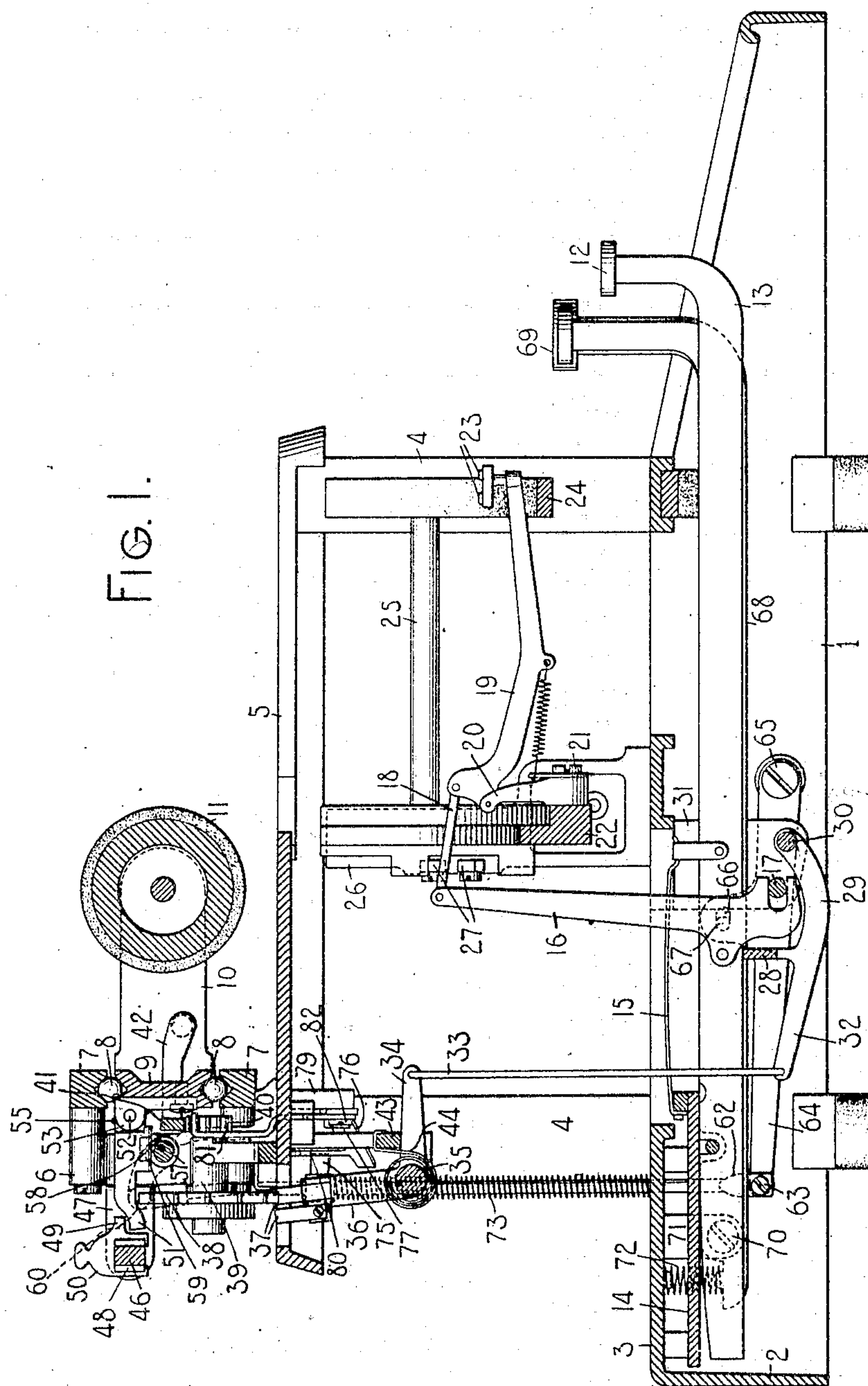


J. FELBEL.
TYPE WRITING MACHINE.
APPLICATION FILED NOV. 4, 1905.

929,664.

Patented Aug. 3, 1909.

3 SHEETS—SHEET 1.



WITNESSES:

M. F. Hannweher.

R. H. Strother.

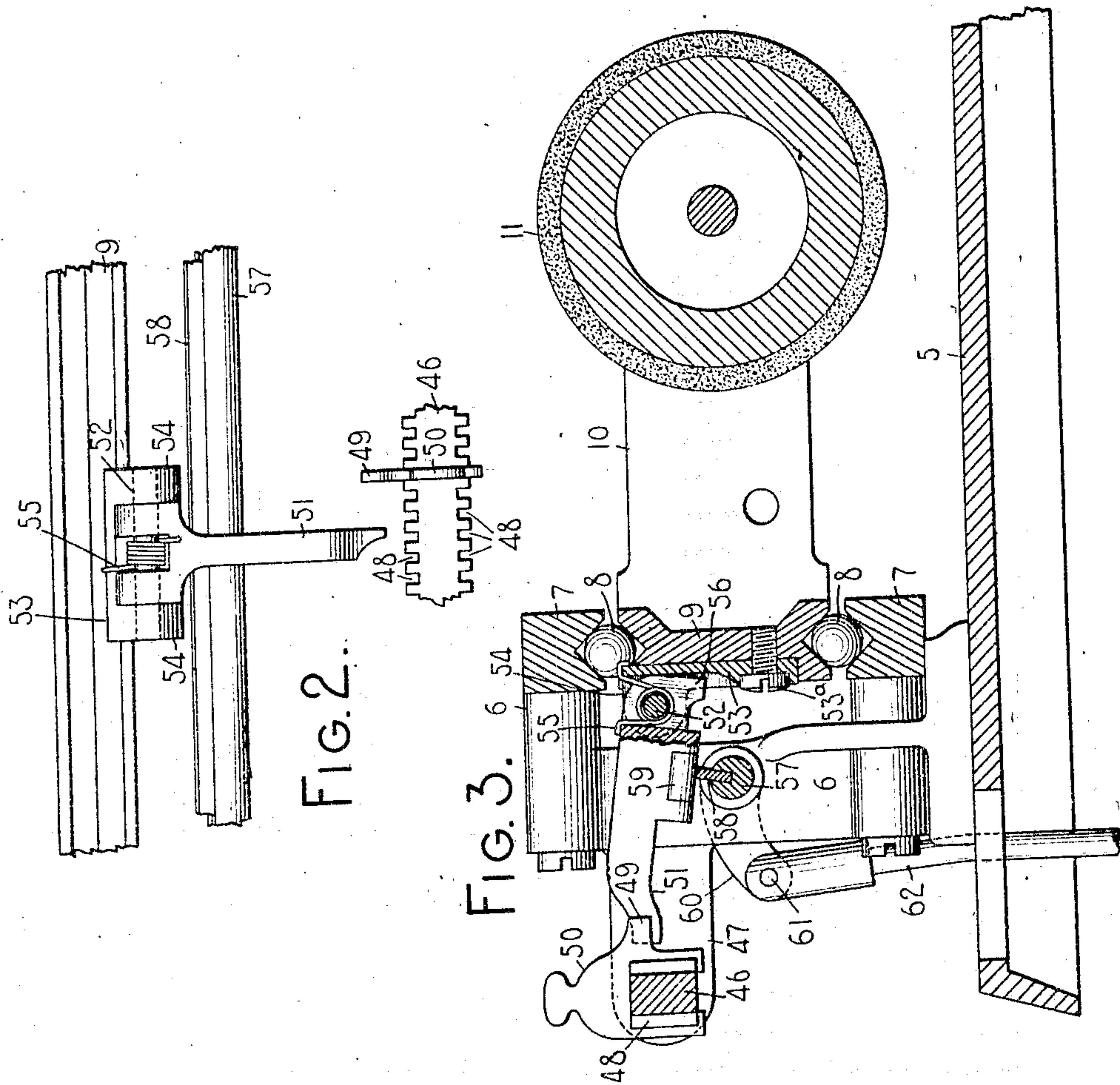
INVENTOR:

Jacob Felbel

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3 SHEETS—SHEET 2.



WITNESSES:

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INVENTOR:

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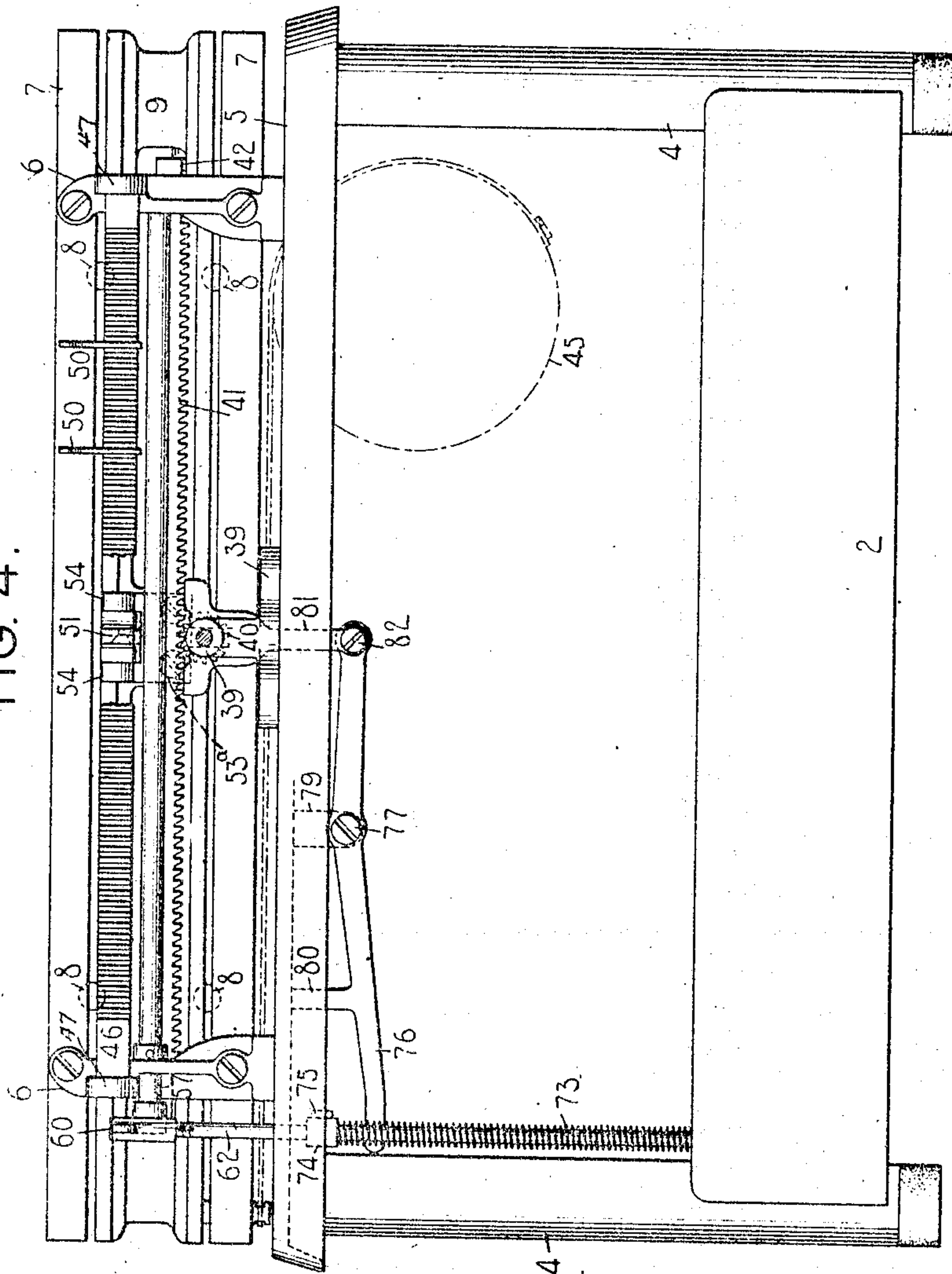
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3 SHEETS—SHEET 3.

FIG. 4.



WITNESSES:

M. F. Hammer.

R. H. Strother.

INVENTOR:

James Felbel

UNITED STATES PATENT OFFICE.

JACOB FELBEL, OF NEW YORK, N. Y., ASSIGNOR TO UNION TYPEWRITER COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

No. 929,864.

Specification of Letters Patent.

Patented Aug. 3, 1909.

Application filed November 4, 1905. Serial No. 285,840.

To all whom it may concern:

Be it known that I, JACOB FELBEL, citizen of the United States, and resident of the borough of Manhattan, city 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, of which the following is a specification.

My invention relates to typewriting machines and it has for its principal object to provide an improved tabulating mechanism for such machines.

My invention consists in certain features of construction and combinations and arrangements of parts which will be fully set forth herein and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a front to-rear vertical section of a typewriting machine having my invention embodied therein. Fig. 2 is a fragmentary top plan view of a part of the mechanism. Fig. 3 is an enlarged front to rear vertical sectional view of part of the tabulating mechanism showing the parts in operative position. Fig. 4 is a rear elevation of the machine.

My invention is applicable to typewriting machines generally, but I have here shown it applied to the Monarch typewriter. The base portion of the main frame of this machine comprises side plates 1 connected together at the rear by a back plate 2 and shelf 3. Posts 4, rising from said base portion, support a top plate 5 from which rise two posts or brackets 6 which support rails 7 having grooves or ball races in which play anti-friction balls or rollers 8 which also cooperate with the grooved back bar 9 of the carriage. Said carriage has forwardly extending arms or bars 10 in which is mounted the platen 11. Character keys 12 are mounted on the forward ends of character key levers 13 which at their rear ends rock on a pivot plate 14 supported beneath the shelf 3. The key levers 13 are provided with returning springs 15. Each of said character key levers has pivoted thereto an upstanding sub-lever 16 which extends below the key lever where it is slotted to receive a stationary fulcrum bar or abutment 17. The upper end of each of the sub-levers 16 is connected by a link 18 with one of a series of front-strike type bars 19 which are mounted in hangers 20 that are secured by means of headed

screws 21 to a segment 22. The free ends of the type bars each carry two types 23 and said free ends of said type bars normally rest against a cushioned segment 24 which is supported from the segment 22 by means of rods 25. The segment 22 is shiftable up and down by any suitable case shift device, being guided by posts 26 and its motion being limited by stops 27. A universal bar 28, lying beneath the series of character key levers, is mounted on arms 29 which are mounted on a rock shaft 30 that is pivoted at its ends in brackets 31 connected with the side plates 1. One of the arms 29 has a rearward extension 32 which is connected by a link 33 with an arm 34 projecting toward the front of the machine from a rock shaft 35. Said arm and rock shaft are parts of a dog rocker which also comprises an upstanding arm 36 having feed dogs 37 mounted on its upper end and cooperating with an escapement wheel 38 which is mounted on the rear end of a shaft that is journaled in a housing of a bracket 39 supported on the top plate 5. Said shaft at its forward end carries a pinion 40 that meshes with a feed rack 41 mounted on the rear ends of arms 42, the forward ends of which are pivoted to the side bars 10 of the carriage. The dog rocker is pivoted in the usual manner on a bracket 43 depending from the top plate 5 and said dog rocker is provided with the usual returning spring 44. The carriage is drawn across the machine by the usual spring drum 45 and its motion is controlled by the escapement mechanism above referred to.

My tabulating mechanism comprises a tabulator or column stop bar 46 which, in the present instance, is mounted on ears or brackets 47 projecting toward the rear of the machine from the posts 6. Said tabulator bar is formed on its front and rear faces with slots or notches 48 arranged at letter space intervals. The column stops 49 consist of short arms projecting toward the front of the machine from bifurcated stop pieces 50 which are adapted to be mounted on the tabulator bar 46, the legs of the bifurcation of said stop pieces fitting into any desired pair of slots 48. The column stops are adjustable lengthwise of the bar 46 by removing them from said bar and inserting them in any other desired letter space position on said bar in a manner well known in the art. The column stops 49 cooperate

with a tabulator stop 51 which consists of an arm projecting toward the rear of the machine from the back bar 9 of the carriage. Said arm is normally out of the path of the column stop or stops 49. In the present instance I have shown said tabulator stop 51 as normally standing below the level of the column stops 49. In order that said tabulator stop may at any time be raised to position to engage one of the column stops, said tabulator stop is pivoted on a pivot rod 52 mounted in a bracket 53 which is secured to the back bar 9 of the carriage by headed screws 53^a that pass through said bracket and are threaded into said back bar. The bracket 53 is formed at its upper end with two ears 54 spaced apart and the arm 51 is forked at its forward end so as to give a wide and firm bearing for said arm and to prevent displacement or injury when the stops 51 and 49 come forcibly into engagement. A returning spring 55 is coiled about the pivot rod 52 between the forks of the stop arm 51 and one end of said spring engages the bracket 53 and the other end presses the arm 51 downward into its normal position. In order to limit the downward motion of the arm 51, said arm is formed with a heel 56 that extends downward from the pivot rod 52 and is adapted to engage the bracket 53 when the arm 51 is in normal position.

In order to raise the tabulator stop 51 into position to engage one of the column stops 49 I provide a tabulator key and certain connections. Said connections include a rocking member journaled at its ends in the posts 6 and having an eccentric part lying beneath the arm 51. As here shown, said rocking member consists of a rock shaft 57, and said eccentric part of a wing or web 58 projecting from said rock shaft in such position that if the shaft be rocked toward the rear of the machine, said wing will elevate the tabulator stop to operative position. An anti-friction roller 59 is journaled in ears depending from the arm 51 and is adapted to roll along the wing 58 when the carriage is released for tabulating purposes. The rock shaft 57 has projecting therefrom toward the rear of the machine an arm 60, to the free end of which is pivoted at 61 the upper end of a link 62 which extends downward through the top plate 5 and shelf 3 and at its lower end is pivoted on a shouldered and headed screw 63 threaded into the rear end of a lever 64 which at its forward end is pivoted on a shouldered and headed screw 65 threaded into one of the side plates 1. The lever 64 is formed with a slot 66 into which a pin 67 projects from one side of a tabulator key lever 68, which at its forward end carries the tabulator key 69. The key lever 68 is pivoted at its rear end on a shouldered and headed screw 70

which is threaded into a bracket 71, depending from the shelf 3. Said key lever extends back of its pivot 70 and this rearward extension of said lever is engaged by a returning spring 72, compressed between said lever and the shelf 3. The link 62 is provided with a returning spring 73 that is coiled about said link and compressed between the back shelf 3 and a hub or collar 74 that surrounds said link and is secured in position thereon in any suitable manner. The construction is such that if the tabulator key 69 be depressed the pin 67 thereon will depress the lever 64 which, through the link 62 and arm 60, will rock the shaft 57 toward the rear of the machine and the wing 58 on said shaft engaging the roller 59 will raise the arm 51 into position to engage one of the column stops 49.

In order to release the carriage when the tabulator key is depressed the hub 74 has projecting therefrom an arm 75, which, when the link 62 is drawn downward, is adapted to engage and depress one end of a lever 76 that is pivoted on a shouldered and headed screw 77 threaded into a bracket 79 depending from the top plate 5. The return motion of the lever 76 is limited by an arm 80 of said lever engaging the top plate 5. The end of the lever 76 near the middle of the machine has the stem of a rack lifter 81 pivoted thereto on a shouldered and headed screw 82. Said stem of said rack lifter extends upward through a suitable opening in the top plate 5 and the upper end of said rack lifter is forked to embrace the reduced forward end of the housing 39 in which the escapement wheel shaft is journaled. Each of the forks of the rack lifter 81 is bent toward the front of the machine as shown in Fig. 1 and lies beneath the feed rack 41. The construction is such that when the link 62 is drawn downward by the depression of the tabulator key 69 the arm 75, engaging one end of the lever 76, raises the other end of said lever and with it the rack lifter 81 which raises the feed rack 41 out of engagement with the feed pinion 40, thus releasing the carriage and permitting it to run freely under the impulse of the spring drum 45. Meanwhile the tabulator stop 51 has been raised into position to engage one of the column stops 49. There is some lost motion between the arm 75 and the lever 76 so that the tabulator stop 51 will have been moved into position to engage a column stop before the carriage is released. When the tabulator key 69 is released the feed rack 41 returns into engagement with the feed pinion 40 and the tabulator stop 51 is moved by its spring 55 into inoperative position.

It will be observed that I have provided one or more column stops mounted on the fixed framework of the machine and a tabulator stop that is pivotally mounted on the

carriage, that said tabulator stop extends in a fore and aft direction and is movable up and down, that said movable stop is actuated by a rocking member having an eccentric part that directly engages said movable stop between the ends of the latter and that the axis of motion of said rocking member is parallel with the direction of travel of the carriage.

10 Various changes in the details of construction and arrangement may be made without departing from my invention.

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

15 1. In a typewriting machine, the combination of a carriage, a column stop bar mounted back of the carriage, one or more column stops mounted on said stop bar and each having a stop lug 49 projecting therefrom
20 toward the front of the machine, a stop pivoted on the carriage with freedom to move up and down and having its rear end normally in front of said stop bar and beneath said stop lug, a rock shaft mounted below
25 said pivoted stop and having an eccentric part adapted when the shaft is rocked to raise said pivoted stop into the path of said stop lug or lugs, a tabulator key, and connections for rocking said shaft, a lever 76
30 of the first order operated by said key, and a carriage release device operated by said lever.

2. In a typewriting machine, the combination of a carriage, upper and lower stationary rails for said carriage, standards for
35 supporting said rails, a column stop bar mounted in brackets projecting from said standards and having column stops mounted thereon, a single stop pivoted to the carriage
40 and projecting therefrom toward the rear of the machine and having its rear end normally below the stop portions of said column stops, a rock shaft pivoted in said

standards and lying beneath said pivoted stop, a tabulator key lever, a link 62 connecting said key lever with said rock shaft,
45 a lever 76 operated by said link 62, and a carriage release device operated by said lever.

3. In a typewriting machine, the combination of a carriage, a pivoted stop projecting horizontally from said carriage and having
50 an anti-friction roller 58 thereon, a rock shaft on which said roller normally rolls, a feather in said rock shaft adapted when the shaft is rocked to move up under the roller
55 58 and raise said roller and the pivoted stop, and column stops in position to be engaged by said pivoted stop when it is so raised.

4. In a typewriting machine, the combination of a carriage, upper and lower stationary rails or tracks for said carriage, a tabulator stop pivoted to said carriage between
60 said stationary rails or tracks, a column stop bar mounted on the stationary framework, one or more column stops adjustably mounted on said stop bar, a device lying between
65 the carriage and the column stop bar and parallel with the direction of travel of the carriage and under said tabulator stop and movable to lift said tabulator stop into line
70 with said column stop or stops, a tabulator key mounted in the fixed framework of the machine, connections between said key and said movable member for operating the latter
75 and the tabulator stop, and a carriage release device operated by said key.

Signed at the borough of Manhattan, city of New York, in the county of New York, and State of New York, this 3d day of
80 November A. D. 1905.

JACOB FELBEL.

Witnesses:

E. M. WELLS,
J. B. DEEVES.