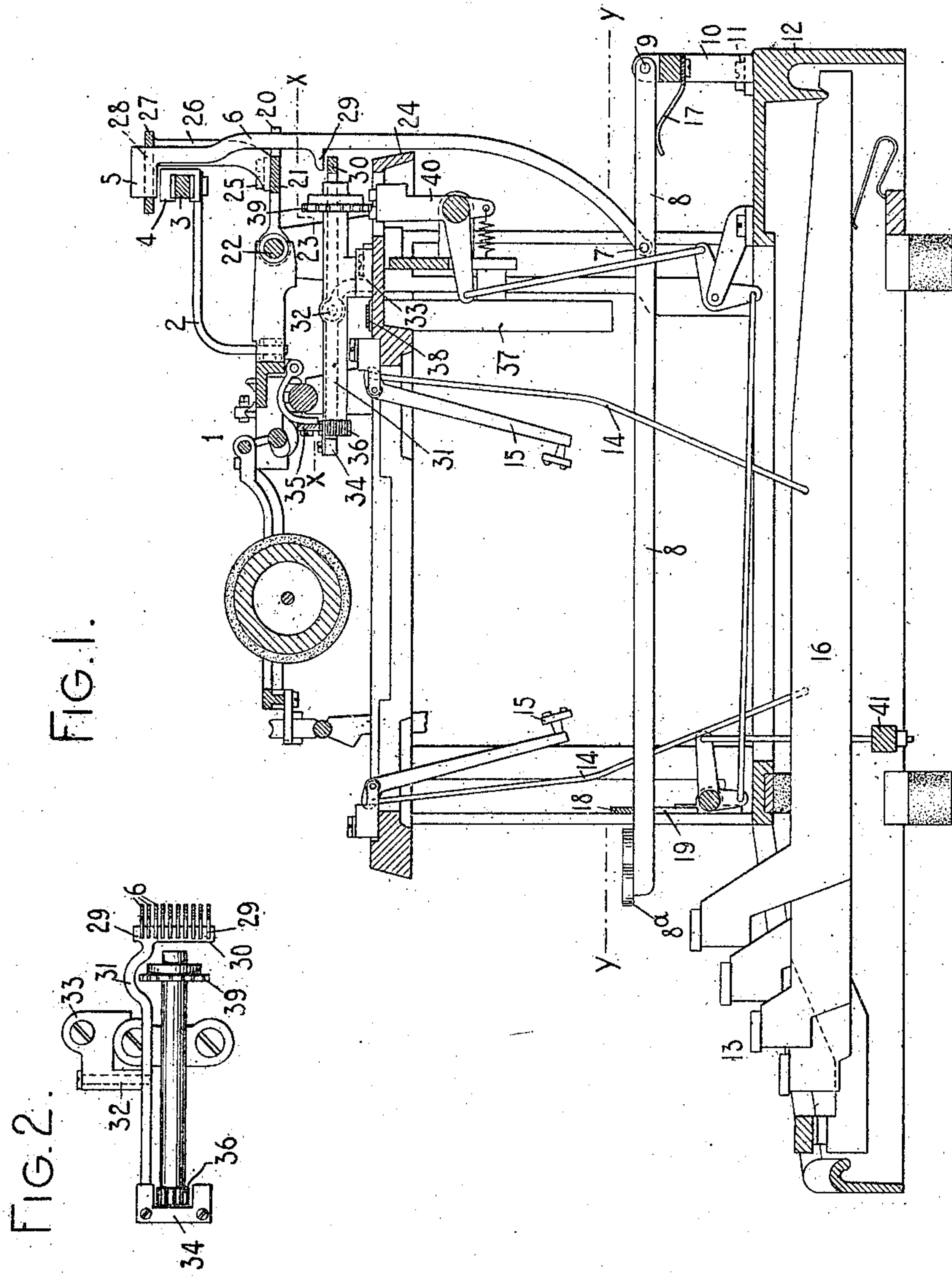


B. P. FINIGAN.
TYPE WRITING MACHINE.
APPLICATION FILED JAN. 26, 1909.

989,592.

Patented Apr. 18, 1911.

3 SHEETS—SHEET 1.



WITNESSES:

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J. B. Reeves.

INVENTOR:

Benjamin P. Finigan

By Jacob Stelbel

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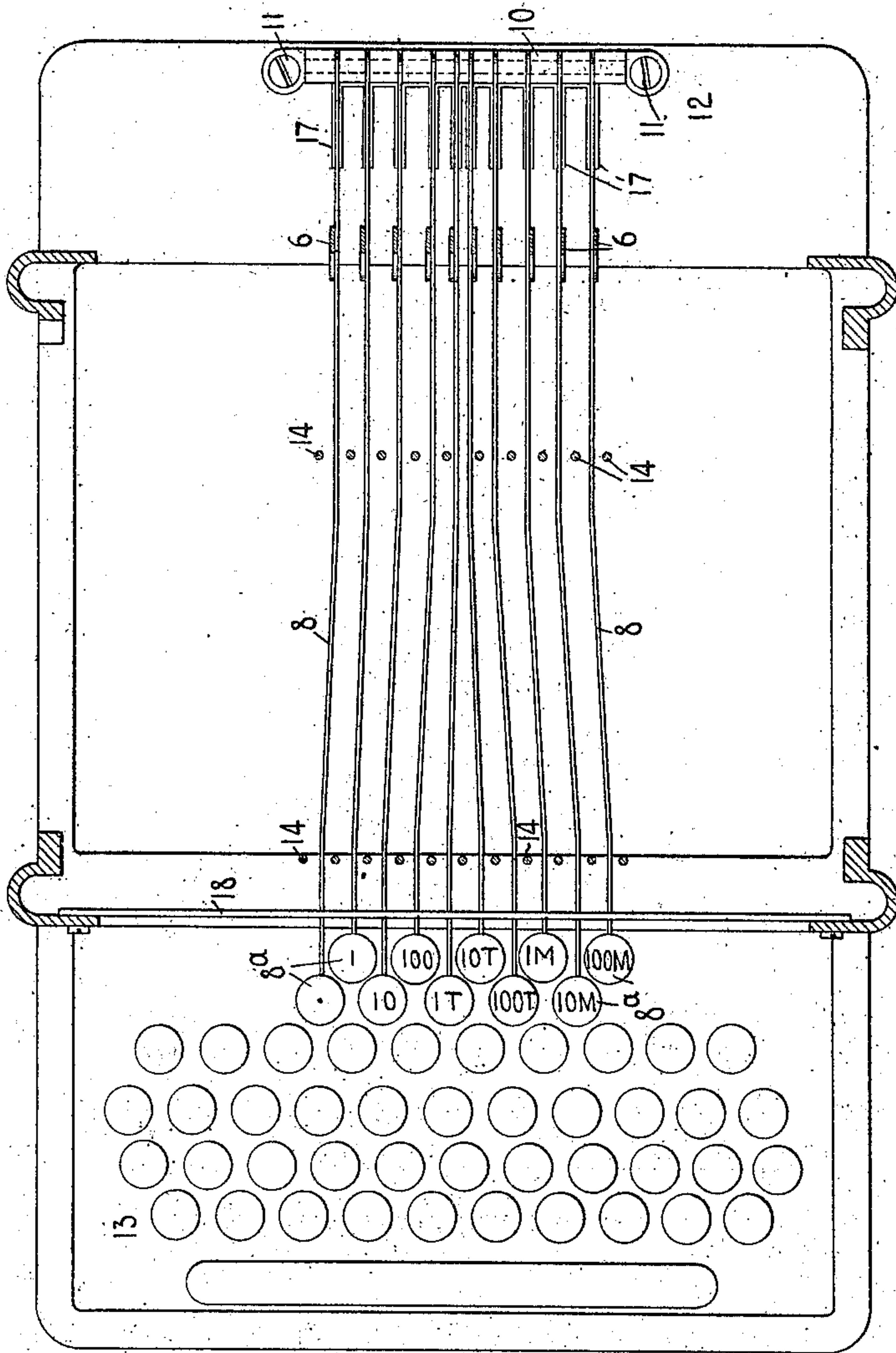
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3 SHEETS-SHEET 2.

FIG. 3.



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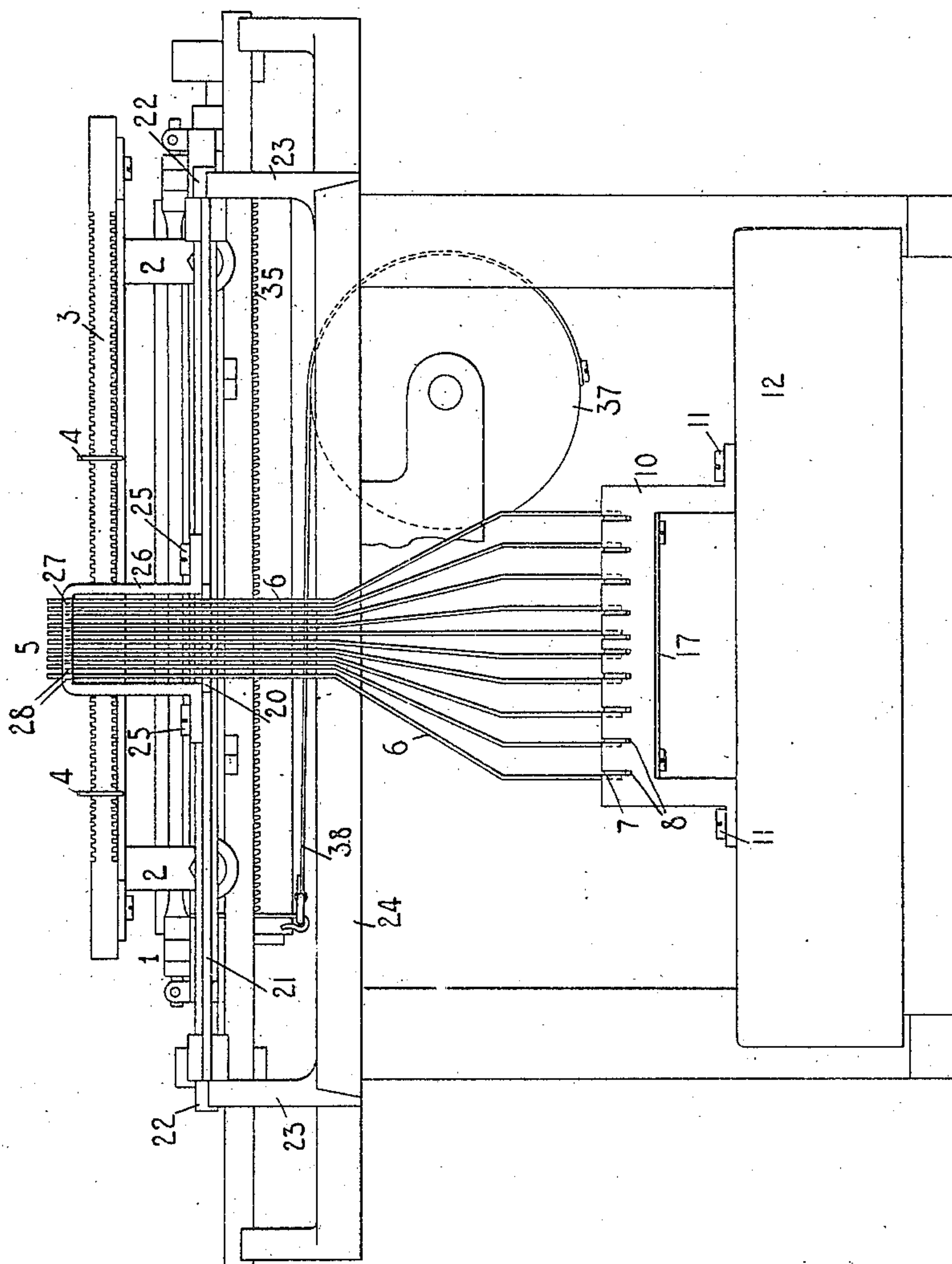
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3 SHEETS—SHEET 3.

FIG. 4.



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UNITED STATES PATENT OFFICE.

BENJAMIN P. FINIGAN, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO UNION TYPEWRITER COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

989,592.

Specification of Letters Patent.

Patented Apr. 18, 1911.

Application filed January 26, 1909. Serial No. 474,311.

To all whom it may concern:

Be it known that I, BENJAMIN P. FINIGAN, citizen of the United States, and resident of Washington, District of Columbia, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to tabulators and has for its main object to provide a simple and convenient construction whereby decimal tabulator stops may be operated directly by downwardly operating key levers conveniently located at the key-board.

To this end my invention consists in the various features of construction and arrangements of parts hereinafter more fully described and particularly pointed out in the appended claims.

In the accompanying drawings:—Figure 1 is a longitudinal vertical central section of a Remington No. 6 typewriting machine embodying my improvements. Fig. 2 is a detail plan view taken at the line $x-x$ of Fig. 1. Fig. 3 is a plan view or horizontal section taken at the line $y-y$ of Fig. 1. Fig. 4 is a rear elevation omitting some of the parts usually contained in the typewriter proper.

In the various views the same parts will now be designated by the same numerals of reference.

Inasmuch as the Remington typewriting machine is so well known, in explaining my invention I shall not describe in detail any more of said Remington machine than is essential to an understanding of my improvements.

On the carriage 1 is secured at each end a rearwardly extending arm or bracket 2 for supporting a tabulator stop-rod 3, the stops thereof being designated by the numerals 4. Adapted to cooperate with these movable, detachable and adjustable stops 4 are stops 5 arranged in a series transversely of the machine, there being shown herein ten such stops, each of which is preferably formed integral with and at the upper end of a vertically arranged rod or bar 6, which is pivotally connected at 7 to a key lever 8 fulcrumed at 9 in a bracket 10 secured by screws at 11 to the top of the base 12 of the typewriter and at its rearmost edge. The key levers 8—one for each rod 6 and stop 5—extend horizontally forward and terminate in finger pieces or keys 8^a, all of which

preferably are arranged above and back of the usual typewriter key-board designated as an entirety by the numeral 13.

The levers 8 pass between certain of the connecting rods 14 of the type bar actions, comprising the type bars 15 and key levers 16 as well as the said connecting or actuating rods 14.

The key levers 8 are provided with returning springs 17 which normally also hold up the lever 8 against a stop bar 18, forming part of a comb plate 19 in which the forward ends of the levers 8 work and are guided. Preferably the keys 8^a are arranged in two banks and alternate as shown in Fig. 3. However, this is not essential, as they may be arranged in one row and may be greater or less in number than herein shown. The springs 17 also serve to restore the stops 5 and their rods 6 to normal position when the key levers 8 are thus restored, though separate springs may be provided for the rods 6, if desired. These rods preferably slide in and are guided by a comb or toothed portion 20 formed as part of a bar or plate 21 which is firmly secured at each end to a bar 22 mounted fast on uprights or brackets 23 secured to the top plate 24 of the typewriter proper. Secured by screws 25 upon said bar or plate 21 is an upright bracket or frame 26 terminating in a broad horizontal plate-like portion 27 having a series of parallel slots 28 one for each of the stops 5, the said plate acting as a guide and lateral support for said stops 5. The bracket or frame 26 and the series of stops 5 are arranged at the rear of the machine and centrally thereof.

On each of the stop operating rods 6 is a forwardly projecting lug 29 adapted to act upon a bail or universal bar 30 formed at the rear end of a lever 31 pivoted at 32 in a bracket 33 secured to the top plate 24, the said lever being provided at its forward end with a shoe or lifter 34 adapted to raise the carriage feed rack 35 from the escapement pinion 36 when any of the tabulator key levers 8 is actuated, so as to free the typewriter carriage from its escapement mechanism and permit it to run down swiftly toward the left under the influence of the spring drum 37 and draw-band 38, which is attached at one end to the spring drum and at the other end to the carriage.

In operation, when any of the finger keys

8^a is depressed its associated lever is vibrated downwardly and its connected decimal or denominational stop 5 is drawn or pulled down into the path of travel of the column stops 4 on the paper carriage, and at an appropriate time in this downward movement of the stop 5 the lug or finger 29 contacts with the bail or universal bar 30, vibrates the lever 31 and causes the shoe 34 to lift the feed rack out of engagement with the escapement pinion 36, whereupon the carriage will travel freely toward the left until the first one of the column stops 4 meets and is arrested by the downwardly pulled denominational stop 5 in its path. When the key 8^a is relieved of pressure the parts 8, 6 and 5 are restored to normal position by the spring 17 and the lever 31 is restored to normal position by the carriage feed rack 35 which as usual is restored by means of a spring, not shown, the feed rack reengaging the pinion and thus putting the carriage again in control of the escapement mechanism, comprising as usual the escapement wheel 39 and two dogs on the dog rocker 40 actuable by a train of connecting devices comprising rods and levers, and a universal bar 41 underlying the type bar key levers 16, as customary.

As shown in Fig. 3 the set of denominational stops 5 are arranged close together a letter space distance apart and in order to effect this arrangement the rods or bars 6 carrying said stops are condensed or made to converge, inasmuch as the lower ends of said bars or rods where they connect with the key levers 8 are spaced or spread apart corresponding to the spacing of the said key levers 8.

What I claim as new and desire to secure by Letters Patent, is:—

1. In a typewriting machine and tabulating mechanism, the combination with a carriage having one or more column stops, of a series of denominational stops arranged above the plane of travel of said column stops, a series of key levers fulcrumed at the rear of the machine extending substantially horizontally forward to the key-board of the machine and terminating above and at the rear side of the same, and a series of rods extending from said denominational stops and pivotally connected at their lower ends to said series of key levers.

2. In a typewriting machine and tabulating mechanism, the combination with a carriage having one or more column stops, of a series of denominational stops arranged above the plane of travel of the said stops, downwardly acting rods carrying said denominational stops, a series of forwardly ex-

tending key levers to which said rods are pivoted, a carriage escapement mechanism, and means carried by said downwardly extending rods for disengaging the carriage from its escapement mechanism when the said forwardly extending key levers are depressed.

3. In a typewriting machine and tabulating mechanism, the combination with a carriage having one or more column stops, of a series of denominational stops arranged above the plane of travel of said column stops and having downwardly extending pull rods, a series of key levers to which said pull rods are pivoted, a carriage escapement mechanism comprising a pinion and a hinged feed rack, a lever-carrying means for disengaging said feed rack from said pinion, and a series of projections on said pull rods for actuating said lever to disengage said feed rack from said pinion when said pull rods are drawn down by said key levers.

4. In a typewriting machine and tabulating mechanism, the combination with a carriage having one or more column stops, of a bracket or frame extending above said column stops and formed or provided with a series of parallel slots, a series of denominational stops arranged within said slots and having downwardly extending rod portions, a series of key levers to which the lower ends of said rod portions are pivoted, a guide comb for said rods, lugs or fingers on said rods, a lever adapted to be actuated by said lugs or fingers, an escapement mechanism comprising a rack and a pinion, and means on said lever for lifting said rack out of engagement with said pinion when said rods and denominational stops are pulled down.

5. In a typewriting machine and tabulating mechanism, the combination with a carriage having one or more column stops, of a series of denominational stops arranged above the plane of travel of said column stops, a series of key levers fulcrumed at the rear of the machine above the type bar key levers and passing forwardly between the type bar connecting rods and terminating in keys at the front of the machine above the typewriter key-board, and pivotal connections between said forwardly extending key levers and said denominational stops.

Signed at Washington, District of Columbia, this 26th day of January, A. D. 1909.

BENJAMIN P. FINIGAN.

Witnesses:

WILLIAM J. McNALLY,
M. E. HUNTER.