No. 896,502. PATENTED AUG. 18, 1908.

C. B. YAW.

TYPE WRITING MACHINE.

APPLICATION FILED MAY 16, 1907.

5 SHEETS—SHEET 1.

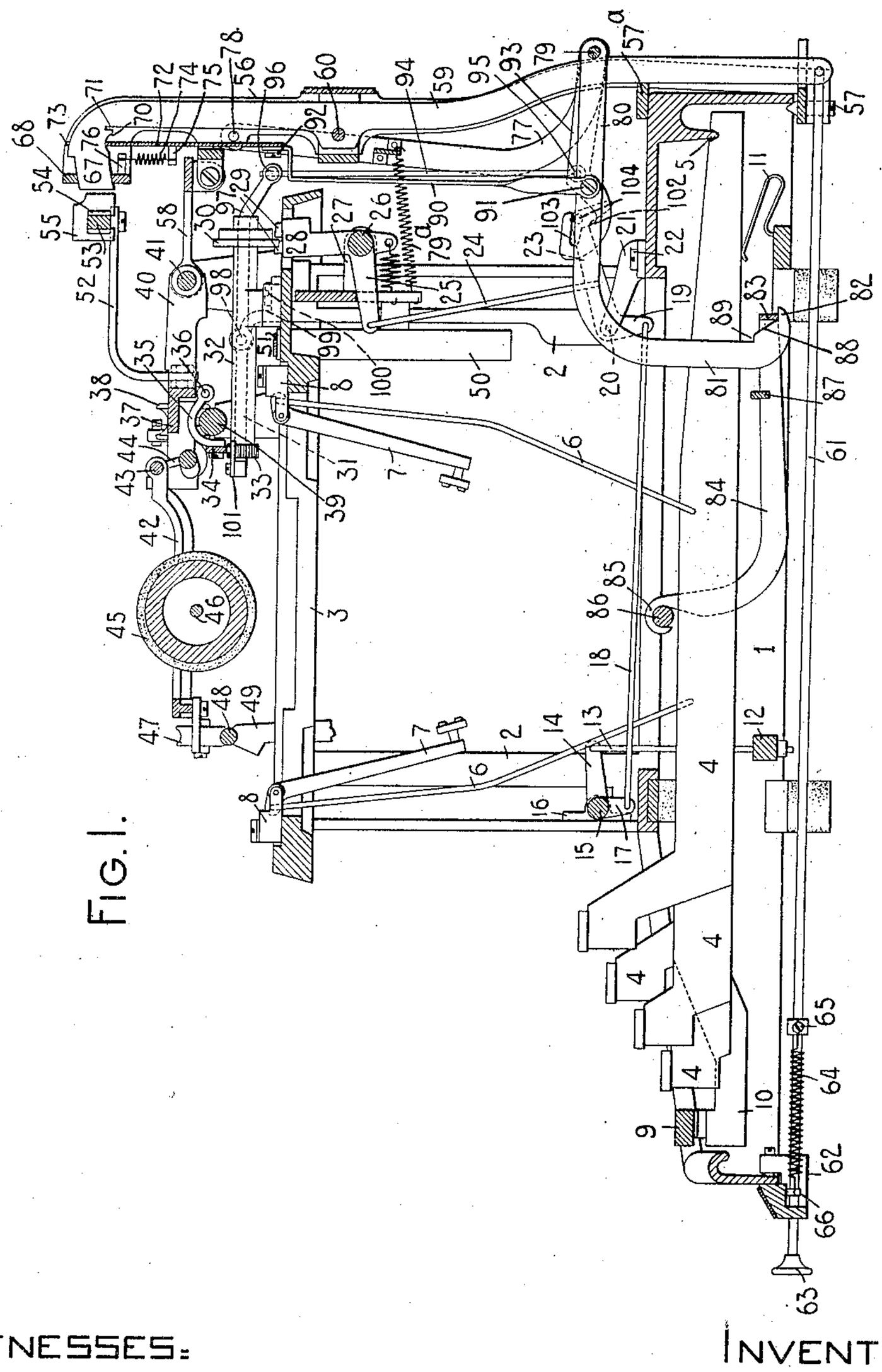

FIG. 1.

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M. F. Hannweber

Charles E. Smith

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Clio B. Yaw

By Jacob Tesch

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5 SHEETS—SHEET 2.

FIG. 2.

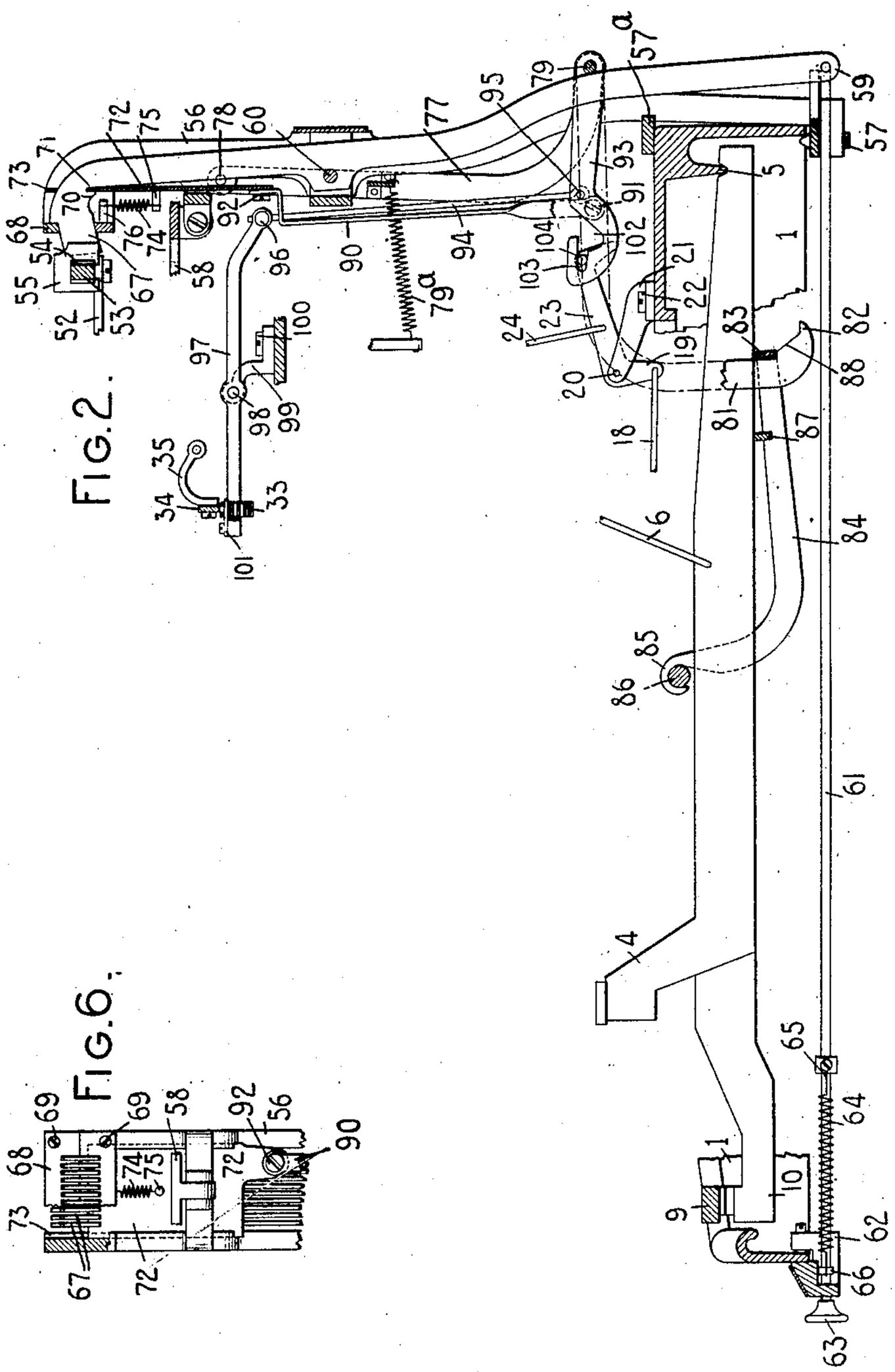

FIG. 6.

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5 SHEETS—SHEET 3.

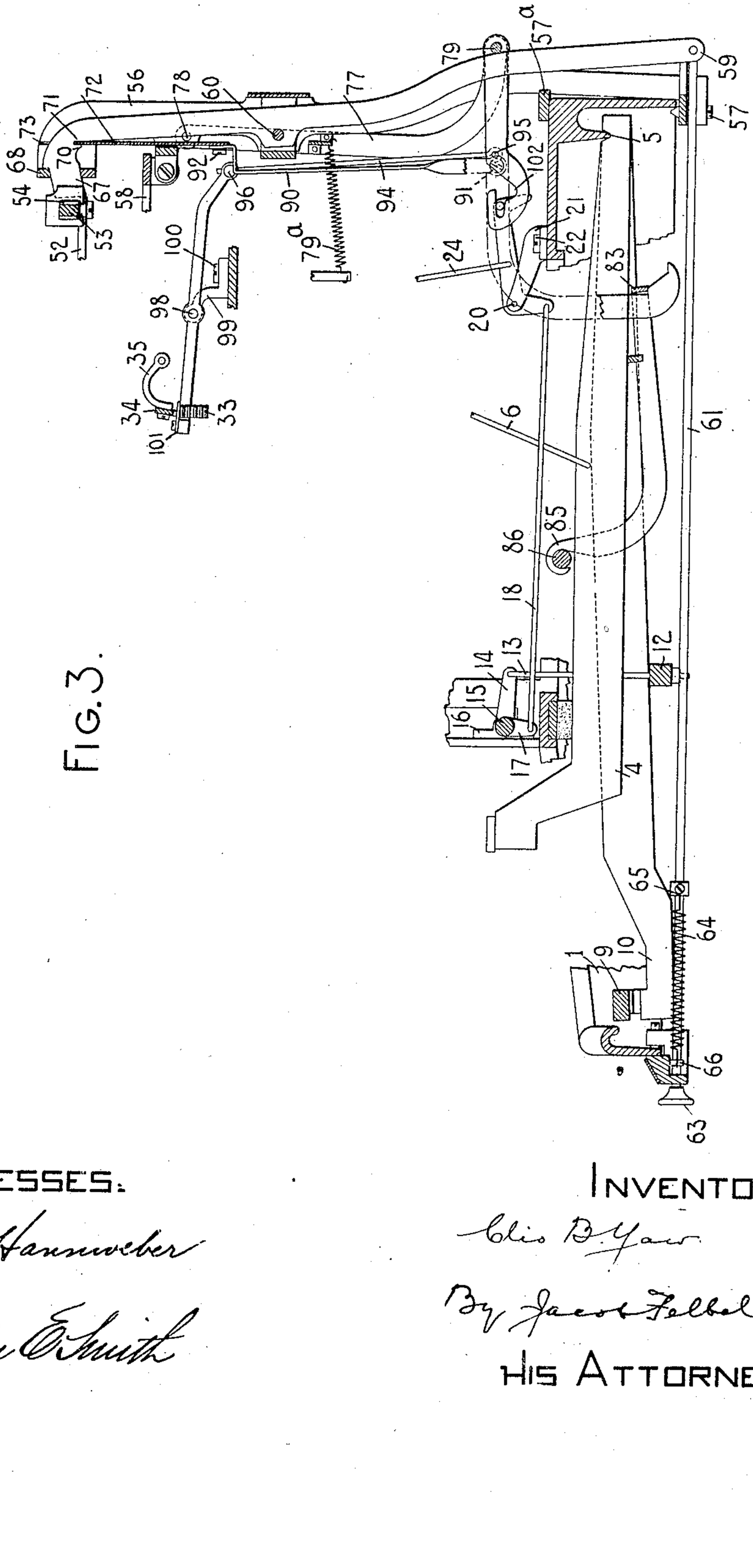

FIG. 3.

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5 SHEETS—SHEET 4.

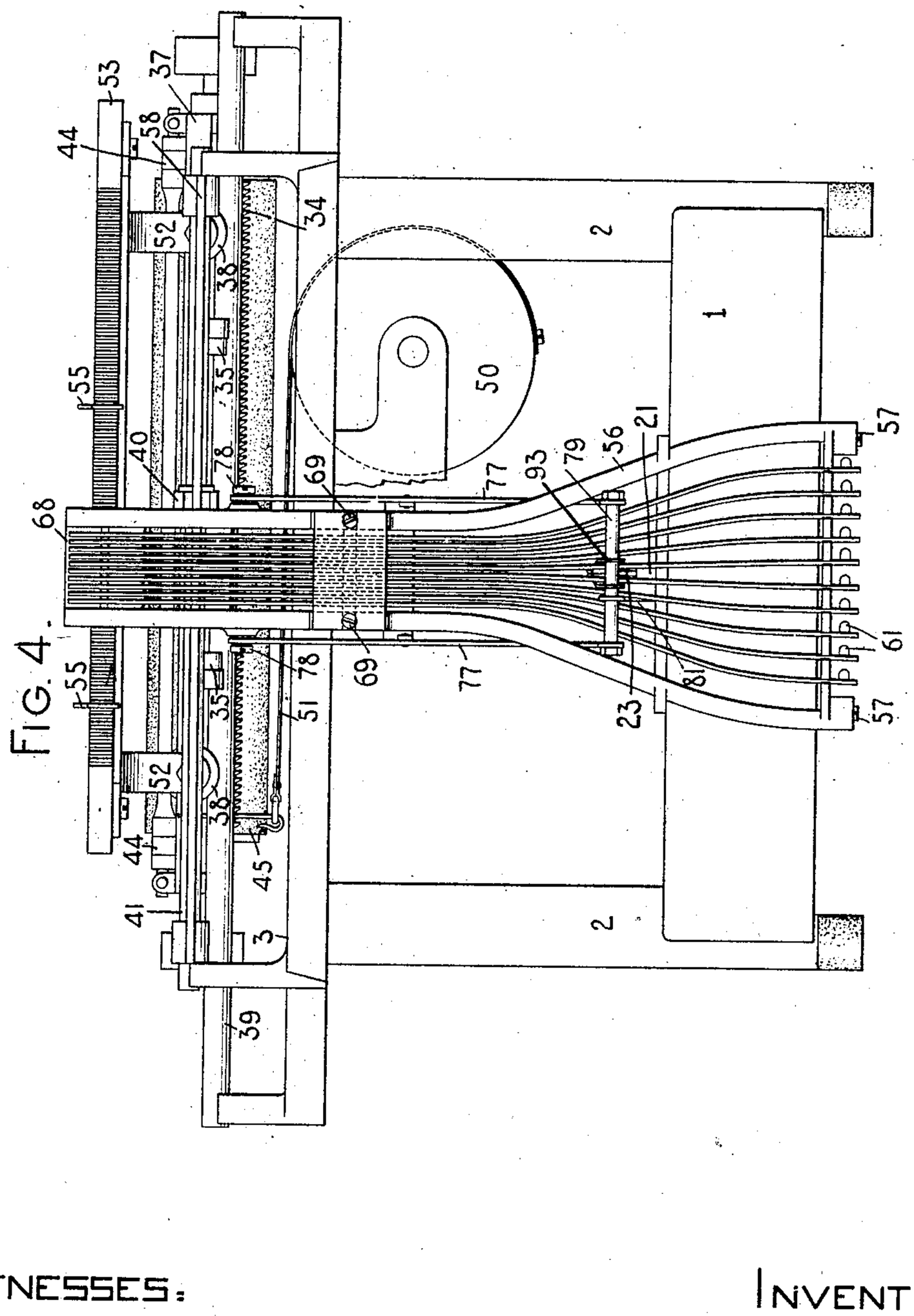

FIG. 4.

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No. 896,502. PATENTED AUG. 18, 1908.

C. B. YAW.

TYPE WRITING MACHINE.

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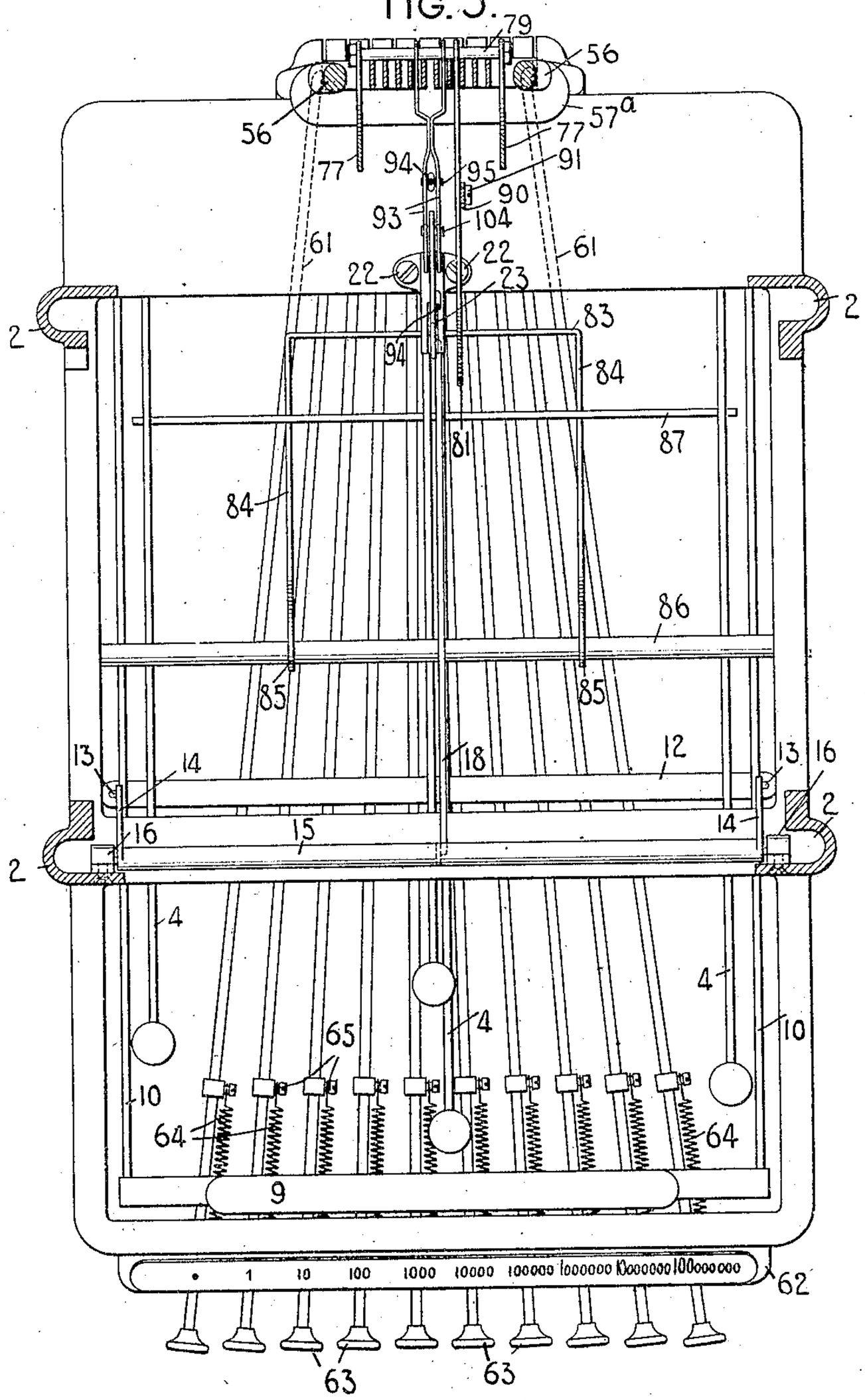
5 SHEETS—SHEET 5.

FIG. 5.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CLIO B. YAW, OF ARLINGTON, NEW JERSEY, ASSIGNOR TO WYCKOFF, SEAMANS & BENEDICT, OF ILION, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

No. 896,502. Specification of Letters Patent. Patented Aug. 18, 1908.

Application filed May 16, 1907. Serial No. 374,020.

To all whom it may concern:

Be it known that I, CLIO B. YAW, a citizen of the United States, and resident of Arlington, in the county of Hudson and State of New Jersey, 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.

One of the objects of my invention is to provide a key at the keyboard of the machine which is independent of the tabulating mechanism for effecting a release of the carriage.

Another object of my invention is to provide simple and efficient means for locking the stops of the tabulating mechanism in coöperative relation.

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 set forth in the following specification and particularly pointed out in the appended claims.

In the accompanying drawings, wherein like reference characters indicate corresponding parts in the different views, Figure 1 is a vertical, central, front to rear sectional view of one form of typewriting machine shown equipped with the devices of my invention, the parts being shown in normal position. Fig. 2 is a fragmentary side elevation showing some of the parts illustrated in Fig. 1, this view showing the disposition that the parts assume when a tabulator key is pushed in or actuated. Fig. 3 is a like view of the same except that the parts are shown in the positions that they assume when a tabulator key is actuated and the space key of the machine is depressed. Fig. 4 is a rear elevation of the machine. Fig. 5 is a horizontal sectional view taken above the base plate of the machine with parts omitted. Fig. 6 is a detail fragmentary front elevation with parts broken away of the locking plate and some of the associated parts.

I have shown my invention in connection with a No. 6 Remington machine, although it should be understood that the devices of my invention may be applied to different styles of typewriting machines.

The frame of the machine comprises a base 1, corner posts 2 and a top plate 3. Printing key levers 4 are fulcrumed on a bar 5 in the base of the machine. Each key lever 4 is connected to a link 6 which in turn is connected at its upper end to a type bar 7 mounted in a hanger 8 secured to the top plate. A space bar or key is connected at its ends to levers 10 fulcrumed on the bar 5, the levers 10 being disposed at opposite sides of the printing key levers in the usual manner, said levers as well as the printing key levers coöperating with restoring springs 11.

A universal bar 12 extends beneath the printing key levers 4 and the space key levers 10 and is connected at its ends to upwardly extending links 13 pivoted at their upper ends to rearwardly projecting crank arms 14 on a rock shaft 15 mounted in bearings in brackets 16. The rock shaft 15 is provided near the center thereof with a depending crank arm 17 connected to a rearwardly extending link 18 pivoted at its rear end to a depending arm 19 of a bell crank lever pivoted at 20 to a bracket 21 secured to the base of the machine by screws 22. An upwardly and rearwardly extending arm 23 of the bell crank lever is pivoted to an upwardly extending link 24 connected at its upper end to a forwardly extending arm 25 of a dog rocker. Said dog rocker comprises a shaft 26 pivoted at its ends in bracket arms 27 and provided with an upwardly extending arm 28 which carries feed dogs 29 coöperative with an escapement wheel 30. The escapement wheel is operatively connected to a shaft 31 which turns in a bearing 32 secured to the top plate of the machine and provided at its forward end with a feed pinion 33. A feed rack 34 is connected to arms 35 pivoted at 36 to a carriage truck 37. The carriage truck carries rollers 38 which coöperate with a fixed guide rod or rail 39 and is also provided with a rearwardly extending arm 40 which coöperates with a second parallel guide rod or rail 41. A platen frame 42 is pivoted at 43 to links 44 which in turn are pivoted to the truck to afford a case shift movement of the platen frame. A rotary platen 45 is carried on a shaft 46 which is journaled in bearings in the platen frame. The platen frame carries at the forward side thereof a roller 47 which bears upon a shift rail 48 supported on vibratory arms or levers 49 by which the case shifting movement of the platen is effected. A spring drum 50 is connected by a band or strap 51 to the carriage to move the carriage in the direction of its feed when the escape-

ment mechanism is actuated. The construction of the machine as thus far described is somewhat similar to that ordinarily employed in the No. 6 Remington machine and a depression of a printing key or a space key depresses the universal bar 12 near the last portion of the key stroke, thus actuating the dog rocker through the intermediate connections and affording a letter space movement of the carriage.

Rearwardly extending bracket arms 52 are secured to the carriage and carry a column stop bar 53 slotted at 54 on opposite sides thereof for coöperation with adjustable bifurcated column stops 55. A tabulator frame 56 is secured to the frame of the machine in the usual manner by screws 57 coöperative with the base of the machine by a shoulder 57[a] and by a yoke bar 58 which extends from the tabulator frame to the guide rod or bar 41. Vertically disposed denominational stop levers 59 are pivoted at 60 in the tabulator frame and are connected at their lower ends to push rods 61 which extend forwardly through openings in a detachable extension 62 secured to the base of the machine and each of these rods is provided at its forward end with a finger button or key 63. Restoring springs 64 are each connected at one end 65 to a rod 61 and at the opposite end to a pin 66 secured to the member 62. The upper end of each denominational stop lever is provided with a forwardly extending member 67 which constitutes a denominational stop. These members are guided in a two-part comb plate 68 secured by screws 69 to the tabulator frame. The projection 67 on each lever 59 has a cam portion 70 in the rear of which is a locking slot or recess 71. A locking plate 72 is mounted to slide vertically in grooves 73 (see Fig. 6) formed in the tabulator frame and the upper edge of this locking plate bears against the lower edges of the different denominational stops 67, it being understood that the width of the locking plate is greater than the width of the system of denominational stops. A contractile spring 74 is connected at one end to a forwardly projecting pin 75 on the locking plate and at its opposite end to a pin 76 carried by the lower member of the two-part comb plate 68. The pressure of this spring is exerted to move the locking plate upwardly and to maintain the upper edge thereof in contact with the lower edges of the denominational stops. When a tabulator key 63 is pushed in the corresponding denominational stop will be moved forwardly into the path of the column stops 55. The effect of this movement of the denominational stop will be to cam the locking plate down until it clears the lower end of the cam when it will be forced by its spring upwardly into the locking notch 71 to lock the actuated denominational stop in its projected position.

I have provided means for automatically releasing the locked denominational stop by the subsequent actuation of a printing key. These means comprise a frame consisting of two arms 77 pivoted at their upper ends to the sides of the tabulator frame 56 as indicated at 78 and the arms are bent rearwardly at their lower ends where they are connected by a so-called universal bar 79 which extends across the path of the denominational stop levers 59. This frame is restored to and normally held in the position shown in Fig. 1 by a spring 79[a]. Pivoted to the universal bar 79 and extending forwardly between the denominational stop levers is a lever or device 80 which is bent downwardly at its forward end, as indicated at 81, the downward end extending between the printing key levers and to a point considerably below said levers. The lower end of the lever 80—81 is provided with a finger or rest 82 which supports a bar 83 that extends transversely beneath the different printing key levers but is out of the paths of the space key levers 10. This cross bar is connected at its ends to side arms 84 which are bent upwardly at the forward ends thereof and are provided with hook-like bearing portions 85 that pivot on a pivot rod 86 secured to the base of the machine above the printing key levers. A universal bar 87 is connected at its ends with the side arms 84 and is normally below and out of the path of the printing key levers, as shown in Fig. 1. This universal bar extends beneath the various printing key levers, but not beneath the levers 10 of the space bar or key. A cam face 88 is formed on the lever 80—81 for cooperation with the cross bar 83 of the frame which carries the universal bar 87 and the lower end of said cam terminates at the finger 82. A shoulder or rest 89 is formed at the upper terminal of the cam face 88 for cooperation with the cross bar 83, as will hereinafter appear. An upwardly extending link 90 is pivoted at its lower end as at 91 to the lever 80—81, the upper end of said link being pivoted at 92 to the locking plate. When a tabulator key is actuated to project the associate denominational stop 67 into the path of a column stop as hereinbefore described the parts will be locked in the positions to which they have been moved by the locking plate 72. However, the locking plate is afterwards automatically released as will appear from what follows. The actuation of the tabulator key is effective to bring the lower end of the associated denominational stop lever 59 into coöperation with the universal bar 79, thereby moving the frame comprising the side arms 77 and the universal bar 79 around the pivot 78 and toward the rear of the machine. This movement effects a rearward movement of the cam 88, thereby forcing the cross bar 83 upwardly until it rests on the shoulder 89. As shown

in Fig. 2 this movement results in carrying the universal bar 87 up into contact with the lower edges of the printing key levers, so that an actuation of any of the printing key levers at this time results in depressing the universal bar 87 and the parts connected therewith, so that the locking plate 72 will be moved down out of locking engagement with the projected denominational stop 67 by the cross bar 83, the lever 80—81 and link 90, and the denominational stop being released from its locking mechanism will be restored to normal position by its restoring spring 64.

Two arms or levers 93 are likewise pivoted to the universal bar 79 and are spaced apart throughout portions of their length as indicated in Fig. 5 and are riveted together to form in effect one lever. A link 94 is pivoted to a cross pin 95 which extends between said arms and is pivotally connected at its upper end, as at 96, to a carriage releasing device or lever 97 pivoted at 98 to a bracket 99 secured to the top plate of the machine by a screw or screws 100. The forward end of this releasing device or lever 97 carries a bifurcated or slotted plate 101, the arms of which extend on opposite sides of the feed pinion 33 and beneath the carriage feed rack 34. The forward end portions of the levers or arms 93 have recessed portions 102 and slots 103. The rear end portion of the lever 19—23 extends between the arms 93 and is provided with a pin 104 which projects from opposite sides thereof and which is adapted to coöperate with the slots 103 in the levers 93, as will hereinafter more clearly appear, so as to connect the lever 19—23 and the levers 93 and cause them to move together. In the normal positions of the parts the pin 104 is located free of the slots 103 and above the recesses 102 in the levers 93, as shown in Fig. 1, so that an actuation of the escapement mechanism whether effected by a printing key or by the space key, merely results in vibrating the pin 104 down and up in the recesses 102 in the levers 93 without effecting a movement of said levers. When, however, a tabulating key is actuated it results, as hereinbefore pointed out, in moving the universal bar 79 rearwardly, thus moving the levers 93 rearwardly with it so that the pin 104 will be seated in the slots 103 as shown in Fig. 2 to connect the carriage releasing mechanism with the space key. If at this time the space key be depressed, as shown in Fig. 3, the result will be to actuate the intermediate connections between the universal bar 12 and the lever 19—23 and a downward movement of the rear end of said lever effects a downward movement of the rear end of the carriage releasing device or lever 97. This results in lifting the forward end of the lever or releasing device to lift the feed rack out of engagement with the feed pinion and thus disconnecting the carriage from its escapement mechanism as indicated in Fig. 3. When pressure is released upon the space key the lever 19—23 and the parts controlled thereby will resume their normal disposition shown in Fig. 2.

The operation is as follows:—In order to effect an actuation of the tabulator the operator first pushes in the appropriate denominational or tabulator key 63, thereby moving the associated denominational stop 67 forward into the path of the column stops 55. The locking plate 72 will automatically engage the denominational stop and lock it in its projected position. The effect of this movement of the denominational stop through its associated denominational stop lever 59 is to move the universal bar 79 and the parts connected therewith rearwardly to establish an operative connection between the lever 93 and the lever 19—23 which constitutes a part of the connections for actuating the escapement mechanism. This same movement also results in camming the cross bar 83 up to and seating it on the shoulder 89 on the lever 80—81, thus bringing the universal bar 87 into coöperative relation with the printing keys. The operator may now depress the space key which results in actuating the train of connections between the universal bar 12 and the dog rocker which is effective to actuate the carriage release device 97 to free the carriage from the control of its escapement mechanism, so that the locked denominational stop and one of the column stops on the carriage will be brought into coöperation to arrest the carriage at the proper position. The operator may then proceed to actuate the printing keys and the first stroke on any printing key will result in depressing the universal bar 87, the lever 80—81, the link 90 and the locking plate 72, thereby releasing the denominational stop at the downstroke of the first printing key that is actuated and allowing it immediately to return to its normal position under the pressure of its restoring spring 64, so that on the up-stroke of the printing key the carriage will be free to be given a letter space forward feed by its escapement mechanism and the bar 79, arms 77 and the parts controlled thereby will be restored to normal positions shown in Fig. 1.

From certain aspects of my invention it is immaterial what character of tabulating mechanism is employed. It will also be understood that from certain aspects of my invention certain of the features thereof may be employed without others. Thus the locking means for locking the stops in coöperative relation may be employed without the carriage releasing means, or the carriage releasing means may be used without the locking means.

Various changes may be made without departing from the spirit 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 a carriage, printing keys, tabulating stops, key-actuated means for effecting a relative movement between said stops to bring them into coöperative relation, means for locking the stops in coöperative relation, carriage releasing means, a space key, means under control of the key-actuated means for the tabulator stops for rendering the carriage releasing means operative by said space key, and means operable by the printing keys and inoperative by the space key for releasing said locking means.

2. In a typewriting machine and tabulating mechanism, the combination of a carriage, printing keys, tabulating stops, key actuated means for effecting a relative movement between said stops to bring them into coöperative relation, means for locking the stops in coöperative relation, carriage releasing means, a space key, means under control of the key actuated means for the tabulator stops for rendering the carriage releasing means operative by said space key, means operable by the printing keys and inoperative by the space key for releasing said locking means, and means under control of the key actuated means for the tabulating stops for rendering the lock releasing means operative by the printing keys.

3. In a typewriting machine and tabulating mechanism, the combination of a carriage, printing keys, column stops, denominational stops, key actuated means for effecting a relative movement between said column and denominational stops to bring them into coöperative relation, means for locking the stops in coöperative relation, carriage releasing means, a space key, means under control of the stop-controlling key actuated means for rendering the carriage releasing means operative by said space key, and means operable by the printing keys and inoperative by the space key for releasing said locking means.

4. In a typewriting machine and tabulating mechanism, the combination of a carriage, denominational stop means, key actuated means therefor, a space key, carriage releasing means, locking means for the stop means, printing keys, and means under control of the said key actuated means for placing the said carriage releasing means wholly under control of the space key and for placing said locking means wholly under control of the printing keys.

5. In a typewriting machine and tabulating mechanism, the combination of a carriage, carriage releasing means, a space key, printing keys, column stops, a series of denominational stops, denominational keys for actuating said denominational stops, means for locking each of said denominational stops in its projected position, means under control of said denominational keys for placing the carriage releasing means wholly under control of the space key, and means under control of the denominational keys for placing said locking means wholly under control of the printing keys for releasing the locking means by an actuation of a printing key.

6. In a typewriting machine and tabulating mechanism, the combination of a series of denominational stops, denominational keys for actuating said denominational stops, a locking plate coöperative with all of said stops to lock them in the projected positions, printing keys, and means under control of said denominational keys for placing said locking plate under control of the printing keys in order that the plate may be moved by said printing keys to the releasing position.

7. In a typewriting machine and tabulating mechanism the combination of tabulator stops, key actuated means for effecting a relative movement between said stops to project one stop in the path of another, means for locking the movable stop in its projected position, printing key levers, a universal bar operable to move the locking means to the releasing position, and means controlled by said key actuated means for rendering said universal bar operative by the printing key levers.

8. In a typewriting machine and tabulating mechanism, the combination of tabulator stops, locking means therefor, printing key levers, and a universal bar movable into and out of coöperative relation with said printing key levers and operatively connected with said locking means.

9. In a typewriting machine and tabulating mechanism, the combination of denominational stops, key actuated means therefor, locking means for said stops, printing key levers, a universal bar operatively connected with said locking means, and means under control of said key actuated means for moving the universal bar into coöperative relation with said printing key levers.

10. In a typewriting machine and tabulating mechanism, the combination of a carriage, carriage releasing means, tabulator stops, locking means for certain of said stops, key actuated means for certain of said stops, printing keys, a space key, and means controlled by said key actuated means for placing the releasing means under control of the spacing key and for placing the locking means under control of the printing keys to be released by the printing keys independently of the actuation of the space key.

11. In a typewriting machine, the combination of a carriage, printing key levers, tabulating mechanism including stops, means for locking said stops in coöperative relation,

and releasing means rendered operative by an actuation of said tabulating mechanism for releasing the locking means, said releasing means comprising a normally inoperative universal bar operatively connected to the locking means.

12. In a typewriting machine, the combination of a carriage, printing key levers, tabulating mechanism including stops, means for locking said stops in coöperative relation, and releasing means, said releasing means comprising a universal bar normally out of coöperative relation with said printing keys, and means for automatically throwing said universal bar into coöperative relation with said printing key levers.

13. In a typewriting machine, the combination of a carriage, printing key levers, tabulating mechanism including stops, means for locking said stops in coöperative relation, and releasing means, said releasing means comprising a universal bar normally out of coöperative relation with said printing keys, and means controlled by an actuation of said tabulating mechanism for automatically throwing said universal bar into coöperative relation with said printing key levers.

14. In a typewriting machine, the combination of a carriage, printing key levers, tabulating mechanism including stops, a device for locking said stops in coöperative relation, a universal bar operative on said locking device and actuated by said printing key levers, and means for automatically throwing said universal bar into coöperative relation with said printing key levers by an actuation of said tabulating mechanism.

15. In a typewriting machine, the combination of a carriage, escapement mechanism therefor, a series of column stops carried by the carriage, a series of denominational stops carried by the frame of the machine, a locking plate coöperative with said denominational stops to lock them in the projected or operative positions, and automatically actuated means for moving said locking plate out of engagement with said denominational stops to release them.

16. In a typewriting machine, the combination of a carriage, escapement mechanism therefor, printing keys, a series of column stops carried by the carriage, a series of denominational stops carried by the frame of the machine, a locking plate coöperative with said denominational stops to lock them in the projected or operative positions, and locking means actuated by said printing keys for moving said locking plate out of engagement with said denominational stops to release them.

17. In a typewriting machine, the combination of a carriage, escapement mechanism therefor, printing keys, a series of column stops carried by the carriage, a series of denominational stops carried by the frame of the machine, a locking plate coöperative with said denominational stops to lock them in the projected or operative positions, means normally out of coöperation with but adapted to be actuated by said printing keys for moving said locking plate out of engagement with said denominational stops to release them, and means controlled by an actuation of any of said denominational stops for bringing said locking plate and printing keys into coöperation.

18. In a typewriting machine, the combination of a carriage, escapement mechanism therefor, a space key for operating said escapement mechanism, a carriage releasing device for disconnecting the carriage from its escapement mechanism, printing keys, a series of column stops carried by the carriage, a series of denominational stops carried by the frame of the machine, a locking plate coöperative with said denominational stops to lock them in the projected or operative positions, means normally out of coöperation with but adapted to be actuated by said printing keys for moving said locking plate out of engagement with said denominational stops to release them, and means controlled by an actuation of any of said denominational stops for bringing said locking plate and printing keys into coöperation and for operatively connecting said space key and carriage releasing device.

19. In a typewriting machine, the combination of a carriage, printing keys, tabulating mechanism including coöperative stop devices, locking means for locking said stop devices in coöperative relation, a normally inoperative universal bar, and means for rendering said universal bar operative to release said locking means.

20. In a typewriting machine, the combination of a carriage, printing keys, tabulating mechanism including coöperative stop devices, locking means for locking said stop devices in coöperative relation, a normally inoperative universal bar, and means for operatively connecting said locking means and universal bar and for rendering said universal bar operative by said printing keys.

21. In a typewriting machine, the combination of a carriage, printing key levers, tabulating mechanism including coöperative stop devices, locking means for locking said stop devices in coöperative relation, a universal bar normally out of the paths of said printing key levers, and means for automatically moving said universal bar into the paths of said printing key levers and rendering the universal bar operative to actuate said locking means.

22. In a typewriting machine, the combination of a carriage, printing key levers, tabulating mechanism including coöperative stop devices, locking means for locking said stop devices in coöperative relation, a universal

bar normally out of the paths of said printing key levers, and means for automatically moving said universal bar into the paths of said printing key levers and for establishing an operative connection between said universal bar and said locking means.

23. In a typewriting machine, the combination of a carriage, escapement mechanism therefor, a space key for operating said escapement mechanism, a releasing device for releasing the carriage from its escapement mechanism, printing key levers, tabulating mechanism including coöperative stop devices, means for locking said stop devices in coöperative relation, a normally inoperative universal bar, and means controlled by the tabulating mechanism for rendering said universal bar operative to control said locking means and for placing said releasing device under control of the space key.

24. In a typewriting machine, the combination of a carriage, escapement mechanism therefor, a space key for operating said escapement mechanism, a releasing device for releasing the carriage from its escapement mechanism, printing key levers, tabulating mechanism including coöperative stop devices, means for locking said stop devices in coöperative relation, a universal bar normally out of the paths of said printing key levers, and means controlled by the tabulating mechanism for moving said universal bar into coöperative relation with said printing key levers to be actuated thereby and for establishing an operative connection between said universal bar and said locking means and for establishing an operative connection between said space key and said releasing device.

25. In a typewriting machine, the combination of a carriage, escapement mechanism therefor, a carriage releasing device, a key at the keyboard, tabulating mechanism including a series of denominational stop levers, a universal bar with which said levers coöperate, and means controlled by said universal bar for operatively connecting said key and said carriage releasing device.

26. In a typewriting machine, the combination of a carriage, escapement mechanism therefor, a carriage releasing device, means for actuating said escapement mechanism, tabulating mechanism including a series of denominational stop levers, a universal bar coöperative with said levers and controlled by an actuation of any one of them, and means controlled by said universal bar for operatively connecting said carriage releasing device with said means for actuating the escapement mechanism.

27. In a typewriting machine, the combination of printing key levers, a carriage, carriage feed mechanism, connections for actuating said carriage feed mechanism, a carriage releasing device, tabulating mechanism including coöperative stops, means for locking said stops in coöperative relation, a movable frame the movement of which is controlled by said tabulating mechanism, a lever pivoted to said swinging frame and which is adapted to be thrown into and out of coöperative relation with said connections, a connection from said carriage releasing device to said lever, a universal bar normally out of coöperative relation with said printing key levers, and a controlling device connected with said frame and stop locking means and operative to move said universal bar into coöperative relation with said printing key levers.

28. In a typewriting machine, the combination of printing key levers, a carriage, carriage feed mechanism, tabulating mechanism including coöperative stops, means for locking said stops in coöperative relation, a movable frame the movement of which is controlled by said tabulating mechanism, a universal bar normally out of coöperative relation with said printing key levers, and a controlling device connected with said frame and stop locking means and operative to move said universal bar into coöperative relation with said printing key levers, whereby said locking means may be released by an actuation of any of said printing key levers.

29. In a typewriting machine, the combination of printing key levers, a carriage, carriage feed mechanism, connections for actuating said carriage feed mechanism, a carriage releasing device, tabulating mechanism including coöperative stops, a spring-pressed locking plate for locking said stops in coöperative relation, a pivoted frame the movement of which is controlled by said tabulating mechanism, a lever pivoted to said pivoted frame and which is adapted to be thrown into and out of coöperative relation with said connections, a connection from said carriage releasing device to said lever, a universal bar normally out of coöperative relation with said printing key levers, and a controlling lever connected with said frame and spring-pressed locking plate and having a cam which is operative to move said universal bar into coöperative relation with said printing key levers.

30. In a typewriting machine, the combination of printing key levers, a carriage, carriage feed mechanism, connections for actuating said carriage feed mechanism, a carriage releasing device, denominational tabulating mechanism including column stops and a series of independently operable denominational stops, means for locking any of said denominational stops in its projected position, a movable frame controlled in its movement by any of said denominational stops, an actuator carried by said frame and adapted to be thrown into and out of coöperative relation with said connections, a con-

nection from said actuator to said carriage releasing device, a universal bar normally out of coöperative relation with said printing key levers, and a controlling device connected with said frame and with said locking means and operative to move said universal bar into coöperative relation with said printing key levers when said frame is moved by an actuation of any denominational stop.

31. In a typewriting machine, the combination of printing key levers, a carriage, carriage feed mechanism, connections for actuating said carriage feed mechanism, a carriage releasing device, denominational tabulating mechanism including column stops and a series of independently operable denominational stop levers, means for locking any of said denominational stop levers in its projected position, a pivoted frame having a universal bar that extends into the paths of said denominational stop levers so that the frame is controlled in its movement by any of said denominational stop levers, an actuating lever pivoted to said frame and adapted to be thrown into and out of coöperative relation with said connections, a connection from said actuating lever to said carriage releasing device, a universal bar normally out of coöperative relation with said printing key levers, and a controlling lever pivoted to said frame and connected with said locking means and operative to move said universal bar into coöperative relation with said printing key levers when said frame is moved by an actuation of any denominational stop lever.

Signed at the borough of Manhattan, city of New York, in the county of New York, and State of New York, this 9th day of May, A. D. 1907.

CLIO B. YAW.

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