

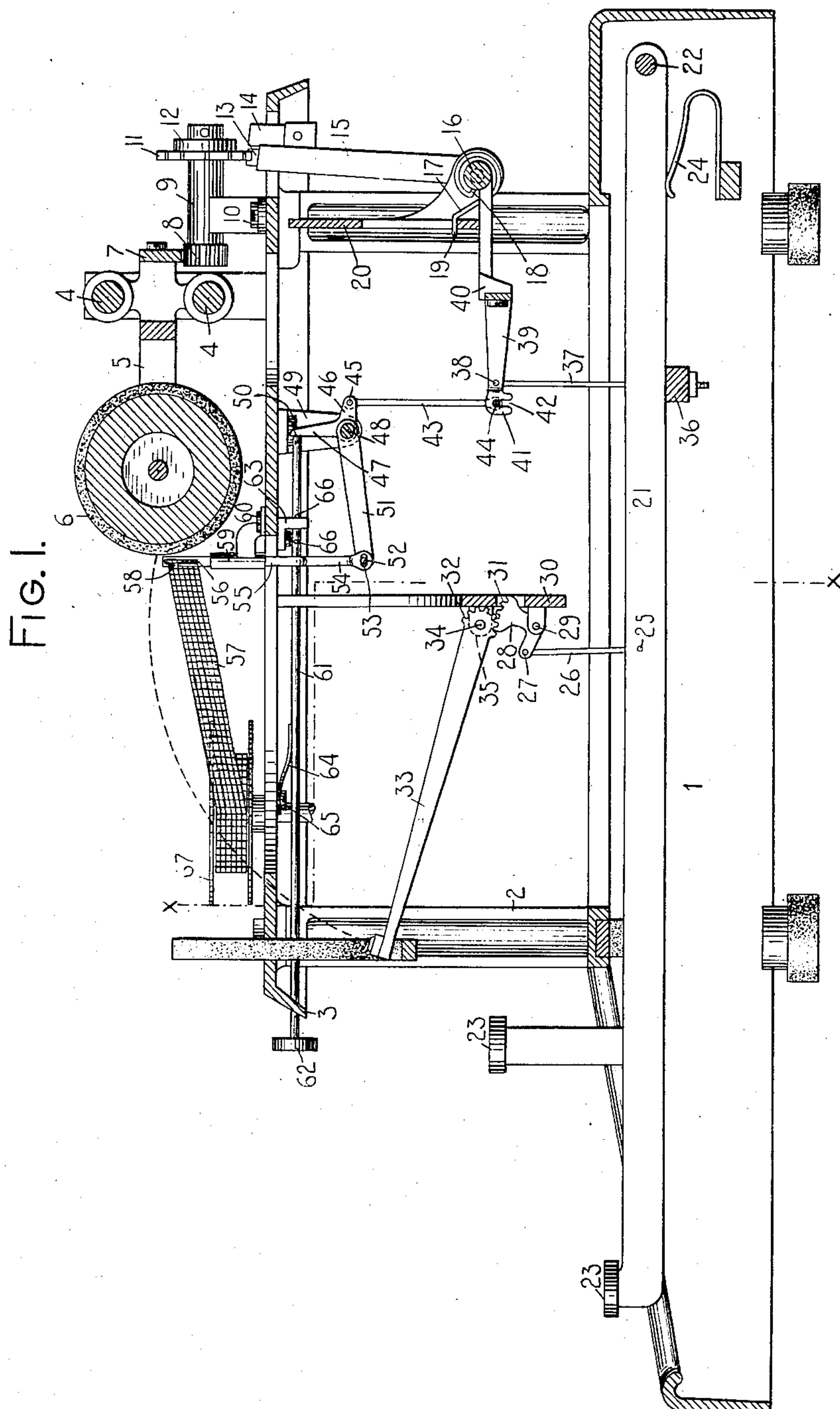
No. 879,598.

PATENTED FEB. 18, 1908.

B. C. STICKNEY.
TYPE WRITING MACHINE.

APPLICATION FILED OCT. 13, 1902.

6 SHEETS—SHEET 1.



WITNESSES:

K. V. Donovan.
Charles E. Smith

INVENTOR=

Burnham C. Strickney
by Jacob Felbel
HIS ATTORNEY

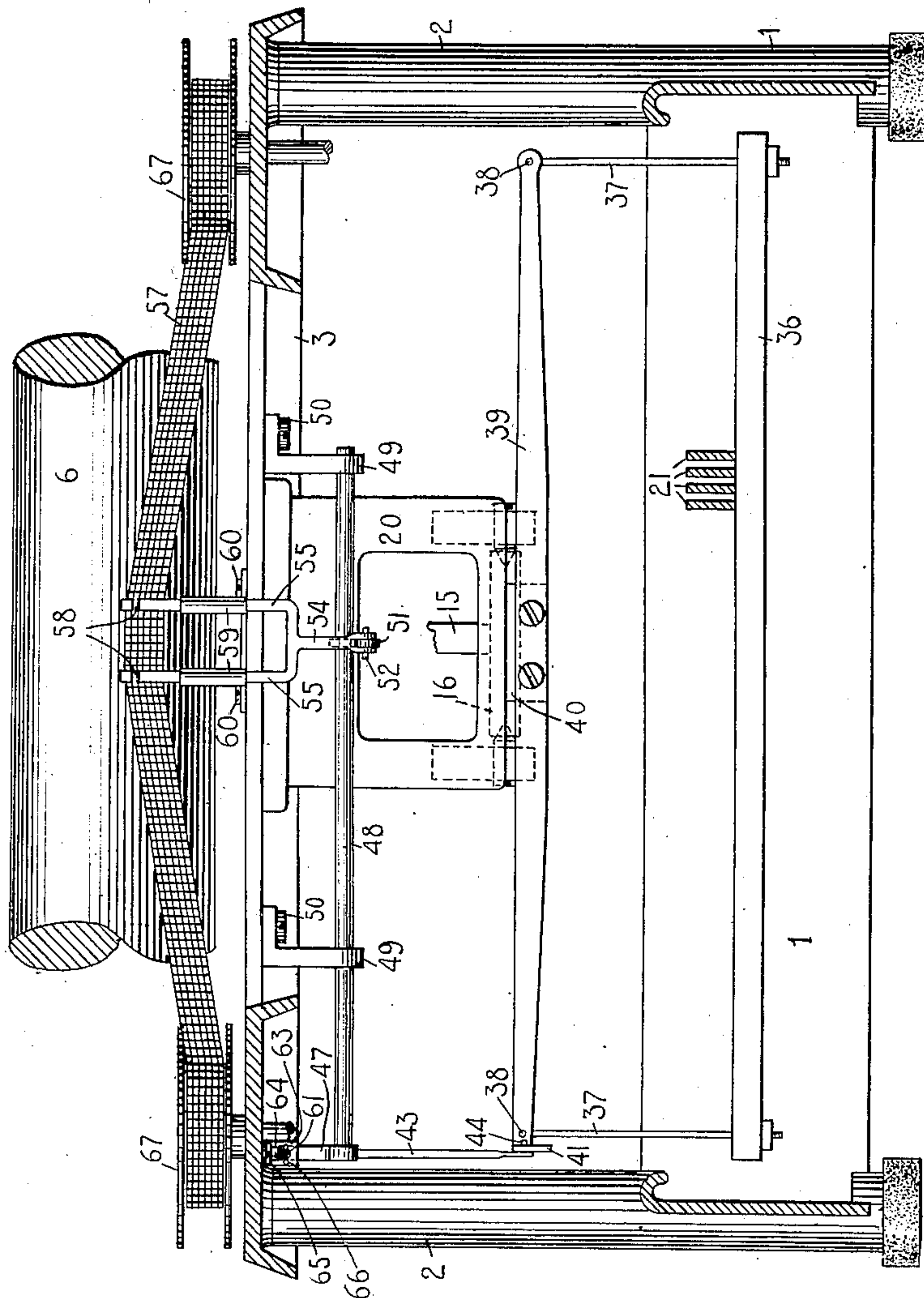
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6 SHEETS—SHEET 2.

FIG. 2.



WITNESSES.

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by *James F. Selby*

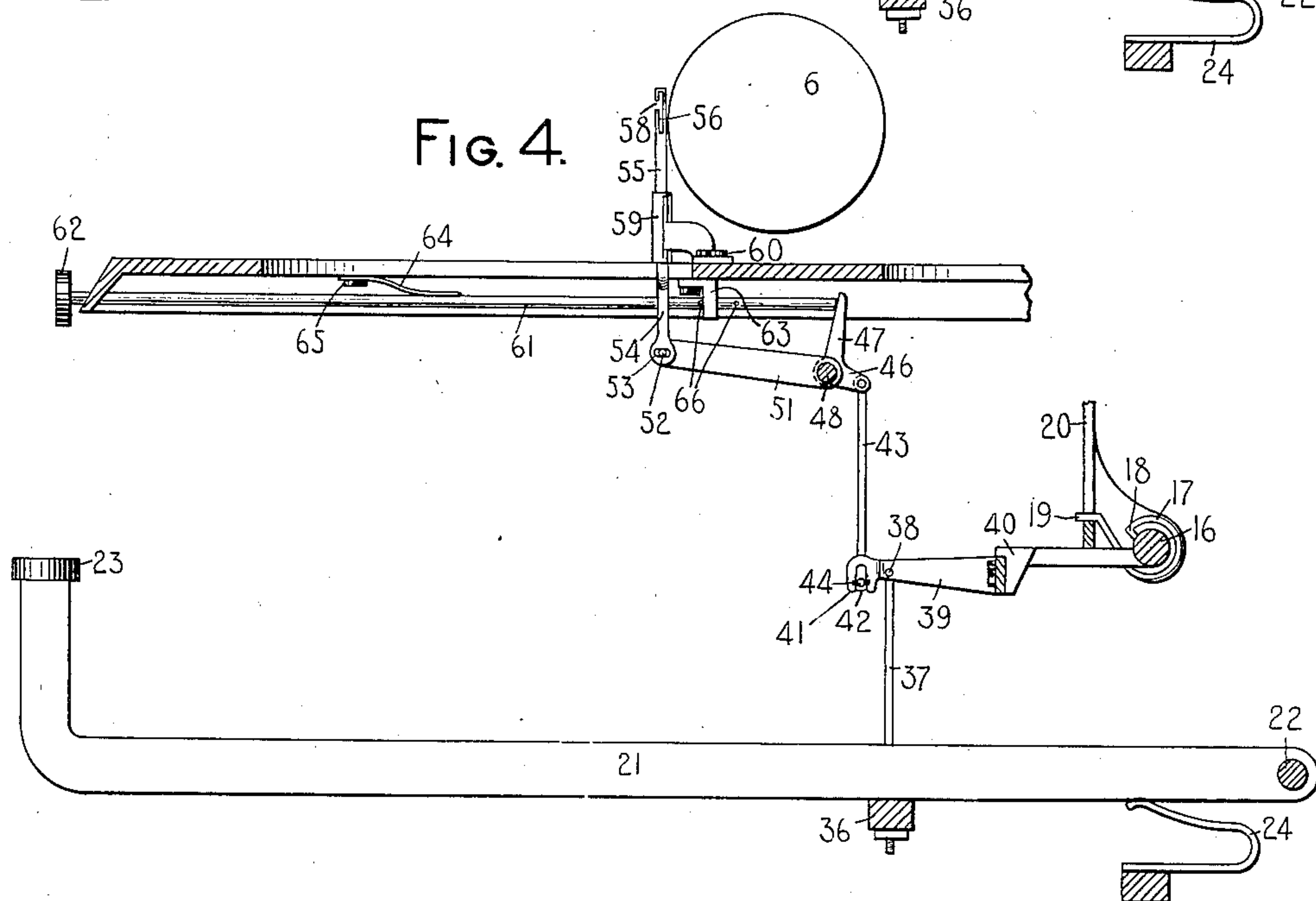
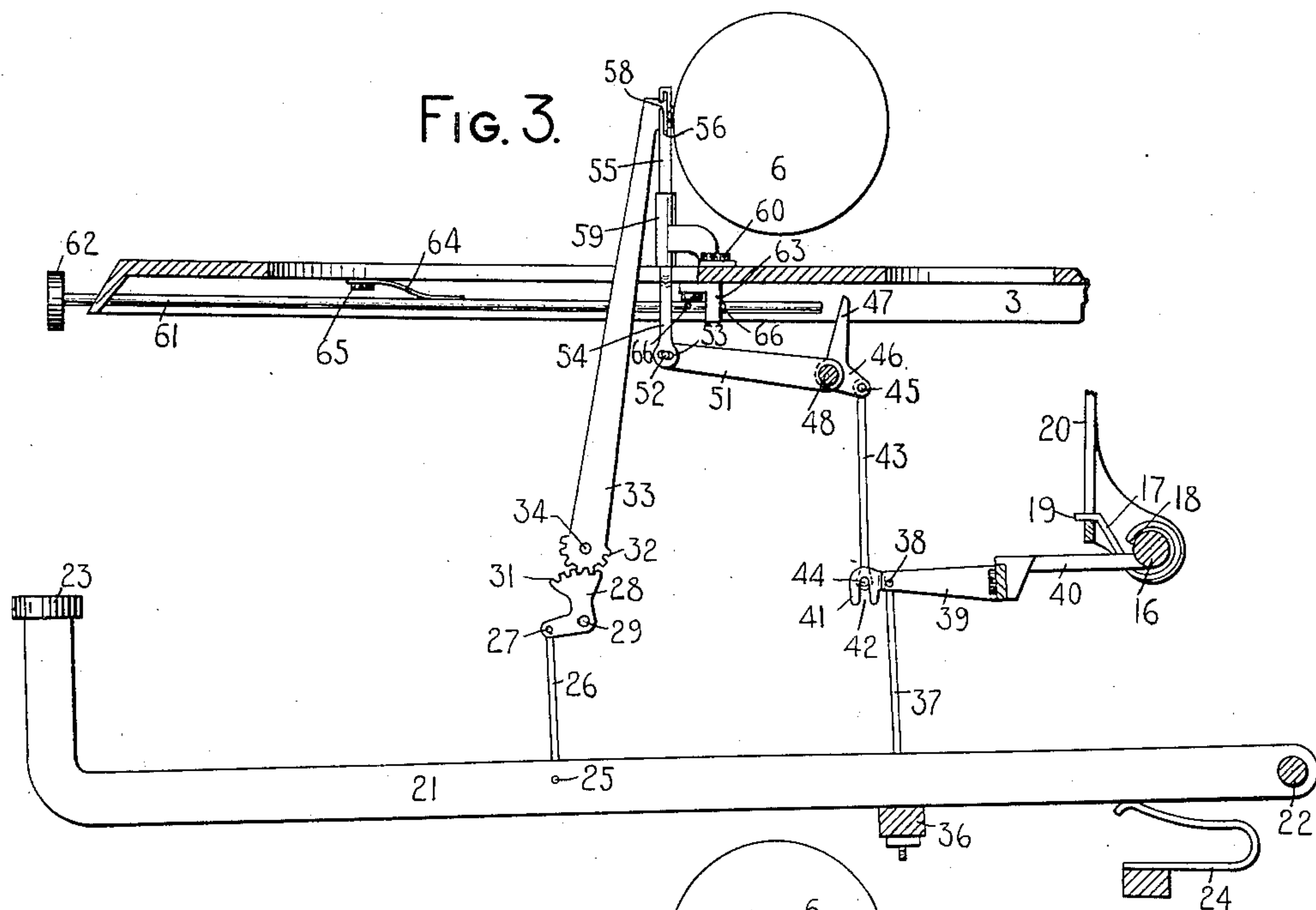
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6 SHEETS—SHEET 3.



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6 SHEETS—SHEET 4.

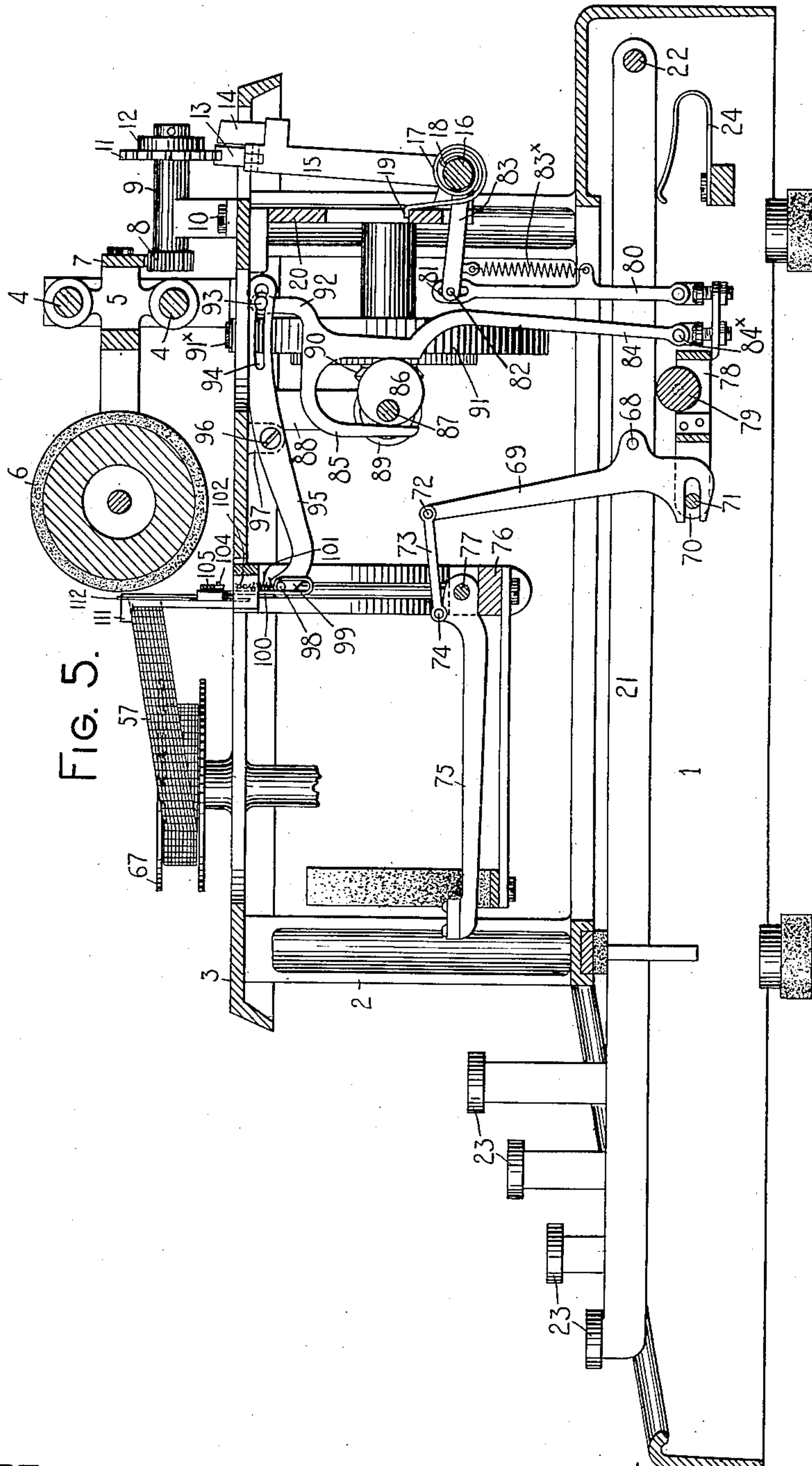


FIG. 5.

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Wm. Smith

INVENTOR:

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by Jacob Felt

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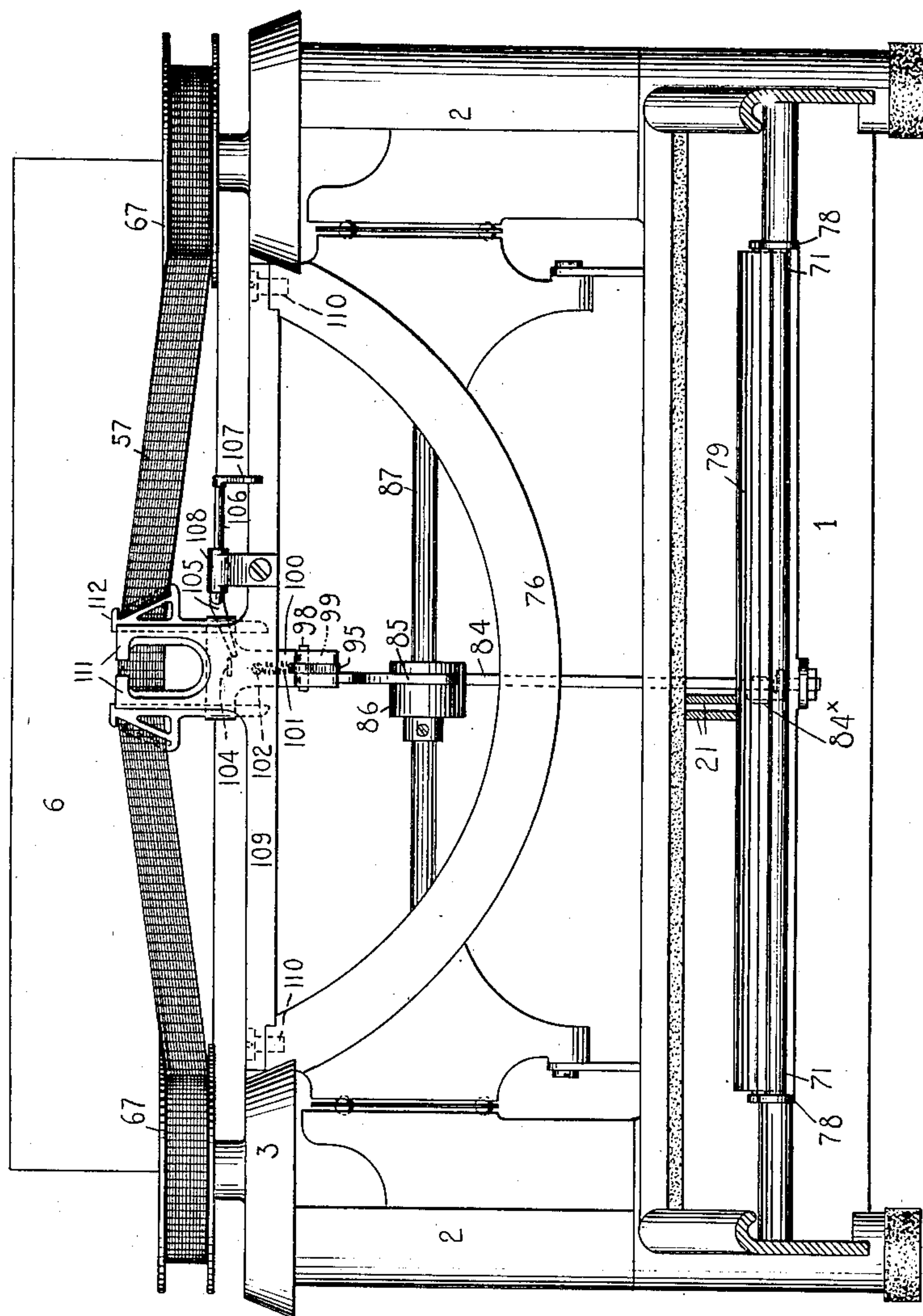
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6 SHEETS—SHEET 5.

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WITNESSES=

K. V. Donovan
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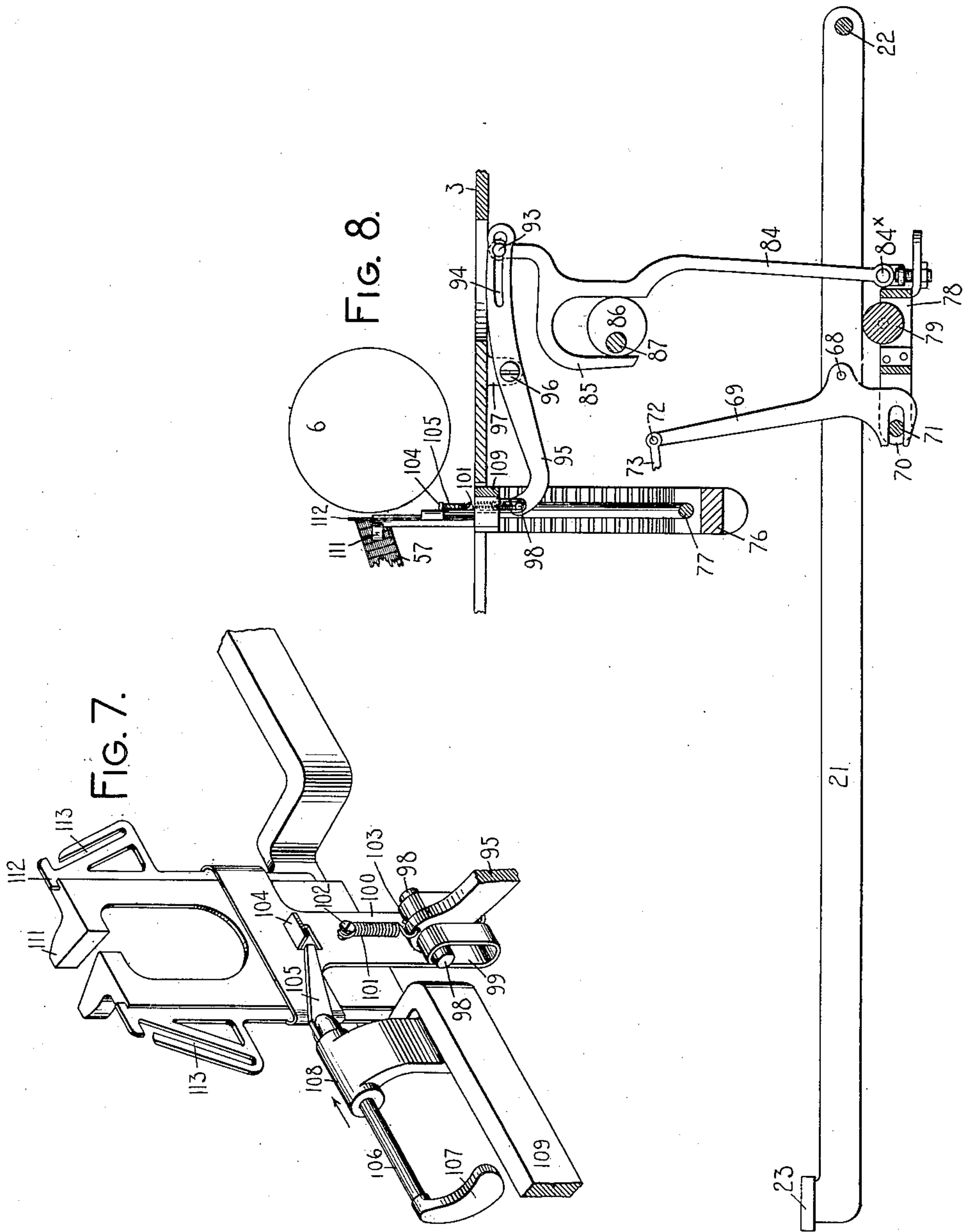
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No. 879,598.

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APPLICATION FILED OCT. 13, 1902.

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6 SHEETS—SHEET 6.



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UNITED STATES PATENT OFFICE.

BURNHAM C. STICKNEY, OF ELIZABETH, NEW JERSEY, ASSIGNOR TO UNION TYPEWRITER COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

No. 879,598.

Specification of Letters Patent.

Patented Feb. 18, 1908.

Application filed October 13, 1902. Serial No. 127,108.

To all whom it may concern:

Be it known that I, BURNHAM C. STICKNEY, citizen of the United States, and resident of Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My present invention relates to ribbon mechanisms for typewriting machines.

In "visible" writing machines, the ribbon vibrator is automatically moved to and from the printing point at each printing operation and some operators are annoyed by this constant movement of the ribbon vibrator; the operator's vision being directed ordinarily during the actuation of the machine, to the printing point and consequently towards the moving vibrator.

The object of my invention is to provide a construction wherein the parts may be readily set to effect a movement of the ribbon vibrator in the ordinary manner to cover and uncover the printing point at each printing operation or so that the vibrator may remain fixed during the actuation of the machine and act as a mere ribbon guide, without, however, destroying the "visible" writing feature of the machine, thereby overcoming the objection that some operators have to the dancing of the vibrator in the path of the operator's vision.

To the above and other ends which will hereinafter appear, my invention consists in the novel features of construction, arrangements of parts and combinations of devices to be hereinafter described and particularly pointed out in the appended claims.

In the accompanying drawings, wherein like reference characters indicate corresponding parts in the various drawings, Figure 1 is a central, vertical, front to rear sectional view of one form of typewriting machines embodying my invention. Fig. 2 is a vertical, transverse, sectional view of the same, the section being taken on the line $x-x$ of Fig. 1. Fig. 3 is a diagrammatic side elevation of a portion of the machine, the view illustrating the parts so disposed that the ribbon vibrator is actuated at each depression of a key lever. Fig. 4 is a like view of the same, illustrating a disposition of the parts which normally maintains the ribbon vibrator at the printing point and prevents an actuation thereof during the operation of

the machine. Fig. 5 is a central, vertical, front to rear sectional view of a typewriting machine, illustrating another form of my invention. Fig. 6 is a vertical, transverse, sectional view of the same, the section being taken through the keyboard of the machine and the type actions being omitted. Fig. 7 is an enlarged, detail, perspective view of the ribbon vibrator illustrated in Figs. 5 and 6, together with certain of the associated mechanism. Fig. 8 is a fragmentary side elevation of parts of the mechanism shown in Fig. 5, the view illustrating the disposition of the parts when the ribbon vibrator is maintained at the printing point.

1 indicates the base of the machine which is provided with upwardly extending corner-posts 2 that are surmounted by a top plate 3, the latter supporting traverse rails 4 on which the carriage 5 travels from side to side of the machine. The carriage has a platen 6 mounted to revolve therein and a feed rack 7 is carried by the carriage and coöperates with a feed pinion 8 mounted on a shaft that is carried in a bearing 9 secured by screws to the top plate of the machine. The rear end of the shaft carries an escapement wheel 11 which is operatively connected thereto by the usual pawl and ratchet mechanism contained within a housing and the escapement wheel coöperates with the feed dogs 13 and 14 carried by a rocker arm 15 mounted upon a rock shaft 16 and having a coiled spring 17 secured at one end thereto, as indicated at 18, the opposite end of said spring being adapted to bear at 19 upon a portion of a fixed bracket plate 20. Key levers 21 are pivoted at 22 to the base of the machine and each of the levers is provided with the usual finger key 23 and with a restoring spring 24.

In Figs. 1 to 4 of the drawings, each of the key levers has pivoted thereto at 25 an upwardly extending link 26 that is pivoted at its upper end 27 to a bell crank lever 28 pivoted at 29 to a suitable hanger or stud that projects from the forward face of a type bar segment 30. Each bell crank lever is provided with segmental teeth 31 that coöperate with segmentally arranged teeth formed on a type bar 33, which type bar is pivoted at 34 to a stud or hanger 35 projecting forwardly from the type bar segment. It will be understood that the type bars are segmentally arranged and are adapted to

strike upwardly and rearwardly to the printing point, as indicated in dotted lines in Fig. 1.

Extending transversely beneath the various key levers is a universal bar 36 that is connected to upwardly extending arms or links 37 pivoted at 38 to a transverse bar 39 that is secured to a rocker arm 40, which projects forwardly from the rock shaft 16. The bar 39, rocker arms 15 and 40 and rock shaft may be regarded as the escapement rocker. One end of the transverse bar 39 is provided with a forwardly extending slotted portion 41, the slot 42 of which is vertically disposed and is opened at its lower side. An upwardly extending link 43 carries a laterally extending pin 44 at the lower end thereof which is received within the slot 42; whereas the link is pivoted at its upper end 45 to one arm of a bell crank lever 46, the other arm 47 of said bell crank lever being upwardly directed. This bell crank lever is secured to a rock shaft 48 that extends transversely of the machine and is mounted to rock in suitable bearings 49 depending from the top plate and secured thereto by screws 50.

Secured to the rock shaft 48 and about midway of the machine is a forwardly extending crank arm 51, the free end of which is provided with a laterally projecting pin 52 that extends into a slot 53 in a vertically movable ribbon vibrator 54. In the present instance, this vibrator consists of a stem-like portion to which the arm 51 is connected and from which extends a yoke 55, each arm thereof being slotted as indicated at 56 for the reception of the ribbon 57. The slots 56 extend vertically so as to maintain the ribbon vertically disposed and a side wall of each slot 56 is cut away at 58, for the introduction or withdrawal of the ribbon. It should be understood, however, that the form of the ribbon vibrator may be varied at will. The arms, which constitute the yoke of the vibrator, extend through vertically disposed bearings or guides 59 that are secured by screws 60 to the top plate of the machine.

Extending fore and aft of the machine beneath the top plate is a push rod 61 provided with a push key 62 at the outer end thereof, this rod being adapted to slide longitudinally in a bearing 63 and in an aperture formed in the downwardly projecting flange of the top plate and which constitutes a bearing for the outer end of the rod. A friction spring 64 is secured by a screw 65 to the bottom of the top plate and bears at its free end against the push rod, thus maintaining it in the position to which it is moved. The rod is limited in its back and forth movements by stops or pins 66 located on opposite sides of the bearing 63 in which the rod is supported and against which the

pins are adapted to abut. The rear end of the push rod 61 is adapted to bear against the upwardly extending arm 47 of the bell crank lever 46 when said rod is moved rearwardly, to the position indicated in Fig. 4 of the drawings, thereby actuating the bell crank lever to rock the shaft 48. When, however, the rod is moved to the position indicated in Fig. 3, the end of the rod will be removed from and maintained out of the path of movement of the arm 47 of the bell crank lever 46. From a comparison of Figs. 1 and 4, it will be observed that when the push rod is in the position indicated in Fig. 1, the disposition of the pin and slot connection 41—42 between the transverse bar 39 and the link 43 is such that the pin will be normally maintained seated in the upper portion of said slot.

Fig. 1 represents the normal positions of the parts when the ribbon vibrator is adapted to be moved at each printing operation so that the ribbon will be interposed in the path of the type as it is moved to the printing point and will be withdrawn therefrom as the type bar assumes its normal position. From an examination of Fig. 3, it will be seen that a depression of a key lever will cause the transverse bar 39 to be depressed to actuate the escapement devices in the usual manner and that this movement will be transmitted from the transverse bar 39, which in reality constitutes a part of the escapement mechanism, to the bell crank lever 46, rock shaft 48, and crank arm 51 to move the ribbon vibrator so as to effect an interpositioning of the ribbon in the path of the type. When pressure on the finger key is released, the parts will be restored to their normal positions, illustrated in Fig. 1 and the carriage will be fed a letter space distance.

When the operator desires to maintain the ribbon vibrator at the printing point and to prevent its actuation during the operation of the machine, it is merely necessary to push the key 62, thereby moving the push rod 61 towards the rear of the machine and the rear end of the rod will bear on the arm 47, thus moving the bell crank lever 46 and causing the pin 44 to be moved downwardly in its slot 42 and to be normally maintained in this position, as illustrated in Fig. 4. If at this time a key lever is depressed, the transverse bar 39 will be depressed without, however, transmitting movement to the link 43 and the ribbon vibrator which is connected thereto. The movement of the rod 61 towards the rear of the machine not only effects a change in the relation between the pin 44 and its slot 42 in the manner described, but the same movement is effective to rock the crank arm 51, thereby elevating the ribbon vibrator so as to interpose the ribbon in the path of the types and to maintain it in such

position. From an examination of Fig. 2, it will be seen that the ribbon 57 extends from one ribbon spool 67 to the other through the vibrator and that when the vibrator is maintained in the uppermost position, there is a considerable downward deflection of the ribbon from the vibrator to the ribbon spools, so that only a few of the last written letters on a line are covered by the ribbon and that therefore the vibrator may be maintained in position at the printing point without destroying the "visible" writing feature of the machine.

In Figs. 5 to 8 of the drawings, I have illustrated another form of mechanism embodying my invention. Many features of the construction shown in these figures are similar to the corresponding features represented in the patent to Gabrielson No. 662,147, dated Nov. 20, 1900. In this construction each of the key levers 21 is pivoted at 68 to a sub-lever 69, the lower end of each of which is slotted at 70 for cooperation with a fixed fulcrum bar or rod 71, whereas the upper end of each sub-lever is pivoted at 72 to a forwardly extending link 73 that is pivoted at its forward end 74 to a type bar 75, which type bars are mounted in a segment 76 upon a pivot wire 77 carried thereby and the type bars are adapted to vibrate upwardly and rearwardly to the printing point.

Pivoted upon the rod 71 is a frame 78 that carries a roller 79 that extends transversely beneath the various key levers and constitutes a universal bar with which the key levers co-act. The rear end of the frame 78 is connected to an upright link 80 that has a slot 81 in its upper end for the reception of a laterally extending pin 82 which projects from a forwardly directed crank arm 83 that is secured to the rock shaft 16, a contractile spring 83^x being connected at one end to the arm 83 and at its opposite end to the link 80. An upwardly disposed arm 84 is pivoted at 84^x to the frame 78 and has a yoke 85 connected thereto which cooperates with an eccentric 86 that is received within the yoke and is secured to a shaft 87 that extends transversely of the machine and is supported in bearings 88. This shaft has a bevel pinion 89 rigidly secured thereto, which meshes with a cooperating bevel pinion 90 that is rotated by the spring drum 91. Projecting upwardly from the yoke 85 is an arm 92, that has a laterally disposed pin 93 projecting therefrom into a slot 94 in a lever 95, that is pivoted at 96 to a stud 97 directed downwardly from the underside of the top plate. The forward end of the lever 95 is provided with a pin 98 which projects laterally from each side thereof and into slots 99 formed by bending the lower portion of the stem 100 of the ribbon vibrator, as clearly illustrated in Fig. 7. A spring 101 is connected at one end to a pin 102 carried

by the ribbon vibrator and at its opposite end 103 to the forward end of the lever 95. The ribbon vibrator is provided with a struck-up ear 104 that projects rearwardly therefrom and constitutes an abutment with which a cam 105 is adapted to cooperate. This cam is secured to the inner end of a push rod 106 having a finger piece 107 at the outer end thereof, the rod itself being supported in a bearing 108 secured to the cross bar or support 109 that extends across the segment and is secured in place by screws 110. This bar also constitutes a support for the type guide 111 that is grooved in the side edges for the reception of the side arms 112 of the ribbon vibrator, which vibrator has inclined ribbon guiding openings 113 therein through which the ribbon is fed.

When the parts are in the normal position and the ribbon vibrator is to be actuated to cover and uncover the printing point at each printing operation, each depression of a key lever will cause the arm 84 with its yoke 85 to be drawn down, thereby depressing the rear end of the lever 95 and causing the vibrator to be moved upwardly into the path of the type as it approaches the printing point, and when pressure on the finger key is released, the parts will be restored to the normal positions illustrated in Fig. 5, and the carriage will be fed a letter space distance. At each letter space movement of the carriage, the spring drum, which is connected thereto in the usual manner by a band 91^x, will rotate, thereby transmitting movement through the beveled pinions 89 and 90 to the shaft 87 which turns the eccentric 86, thereby moving the yoke fore and aft of the machine around its pivotal connection 84^x with the frame 78, so that the pin 93 is moved forward and back in the slot 94 during the operation of the machine and the pin 93 is moved nearer to or farther from the pivotal center 96 of the lever 95 and a variation in the throw of the lever is effected, to give a slight variation in the throw of the ribbon vibrator, thus moving the ribbon laterally or transversely of the platen to different extents during the operation of the machine, in order to utilize the ribbon widthwise, as well as longitudinally. When, however, the operator desires to maintain the ribbon vibrator at rest, it is merely necessary to push the finger piece 107 towards the ribbon vibrator, thus moving the push rod 106 longitudinally in the direction of the arrow in Fig. 7, and forcing the cam beneath the abutment 104 on the ribbon vibrator and elevating it against the tension of the spring 101 without disturbing the actuating lever 95. When the parts have been moved in the manner described, the disposition of the pin and slot connection between the actuating lever 95 and the ribbon vibrator will be changed; that is to say, the pins instead of normally resting in the upper portions of the

slots 99, will normally rest in the lower portions thereof, so that a movement of the actuating lever 95 at this time will be ineffective to transmit movement to the ribbon vibrator, and it will be maintained by the cam 105 in the elevated position where the ribbon will cover the printing point until such time as the finger piece 107 is moved back to the position indicated in Fig. 7. When this occurs, the ribbon vibrator will be moved down to the position indicated in said figure by the spring 101 and the disposition of the pin and slot connection between the ribbon vibrator and its actuating lever will be again changed to the normal position, so that an actuation of the lever 95 at this time will cause the ribbon vibrator to move up with the free end thereof to cover and uncover the printing point at each printing operation, the spring 101 maintaining the vibrator at all times in position where the pins 98 will be seated in the uppermost portions of the slots 99.

From the foregoing description, it will be understood that in either construction shown and described, the vibrator normally maintains the ribbon away from the printing point to expose it when the parts are set to afford an actuation of the vibrator at each printing operation, whereas the act of setting the parts so that the vibrator remains at rest during the actuation of the machine is effective to move the vibrator to and maintain it in a position where the ribbon will cover the printing point, or be interposed between the types and the printing point, and that the relative disposition of the parts is changed so that at this time the means for automatically moving the vibrator are ineffective to actuate; that a movement of either the push key 62 or the finger piece 107 is effective to change the position of the vibrator relative to its actuating means; that the vibrator is adapted to be operatively connected to its actuating means or to be thrown out of operative connection therewith; that when the vibrator is connected to its actuating means, it causes the ribbon to uncover the printing point and when the actuator is disconnected from its actuating means, it causes the ribbon to cover the printing point; that the vibrator is adapted to move with or independently of its actuating means; that means are employed for throwing the connections between the ribbon vibrator and its actuating means into or out of cooperative relation, and that in one case the finger keys are effective to transmit movement to the vibrator through said connections and in another case they are ineffective for this purpose; that when said vibrator is maintained at rest, the finger keys, type bars and escapement mechanism may be moved independently thereof and that the fixed vibrator does not therefore interfere with the actua-

tion of these parts, and that the pin 44 which is operatively connected to the vibrator, is adapted to be moved into and out of the path of the escapement rocker.

Various changes may be made without departing from the spirit of my invention, which from certain aspects, contemplates broadly the provision of means which may be regulated at will to afford an automatic movement of a ribbon transversely of the platen to cover and uncover the printing point or to maintain the ribbon fixed against such transverse movement during the actuation of the machine.

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

1. In a typewriting machine, the combination of means for automatically vibrating a ribbon to and from the printing point, and means adapted to maintain the ribbon against such vibration during the operation of the machine to effect printing and letter spacing.

2. In a typewriting machine, the combination of means for automatically vibrating a ribbon to and from the printing point at each printing operation, hand actuated means operable at will to position the ribbon at the printing point, and means adapted to render the said vibrating means ineffective to move the ribbon.

3. In a typewriting machine, the combination of a ribbon, means for normally maintaining the ribbon away from the printing point to expose it to the view of the operator, means for vibrating the ribbon to cover the printing point at each printing operation, and hand actuated adjustable means for moving the ribbon and maintaining it in position to cover the printing point and to simultaneously adjust the relation of the parts so that the said vibrating means are rendered ineffective to move the ribbon.

4. In a typewriting machine, the combination of a ribbon vibrator, means for automatically actuating said vibrator at each printing operation, and means adapted to maintain said vibrator in a position of rest during the actuation of the printing and letter feeding mechanisms.

5. In a typewriting machine, the combination of a ribbon vibrator, actuating means cooperating therewith to cause the vibrator to normally maintain the ribbon away from the printing point and to automatically move the ribbon to the printing point at each printing operation, and hand actuated means to effect a change in the relative disposition of the parts, and so as to render the actuating means ineffective to move the ribbon vibrator.

6. In a typewriting machine, the combination of a ribbon vibrator, actuating means operatively connected to said ribbon vibrator, and adapted to normally maintain the

ribbon away from the printing point and to automatically move the ribbon to cover the printing point at each printing operation, hand actuated means adapted to effect a change in the position of the vibrator relative to its actuating means and to maintain the vibrator in a fixed position during the actuation of the machine and where the ribbon will cover the printing point, and means which afford a movement of the said actuating means independent of the vibrator.

7. In a typewriting machine, the combination of a ribbon vibrator, and means under control of the operator for either automatically moving said vibrator or maintaining it fixed during the actuation of the printing and letter feeding mechanisms.

8. In a typewriting machine, the combination of a carriage, a carriage feeding mechanism for feeding said carriage step-by-step in printing direction, a ribbon vibrator, actuating means therefor, and means for operatively connecting said vibrator to or disconnecting it from said actuating means, said carriage feeding means remaining operative while said vibrator is connected to and also while said vibrator is disconnected from said actuating means.

9. In a typewriting machine, the combination of a ribbon vibrator, actuating means therefor, and means for operatively connecting said vibrator to or disconnecting it from said actuating means, said vibrator being disposed to cause the ribbon to normally uncover the printing point when the vibrator is connected to its actuating means and to cover the printing point when the vibrator is disconnected from its actuating means.

10. In a typewriting machine, the combination of type bars, finger keys therefor, a carriage, carriage feeding mechanism operative by said finger keys for feeding said carriage step-by-step in printing direction, and a ribbon vibrator adapted to be automatically moved to interpose the ribbon in the path of a type on a type bar at each depression of a finger key or to remain fixed during the depression of the finger keys to operate the type bars and carriage feeding mechanism.

11. In a typewriting machine, the combination of a platen, type bars, finger keys therefor, a ribbon vibrator having ribbon guides thereon, means controlled by said finger keys for automatically moving the vibrator to effect a movement of the ribbon transversely of the platen, and means for rendering the automatically actuated moving means ineffective to move the vibrator while the printing and letter feeding mechanisms are in operation.

12. In a typewriting machine, the combination of a ribbon vibrator, connections for said vibrator, actuating means cooperating with said connections for automatically

moving said vibrator during the operation of the machine, and means for moving said connections out of operative relation with the actuating means.

13. In a typewriting machine, the combination of a ribbon vibrator, connections for said vibrator, actuating means cooperating with said connections for automatically moving said vibrator during the operation of the machine, and means for moving said connections out of operative relation with the actuating means, and for moving the vibrator to and maintaining it in a position where the ribbon will cover the printing point.

14. In a typewriting machine, the combination of finger keys, a ribbon vibrator, connections from said finger keys to said vibrator, and means for rendering said connections inoperative to transmit motion from the finger keys to the ribbon vibrator during the operations of the printing and letter feeding devices.

15. In a typewriting machine, the combination of finger keys, a ribbon vibrator, intermediate connections between said finger keys and said vibrator and which are adapted to move the vibrator at each actuation of a finger key, and means for displacing one portion of said connections relatively to another, so that an actuation of the finger keys will be ineffective to transmit motion to the vibrator.

16. In a typewriting machine, the combination of finger keys, a ribbon vibrator, intermediate connections between said finger keys and said vibrator and which are adapted to move the vibrator at each actuation of a finger key, and hand actuated means for displacing one portion of said connections relatively to another, and for at the same time moving the vibrator to and maintaining it in a position where the ribbon will cover the printing point, so that the vibrator will maintain the ribbon in position to receive the impact of the types and an actuation of the finger keys will be ineffective to transmit motion to the vibrator.

17. In a typewriting machine, the combination of a platen, type bars, finger keys therefor, a universal bar, a ribbon vibrator, intermediate connections between said vibrator and said universal bar to effect a movement of the vibrator at each actuation of a finger key, hand actuated means for controlling the normal relation of the parts of said connections one to another, so that the connections may be rendered effective or ineffective to transmit motion to the ribbon vibrator, the construction and arrangement of the parts being such that the said hand actuated means and the parts controlled thereby are maintained in the positions to which they are moved when actuated to render the connections ineffective to move the vibrator.

18. In a typewriting machine, the combination of a platen, type bars, finger keys therefor, a universal bar, a ribbon vibrator which is adapted to normally maintain the ribbon out of the path of the types on the type bars, intermediate connections between said vibrator and said universal bar to automatically effect a movement of the vibrator at each actuation of a finger key, so as to interpose the ribbon in the path of the types on the type bars, hand actuated means for controlling the normal relation of the parts of said connections one to another, so that the connections may be rendered effective or ineffective to transmit motion from the universal bar to the ribbon vibrator, the construction and arrangement of the parts being such that the said hand actuated means and the parts controlled thereby are maintained in the positions to which they are moved when actuated to render the connections ineffective to move the vibrator.

19. In a typewriting machine, the combination of a platen, a carriage, type bars, finger keys therefor, escapement mechanism for said carriage, a ribbon vibrator, intermediate connections between said escapement mechanism and said vibrator and which are adapted to actuate the vibrator at each actuation of a finger key, and means for affording a movement of said finger keys, type bars and escapement mechanism independently of the ribbon vibrator.

20. In a typewriting machine, the combination of a carriage, escapement mechanism therefor and which includes an escapement rocker, type bars, finger keys therefor, a ribbon vibrator, a part operatively connected to said vibrator and adapted to be actuated by the escapement rocker, and means for moving the said part out of the path of movement of the escapement rocker, so that the rocker may move independently thereof.

21. In a typewriting machine, the combination of a carriage, escapement mechanism therefor, and which includes a dog rocker, type bars, finger keys therefor, a ribbon vibrator, a part operatively connected to said vibrator and adapted to be automatically actuated by the dog rocker, and hand actuated means for moving the said part out of the path of movement of the escapement rocker, so that the rocker may move independently thereof, and the vibrator be maintained in a position of rest, the construction and arrangement of the parts being such that the vibrator is moved to interpose and maintain the ribbon in the paths of types on the type bars when the hand actuated means are moved to render the dog rocker ineffective to move the vibrator.

22. In a typewriting machine, the combination of an automatically actuated ribbon vibrator, a part connected thereto and which is adapted to move when said vibrator is

actuated, and hand actuated means for moving said part and its connections.

23. In a typewriting machine, the combination of a ribbon vibrator, a part connected thereto and through which motion may be transmitted to said vibrator when the various parts are in operative relation, and a hand actuated device for moving said part and the ribbon vibrator to effect a change in the disposition of the various parts and to render them inoperative to transmit motion to the vibrator.

24. In a typewriting machine, the combination of a ribbon vibrator, means for actuating said vibrator, a finger piece at the front of the machine, and intermediate connections between said finger piece and actuating means, to render them inoperative to transmit motion to the ribbon vibrator.

25. In a typewriting machine, the combination of a ribbon vibrator, actuating means for said vibrator, intermediate connections between the vibrator and its actuating means, and a finger piece at the front of the machine which is operatively connected to the intermediate connections and which is effective to displace said connections relatively to the actuating means and to move the vibrator and maintain it in position where the ribbon will cover the printing point.

26. In a typewriting machine, the combination of a ribbon vibrator, a rock shaft operatively connected thereto, ribbon vibrator actuating mechanism, a link interposed between the rock shaft and said actuating means, and hand operated means for turning said rock shaft.

27. In a typewriting machine, the combination of a ribbon vibrator, a rock shaft operatively connected thereto, ribbon vibrator actuating mechanism, a link interposed between the rock shaft and said actuating means and which is adapted to be moved to a position where it is inoperative to transmit movement from the actuating means to the vibrator through said rock shaft, and hand operated means for turning said rock shaft to move the link to the inoperative position and to move the vibrator so that the ribbon will cover the printing point.

28. In a typewriting machine, the combination of a ribbon vibrator, a rock shaft connected thereto, a link operatively connected to said rock shaft, an escapement rocker, a pin and slot connection between the escapement rocker and the link, and hand actuated means for moving said rock shaft.

29. In a typewriting machine, the combination of a ribbon vibrator, a rock shaft connected thereto, a link operatively connected to said rock shaft, an escapement rocker, a pin and slot connection between the escapement rocker and the link, a sliding rod, means carried by said rock shaft and with

which said rod coöperates to rock the shaft, and means for maintaining the rod in the position to which it is moved.

30. In a typewriting machine, the combination of a ribbon vibrator, a rock shaft connected thereto, a link operatively connected to said rock shaft, an escapement rocker, a pin and slot connection between the escapement rocker and the link, a hand actuated rod which extends to the front of the machine, a crank arm on the rock shaft and with which the rod is adapted to coöperate to rock the shaft and to move the parts connected thereto, so that the disposition of the pin and slot connection may be changed to render the escapement rocker inoperative to actuate the ribbon vibrator and so that the vibrator may be moved to cause the ribbon to cover the printing point.

31. In a typewriting machine, the combination of a rock shaft, a crank arm extending therefrom, a ribbon vibrator pivoted to said crank arm, a bell crank secured to said rock shaft, a link pivoted to one arm of the bell crank, an escapement rocker, a pin and slot connection between said link and escapement rocker, and an adjustable rod that is adapted to coöperate with one arm of the bell crank.

32. In a typewriting machine, the combination of a ribbon vibrator, means for actuating said vibrator, a pin and slot connection between the vibrator and its actuating means, and hand actuating means for changing at will the normal disposition of the parts of said pin and slot connection one to the other.

33. In a typewriting machine, the combination of printing mechanism, letter feeding mechanism, a ribbon carrier arranged to normally hold the ribbon away from the printing line, mechanism operatively related to the key levers for vibrating the carrier to move the ribbon over the printing line each time a key is depressed, and means for rendering said mechanism inoperative to move the carrier when the keys are operated to effect an operation of the printing mechanism and also to effect an operation of the letter feeding mechanism.

34. In a sight typewriting machine, a ribbon guide, means operating on said ribbon guide to interpose the ribbon between the type and the platen, actuating means for the interposing means, said actuating means being movable to control the interposing means, and means independent of the operation of the machine to determine the position of the actuating means.

35. In a typewriting machine, the combination of a carriage, means for feeding said carriage step-by-step in printing direction, a ribbon vibrator, a lever for operating the same, actuating means for said lever, and means for rendering said lever inoperative

to move the vibrator, said feeding means for the carriage remaining operative, both while said lever is operative and while it is inoperative.

36. In a typewriting machine, the combination of a carriage, letter feed mechanism therefor, a ribbon vibrator, means for automatically actuating said vibrator, said actuating means comprising means operable as a positive or as a lost-motion connection, and hand actuated means operable at will to determine whether said actuating means shall act as a lost-motion connection or as a positive connection.

37. In a typewriting machine, the combination of means for feeding a ribbon longitudinally, a ribbon vibrator, a universal bar, operative connections between the universal bar and vibrator, and means operative at will for rendering said connections operative or inoperative to transmit movement from the universal bar to the vibrator, the ribbon feeding mechanism remaining operative both while said connections are operative and while they are inoperative.

38. In a typewriting machine, the combination of a ribbon vibrator, means for automatically actuating said ribbon vibrator, said means including a pin and slot connection adapted to enable the vibrator to remain at rest during the printing operations, and means operable at will for determining when said pin and slot connection shall become ineffective to operate the vibrator.

39. In a typewriting machine, the combination of a carriage, escapement mechanism, means for actuating said escapement mechanism, a ribbon vibrator operated in common with the means for actuating the escapement mechanism, and means for maintaining said ribbon vibrator quiescent during the actuation of the escapement mechanism actuating means.

40. In a typewriting machine, the combination of a ribbon vibrator, a universal bar, intermediate actuating connections between said universal bar and vibrator, and means operable independently of the universal bar for changing at will the relation of the parts of said actuating connections.

41. In a typewriting machine, the combination of a ribbon vibrator, a universal bar, intermediate actuating connections between said universal bar and vibrator, and means operable independently of the universal bar for changing at will the relation of the parts of said actuating connections and for simultaneously changing the normal position of the vibrator.

42. In a typewriting machine, the combination of a carriage, carriage feed mechanism, a universal bar, a ribbon vibrator, means for operatively connecting said vibrator and said universal bar, and hand actuated means operable at will to change the normal posi-

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tion of the vibrator relatively to the printing point without affecting the operation of the universal bar.

43. In a typewriting machine, the combination of a carriage, a universal bar, escapement mechanism controlled by said universal bar, a ribbon vibrator, an actuating lever for said vibrator, means for operatively connecting said lever and said universal bar, and hand actuated means for controlling the normal position of said lever without affecting the operation of said universal bar.

44. In a typewriting machine, the combination of a ribbon vibrator, an arm to which said vibrator is pivoted, a universal bar operatively connected to said arm, and means operable independently of the universal bar for shifting said arm and thereby changing the normal position of the ribbon vibrator.

45. In a typewriting machine, the combination of a ribbon vibrator, a universal bar intermediate connections between said universal bar and vibrator, and a finger piece

operatively connected to said intermediate connections and operative thereon without affecting the universal bar to vary the relation between the parts of said connections and to vary the position of the ribbon relatively to the printing point.

46. In a typewriting machine, the combination of a carriage, escapement mechanism, means for actuating said escapement mechanism, a ribbon vibrator, operative connections between said vibrator and the means for actuating the escapement mechanism, and means for changing the normal position of the ribbon vibrator without affecting the actuation of the escapement mechanism actuating means.

Signed at the borough of Manhattan, city of New York, in the county of New York, and State of New York, this 11th day of October, A. D. 1902.

BURNHAM C. STICKNEY.

Witnesses:

K. V. DONOVAN,
E. M. WELLS.