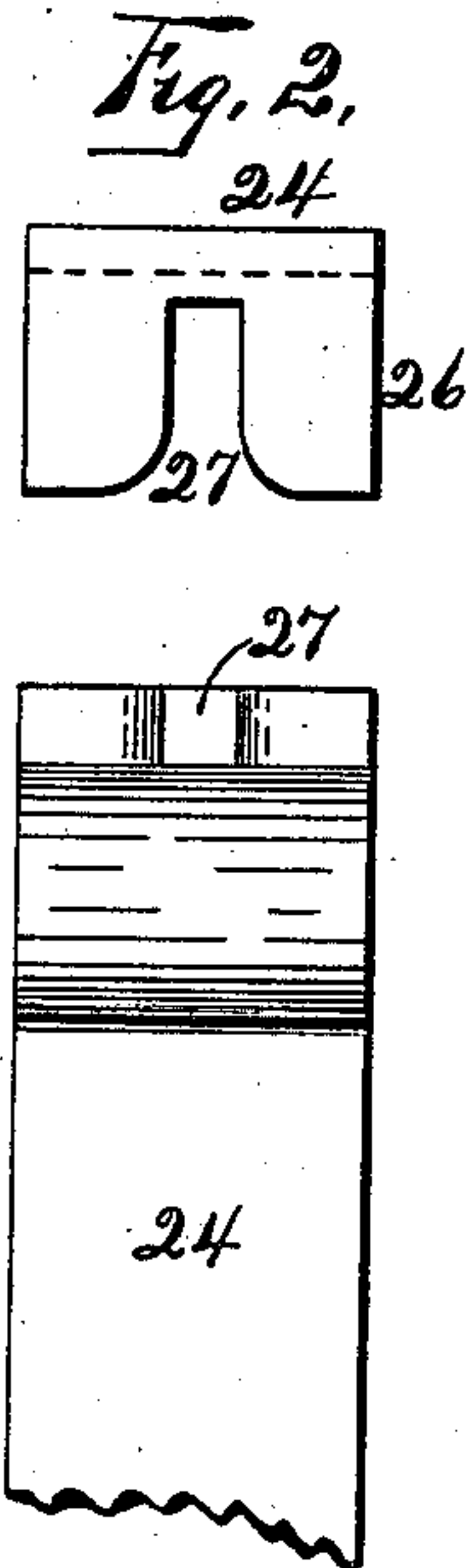
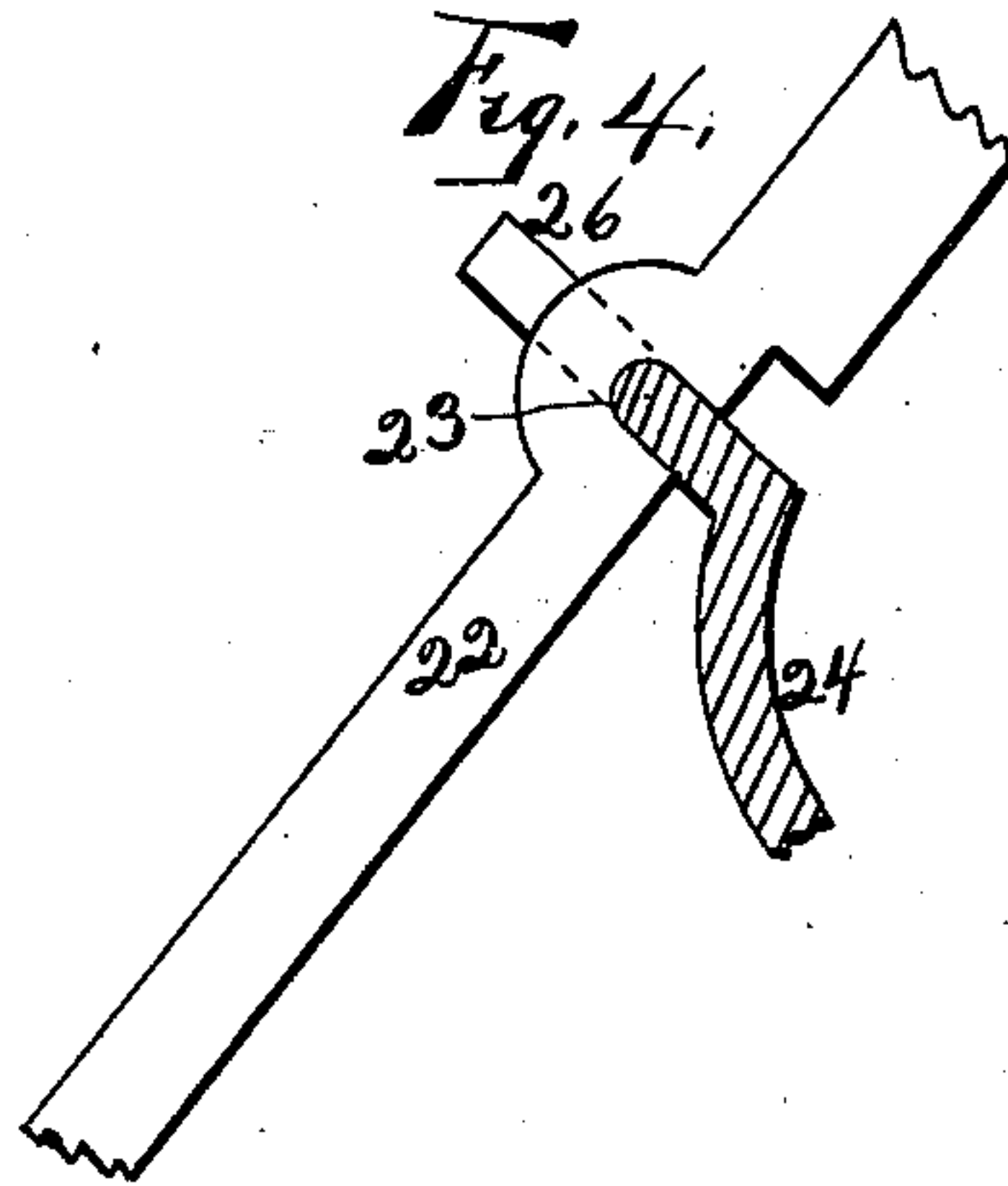
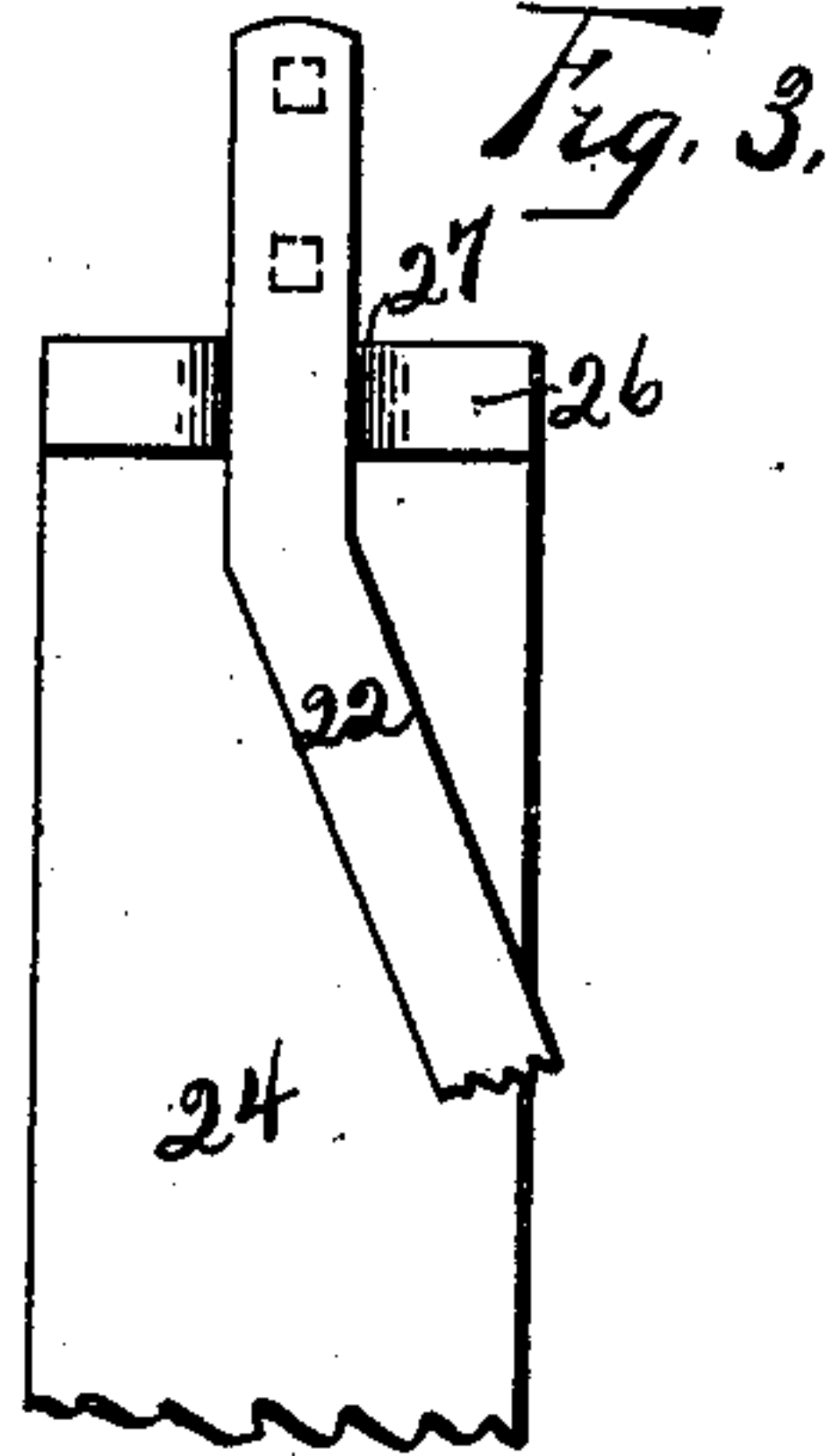
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3 Sheets—Sheet 2.



WITNESSES:

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INVENTOR

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UNITED STATES PATENT OFFICE.

EDWIN E. BARNEY, OF GROTON, NEW YORK.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 657,978, dated September 18, 1900.

Application filed July 18, 1898. Serial No. 686,235. (No model.)

To all whom it may concern:

Be it known that I, EDWIN E. BARNEY, of Groton, in the county of Tompkins, in the State of New York, have invented new and
5 useful Improvements in Type-Writing Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to improvements in
10 type-writing machines.

The objects of the invention are to improve the construction of type-writing machines in the following particulars: first, as to the escapement mechanism; second, as to guiding
15 the type-bar arm to the printing-point and locking it against lateral or longitudinal movement during the act of printing; third, in a single-case machine shifting said guide and lock from lower to upper case, and, fourth,
20 in mounting the carriage upon ball-bearing roller-supports, said carriage being adapted to be rocked independently of said rollers by raising or lowering one of its tracks.

It is constructed as follows, reference being
25 had to the accompanying drawings, in which—

Figure 1 is an elevation of the action, escapement mechanism, carriage, ribbon-guide, and type-bar guide and lock. Fig. 2 shows
30 a top plan and a front elevation of the guide and lock. Fig. 3 is an enlarged front elevation of the guide and lock and a type-bar therein. Fig. 4 is an enlarged sectional detail of the guide and lock and type-bar. Fig.
35 5 is an enlarged front elevation of the ribbon-guide carrier and ribbon, the dotted lines showing the ribbon shifted for upper-case printing. Fig. 6 is a front elevation of the carriage, roller-support, and track. Fig. 7 is
40 a transverse vertical section of the carriage and its mounting substantially upon the line of the axis of the roller.

The drawings herein are in some respects illustrative of the parts of the "visible-writing" machine which is shown and described
45 in Letters Patent of the United States granted to me December 7, 1897, and numbered 594,978; and they are here shown as illustrating one type of machine to which my present ideas are applicable and the manner of applying them
50 thereto.

A is the universal bar, carried by arms 2,

suitably mounted upon each side of the main frame, said bar being common to and engaged by all of the key-levers 3, as shown in said patent.

Escapement mechanism.—The arms 2 bear
55 each against a cam-bar 2', pivoted at 4 upon a suitable support 5, and 6 is a draw-bar connecting the cam-bar to the escapement-lever 7, provided with suitable teeth 8, of any ordinary construction, suitably engaging with
60 the rack-bar 9, which is carried by arms 10 upon the carriage-frame bar 11, the bars 12 and 13 constituting the ends of the carriage, while the rod 14 constitutes the front frame-bar, and
65 15 is the shaft or arbor, carrying the platen 16, and 17 is a paper-guide roller. The lower ends of the arms 2 are suitably pivoted, as upon the screws *a'*. The key-levers 3 are of
70 the bell-crank type and are pivoted upon a rod *b'* across the machine at the angle of each lever, so that when the outer end of the key-lever is depressed its upward extension will
75 force the universal bar forward and its arm 2 will force the cam-bar to swing forward upon its pivot 4, which will draw the rod 6 forward, rock the escapement-lever forward,
80 and release the carriage from one dog 8 into engagement with the other, permitting the carriage to shift one-half of a letter or word space, and the release of the key-lever will
85 permit the parts to resume their normal positions, the carriage being released from the second dog, the first one reengaging with the rack, and the carriage completing the remainder of the letter or word spacing movement.
90 The action of these dogs is in itself old. The effect of this cam-actuated escapement is a quicker action, owing to the shifting of the fulcrum bearing of the universal bar upon the cam-bar, and a quick shift to reengage the first tooth with the rack-bar and an easing
95 down, whereby substantially all of the sharp click of the escapement is taken up and a substantially-noiseless action is obtained.

Type-bar guide and lock.—A bearing-block
100 18 is suitably mounted in the frame, provided with projections 19, in which the type-bars 22 are journaled and guided at the heel, and 21 represents the draw-bars connecting the key-levers and the type-bars 22, all substantially the same as in said patent, excepting that the

heart-cam action is different and each type-bar has a transverse notch 23 and is usually arched around the notch, substantially as shown, to avoid weakening of said type-bar.

5 Upon the block 18 a guide-bar 24 is secured, curved, as at 25, and having its free end angular, as at 26, and provided with a notch 27, the corners of which are preferably beveled. When a type-bar is operated, it will enter the
10 notch in the guide and will be thereby guided with proper relation to the printing-point upon the platen and prevented from moving laterally away therefrom. At the same time, or substantially so, the bottom of the guide-
15 notch will enter the type-bar recess, and thus said type-bar will be prevented from any longitudinal movement with reference to said printing-point. Thus by this coincidence of
20 guide-notches and the engagement of the walls of one with the sides of the other the type-bars are doubly guided and at the instant of striking the impression blow are doubly locked against either sidewise or lengthwise movement, whereby perfect alinement of
25 printing is insured. This single guide is common to all of the type-bars, and each engages therewith at a right angle, and it engages with each at a like angle, and each type-bar is both guided and locked thereby.

30 *Ribbon-guide.*—A support 28 is suitably mounted in the frame, having an inclined face or groove, and 29 is a block mounted to be reciprocated thereon, as described in said patent, and 30 is an arm secured thereon, upon
35 which the ribbon-guide support *a* is suitably mounted, its free end being in the form of an arc or segment concentric with the platen 16, being bifurcated, as shown in Fig. 5, and provided with slots 31. A bell-crank 32 is con-
40 nected by the rod 33 to the universal bar A, and its other arm carries the reciprocatory ribbon-guide 34, bifurcated substantially like the support and having its upper ends curved concentric with the platen and connected to
45 the support by screws 35 through said slots, or the ribbon-guide arms may be slotted instead of the support-arms. The ribbon-guide arms are shifted vertically each time the uni-
50 versal bar is moved by a key, thus raising the ribbon, which is suitably mounted upon them, up over the printing-point and then is lowered to uncover the printing, as is customary with this class of machines. The
55 curving of the ribbon-guide arms performs the function of maintaining the ribbon *b* always at the same distance from the face of the platen. It is curved concentric therewith. It always gives or yields the same distance, thus always opposing the same force
60 to the type-bar, which insures a uniformity of impression and shade of printing. A divisional application for the ribbon-feed mechanism originally shown and described herein

having been filed January 25, 1899, Serial No. 703,309, no claim is herein made therefor. 65

Ball-bearing mounting.—A bracket 36 is suitably mounted upon the front rail 14 of the carriage and provided with a boss 37, faced to become a member of a ball-bearing, and a screw 38 has a head so faced as to ren- 70 der it suitable for a like member upon the other side of the grooved roller 39, which travels upon the track 40. This roller is interiorly recessed to constitute the other members of the ball-bearings. Upon the rear 75 frame-bar 11 of the carriage a bracket 41 is suitably mounted, provided with an arm 42, having a terminal faced to become a member of a ball-bearing of the roller 43, which travels upon the rear track 44, the other members of 80 said bearing being substantially the same as those of the bearing of the roller 39. In this manner the carriage is mounted upon ball-bearings, and their relations to it and to the tracks are always the same, though the track 85 40 may be raised and the carriage and platen rocked for upper-case printing.

Having described my invention, what I claim, and desire to secure by Letters Patent, is— 90

1. In a type-writing machine, the combination with a universal bar mounted to swing forward and back upon arms projecting from it, of a bell-crank key-lever engaging with said universal bar, a cam-lever with which 95 the arm of the universal bar engages, an escapement and a reciprocatory escapement-rod connected to said cam and drawn forward by it when said cam is swung forward by the forward swing of the universal bar. 100

2. In a type-writing machine the combination with an oscillating universal bar, and a bell-crank key-lever engaging with said bar of a cam-bar oscillated by said universal bar whenever a key-lever is operated, an escape- 105 ment and an escapement-rod connected to and reciprocated by the oscillation of said cam-bar.

3. In a type-writing machine, the combination with a carriage-frame rail, of a bracket 110 secured to said rail and laterally projecting therefrom, and having a ball-cone created upon its free end, a roller-arbor removably mounted in said cone and having a ball-cone created upon it adjacent to its outer end, a 115 roller recessed on opposite sides to create ball-cups therein, balls between said cups and cones, and a carriage-track traversed by said roller.

In witness whereof I have hereunto set my 120 hand this 9th day of July, 1898.

EDWIN E. BARNEY.

Witnesses:

J. B. LOSEY,
JAMES H. GARRATT.