

903,466.

C. GABRIELSON.
TYPE WRITING MACHINE.
APPLICATION FILED MAR. 10, 1902.

Patented Nov. 10, 1908.

4 SHEETS—SHEET 1.

FIG. 9.

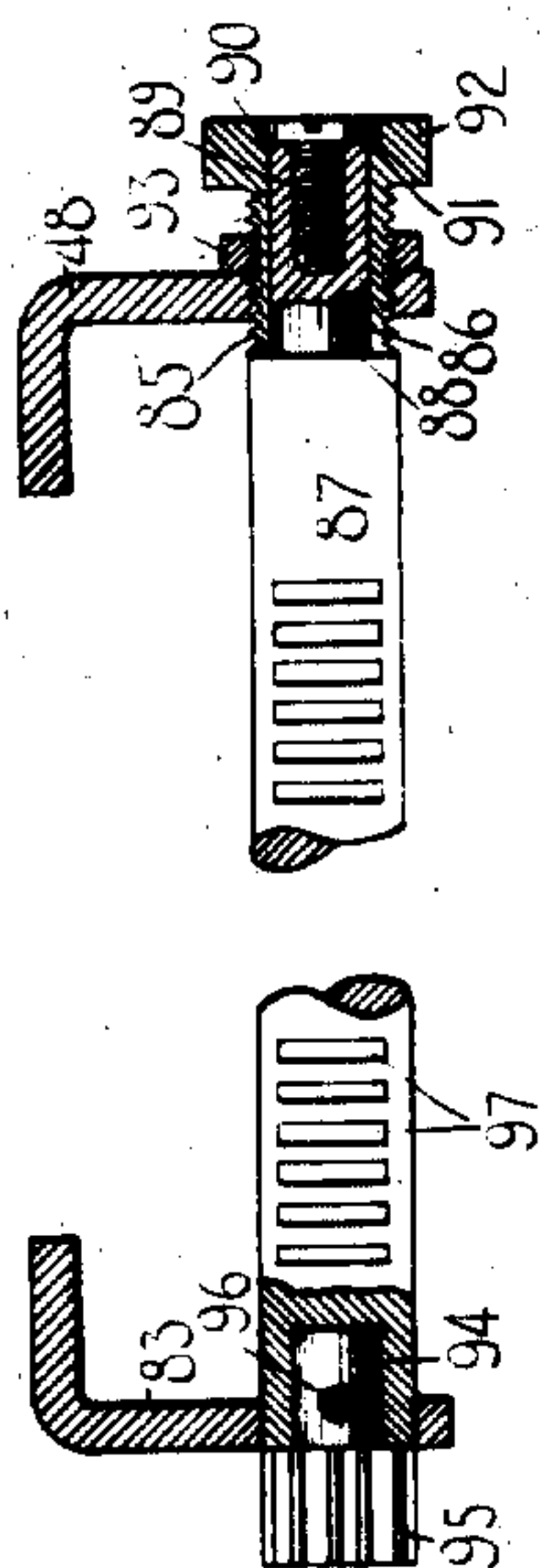


FIG. 1.

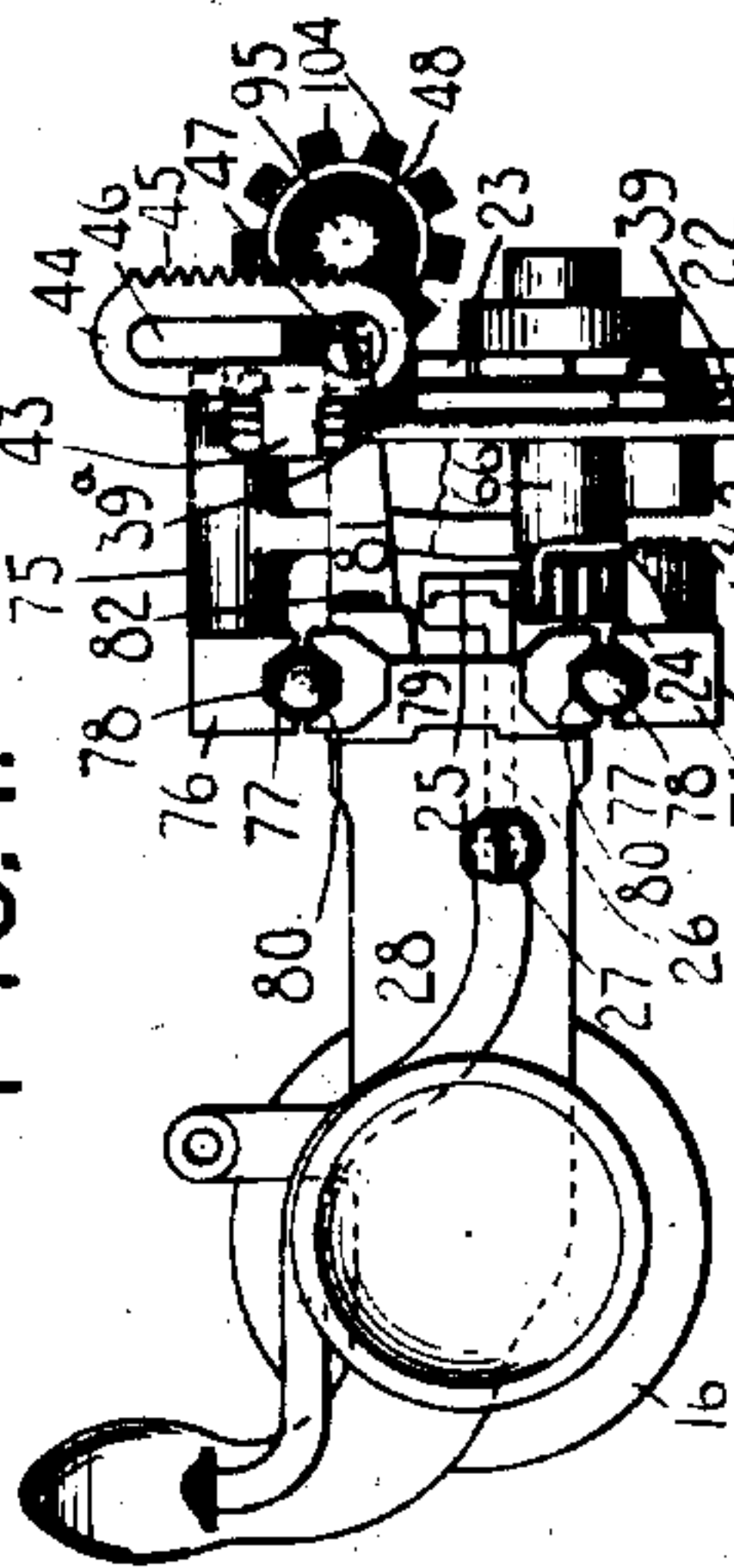
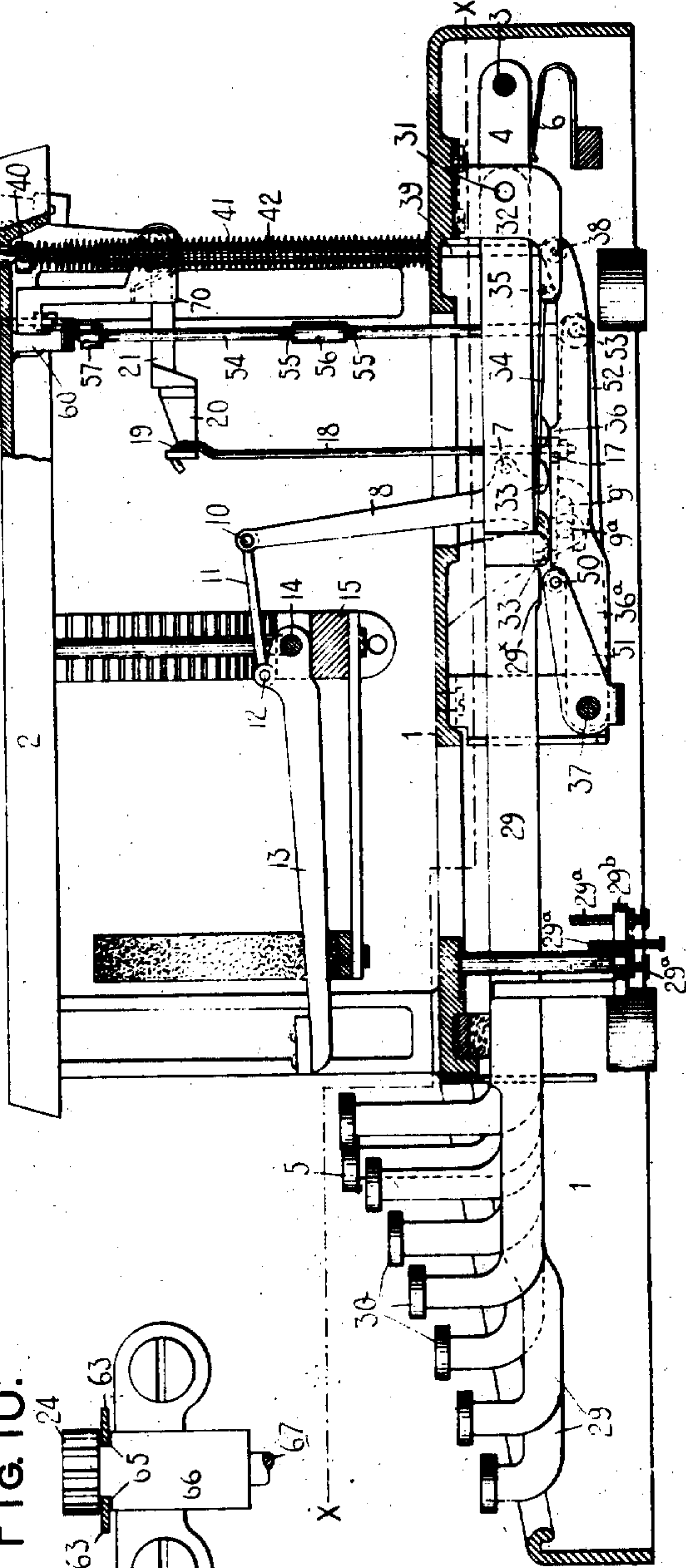
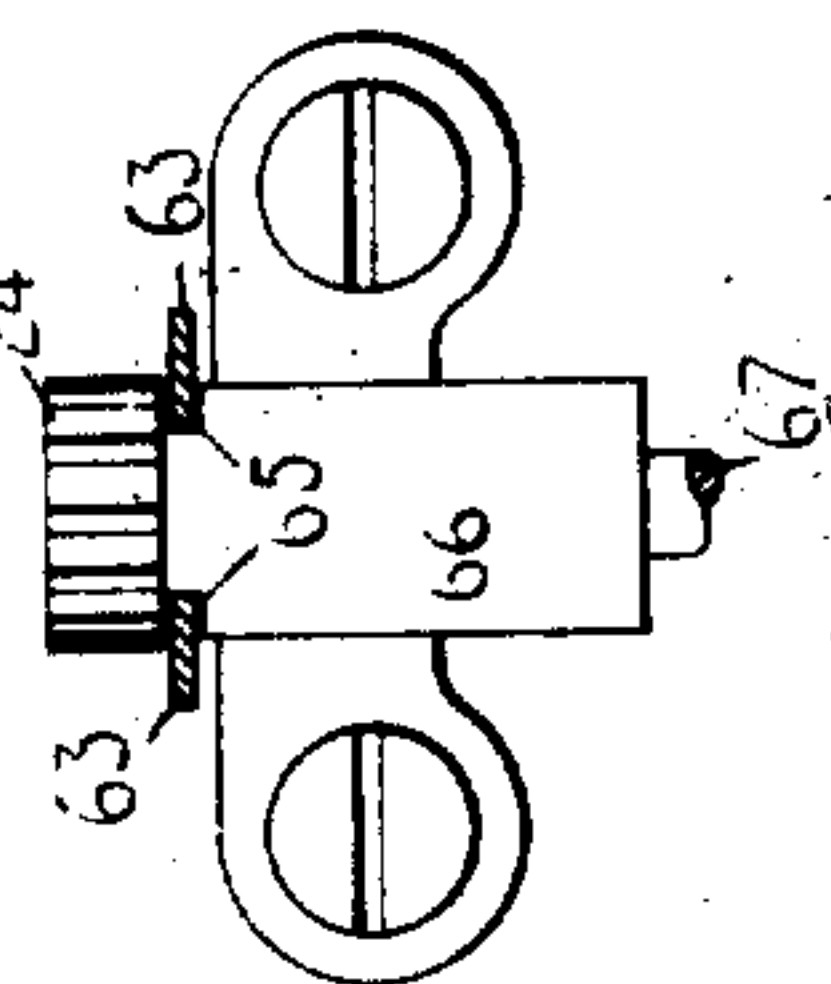


FIG. 10.



WITNESSES:

K. V. Norrman

Charles Smith

INVENTOR

Care Gabrielson

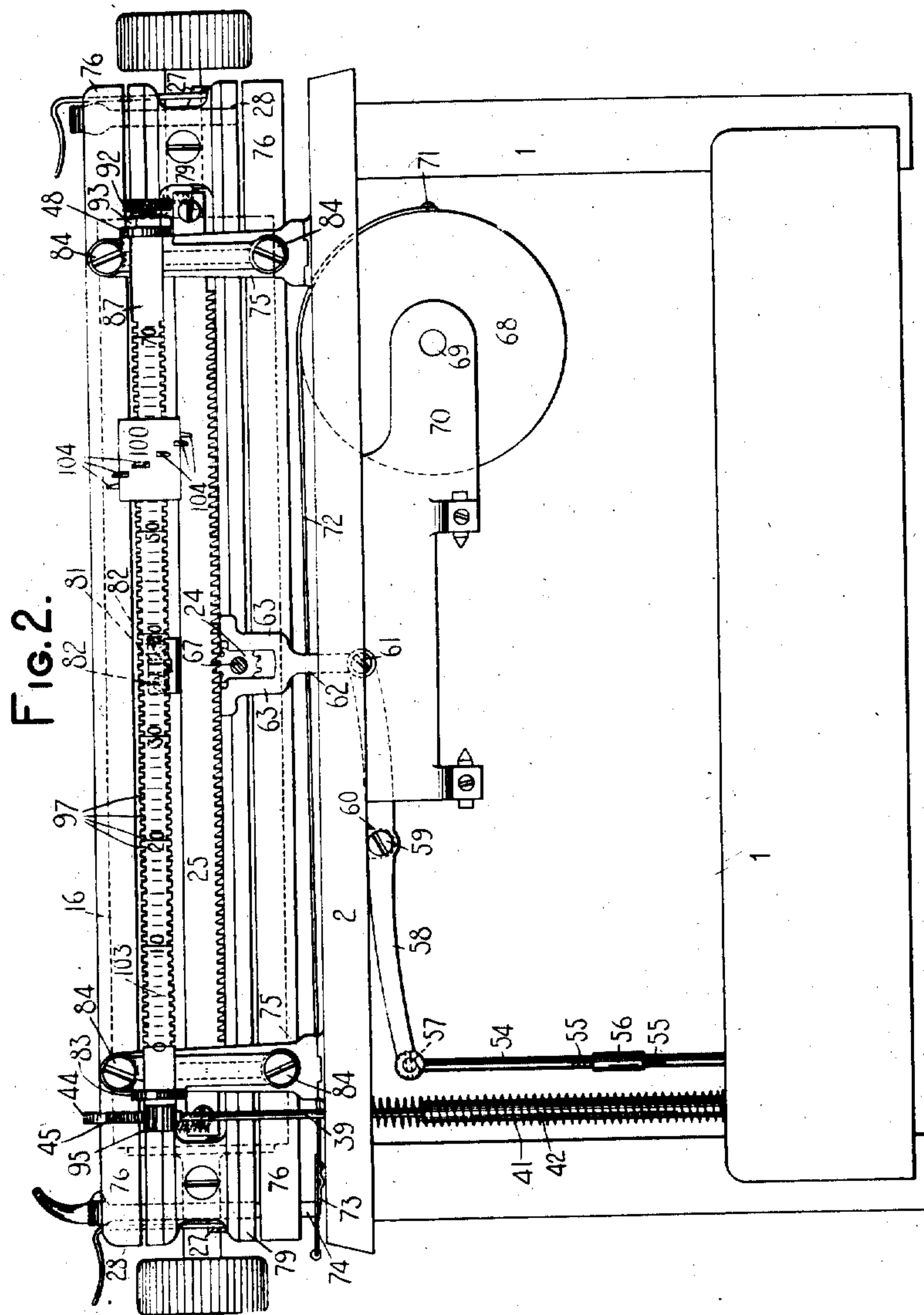
by Jacob Falck

HIS ATTORNEY

903,466.

C. GABRIELSON.
TYPE WRITING MACHINE.
APPLICATION FILED MAR. 10, 1902.

Patented Nov. 10, 1908.
4 SHEETS—SHEET 2.



WITNESSES

H. V. Donovan.
Charles Smith

INVENTOR

Carl Gabrielson
by *Jacob F. Felt*
HIS ATTORNEY

903,466.

C. GABRIELSON.
TYPE WRITING MACHINE.
APPLICATION FILED MAR. 10, 1902.

Patented Nov. 10, 1908.
4 SHEETS—SHEET 3.

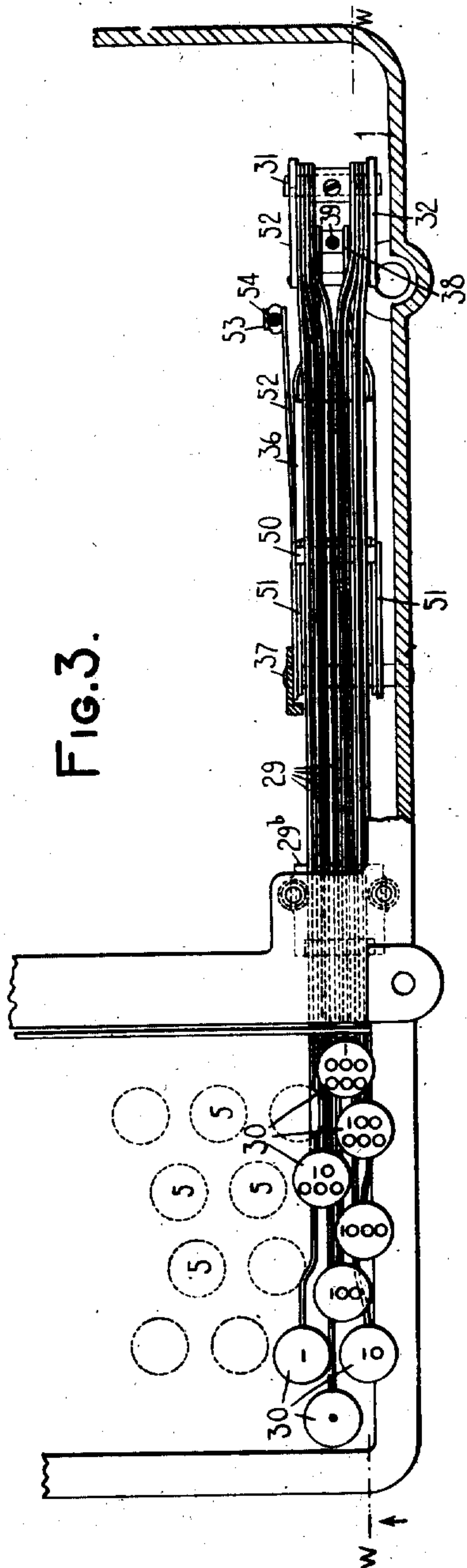


FIG. 3.

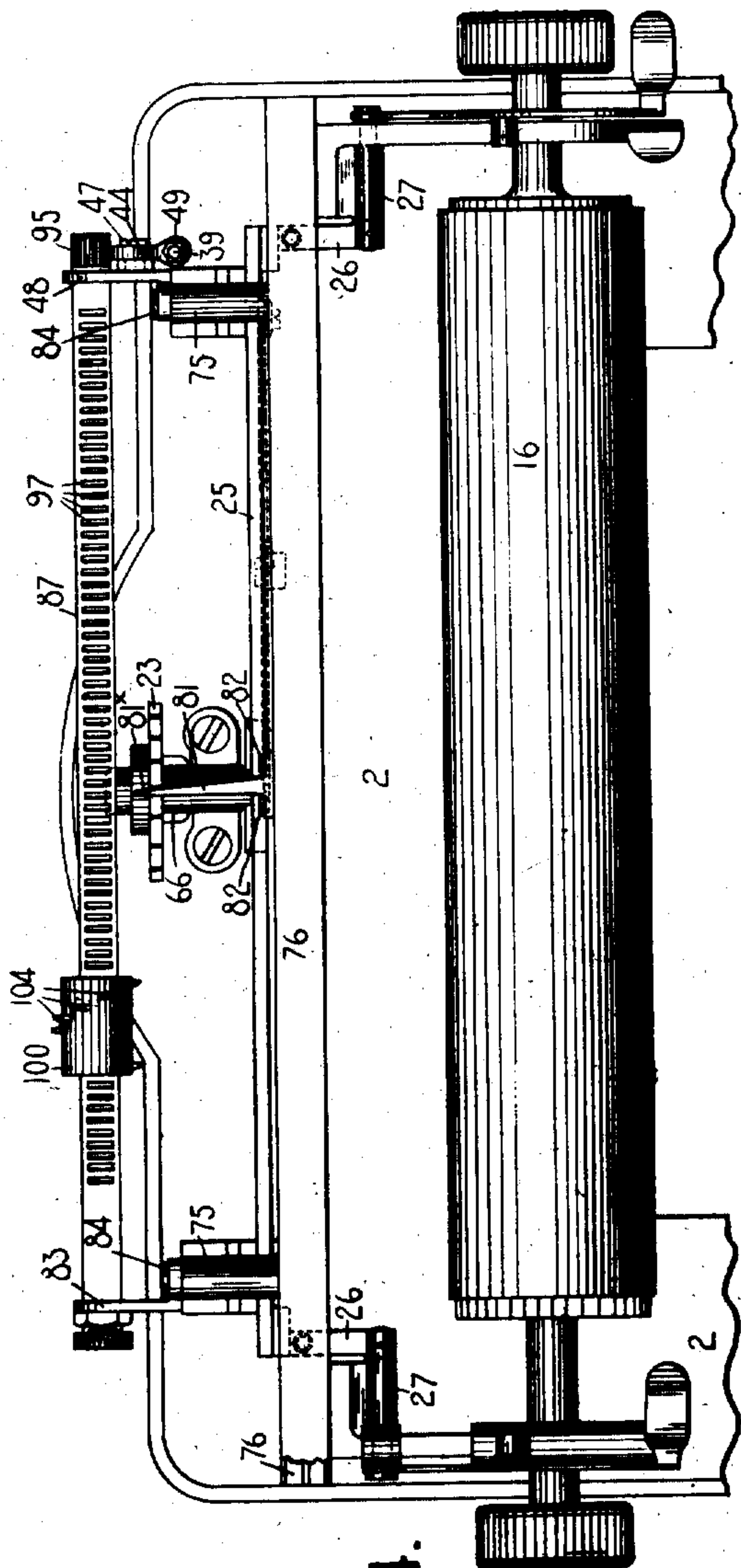


FIG. 4.

WITNESSES.

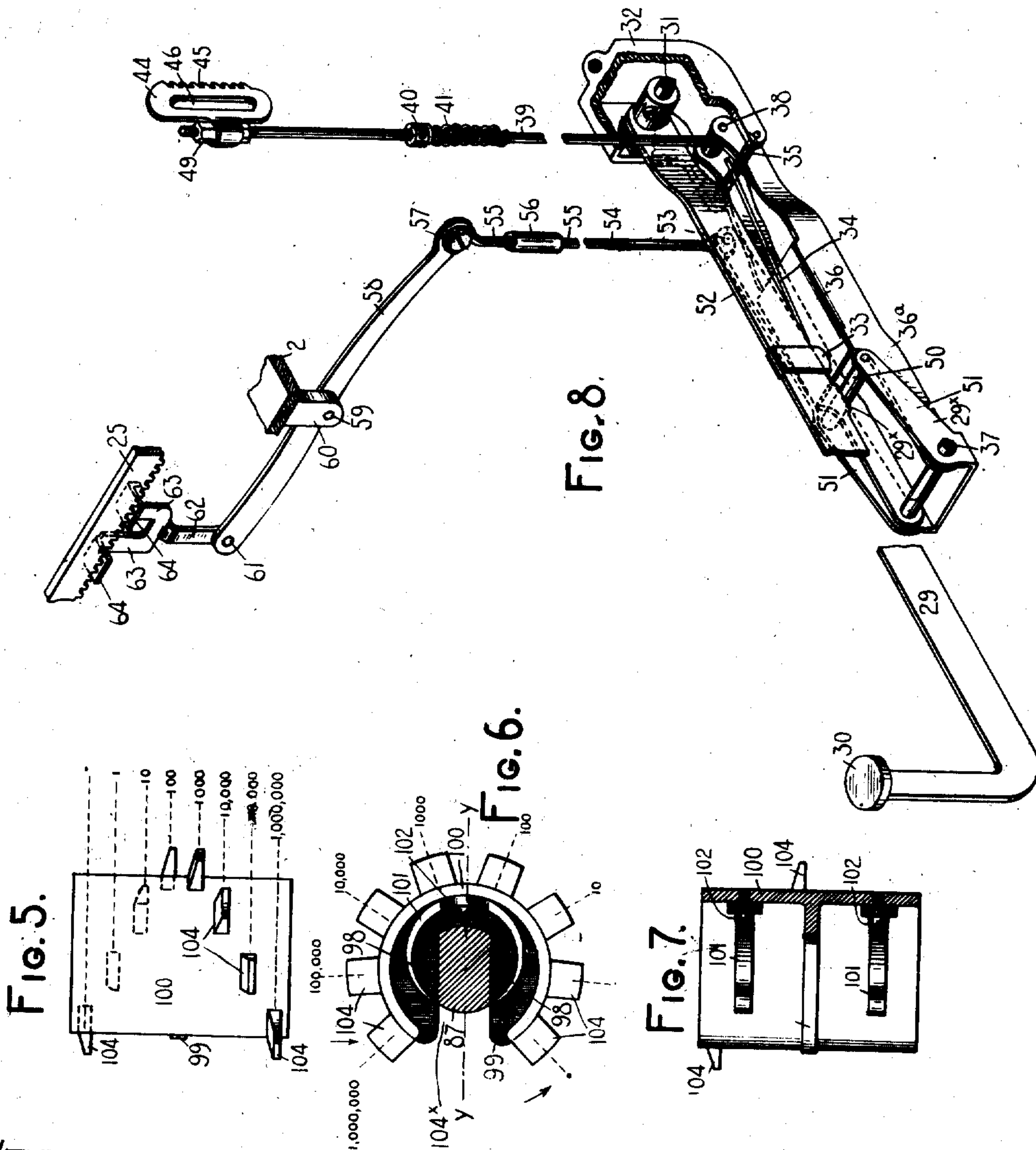
K. V. Monroan.
Charles Smith

INVENTOR.
Carl Gabrielson
By James F. Felt
HIS ATTORNEY

903,466.

C. GABRIELSON.
TYPE WRITING MACHINE.
APPLICATION FILED MAR. 10, 1902.

Patented Nov. 10, 1908.
4 SHEETS—SHEET 4.



WITNESSES:

K. V. Kinnaman
Charles Smith

INVENTOR
C. Gabrielson
by J. W. Fuller
HIS ATTORNEY

UNITED STATES PATENT OFFICE.

CARL GABRIELSON, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR TO UNION TYPEWRITER COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

No. 903,466.

Specification of Letters Patent.

Patented Nov. 10, 1908.

Application filed March 10, 1902. Serial No. 97,495.

To all whom it may concern:

Be it known that I, CARL GABRIELSON, a citizen of the United States, and resident of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to tabulating mechanism for typewriting machines and the main object of said invention is to provide simple and efficient mechanism of this description.

To these ends my invention consists in the various features of construction and arrangements and combinations of parts to be hereinafter described and particularly pointed out in the appended claims.

In the drawings, wherein like reference characters designate like parts in the various views, Figure 1 is a vertical front to rear sectional view, partly in elevation, of one form of typewriting machine embodying my invention, the section at the lower portion of said view being taken on the line *w—w* of Fig. 3. Fig. 2 is a rear elevation of the same. Fig. 3 is a fragmentary horizontal sectional view of a portion of the tabulating mechanism, the section being taken on the line *x—x* of Fig. 1. Fig. 4 is a plan view of the rear portion of the machine, with the tabulating mechanism applied thereto. Fig. 5 is an enlarged detail plan view of the denominational stops and their carrier. Fig. 6 is a transverse sectional view through the stop carrying rod with the denominational stops and carrier secured in place thereon. Fig. 7 is a longitudinal sectional view of the stop carrier and denominational stops; the section being taken on the line *y—y* of Fig. 6. Fig. 8 is a detail perspective view of a portion of the tabulating mechanism. Fig. 9 is a horizontal sectional view of the stop carrying rod and the brackets in which it is supported. Fig. 10 is a detail top view, partly in section, of the feed pinion and the bearing for the shaft thereof; the view illustrating the manner in which the rack releasing yoke or rack raiser is guided in its vertical movement.

Referring particularly to Fig. 1 of the drawings, 1 indicates the frame of the machine which is surmounted by a top plate 2 that constitutes a portion thereof, and this frame has pivoted at 3 therein the key levers

4 provided with finger keys 5 and are restored to the normal position by springs 6. Each of these key levers has pivoted thereto at 7 a sub-lever or bell crank 8 that is slotted at 9 in the depending arm thereof for co-operation with the fulcrum bar 9^a, whereas the upwardly extending arm of each lever 8 has pivoted thereto at 10, a link 11 which in turn is pivoted at 12 to a type bar 13. The various type bars are pivoted at 14 in a segment 15 and are adapted to strike upwardly and rearwardly against the platen 16. Extending beneath the key levers is a universal bar 17 which is connected at its ends to rods or links 18, that in turn are operatively connected at 19 to a transverse curved bar 20 that is carried by the crank arm 21 secured to the rock shaft of the feed dog carrier, which latter carries the usual feed dogs 22 that cooperate with an escapement wheel 23 which is operatively connected to a feed pinion 24 in the same general manner as in the well-known No. 6 Remington machine. The feed pinion 24 cooperates with a feed rack 25 that is supported and adapted to swing with the arms 26 which are pivoted at 27 to the carriage 28, in which the platen 16 is mounted to rotate, the parts thus far referred to being constructed and arranged substantially as shown and described in the patent to Jacob Felbel No. 657,927, dated Sept. 18, 1900.

Upon reference to Figs. 1, 3 and 8 it will be seen that a series of tabulator or denominational key levers 29 are located at the right-hand side of the machine and each key lever which extends to the keyboard of the machine is provided with a finger key 30. These key levers are pivoted upon a rod 31 secured to a depending fixed bracket 32 which is secured to the base of the machine. Each of the tabular key levers 29 is provided with a depending U-shaped contact piece 33, which is secured to the key lever so as to leave a space between the bottom of the lever and the loop in piece 33 for the reception of one end of a spring 34 so as to connect the spring to the associated key lever, the opposite or free end of each spring bearing upon a cross bar 35, which is supported by the fixed bracket 32. The lower or contact face of each projecting piece or abutment 33 is preferably rounded as indicated in Figs. 1 and 8.

Upon reference to Fig. 1, it will be ob-

served that the various abutments 33 on the tabular key levers are located at varying distances from the pivot rod 31 of said levers, and beneath the various tabulating key levers extends a cross-head or plate 36 provided with integral side arms 36^a so as to constitute a universal frame which is mounted on a fixed pivot rod 37. The various abutments 33 being connected to their key levers at varying distances from the pivot rod 31 thereof are therefore adapted to contact with the plate 36 at varying distances from the pivot rod 37 thereof so as to transmit a variable depression to the part 36, and the various tabular key levers are likewise adapted to receive varying degrees of depression, each key lever being limited in its downward movement by an adjustable stop or pin 29^a, which is threaded and is received within a threaded opening in a fixed bracket 29^b, the various stops extending to different heights as shown in Fig. 1. The rear ends of the arms 36^a are united by a pivot 38 which connects the swinging end of this pivoted vibratory frame carrying the cross plate 36 to an upwardly extending rod 39 that carries an adjustable sleeve 40 against which the upper end of an expansion spring 41 bears. This rod extends upwardly through openings in the base and in the top plate of the machine and the base is provided with an upwardly extending sleeve 42 which surrounds the rod and the lower flanged end of said sleeve constitutes an abutment against which the lower end of the spring 41 bears, as shown in Fig. 1.

The upper end of the rod 39 is screw-threaded at 39^a and receives a threaded collar 43 which projects from a piece 44, which is provided at one edge thereof with a vertically arranged rack 45 and has a vertical slot 46 for the reception of the stem of a headed screw 47, the stem of which is threaded into an opening in one of the carriage supporting brackets 48 and limits the vertical movement of the piece or rack carrier 44, and the head of the screw prevents a lateral or outward movement thereof. The carrier 44 may be secured in its adjusted position on the rod 39 which carries it by jam nuts 49 located on the rod above and below the collar of the carrier.

From the foregoing description it will be understood that the spring 34 tends to maintain the tabular key levers 29 in the normal or elevated position, whereas the expansion spring 41 tends to elevate the cross head 36 and to maintain the rack 45 and the associated parts in the normal position represented in Fig. 1 of the drawings. Each of the tabular key levers 29 is provided with a lug or projection 29^c which is adapted to contact with a cross bar 50 which extends beneath them and which is carried by a

frame 51 that is pivoted on the rod 37. The various projections 29^c extend downwardly from their levers to varying extents for purposes which will hereinafter appear. This frame 51 has a rearwardly extending arm 52 on one side thereof and to the free end of which is pivoted at 53 an upwardly extending link or rod 54. The rod 54 is preferably a two-part rod, the separate parts of which are threaded at 55 with right and left-hand screw-threads that cooperate with a turn-buckle 56, by means of which the link can be lengthened or shortened, and thus vary the timing of the release of the carriage, as will presently appear. The upper end of this link 54 is pivoted at 57 to one end of a horizontal lever 58 that in turn is pivoted at 59 to a depending bracket 60 which extends down from the top plate 2 of the machine. The opposite end of this lever 58 is pivoted at 61 to a so-called rack releasing yoke, rack raiser or disengaging piece 62, that is provided with arms 63 which terminate in angular projections 64 that extend beneath the pivoted feed rack 25, and the arms themselves are received within guiding recesses 65 (see Fig. 10) formed in the sides of the bearing 66 for the shaft 67 that carries the feed pinion 24. It will thus be seen that the releasing yoke 62 is guided in its vertical movement by the arms 63 thereof moving in the grooves 65.

When any tabular key is depressed to actuate the rack 45, through the cross plate 36, it will depress the cross bar 50 and the universal frame 51 to which it is connected, thus vibrating the lever 58 on its pivot and causing the rack raiser 62 to be elevated. This results in raising the feed rack 25 out of engagement with the feed pinion 24 and thus freeing the carriage from the escapement mechanism, when it may be propelled in the direction of its feed by the spring drum 68 that is journaled at 69 in a bracket 70 which is secured to the frame of the machine and constitutes a support for the rock-shaft of the feed dog rocker. To this drum is connected at 71 one end of a band 72 which has its opposite end secured at 73 to a depending arm 74 that extends from the carriage 28.

Brackets 75 are secured to the top plate and carry the fixed traverse rails 76 that are provided with oppositely disposed race-ways 77 in which anti-friction balls 78 may travel and the carriage 28 is likewise provided with a longitudinally extending bar 79 that carries oppositely disposed longitudinally extending race-ways or tracks 80 that likewise cooperate with the anti-friction balls 78 and thus support the carriage in place; suitable stops being provided to prevent the escape of the balls and limit the endwise run of the carriage.

The bar 79 carries a tabulating stop 81, 130

that is preferably beveled on one face as indicated at 81* in Fig. 4, and may be rigidly secured thereto at 82 and projects rearwardly therefrom as indicated in Figs. 1 and 4.

The brackets 75 constitute supports to which the auxiliary brackets 48 and 83 may be secured by screws 84 and the bracket 48 has a threaded opening therein (see Fig. 9) for the reception of an externally threaded collar 85 whose cylindrical bore receives the reduced portion 86 of the stop rod 87.

A shoulder 88 bears against the inner end of the sleeve 85 and thus limits the movement of the rod or bar 87 with relation to the sleeve in one direction. The end of the reduced portion 86 has a threaded opening for the stem of a screw 89 whose head is seated in a recess 90 formed at the outer end of the collar or sleeve 85, and the wall 91 of this recess forms a stop or shoulder for the head of the screw 89 and thus prevents a longitudinal movement of the stop rod to the left in Fig. 9.

The sleeve or collar 85 may be provided with a knurled head 92 by means of which the rod may be adjusted longitudinally with relation to the fixed brackets 48 and 83, and the sleeve may be secured against accidental displacement in its adjusted position by a jam nut 93.

The opposite end of the stop rod 87 has a recess in which is seated a stud 94 that projects from one side of a pinion 95. A pin 96 passes through openings in the stop rod 87 and in the stud 94 to secure the stop rod and pinion together. The cylindrical end of the stop rod 87 adjacent the pinion is seated within a corresponding opening in the bracket 83, so that the stop rod is free to turn in its bearings, one bearing being formed in the bracket 83 and the other in the sleeve 85.

The pinion 95 meshes with the rack 45 hereinbefore described and the varying dip given to the different tabular or denominational keys turns the rock shaft or stop rod 87 to different extents for purposes which will hereinafter more clearly appear. The stop rod 87 is kerfed at 97 on opposite sides thereof and the adjacent walls 92 are flat and parallel and adapted to cooperate with the centrally disposed flanged or forked portion 99 of a segmental or arc-shaped denominational stop carrier 100.

Two C-springs 101, one on each side of the fork 99, are secured centrally within the segmental carrier by screws 102. These springs constitute clamping devices which are adapted to partly surround and embrace the stop rod at the cylindrical portions thereof as indicated in Fig. 6, the free ends of the springs engaging the rod below its center or widest portion and maintaining

the stop carrier against accidental lateral displacement from the rod or bar.

The kerfs 97 are preferably disposed letter space distances apart and a scale 103, that corresponds to the carriage scale or the number of letter space distances that the carriage travels, may be provided upon the rear face of the stop rod to facilitate the proper adjustment of the stop carrier 100. It will likewise be understood that when the flange 99 of the stop carrier engages the kerfs in the stop rod, it is prevented from longitudinal movement thereon and is caused to turn or rotate therewith.

The outer face of the stop carrier 100 is provided with a series of radiating denominational stops 104 which are in different lines parallel with the travel of the carriage and which are segmentally arranged so as to provide a space between the terminal stops, as indicated at 104* in Fig. 6. The denominational stops are likewise spirally arranged and extend from the stop-carrier in planes which are transverse to the stop rod and said stops are situated letter space distances apart to arrest the carriage at different denominational positions, the intervening spaces between the stops permitting the denominational stops to pass the tabulating stop 81 during the transverse or rotary movement of the former, in case the stop rod should be turned when the denominational stop carrier is opposite the stop 81.

The stops 104 are each preferably beveled on one face and in a direction opposite to the bevel on the stop 81 so as to facilitate this relative transverse movement of the stops without materially reducing the thickness of the stops. It should be understood that in the normal position of the parts, when the tabulator mechanism is out of operation, the tabulating stop 81 travels in a longitudinal direction through the space 104* formed between the terminal denominational stops on the carrier 100.

The denominational keys, which in the present instance are eight in number, correspond to the number of denominational stops provided on the carrier 100 and each key is adapted to turn the rock shaft or stop rod to a different extent, so as to bring the particular denominational stop thereon which corresponds to the denominational key actuated into the path of the tabulating stop 81 on the carriage and thus arrest the carriage at the denominational position for which the particular key actuated is provided. Thus, for instance, the tabular key, which is shown in Fig. 3 as provided with a decimal point, will turn the stop rod to bring the last stop thereon, counting from the bottom terminal stop in Fig. 5, into the path of the tabulating stop on the carriage, whereas the tabular key provided with the numeral "1" thereon and

which is for the units position will turn the rock shaft or stop rod 87 to bring the seventh denominational stop carried thereby into the path of the tabulating stop on the carriage, and so on, throughout the remaining denominational keys, these various denominational stops being indicated in Figs. 5 and 6 with indices which correspond to the particular denominational positions for which they are provided.

It will be seen that the depression of any denominational key will not only effect a turning of the rock shaft to bring the corresponding denominational stop thereon into the path of the tabulating stop on the carriage but that it will likewise, after these movements of the parts, cause the carriage feed rack 25 to be elevated and disengaged from the feed pinion 24, thereby releasing the carriage, when it will be propelled by its spring drum in the direction of its feed until arrested by the tabulating stop on the carriage striking the particular denomination stop which has been selected and turned into the path of travel of the stop on the carriage.

It has been explained that the various denominational key levers have the projections 33 thereon located at different distances from the pivot 31 of said levers and that the different denominational key levers have different extents of depression in order that a variable throw may be imparted to universal frame 36—36^a and thus transmit a variable extent of vertical movement to the rack 45 which is effective to turn the rock shaft 87 to varying extents to bring the different denominational stops 104 into the path of the tabulating stop 81 on the carriage. The feed rack should not be disengaged from its pinion 24, until the selected denominational stop has been interposed in the path of the tabulating stop, and for this reason the projections 29^x on the different denominational key levers extend to different depths therefrom in order that the universal bar 50 may be taken up and actuated at the proper interval during the depression of the denominational key levers. The extent of each projection 29^x will therefore depend upon the dip of the associated key lever, or the extent that parts must be moved to bring the associated denominational stop into the path of the tabulating stop. Thus for instance, the denominational key lever for the decimal point will have the greatest dip and will move the co-operating parts to the greatest extent to turn the last denominational stop (or that which is located the furthest to the left) into the path of the tabulating stop and therefore the denominational key lever for the decimal point will have the shortest projection 29^x in order to permit the denominational stop carrier to be moved to its maximum before the carriage is released.

In the operation of the device, the de-

nominal stop carrier is first adjusted to the proper position upon the rock shaft where it is desired to write the column of figures, so as to define the right-hand side or limit of the right-hand column to be written on the paper. Thus, for instance, we will assume that the decimal point of each column is to be written at the point "60". The denominational stop carrier will then be adjusted to a position on the rock shaft which will bring the last stop or that for the decimal point opposite the numeral "60" on the rock shaft 87. We will further suppose that the operator desires to first write "1000". The denominational key bearing the inscription "1000" is actuated and the denominational stop carrier is turned in the direction of the arrow in Fig. 6 and the fifth denominational stop thereon, counting from the lowermost terminal stop, is brought into the path of the tabulating stop on the carriage and the same movements of the parts will release the carriage after the proper denominational stop has been interposed in the path of the tabulating stop, and the carriage will be arrested at the fifth denominational position. The denominational key is then released and the operator will depress the proper key levers to write the numeral "1" and three naughts, during which the carriage will have the usual step-by-step feed imparted to it by reason of the fact that the feed rack was reengaged with the feed pinion upon releasing the denominational key. If the decimal denominational key is depressed, the carriage will be released and arrested at the sixtieth position on the carriage or when this part of the platen is in register with the printing point. If, however, the units key be depressed, the carriage will be arrested one step or letter space distance in advance of the sixtieth position. If the tens key be depressed, the carriage will be arrested two spaces in advance of this position and so on up to the highest denominational key, which in this case is millions, and when the last mentioned key is actuated, the carriage will be arrested seven letter space distances in advance of the point "60" or at "53" on the carriage scale, so that when the amount "1,000,000" has been written, the sixtieth point will be brought into alinement with the printing center. From this it will be seen that the carriage has a greater length of jump or travel when the lower denomination keys are actuated than when the higher ones are used, for if the carriage be at "40" when the units key is actuated, the carriage will skip from "40" to "59", (assuming the denominational stop carrier be in the position above described) whereas if the millions key be employed, the carriage will skip from "40" to "53". Hence the denominational stops 104 are arranged with the decimal

stop at the left-hand end of the spiral, looking from the front of the machine, the carriage being arranged in this instance to travel from right to left. In practice, the release of the carriage is so timed that the selected denominational stop may be turned to the proper position in the path of the tabulating stop before the carriage is in motion or before it can move far enough to properly engage one of the other denominational stops in the rotation of the set of stops to bring some particular stop to a position to arrest the carriage.

While I have shown and described in detail one form or embodiment of my invention, it should be understood that various changes may be made without departing from the spirit thereof. I have shown the denominational stop carrier adjustable along its rocking rod or bar to regulate the positions of the columns, though obviously the tabulating stop may be made the adjustable stop for this purpose; and while only a single denominational stop carrier and a single tabulating stop are shown a plurality of either of such parts may be employed.

Various features shown and described herein are claimed in two companion cases filed of even date herewith and bearing Serial Nos. 97,493 and 97,494.

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

1. In a typewriting machine and tabulating device, the combination of a carriage, a stop rod which is carried by the frame of the machine and which extends in the direction of the travel of the carriage, a plurality of denominational stops carried by said stop rod and situated letter space distances apart, a cooperating tabulating stop carried by the carriage, key actuated means for moving a denominational stop into the path of the tabulating stop and thereby determining the proper denominational position at which the carriage is to be arrested, and means for releasing the carriage when a denominational stop is moved into the path of the tabulating stop.

2. In a typewriting machine and tabulating device, the combination of a power driven carriage, a rock shaft which is carried by the frame of the machine and which extends in the direction of the travel of the carriage and is fixed against longitudinal movement, a plurality of denominational stops fixed to said rock-shaft and extending in different directions therefrom, a tabulating stop which is carried by the carriage and which cooperates with the denominational stops, means for rocking said rock shaft, and means for releasing the carriage when the rock shaft actuating means are operated, and a denominational stop is moved into the path of the tabulating stop.

3. In a typewriting machine and tabulat-

ing device, the combination of a power driven carriage, a rock shaft which is carried by the frame of the machine and which extends in the direction of the travel of the carriage and is fixed against longitudinal movement, a plurality of denominational stops adjustable along said rock shaft to different fixed positions and which extend in different directions therefrom, a tabulating stop which is carried by the carriage and which cooperates with the denominational stops, means for rocking said rock shaft, and means for releasing the carriage when the rock shaft actuating means are operated.

4. In a typewriting machine and tabulating device, the combination of a power driven carriage, radially and segmentally arranged denominational stops, a cooperating tabulating stop on the carriage, key actuated means for rotating the denominational stops into cooperative relation with the tabulating stop to arrest the carriage, and means for releasing the carriage when the denominational stops are moved into cooperative relation with the tabulating stop.

5. In a typewriting machine and tabulating device, the combination of a power driven carriage, radially arranged denominational stops which are carried by the frame of the machine, a cooperating tabulating stop which is carried by the carriage, key actuated means for moving the stops into cooperative relation to arrest the carriage at different denominational positions, and means for releasing the carriage when said key actuated means are operated.

6. In a typewriting machine and tabulating device, the combination of a power driven carriage, a rock shaft which is carried by the frame of the machine and which extends in the direction of the travel of the carriage, spirally arranged denominational stops which are adjustable to different fixed positions along said rock shaft, a cooperating tabulating stop which is carried by the carriage, key actuated means which extend to the keyboard of the machine for rocking the shaft to different extents to bring any of the denominational stops into the path of the tabulating stop on the carriage to arrest the carriage at different denominational positions, and means for releasing the carriage when said key actuated means are operated.

7. In a typewriting machine and tabulating device, the combination of a power driven carriage, a rock shaft which is carried by the frame of the machine and which extends in the direction of the travel of the carriage and is fixed against movement in a longitudinal direction, radially and spirally arranged denominational stops which are adjustable along said rock shaft to different fixed positions, a cooperating tabulating stop which is secured to the carriage, key actuated means which extend to the key board

- of the machine for rocking the shaft to different extents to bring any of the denominational stops into the path of the tabulating stop on the carriage to arrest the carriage at different denominational positions, and means for releasing the carriage when said key actuated means are operated and after a denominational stop has been interposed in the path of the tabulating stop.
8. In a typewriting machine and tabulating device, the combination of a power driven carriage, a plurality of denominational stops with intervening spaces between them and which are adapted to be moved to different extents transversely of the travel of the carriage to arrest it at different denominational positions, a cooperating tabulating stop, and means for releasing the carriage when said stops are in cooperative relation.
9. In a typewriting machine and tabulating device, the combination of a power driven carriage, a stop rod, a plurality of denominational stops, a carrier for all of said denominational stops, means for adjusting said carrier to different fixed positions along the stop rod, a cooperating tabulating stop, and means for interposing said denominational and tabulating stops one in the path of the other.
10. In a typewriting machine and tabulating device, the combination of a power driven carriage, a plurality of denominational stops secured together at letter space distances apart, means for adjusting said denominational stops in the direction of the travel of the carriage, a cooperating tabulating stop, and means for releasing said carriage when the stops are in cooperative relation.
11. In a typewriting machine and tabulating device, the combination of a power driven carriage, a tabulating stop carried by the carriage, a plurality of spirally and radially arranged rotative denominational stops which are carried by the frame of the machine, a plurality of keys at the keyboard of the machine for rotating said denominational stops to different positions, and means for releasing said carriage when any of said keys is actuated to move the denominational stops.
12. In a typewriting machine and tabulating device, the combination of a carriage, a tabulating stop, a stop rod which extends in the direction of the travel of the carriage, a plurality of radially, spirally and segmentally arranged denominational stops carried by an adjustable to different fixed positions along said stop rod, and a plurality of keys for rotating said stop rod to turn any of the denominational stops to a position to cooperate with the tabulating stop.
13. In a typewriting machine and tabulating device, the combination of a power driven carriage, a tabulating stop which is carried by the carriage, a rotatable stop rod which extends in the direction of the travel of the carriage and is carried by the frame of the machine, a plurality of spirally and segmentally arranged denominational stops carried by said stop rod, a plurality of keys at the keyboard of the machine for rotating said stop rod to turn any of the denominational stops thereon into the path of the tabulating stop, and means for releasing the carriage when any one of said keys is actuated to move the denominational stops.
14. In a typewriting machine and tabulating device, the combination of a power driven carriage, a tabulating stop, a rock shaft which extends in the direction of the travel of the carriage, denominational stops carried by and adjustable along said rock shaft, a pinion on said rock shaft, a rack which meshes with said pinion, a plurality of keys for moving said rack to different extents to bring different denominational stops into cooperation with the tabulating stop, and means for releasing the carriage when the key actuated means are actuated.
15. In a typewriting machine and tabulating device, the combination of a carriage, step-by-step carriage feed mechanism, a tabulating stop carried thereby, a rock-shaft which extends in the direction of the travel of the carriage and which is carried by the frame of the machine, denominational stops carried by said rock-shaft, a pinion on said rock shaft, a rack which meshes with said pinion, a plurality of denominational key levers, and a universal bar connected to said rack for moving the latter to different extents to bring different denominational stops into the path of the tabulating stop on the carriage.
16. In a typewriting machine and tabulating device, the combination of a power driven carriage, a tabulating stop carried thereby, a rock-shaft which extends in the direction of the travel of the carriage and which is carried by the frame of the machine, denominational stops carried by said rock shaft, a pinion on said rock shaft, a rack which meshes with said pinion, a universal bar connected to said rack, a plurality of key levers adapted to variably actuate said universal bar and move said rack different distances to bring different denominational stops into the path of the tabulating stop on the carriage, and means for releasing the carriage when any of the said key levers is actuated.
17. In a typewriting machine and tabulating device, the combination of a carriage, a tabulating stop, a rock shaft which extends in the direction of the travel of the carriage, spirally arranged denominational stops carried by said rock shaft, means for adjusting said denominational stops bodily along the shaft and without destroying the relative po-

sitioning thereof one to another, a pinion carried by the rock shaft, a rack which meshes with said pinion and key actuated means for moving said rack to different extents to rotate the denomination stops to different positions.

18. In a tabulating device for typewriting machines, a segmental stop-carrier having a series of radiating denominational stops fixed to and extending outwardly from said carrier.

19. In a tabulating device for typewriting machines, the combination of a stop rod, a stop carrier carried by said rod and adjustable thereon, and a series of spirally and segmentally arranged radiating denominational stops fixed to said carrier.

20. In a typewriting machine and tabulating device, the combination of a carriage, a tabulating stop, a rotative stop rod which extends in the direction of the travel of the carriage, a stop carrier carried by and adjustable along said rod, a series of spirally and segmentally arranged radiating denominational stops fixed to and projecting outwardly from said carrier, and means for turning said stop rod.

21. In a typewriting machine and tabulating device, the combination of a power driven carriage, a tabulating stop, a rotative stop rod which extends in the direction of the travel of the carriage, a stop carrier carried by and adjustable along said rod, a series of spirally and segmentally arranged radiating denominational stops fixed to said carrier, and means for turning said stop rod and for simultaneously releasing said carriage.

22. In a typewriting machine and tabulating device, the combination of a power driven carriage, a tabulating stop carried by the carriage, a rotative stop rod which extends in the direction of the travel of the carriage and which is carried by the frame of the machine, a stop carrier carried by and adjustable along said rod, a series of spirally and segmentally arranged radiating denominational stops fixed to said carrier, and key actuated means which extend to the front of the machine for turning said stop rod and for simultaneously releasing said carriage.

23. In a tabulating device, the combination of a stop rod, a stop carrier which is adapted to engage said rod at various points throughout its length, a clamping spring which is carried by said carrier and is adapted to maintain it clamped in position on said rod, and a series of denominational stops on said carrier.

24. In a tabulating device, the combination of a stop rod, a stop carrier which is adapted to engage said rod at various points throughout its length, a clamping spring which is carried by said carrier and is adapted to embrace the rod and maintain

the carrier clamped in position on said rod, and a series of radially and spirally arranged denominational stops fixed to said carrier.

25. In a tabulating device, the combination of a kerfed stop rod, a removable stop carrier which is adapted to engage in the kerfs in said rod at various points throughout its length, a clamping spring which is carried by said carrier and is adapted to embrace the rod and maintain the carrier clamped in engagement in the kerfs in said rod, and a series of radially and spirally arranged denominational stops fixed to said carrier.

26. In a typewriting machine and tabulating mechanism, the combination of a carriage, a tabulating stop, a stop rod which extends in the direction of the travel of the carriage, a stop carrier which is adapted to engage said rod at various points throughout its length, a clamping spring which is carried by said carrier and is adapted to maintain it clamped in position on said rod, a series of denominational stops on said carrier, and means for moving the tabulating stop and denominational stops relatively one to another.

27. In a typewriting machine and tabulating mechanism, the combination of a power driven carriage, a tabulating stop, a stop rod which extends in the direction of the travel of the carriage, a stop carrier which is adapted to engage said rod at various points throughout its length, a clamping spring which is carried by said carrier and is adapted to maintain it clamped in position on said rod, a series of denominational stops on said carrier, and means for moving the tabulating stop and denominational stops relatively one to another and into cooperative relation and for releasing the carriage.

28. In a typewriting machine and tabulating mechanism, the combination of a carriage, a tabulating stop, a stop rod which extends in the direction of the travel of the carriage, a stop carrier which is adapted to engage said rod at various points throughout its length, a clamping spring which is carried by said carrier and is adapted to embrace the rod and maintain the carrier clamped in position on said rod, a series of segmentally and spirally arranged denominational stops fixed to said carrier, and means for moving the tabulating stop and denominational stops relatively one to another.

29. In a tabulating device, the combination of a stop rod having kerfs with flat walls, a segmental stop carrier provided with a forked portion that is adapted to engage with said kerfs, and a series of denominational stops arranged spirally and exteriorly on said stop carrier.

30. In a tabulating device, the combination of a stop rod having kerfs with flat walls, a removable segmental stop carrier provided with a forked portion that is adapted to cooperate with said kerfs, a clamping spring carried by said carrier and adapted to embrace the stop rod to prevent an accidental displacement of the carrier from the kerfs, and a series of spirally arranged denominational stops fixed to said stop carrier.

31. In a typewriting and tabulating mechanism, the combination with a power-driven carriage and a carriage releasing mechanism, of a column stop mounted on the carriage, a spiral series of denomination stops mounted upon the framework, and means for effecting rotative adjustment of said se-

ries of denomination stops and simultaneously releasing the carriage.

32. In a typewriting and tabulating mechanism, the combination with a power-driven carriage, of a column stop mounted on the carriage, a spiral series of denomination stops journaled upon the framework, a series of denomination stop keys for variably adjusting said series of stops, and a carriage releasing mechanism operable by any of said keys.

Signed at Springfield, in the county of Hampden and State of Massachusetts this 6th day of March A. D. 1902.

CARL GABRIELSON.

Witnesses:

J. G. DUNNING,

H. W. MERRITT.