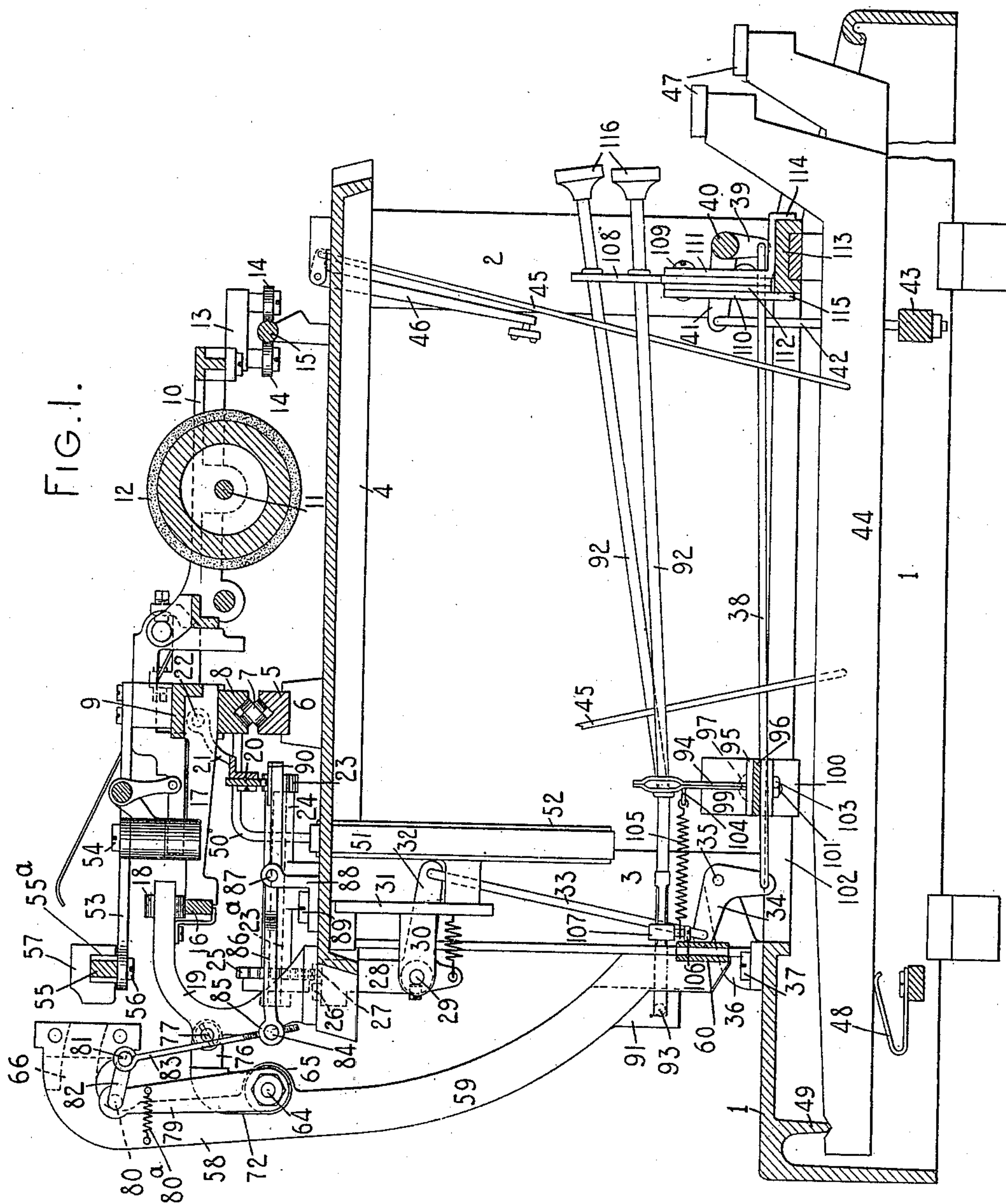


E. C. TROUSLOT.
TYPE WRITING MACHINE.
APPLICATION FILED JAN. 11, 1909.

974,933.

Patented Nov. 8, 1910.

4 SHEETS-SHEET 1.



WITNESSES:

E. M. Wells.
J. B. Reeves.

INVENTOR:

Eugene C. Trouslot

By Jacob Felbel

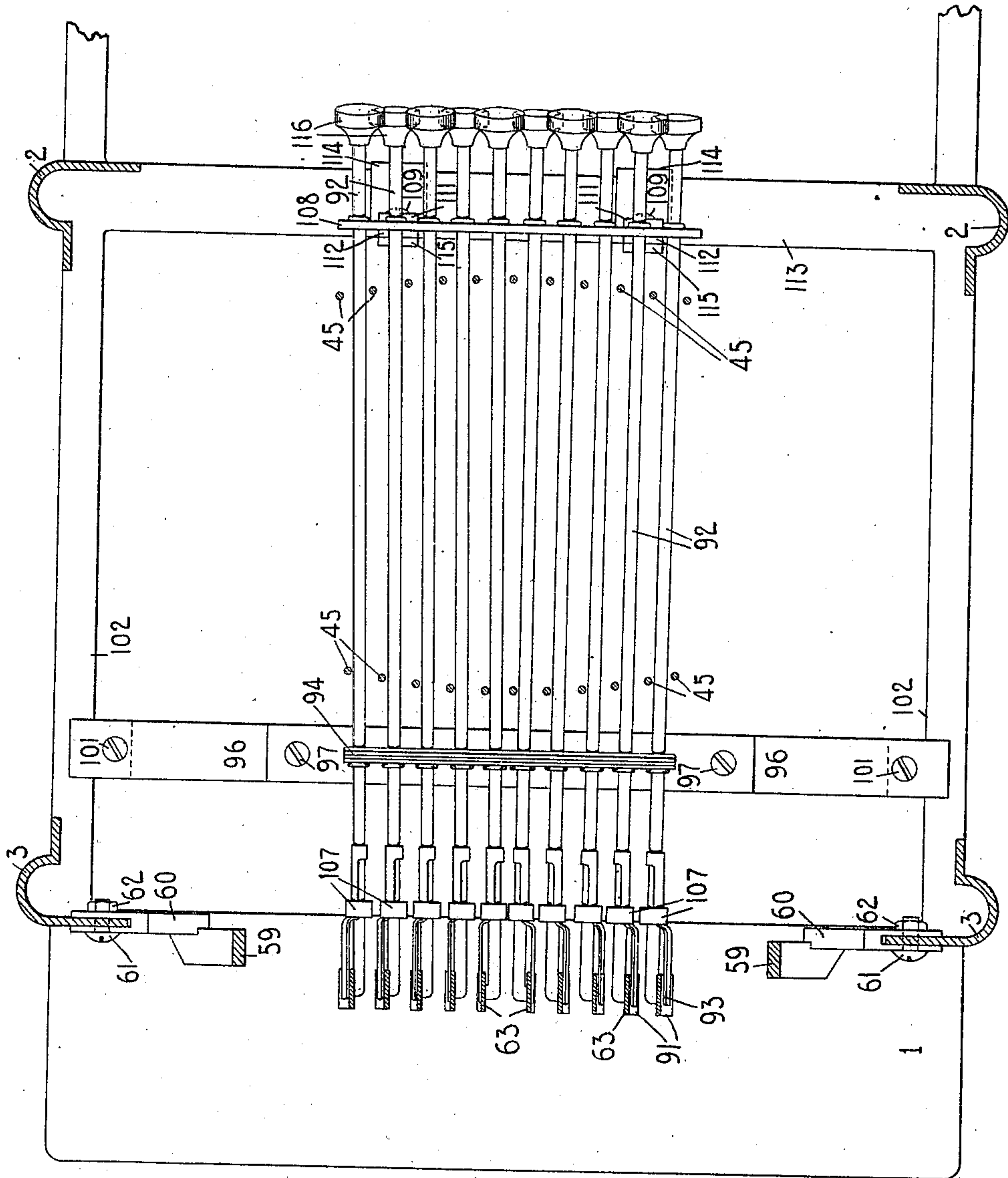
HIS ATTORNEY

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4 SHEETS—SHEET 2.



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FIG. 2.

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4 SHEETS—SHEET 3.

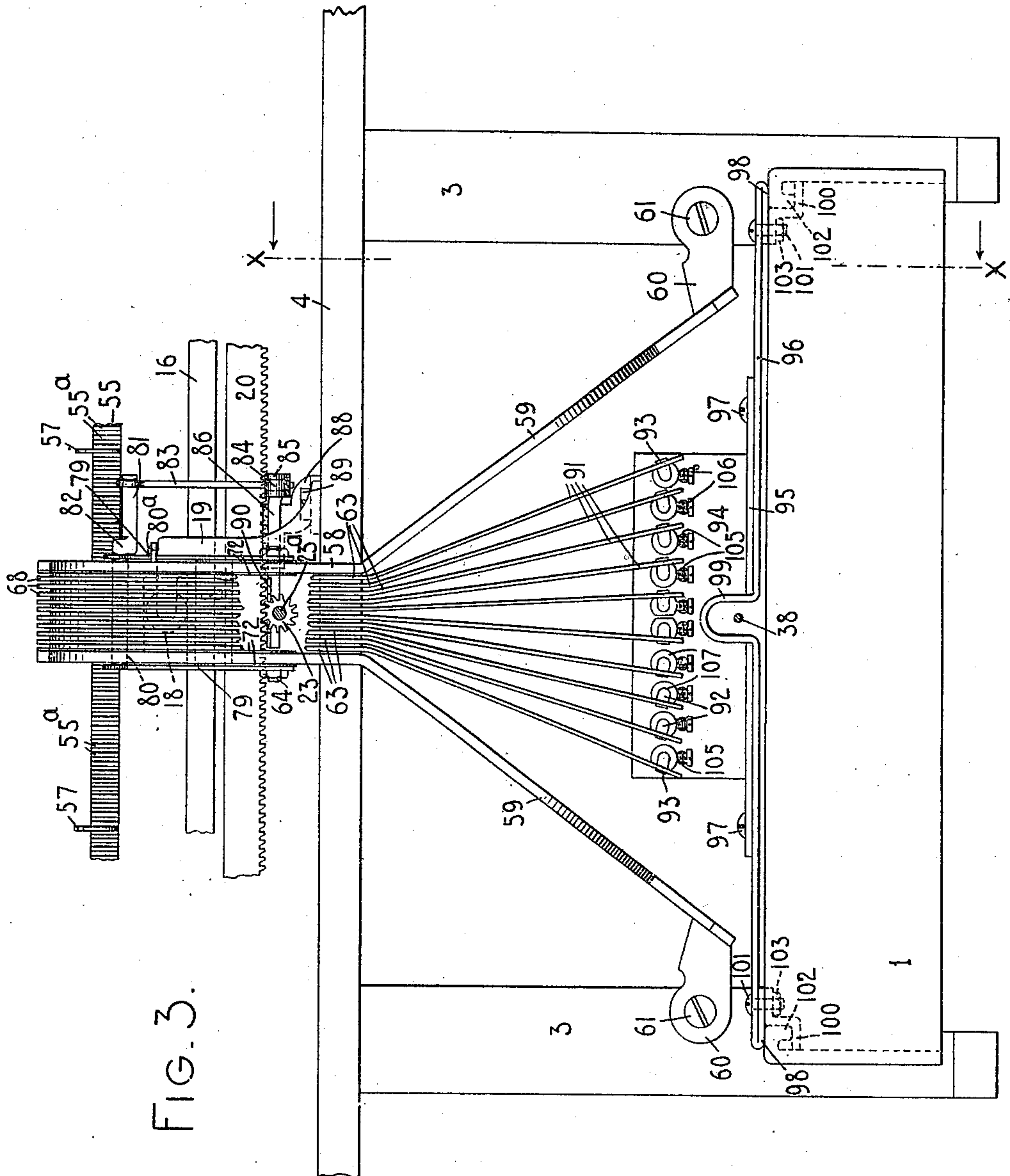


FIG. 3.

WITNESSES:

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INVENTOR:

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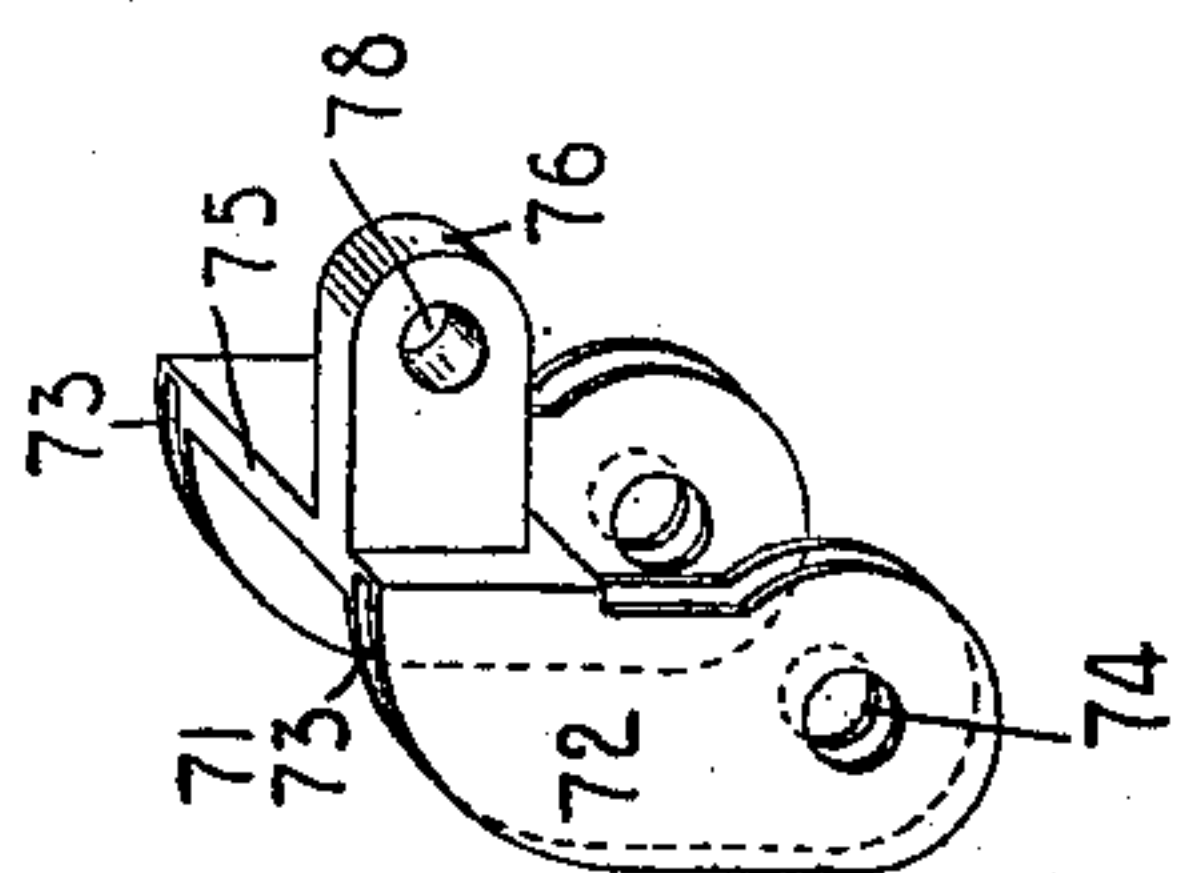
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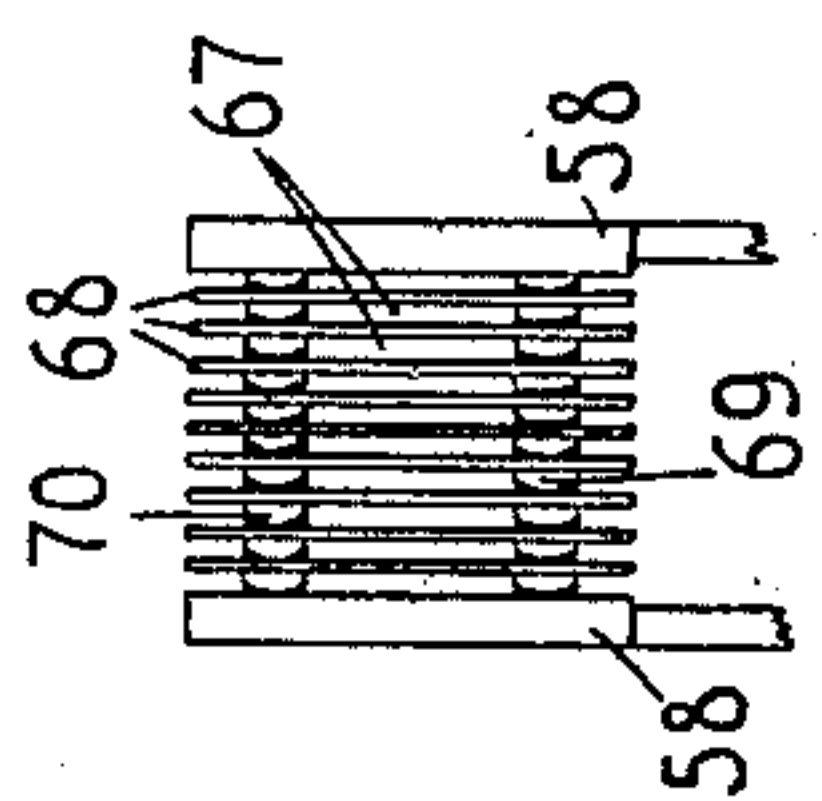
Patented Nov. 8, 1910.

4 SHEETS—SHEET 4.

974,933.



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666

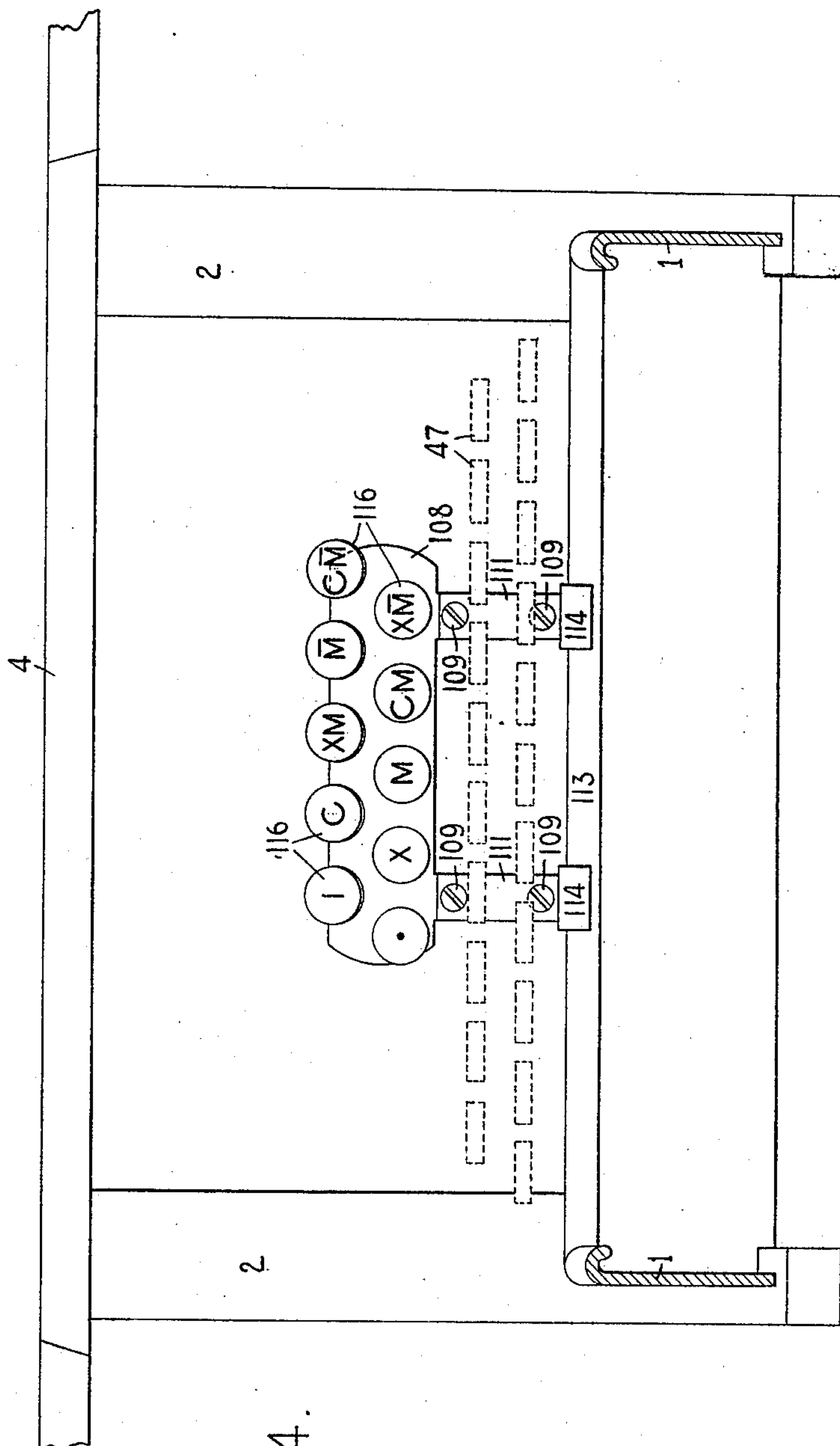


FIG. 4.

WITNESSES:

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INVENTOR:

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HIS ATTORNEY

UNITED STATES PATENT OFFICE.

EUGENE C. TROUSLOT, OF PRAIRIE CITY, ILLINOIS, ASSIGNOR TO REMINGTON TYPE-WRITER COMPANY, OF ILION, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

974,933.

Specification of Letters Patent.

Patented Nov. 8, 1910.

Application filed January 11, 1909. Serial No. 471,626.

To all whom it may concern:

Be it known that I, EUGENE C. TROUSLOT, citizen of the United States, and resident of Prairie City, in the county of McDonough and State of Illinois, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to typewriting machines and more particularly to tabulating mechanism for such machines.

The main objects of my invention are to arrange the tabulator keys and their connections to the rearwardly located stops above the key-board of the type bar actions; to condense the tabulator keys at the front of the machine; to arrange connections from said keys to the tabulator stops at the rear of the machine substantially in straight lines fore and aft of the machine; to mount the tabulator stop levers in a supplemental framework secured to the main frame of the machine above the base thereof, and to secure said supplemental frame to the main frame so that there shall be no projection of said supplemental frame beyond the base frame of the machine, thus avoiding any increase in the dimensions of the machine as a whole fore and aft thereof, and further avoiding projections as heretofore customary.

To the above and other ends which will hereinafter appear, my invention consists in the features of construction, arrangements of parts and combinations of devices to be hereinafter described and claimed.

In the accompanying drawings in which like reference characters designate corresponding parts in the various views, Figure 1 is a vertical, sectional view taken on the line $x-x$ of Fig. 3 and looking in the direction of the arrow at said line; the view illustrating one form of typewriting machine embodying my invention and showing only so much of the machine proper as is necessary to illustrate my invention. Fig. 2 is a horizontal sectional view showing a portion of the tabulating mechanism embodied in a machine. Fig. 3 is a fragmentary rear elevation showing a portion of the tabulating mechanism together with some of the associated parts of the typewriting machine, the tabulator stop levers being broken away at one place to show more clearly parts arranged in front thereof. Fig. 4 is a fragmentary front view partly in section and show-

ing a portion of the tabulating mechanism applied to the machine. Fig. 5 is a detail perspective view of one of the devices by which a part of the tabulating mechanism is secured to the machine. Fig. 6 is a fragmentary rear view of a portion of the tabulating mechanism to be hereinafter described.

I have shown my invention applied in the present instance to a No. 8 Remington machine, although it should be understood that it may be employed in other styles of typewriting machines.

The frame of the machine comprises a base 1, forward corner posts 2, rear corner posts 3 and a top plate 4. A fixed grooved carriage rail 5 is supported by upwardly extending lugs 6 on the top plate of the machine for coöperation with crossed anti-friction rollers 7 which likewise coöperate with a grooved carriage rail 8 carried by the carriage truck 9. A platen frame 10 is pivoted in the usual manner to the carriage truck and is provided with bearings for the reception of a platen shaft 11 which carries the usual cylindrical platen 12. The forward cross bar of the platen frame carries a bracket 13 provided with anti-friction rollers 14 which coöperate with a shift rail 15 actuated by a shift key in the usual manner. A track or bar 16 is supported by rearwardly extending arms 17 on the carriage truck for coöperation with an anti-friction roller 18 journaled in the usual fixed bracket 19 secured to the top plate of the machine. A feed rack 20 is mounted upon arms 21 pivoted to the carriage truck at 22 for coöperation with a feed pinion 23 fixed to the forward end of a shaft 23^a which turns in a bearing 24 secured to the top plate of the machine. An escapement wheel 25 is operatively connected in the usual manner to the rear end of the shaft 23^a and feed dogs 26 and 27 coöperate with said escapement wheel. The feed dogs are carried by a dog rocker 28 pivoted at 29 in bracket arms 30 which project rearwardly from a bracket 31 secured to the top plate of the machine. A forwardly extending arm 32 of the dog rocker is connected to a depending link 33 which in turn is connected at its lower end to a bell crank lever 34 pivoted at 35 to a bracket 36 secured by the screws 37 to the base of the machine. A horizontally disposed link 38 is connected at one end to the bell crank lever 34 and at its opposite end to

the crank arm 39 projecting from a rock shaft 40 mounted on its ends in bearing openings in the forward corner post 2 of the machine. Extending rearwardly from the rock shaft 40 are crank arms 41, one of which is situated near each end of the rock shaft. Each crank arm 41 is connected to one end of a depending link 42, the other end of which is connected to the universal bar 43 which extends beneath the system of printing key levers 44.

From the foregoing description it will be seen that a depression of each of the key levers 44 is effective to depress the universal bar 43 and thereby actuate the intermediate connections between the universal bar and dog rocker to effect an actuation of the carriage escapement mechanism. Each of the key levers 44 is connected to an actuating link 45 which in turn is connected to a type bar 46. The actuating links 45 are arranged as customary in the Remington machine, those at the forward portion being connected with the type bars at the forward side of the basket while those at the rear portion are connected to the type bars at the rear portion of the type basket. Each of the key levers 44 is provided with the usual finger key 47 and restoring spring 48, the key levers all being fulcrumed on a fulcrum bar 49. A rearwardly and downwardly extending arm 50 is secured to the right-hand side of the truck by which connection is effected with one end of a band 51, the other end of the band being connected to a spring drum 52.

The parts thus far described, with the exception of the details of the feed dogs, dog rocker, etc., which are conventionally represented, are of the usual construction embodied in the No. 8 Remington typewriting machine and further detailed description thereof is deemed unnecessary.

Arms 53 project rearwardly from the carriage truck and are secured thereto by screws 54 near each end of the truck. A column stop bar 55 is secured to the rear ends of the arms by screws 56. The column stop bar is provided with teeth 55^a on opposite sides thereof and with interdental spaces in which bifurcated column stops 57 are adapted to be seated, the stops being adjustable to different letter space positions along said bar in the usual manner. A supplemental tabulator frame 58 is provided with downwardly, forwardly and outwardly flaring arms 59 provided at their lower ends with bifurcated members 60, each of which is adapted to straddle the rear flange of one of the rear corner posts 3 of the main frame of the machine as best shown in Fig. 2. These portions 60 of the frame 58 are perforated for the reception of screw bolts 61 which pass through the openings in the members 60 and through corresponding openings in

the rear corner posts of the machine. Nuts 62 cooperate with the forward threaded ends of the screw bolts to secure the tabulator frame to the main frame of the machine above the base 1 thereof. A series of upright denominational stop levers 63 (Fig. 3) are arranged between the side members of the tabulator frame 58 and are pivoted on a pivot rod 64 that extends through openings in forwardly extending lugs or projections 65 in the side plates of the tabulator frame 58 and through bearing openings in corresponding lugs or projections on the denominational stop levers. These levers project upwardly in the rear of the top plate and are bent forwardly at their upper ends to provide denominational stops 66 which pass through spaces 67 (see Fig. 6) formed between spacing bars 68 supported on two rods 69 and 70 that extend between the side plates of the tabulator frame and are riveted at their ends thereto. A connecting device 71, shown in detail in Fig. 5, is provided with two parallel arms 72, each of which is bifurcated at 73 to receive one of the side arms of the tabulator frame (see Fig. 3). The pivot rod 64 for the denominational stop levers likewise passes through aligned openings 74 in the arms 72 to connect the device 71 to the tabulator frame. Projecting forwardly from the cross bar 75 which connects the side arms 72 is a forwardly projecting lug 76 off-set so that it is arranged near one of the arms 72. The arm 19 which constitutes a part of the ordinary equipment of a No. 8 Remington machine is tapped to receive the threaded end of a headed screw 77, the stem of which passes freely through an opening 78 in the lug or projection 76, so as to firmly connect the upper part of the tabulator frame to the frame of the machine. Arranged outside of the arms 72 are two upwardly extending parallel links 79 which are pivoted on the pivot rod 64 and are adapted to vibrate at their upper ends fore and aft of the machine; nuts 64^a holding the parallel arms in place on the pivot rod. The upper ends of these links are connected by a cross bar 80 that extends in front of the upper ends of the system of denominational stop levers. The left-hand end of the cross bar 80 is extended beyond its associated link 79 to form an arm 81 off-set at 82 from the axis of the bar. The outer end of this arm is pivotally connected with a link 83, the lower end of which is threaded into a block 84 pivotally mounted at 85 in a slot formed by a bifurcation in the rear end of a release lever 86 pivoted at 87 to a bracket 88 connected by a screw 89 to the top plate of the machine. The forward end of this release lever is provided with a contact shoe 90 which is normally below the feed rack 20 of the machine but is adapted when elevated to lift the feed

rack out of engagement with the feed pinion 23 and thus release the carriage from its escapement mechanism. A contractile spring 80^a may be connected at one end to one of the links 79 and at the other end to one of the side plates of the tabulator frame in order to normally maintain the bar 80 in the position shown in Fig. 1 to be actuated by a forward movement of any of the stop levers 63.

The lower ends of the denominational stop levers 63 are flared outwardly as indicated at 91 in Fig. 3 in order to bring the lower ends of the levers into alinement with the push rods 92 which are pivotally connected to the levers 63 at the lower ends thereof as indicated at 93 (Fig. 1). The push rods 92 are received in guide openings in an upright guide plate 94 having a foot piece 95 by which it is secured to a sheet metal bracket 96 by screws 97. The bracket 96 extends from side to side of the machine and bears at its ends on the base of the machine, as indicated at 98, and is provided with a central upwardly extending looped portion 99 coincident with a correspondingly shaped cut-out in the guide plate 94. Retaining cleats or brackets 100 are secured by screw bolts 101 to the bracket 96 and project beneath the inwardly extending flanges 102 on the sides of the base. It will be understood that the screw bolts 101 pass through coincident openings in the ends of the bracket 96 and in the securing cleats 100 and cooperate at their lower ends with nuts 103 by which the bracket 96 and the guide plate 94 are detachably retained in place when the nuts are tightened on the screw bolts. By loosening the nuts the retaining cleats may be turned on the bolts as pivots to release the cleats from beneath the flanges 102 on the base of the machine, and thus the bracket 96 and the guide plate carried thereby may be readily detached from the machine together with the guide plate 94. There are as many guide openings in the guide plate 94 as there are push rods 92.

Loops or hooks 104 extend rearwardly from the rear side of the guide plate 94, one of said loops or hooks being secured to the plate beneath each of the guide openings therein. These hooks or loops constitute means whereby contractile springs 105 may each be connected at one end to the guide plate and at the opposite end to a screw 106 threaded through an opening in a collar 107 which surrounds the associated push rod 92. Each screw 106 bears at its inner end against the associated push rod and secures the collar in its adjusted position along the push rod and at the same time constitutes means whereby the rear end of the associated contractile spring 105 may be connected to the push rod to normally maintain it in the forward position and restore the push rod

and the denominational stop lever controlled thereby to normal position. The push rods extend from the rear portion of the machine where they are connected with the upright denominational stop levers forwardly to the front of the machine where they pass through guide openings in a guide plate 108 connected by screws 109 or otherwise to plate-like retaining brackets 110 and 111 with intermediate spacing plates 112 between them. The lower ends of the retaining brackets 111 and 110 bear upon opposite sides of the forward cross bar 113 of the machine frame, as indicated at 114 and 115 respectively in order to detachably secure the guide plate 108 to the frame of the machine. There are as many openings in the forward guide plate 108 as there are push rods 92 but the openings instead of being arranged in a single horizontal line, as are the openings in the guide plate 94, are arranged in two rows, one above the other and are staggered so that alternating push rods may be deflected upwardly, as indicated in Fig. 1, and the denominational keys 116 arranged in two banks, one above the other and situated above the printing keys 47 and above and rearwardly of the key-board of the machine. This provides a simple and compact arrangement of the denominational keys above the key-board of the machine as will be seen from an inspection of Figs. 1 and 4; the denominational keys being situated at a position where they may be readily actuated by the operator.

The denominational keys are preferably provided with indices, as indicated in Fig. 4, to denote the denominational character of the keys. From an inspection of Figs. 1 and 2 it will be understood that the push rods 92 constitute intermediate connections between the denominational keys and the denominational stop levers and that said rods extend substantially in a horizontal direction fore and aft of the machine and extend between the upright actuating devices, connections or links 45 which connect the printing key levers 44 with the type bars. By this arrangement I am enabled to readily incorporate the tabulating attachments in existing forms of typewriting machines without modifying or materially modifying the constructional features of said machines as they now exist by intermingling, so-to-speak, features of the tabulator with parts of the typewriting machine proper. I am also enabled to incorporate the tabulating devices in the machine without adding to the dimensions of the machine itself and without interfering with the actuation of the parts of the typewriting machine proper.

It will be seen that the tabulating devices do not project beyond the outlines of the machine as defined by the base thereof. In

other words, no part of the tabulating mechanism projects rearwardly of the base of the machine or forwardly thereof, nor above the height of the machine to any appreciable extent, so that an ordinary metal case for a No. 8 Remington machine may be used as a cover for the machine with the tabulator devices applied. In short, the parts of the tabulator mechanism including the supplemental frame may be said to be compactly contained within the machine itself, and the construction is such that the tabulator devices may be readily attached to or detached from the machine when desired. Moreover, it will be noted that the tabulator keys 16 and their push rods 92 are connected to the stop levers above and back of the rear bank of character keys, and also above the key levers 44 which actuate the type bars; also that the tabulator keys are condensed and arranged in two rows at the front of the machine where they are most conveniently operable by the least hand motion of the operator; also that the push rods extend rearwardly to the stop levers in substantially parallel lines lengthwise of the machine and are connected at their rear ends to the stop levers so as to form a single row, notwithstanding their key ends are arranged in two rows; also that the points of connection of the push rods with the stop levers are all at equal distances from the fulcra of said levers so that the motions of the latter may be equal for equal movements of the push rods; and also that the supplemental frame carrying the stop levers is secured at its lower end to the upright framework of the typewriter and free from the base thereof.

From an inspection of Figs. 1 and 3 it will be understood, that the looped-like portion 99 of the bracket 96, and the corresponding cut-out in the guide plate 94, are provided to enable the pull rod or link 38 intermediate the universal bar and feed dogs, to operate properly without in any way modifying the existing construction of the typewriting machine.

In the actuation of the tabulator the desired denominational key is pushed rearwardly against the force of its spring 105, thus moving the lower end of the associated column stop lever rearwardly to project the associated denominational stop 66 forwardly into the path of a column stop 57 on the carriage. This same movement is effective to move the universal bail or bar 80 forwardly, thus transmitting movement through the link 83 to the carriage release lever 86. This movement is effective to elevate the forward end of the release lever, thus lifting the carriage feed rack out of mesh with the feed pinion 23 to release the carriage from its escapement mechanism and the carriage will be moved from left to

right under the power of the spring drum until the first column stop co-acts with the projected denominational stop to arrest the carriage in its proper denominational position. When pressure is released on the denominational key the associated spring 105 is effective to restore the push rod 92 and the associated denominational stop lever to normal positions. This enables the universal bar 80 to be restored to its normal position under pressure of its spring 80^a, thus lowering the forward end of the release lever 86 and enabling the carriage feed rack to reengage the feed pinion, thus reestablishing an operative connection between the carriage and its escapement mechanism.

Various changes may be made without departing from the spirit and scope of my invention.

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

1. In a typewriting machine and tabulating mechanism, the combination of key levers, type bars, upwardly extending actuating links between said key levers and type bars, upright tabulator stop levers at the rear of the machine and which fan outwardly at the lower ends thereof, denominational stops moved by said stop levers, push rods extending horizontally above the key levers and between said upwardly extending actuating links, and finger keys mounted on the forward ends of said push rods and arranged at the front of the machine and above the level of the key board.

2. In a typewriting machine and tabulating mechanism, the combination of printing keys, type bars, upright connections between said printing keys and type bars, tabulator stops at the rear of the machine, tabulator keys at the front of the machine, substantially horizontally disposed connections between said tabulator keys and stops and which pass between the upright connections between the printing keys and type bars, and a guide plate at the front of the machine above the keyboard and through openings in which the horizontally disposed connections move and by which they are positioned at their front ends so as to maintain the tabulator keys in two banks above the keyboard of the machine.

3. In a typewriting machine and tabulating mechanism, the combination of key levers, type bars, upwardly extending connections between said key levers and type bars, tabulator stop-levers at the rear of the machine fanning outwardly at their lower ends, tabulator keys at the front of the machine intermediate push rods between said tabulator keys and the lower ends of said tabulator stop-levers, said push rods passing horizontally between said upwardly extending connections and above said key levers, and a guide plate at the front of the machine

and above the key-board of the machine and through openings in which the push rods are adapted to move.

4. In a typewriting machine and tabulating mechanism, the combination of key levers, type bars, upwardly extending actuating links between said key levers and type bars, upright tabulator stop levers at the rear of the machine and which fan outwardly at their lower ends, denominational stops moved by said stop-levers, tabulator keys at the front of the machine above the key-board, push rods intermediate said tabulator keys and stop-levers, said push rods extending horizontally above the key levers and between said upwardly extending actuating links, and a perforated guide plate secured to the frame of the machine at the front thereof and above the key-board and through the perforations in which said push rods move and by which the tabulator keys are maintained in two banks above the key-board.

5. In a typewriting machine and tabulating mechanism, the combination with the main frame of the machine, of tabulating mechanism including tabulator stop-levers situated at the rear of the machine, a tabulator stop-lever frame in which said levers are pivoted, said stop lever frame being

within the boundaries of the machine and wholly above the base thereof, and means for securing the stop-lever frame to the rear corner posts of the main frame.

6. In a typewriting machine and tabulating mechanism, the combination with the main frame of the machine, of a supplemental frame secured at its upper portion at the top of the machine and having downwardly and outwardly branching arms which are secured at the lower portion of the machine wholly within the base lines thereof, a series of tabulator stop levers pivoted in said supplemental frame and fanning outwardly at their lower ends, a series of substantially horizontal push rods connected to the lower ends of said stop levers in a single row, and a series of tabulator keys connected to said push rods at the front of the machine; said keys, push rods and stop levers all being arranged above the base of the machine.

Signed at Prairie City, in the county of McDonough, and State of Illinois, this 4th day of January A. D. 1909.

EUGENE C. TROUSLOT.

Witnesses:

W. L. ACKERMAN,
J. LONK.