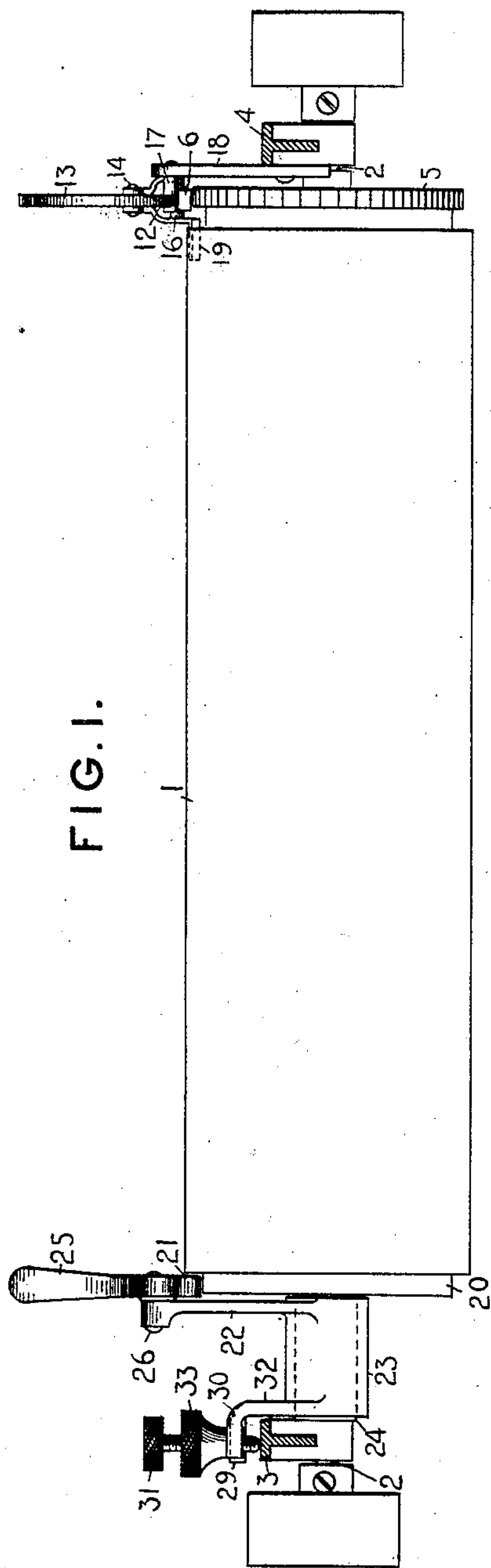


No. 855,206.

PATENTED MAY 28, 1907.

C. H. SHEPARD.
TYPE WRITING MACHINE.
APPLICATION FILED MAR. 28, 1901.

2 SHEETS—SHEET 1.



WITNESSES.
K. V. Alonzo.
E. M. Wells.

INVENTOR.
Charles H. Shepard
by Jacob Felbel.
HIS ATTORNEY

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2 SHEETS—SHEET 2.

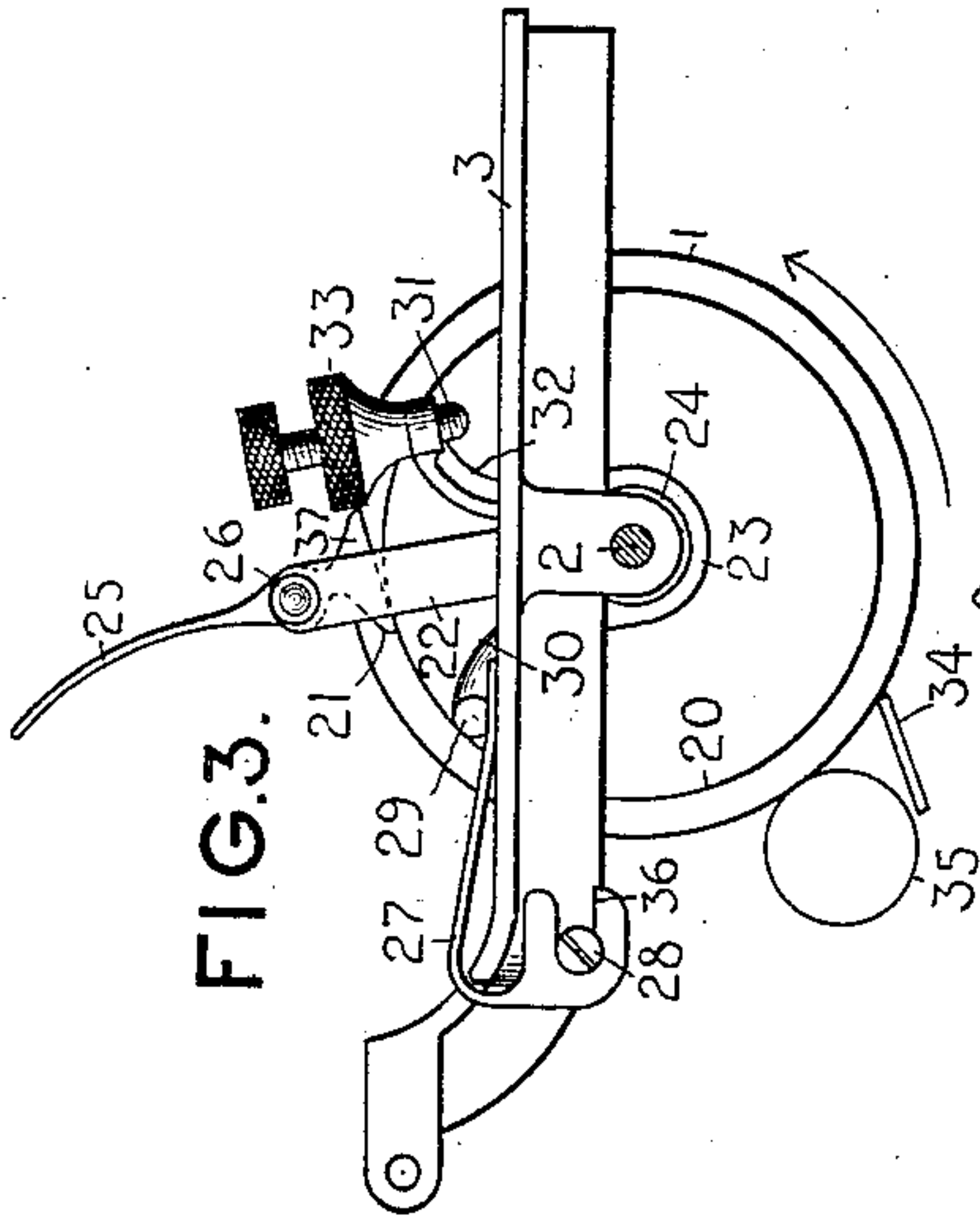


FIG. 3.

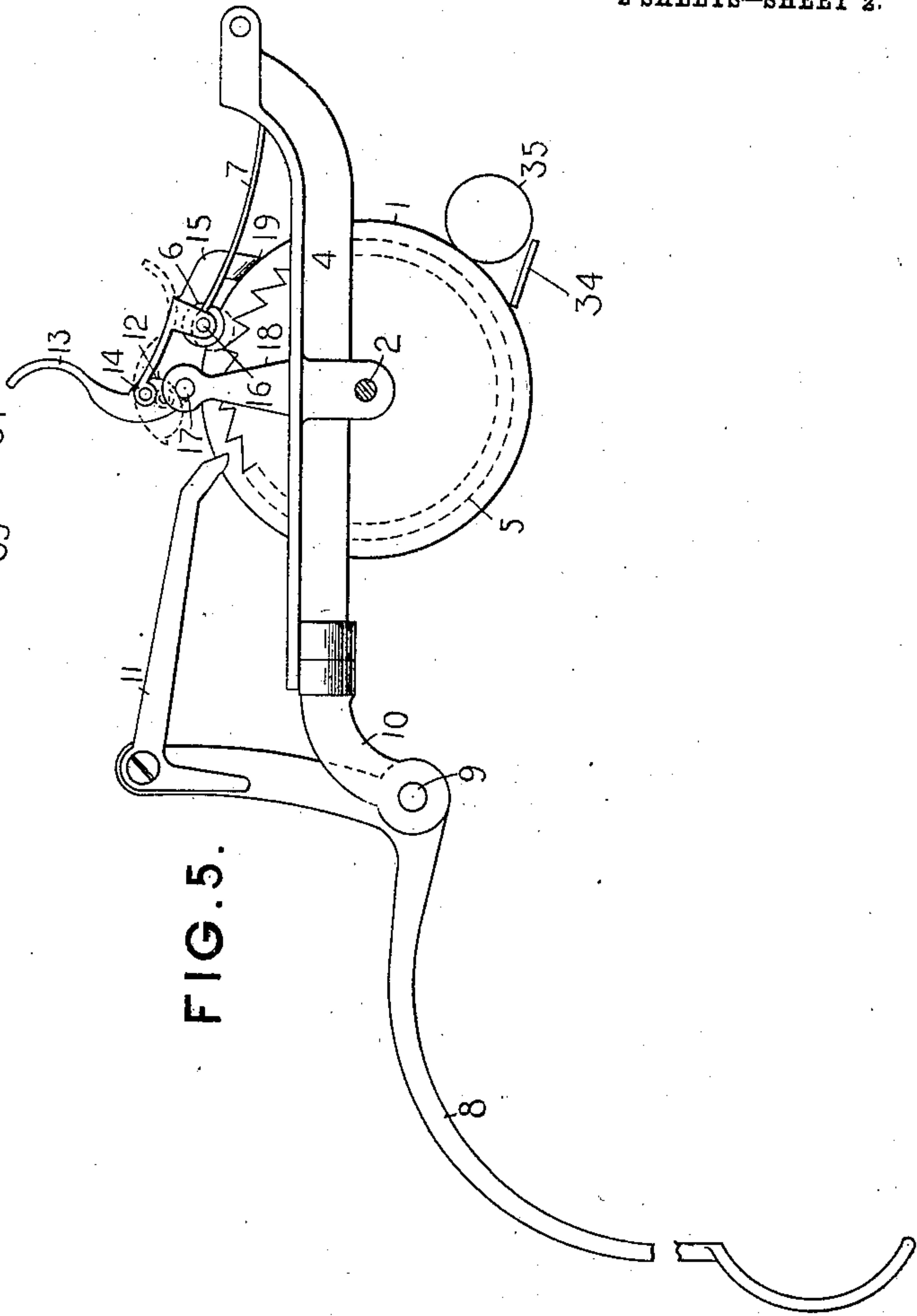


FIG. 5.

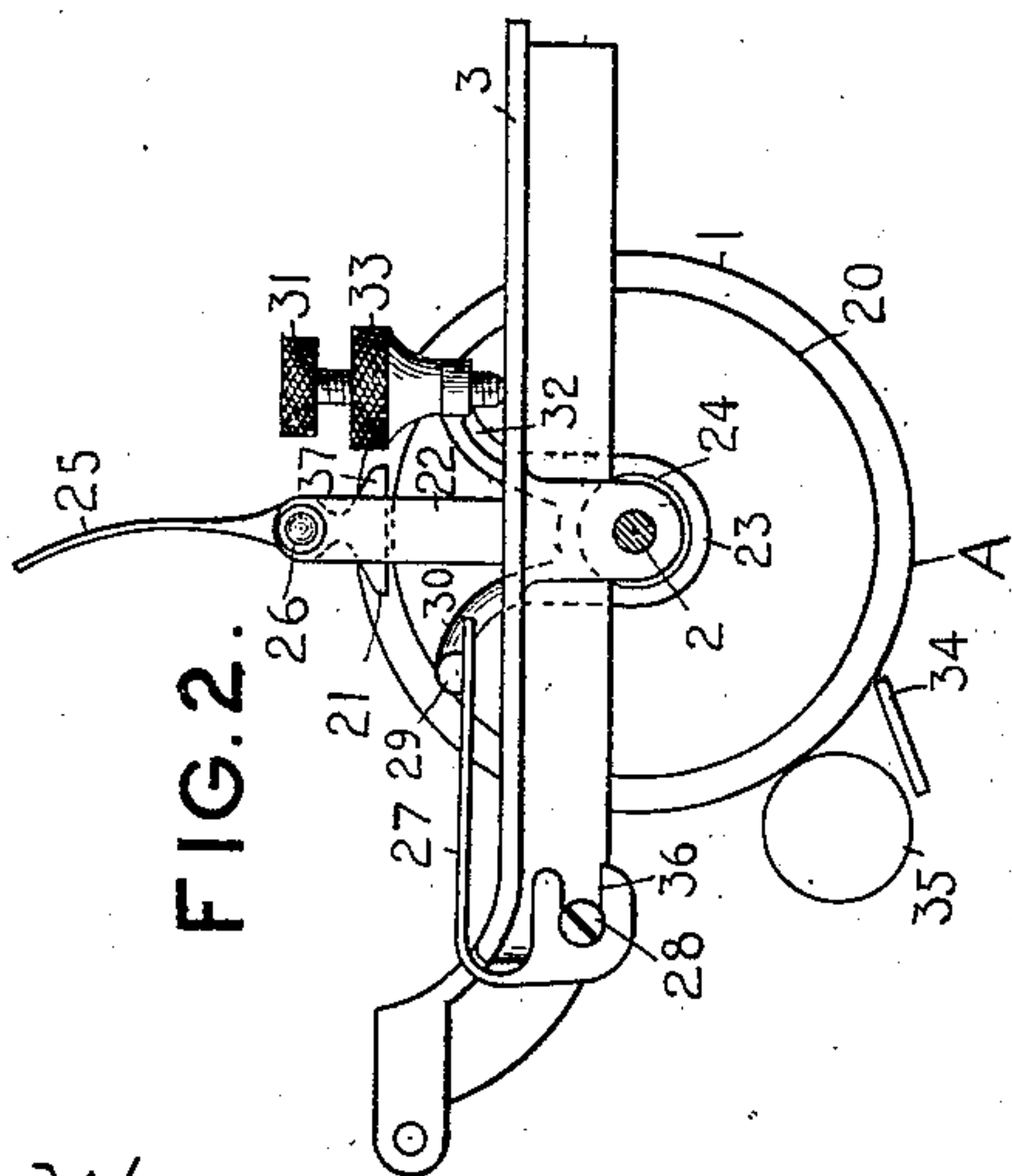


FIG. 2.

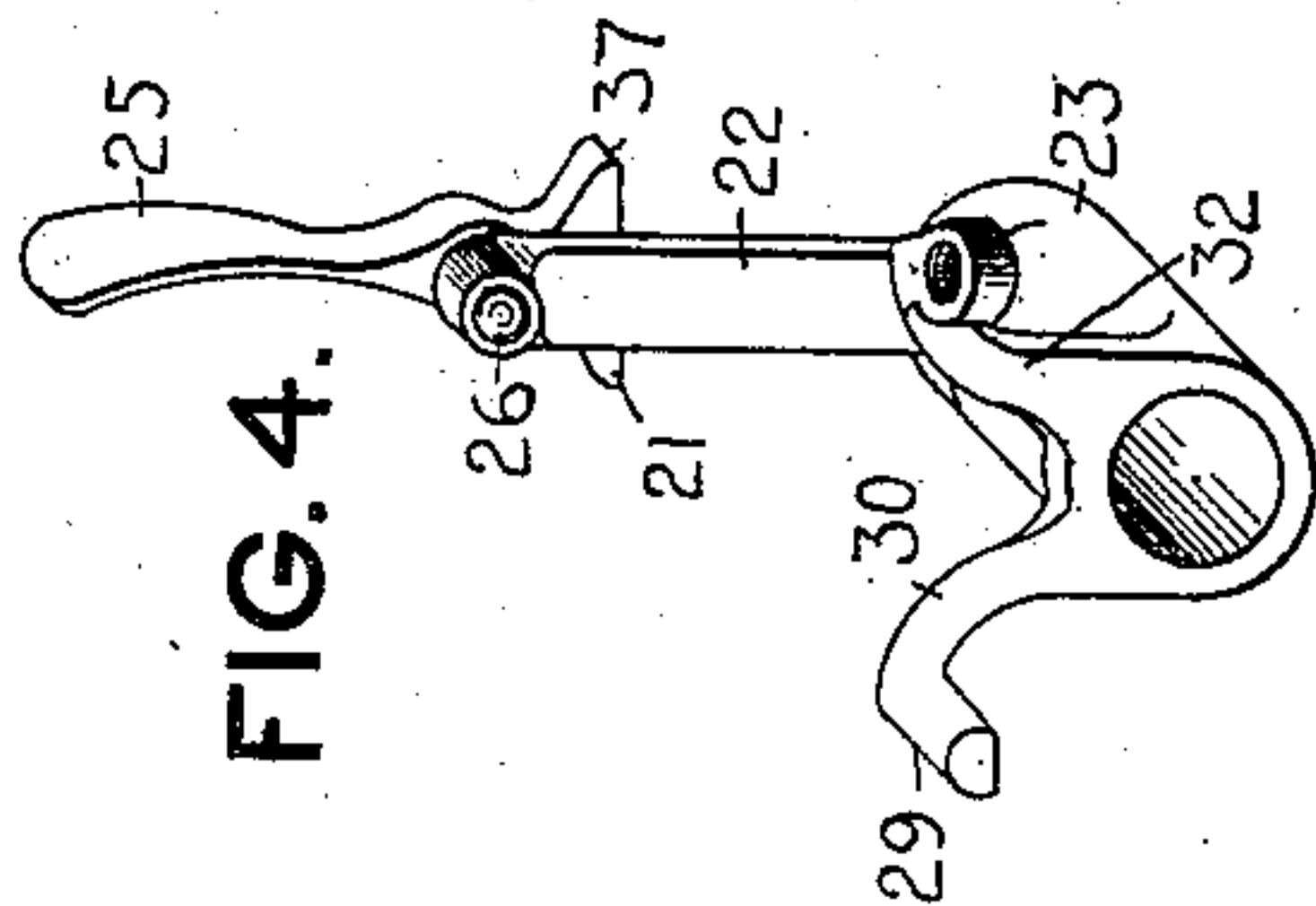


FIG. 4.

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UNITED STATES PATENT OFFICE.

CHARLES H. SHEPARD, OF NEW YORK, N. Y., ASSIGNOR TO WYCKOFF, SEAMANS & BENEDICT, OF ILION, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

No. 855,206.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed March 28, 1901. Serial No. 53,337.

To all whom it may concern:

Be it known that I, CHARLES H. SHEPARD, a citizen of the United States, and a resident of the borough of Brooklyn, city of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

10 This invention relates to line feed devices of type-writing machines.

The main object of the invention is to enable the operator to feed the paper at will either through ordinary line spaces, by means of the usual line spacing mechanism, or through special line spaces, by means of a novel mechanism, so that when writing upon ruled paper the line-feeding movements may be made to agree with the spacing of the ruled lines upon the paper, so as to avoid the necessity of re-adjusting the paper upon the platen at the beginning of each line of writing, in order to bring a ruled line thereon into position for receiving the type impressions.

25 Another object is to facilitate the writing of one or more characters out of line when desired, as in writing fractions or exponents.

My invention contemplates the employment of a clutch for rotating the platen, means for variably limiting the throw of the clutch and platen, so that minute variations in the line feed of the paper may be produced, and means for preventing accidental movement of the platen and paper.

35 The invention consists in certain combinations of devices, features of construction and arrangements of parts, all as will be more fully hereinafter set forth and particularly pointed out in the concluding claims.

40 In the accompanying drawings, Figure 1 is a front elevation of the platen of a Remington No. 6 typewriting machine, showing my improvements connected therewith, the platen frame being shown in section. Fig. 2 is an end elevation of the novel platen rotating mechanism, the clutch being shown in its normal position of disuse. Fig. 3 is a view similar to Fig. 2, but illustrating the manner of rotating the platen by means of the clutch. 45 Fig. 4 is a perspective view of the clutch lever detached. Fig. 5 is an elevation of the right-hand end of the platen frame and showing the ordinary line-feed devices.

In the several views similar parts are des-

ignated by similar numerals of reference, and portions of the machine not pertinent to the invention are omitted. 55

1 designates the usual revoluble platen, mounted upon a shaft 2, which is journaled in the end bars 3 and 4 of the platen frame. Upon the right-hand end of the platen is mounted a notched line space wheel 5, which is normally engaged by a detent roller 6, carried upon the forward end of a spring 7, secured to the platen frame. The ordinary line feed of the paper is produced by means of a lever 8, pivoted at 9 upon an arm 10 fixed to the platen frame, and carrying at its upper end a pawl 11 which is adapted to engage the teeth of the line space wheel. 60 65 70

The detent roller 6 may be disengaged from the line-space wheel by a release cam 12, having a handle or lever 13 and pivoted at 14 upon the forward end of a shoe 15, which is pivoted between its ends upon the axis 16 of the detent roller. Said cam 12 is adapted to engage a fixed pin 17, which projects inwardly from a standard 18, rigidly secured upon the end bar 4 of the platen. When the cam lever is in its normal depressed position, the roller engages the teeth of the line space wheel, as indicated in dotted lines at Fig. 5, and prevents accidental rotation of the platen; but when said lever is swung up to the full line position at said figure, the cam 12 is caused to work upon the pin 17 and lift the forward end of the shoe, the rear end of which bears at 19 upon the periphery of the platen, thus frictionally opposing the rotation thereof. By this construction, it will be seen that the platen when released from the control of the ordinary detent 6, is simultaneously placed under the control of the friction shoe, so that its accidental rotation at this time is prevented. 75 80 85 90 95

The devices thus far described are in common use upon said Remington typewriting machine.

At the left-hand end of the platen, I provide the so-called universal or fractional line spacing mechanism comprising a gripper 21 which is adapted to clutch the periphery of the usual metallic platen head 20. The gripper is pivoted on an arm 22, and the latter is mounted by means of a sleeve-like device 23 upon a hub 24, which is usually formed integral with the platen head 20, whereby the arm and gripper are enabled to swing to- 100 105

gether about the platen axis. Said gripper overhangs the platen head, and is provided with an upwardly projecting handle or lever 25. As will be seen at Fig. 2, the working end 5 of the gripper projects a short distance to the rear of a line joining the platen axis 2 and the pivot 26 of the gripper, so that when the handle 25 is pressed rearwardly and the gripper is tipped downwardly, the point of contact of 10 the latter with the platen head is close to said line joining the axes 2 and 26, and the gripper is crowded up the rise or crown of the platen head. By this means the arm 22 becomes clamped to the platen head, so that 15 further rearward movement of the lever 25 causes the arm 22, the platen head and the platen to turn together bodily about the platen axis.

For returning the clutch to normal position, I provide a spring 27, one end of which is secured to the platen frame, as by a screw 28, and the other end of which bears up against an overhanging projection 29 carried by an upwardly and rearwardly directed arm 30 formed upon the clutch sleeve 23. The 25 initial or platen-feeding movement of the clutch is limited by the projection 29, which forces the spring 27 down against the platen frame at a point in rear of the axis 2.

For variably limiting the throw of the clutch, I provide a thumb-screw or stop 31, which is tapped into an upwardly directed arm 32 also formed upon said sleeve 23, and is adapted to contact with the upper surface 35 of the platen frame at a point forward of the axis 2, so as to limit the return movement of the clutch. The thumb screw 31 is provided with a binding nut 33.

It will be understood that the sleeve 23, arms 22, 30 and 32 constitute a frame which 40 is pivoted to vibrate on the same center that the platen turns on and that the arms 30 and 32 of said frame extend on opposite sides of said pivotal center.

In the usual operation of the machine, the handle 8 is vibrated so as to rotate the platen by means of the notched line space wheel 5, and produce ordinary line-feed of the paper. When it is desired to produce a special line-feed of the paper, the cam lever 13 is thrown 50 up to the full line position at Fig. 5, thus causing the cam 12 to ride up on the fixed pin 17, and thereby turn the brake shoe about the pivot 16, so that the shoe is forced against the platen, and simultaneously casting off 55 the line space check 6, the function of the latter being now performed by the brake shoe. Then the clutch lever 25 is pressed rearwardly, turning freely upon its pivot 26 until 60 the toe of the gripper 21 bites the periphery of the platen head 20, whereupon, by a continued rearward pressure upon the lever, the platen head and platen are rotated, as illustrated at Fig. 3, until the clutch is arrested by 65 the stop 29 forcing the spring 27 into contact

with the platen frame. Then the lever 25 is released, and the spring 27, acting through the stop 29 and arm 30, restores the clutch to normal position, with the point of the screw 31 bearing upon the platen frame. It will 70 be seen that by adjusting the screw 31 up or down, the movement of the parts back to normal position is made greater or less and hence at the active stroke of the clutch the feed of the platen and paper is increased or 75 diminished. The line spacing may be minutely varied.

In case ruled paper is used, the first ruled line thereon may be brought into register with the usual platen scale 34, which is placed 80 just in front of the usual pressure roller 35. Then the platen may be rotated by the lever 25, and the operator may determine, by inspecting the paper, whether or not it has been fed the exact distance necessary to bring 85 the second ruled line thereon into register with the scale. If the feed is too great, the nut 33 may be loosened and the screw 31 turned down, thereby shortening the stroke of the clutch mechanism until at each move- 90 ment thereof the paper will feed the required distance. Having thus adjusted the throw of the clutch, the lever 13 may be temporarily turned down to normal position, thereby re-engaging the check 6 to the line space 95 wheel 5. Then the first ruled line upon the paper is again adjusted into register with the platen scale 34, and the platen is rotated forwardly two ordinary line spaces, as determined by the wheel 5, so as to bring said 100 ruled line into register with the printing line upon the platen, which is indicated at A, Fig. 2. Then the lever 13 is again raised and the detent 6 cast off. Then the keys are operated to produce the type impressions, 105 which fall upon the first ruled line upon the paper. When the line is full, the carriage is returned to begin a new line, and by a stroke of the lever 25 the paper is fed so as to bring the second ruled line thereon into position 110 for receiving the type impressions. Thus the writing of the page may proceed. Should the line spacing prove a trifle incorrect, the screw 31 may be adjusted at any time so as to make as minute an alteration in the throw of 115 the clutch as may be required.

It will be understood that the clutch-feeding mechanism is also of use when it is desired to space the lines upon unruled paper either a little more closely or a little more 120 openly than is possible when using the ordinary line space wheel. The latter, it will be understood, affords only a set spacing of the lines, dependent upon the pitch of its teeth, while the clutch mechanism affords any de- 125 sired special spacing. It will be perceived further that while using the ordinary line feeding mechanism, my novel clutch mechanism may be employed to advantage for effecting fractional line-feed movements, or in 130

other words, for advancing the paper slightly, so that one or more characters may fall a trifle below the line of writing thereon; as when writing the denominators of fractions.

5 The screw 31 may be turned down, so as to shorten the stroke of the clutch, and, without throwing off the platen detent 6, the lever 25 may be pressed back as far as it will go, thus rotating the platen and adjusting the
10 paper forwardly. While holding the lever 25 in this position, one or more characters may be written upon the paper. Upon release of the lever 25, the spring-controlled detent 6 serves to re-position the platen, so
15 that the writing of the line may be resumed. It will also be perceived that the screw 28 may be loosened and the spring 27 slipped off, the latter being provided with an open slot 36 for facilitating removal; and there-
20 upon the arm 22 may be thrown idly back, until the stop 29 contacts with the platen frame; and from this initial position the lever 25 may be pressed forwardly, causing a forwardly projecting toe 37 thereon to bite the
25 platen head 20, so that further forward movement of the lever 25 may produce a reverse adjustment of the platen, thus adjusting the paper a trifle to the rear, so that one or more characters may fall a little above the
30 line of writing thereon, as when writing the numerators of fractions, or exponents. Upon releasing the lever 25, the platen will be re-positioned by the spring check 6, so that the writing of the line may proceed. If it should
35 be desired, however, to adjust the paper in this manner so far forward or backward that the check spring 6 would be unable to re-position the platen, it is only necessary to first cast off the detent roller 6 and put on the
40 brake 19, whereupon the lever 25 may be operated to rotate the platen either forwardly or backwardly, as desired, the length of its stroke being determined by the adjustment of the screw 31, and either said screw or the
45 opposite stop 29 being in contact with the platen frame at the beginning of the stroke, according to the direction in which it is desired to adjust the platen. After writing the desired characters out of line, the lever 25
50 may be given a reverse stroke, so as to restore the platen to its original position. Then the lever 13 may be thrown down so as to re-engage the platen-positioning wheel 6 with the line space wheel 5, whereupon the writing
55 of the line may proceed.

It will be seen that I have combined with ordinary line feeding mechanism, including the ratchet wheel or curved rack 5, means for releasing the paper from the control of
60 said wheel or rack, and mechanism having a minutely adjustable throw for effective special line-feeding movements of the paper, the brake 19 frictionally opposing rotation of the platen, so as to prevent accidental move-
65 ment of the paper in line feed direction; that

the releasable detent 6 normally engages the platen-positioning wheel 5; that the screw 31 enables the throw of the reciprocatory clutch mechanism to be finely adjusted; that the or-
70 dinary line feeding mechanism is arranged at one end of the platen and the reciprocatory clutch mechanism at the other end thereof; that the vibratory gripper-carrying arm 22 is mounted concentrically with the platen; that the extent of movement of the paper at
75 the operation of the clutch is mechanically determined; that the clutch lever is operated independently of the lever 8 that rotates the line-space wheel; and that the platen may be adjusted in opposite directions by means of
80 the clutch.

Many variations in construction and arrangement may be made within the scope of my invention.

What I claim as new and desire to secure 85 by Letters Patent, is:—

1. In a typewriting machine, the combination with a platen and its usual or ordinary line spacing mechanism, of an intermediate
90 line space mechanism constructed to turn the platen and paper irregular line spaces which differ in width from those afforded by the main line spacing mechanism, and means for predetermining the width of such irregular
95 line spaces to distances intermediate successive tooth spaces of the main line spacing mechanism.

2. In a typewriting machine, the combination of ordinary line-feeding mechanism, including a rack, means for releasing the pa-
100 per from the control of said rack, and mechanism having a minutely adjustable throw for effecting special line-feeding movements of the paper to distances which differ from the distance effected by the teeth of the rack
105 of the ordinary line feeding mechanism.

3. In a typewriting machine, the combination of ordinary line-feeding mechanism, including a rack, means for releasing the pa-
110 per from the control of said rack, mechanism having a minutely adjustable throw for effecting special line-feeding movements of the paper, and means for preventing accidental movement of the paper in line-feeding
115 direction when released from the control of said rack.

4. In a typewriting machine, the combination of a revoluble platen, an ordinary line-feeding mechanism, including a platen-posi-
120 tioning ratchet wheel, a co-operating spring detent normally engaging said ratchet wheel, and a reciprocatory clutch mechanism having an adjustable throw for rotating the platen so as to produce a plurality of variable special line-feeding movements of the
125 paper.

5. In a typewriting machine, the combination of a revoluble platen, an ordinary line-feeding mechanism, including a platen-posi-
130 tioning wheel, a releasable detent normally

engaging said wheel, a reciprocatory clutch mechanism having an adjustable throw, for rotating the platen so as to produce a plurality of variable special line-feeding movements of the paper, and means for frictionally opposing rotation of the platen and which is brought into co-operation therewith when the detent is released.

6. In a typewriting machine, the combination of a revoluble platen, an ordinary line-feeding mechanism, including a platen-positioning wheel, a releasable detent normally engaging said wheel, hand actuated means for releasing said detent so as to free the wheel from control of the detent, a reciprocatory clutch mechanism for variably rotating the platen, and a screw for effecting minute variations in the throw of said reciprocatory clutch mechanism.

7. In a typewriting machine, the combination of a platen, a platen frame, a line-feeding mechanism arranged at one end of the platen and including a platen-positioning wheel, a releasable detent normally engaging said wheel, hand actuated means for releasing said detent so as to free the wheel from control of the detent, and a reciprocatory clutch mechanism arranged at the other end of the platen for variably rotating the latter.

8. In a typewriting machine, the combination of a revoluble platen, a line-space wheel, a releasable detent therefor, hand actuated means for releasing said detent so as to free the wheel from control of the detent, ordinary line-feeding devices co-operating with said wheel, a clutch for effecting a plurality of variable special line-feeding movements of the platen, and means for variably limiting the throw of said clutch.

9. In a typewriting machine, the combination of a revoluble platen, a line-space ratchet wheel, a releasable detent therefor, hand actuated means for releasing said detent so as to free the wheel from control of the detent, ordinary line-feeding devices co-operating with said wheel, a clutch for effecting a plurality of variable special line-feeding movements of the platen, means for variably limiting the throw of said clutch, and a returning spring.

10. In a typewriting machine, the combination of a platen, a platen shaft, a platen frame, arm 22, sleeve 23, gripper 21 pivoted upon said arm 22 and having handle 25, stop arm 30 upon said sleeve, spring 27, screw 31, and binding nut 33.

11. In a typewriting machine, the combination of a platen, a platen shaft, a platen frame, arm 22, sleeve 23, gripper 21 pivoted upon said arm 22 and having handle 25, stop arm 30 upon said sleeve, spring 27, screw 31 carried upon arm 32, and binding nut 33.

12. In a typewriting machine, the combination with a platen, of a line-space wheel, reciprocatory devices for rotating said wheel

regular tooth-spaces, a reciprocatory clutch for independently effecting rotative universal adjustments of the platen, and means for mechanically limiting the throw of said clutch and thereby determining the extent of movement of the paper.

13. In a typewriting machine, the combination with a platen, of a line space wheel regular line spaces, reciprocatory devices for rotating said wheel, a reciprocatory clutch for independently effecting universal rotative adjustments of the platen, and minutely adjustable means for variably limiting the throw of said clutch.

14. In a typewriting machine, the combination with a platen, an ordinary line space wheel, and its operating lever and means for rotating the platen regular line spaces, of a clutch having a limited throw and operated independently of said lever, for causing special rotative universal adjustments of the platen and the line-space wheel.

15. In a typewriting machine, the combination with a platen, an ordinary line-space wheel, and its operating lever and means for rotating the platen regular line spaces, of a clutch lever for independently rotating the platen and line-space wheel universally and, finely adjustable means for mechanically limiting the stroke of said clutch lever.

16. In a typewriting machine, the combination with a platen, of a clutch for rotating the platen irregular line spaces in opposite directions, and means for mechanically limiting the throw of the clutch in both directions.

17. In a typewriting machine, the combination with a revoluble platen, of a clutch lever for rotating the platen irregular line spaces in opposite directions, and adjustable means for limiting the stroke of the clutch lever in both directions.

18. In a typewriting machine, the combination with a platen, of an arm 22 pivoted concentrically therewith, opposite grippers 21 and 37 pivoted upon said arm, and lever 25 formed integral with said grippers.

19. In a typewriting machine, the combination of a platen, arm 22, grippers 21 and 37, lever 25, formed integral with said grippers platen head 20, and stops for the arm 22 on opposite sides thereof.

20. An intermediate line spacing device for typewriting machines, comprising a clutch normally out of engagement with the paper cylinder, means for engaging the clutch and the paper cylinder and for rotating the cylinder independently of the line spacing mechanism of the machine and means for limiting in scope the movement of the cylinder under the influence of the clutch to a distance less than a normal line space and means for automatically returning the paper cylinder to its original position.

21. An intermediate line spacing device for typewriting machines, comprising a

clutch normally out of engagement with the paper cylinder, means for engaging the clutch and the paper cylinder and for rotating the cylinder independently of the line spacing mechanism of the machine and an adjustable stop adapted to limit in scope the movement of the cylinder under the influence of the clutch to a distance less than a normal line space and means for automatically returning the paper cylinder to its original position.

22. An intermediate line spacing device for typewriting machines comprising a clutch normally out of engagement with the paper cylinder, adapted to rotate the latter in the direction opposite to the normal rotation for spacing the lines, means for engaging the clutch with the paper cylinder and for rotating the cylinder in the aforesaid direction independently of the line spacing mechanism of the machine.

23. An intermediate line spacing device for typewriting machines comprising a clutch normally out of engagement with the paper cylinder, adapted to rotate the latter in the direction opposite to the normal rotation for spacing the lines, means for engaging the clutch with the paper cylinder and for rotating the cylinder in the aforesaid direction independently of the line spacing mechanism of the machine, and means for limiting in scope the movement of the cylinder to a distance less than a normal line space.

24. An intermediate line spacing device for typewriting machines comprising a clutch normally out of engagement with the paper cylinder, adapted to rotate the latter in the direction opposite to the normal rotation for spacing the lines, means for engaging the clutch with the paper cylinder and for rotating the cylinder in the aforesaid direction independently of the line spacing mechanism of the machine, and an adjustable stop adapted to limit the scope of the rotation of the cylinder to a distance less than a normal line space.

25. In line spacing mechanisms for typewriting machines, the combination of a platen, means for affording predetermined regular line spacing movements of said platen through fixed distances, and universal line spacing means for affording any predetermined extent of universal line spacing movement of the platen.

26. In line spacing mechanisms for typewriting machines, the combination of a platen, means for affording predetermined regular line spacing movements of said platen through fixed distances, universal line spacing means for affording any predetermined extent of universal line spacing movement of said platen, and means for regulating the predetermined extent of movement of the platen effected at each operation of the universal line spacing means.

27. In a typewriting machine, the combi-

nation of a platen, a platen head having a smooth peripheral bearing surface, a spring restored vibratory frame which is pivoted to vibrate on the same center that the platen turns on, an engaging member pivoted to a portion of said frame and normally out of engagement with said peripheral bearing surface, hand operated means for moving said member around its pivot and into engagement, a stop on said vibratory frame to limit the movement of the frame in the direction of the feed of the platen, and an adjustable stop carried by said frame to limit the reverse or backward movement thereof.

28. In a typewriting machine, the combination of a platen, a smooth peripheral bearing surface connected thereto, a spring restored vibratory frame which is pivoted to vibrate on the same center that the platen turns on, an engaging member pivoted to said frame, a hand operated finger piece integral with said member for first moving it around its pivot and into engagement with its co-operating bearing surface and for then moving the member, frame and platen together for spacing, a stop carried by the frame to limit the movement of the frame in the direction of the feed of the platen, and an adjustable stop carried by the frame to limit the reverse or backward movement of the frame, whereby a variable throw may be imparted to the frame and variable line spacing be produced.

29. In a typewriting machine, the combination of a platen, a platen head secured thereto and having a smooth peripheral bearing surface thereon, a pivoted vibratory frame having two arms that extend to opposite sides of its pivotal center, said frame being pivoted to vibrate on the same center that the platen turns on and to move independently of said platen, an engaging member pivoted to a portion of said frame and adapted to move to and away from the bearing surface, a finger piece connected directly to said member to move it into engagement with the bearing surface and then to move the member, platen and frame together for line spacing, a stop carried by one of said arms to limit the vibration of the frame in the direction of the feed of the platen, and an adjustable set screw carried by the other of said arms and adapted to limit the backward or reverse movement of the frame.

30. In a typewriting machine, the combination of a platen carriage, a platen, a platen head secured thereto, a pivoted vibratory frame having two arms that extend upon opposite sides of the pivotal center of said frame and each arm provided with a stop that is adapted to bear upon an end rail of the platen carriage, an engaging member pivoted to said frame and a finger piece connected to said member.

31. In a typewriting machine, the combi-

nation of a platen, a pawl and ratchet line spacing mechanism co-operating with the platen for effecting line spacing movements of the platen through given distances corresponding to the distances between two or more teeth of the ratchet, and auxiliary universal or fractional line spacing mechanism co-operating with the platen and effective to move the platen a predetermined distance at each operation.

32. In a typewriting machine, the combination of a platen, a pawl and ratchet line spacing mechanism co-operating with the platen for effecting line spacing movements of the platen through given distances corresponding to the distances between two or more teeth of the ratchet, and universal fractional line spacing devices that are adapted to move the platen any desired fraction of the distance between two teeth of the ratchet at each operation.

33. In a typewriting machine, the combination of a platen, a pawl and ratchet line spacing mechanism co-operating with the platen for effecting line spacing movements of the platen through given distances corresponding to the distances between two or more teeth of the ratchet, auxiliary universal or fractional line spacing mechanism co-operating with the platen and effective to move the platen a predetermined distance at each operation, a detent co-operating with said ratchet, a brake for the platen, and means for throwing said detent out of co-operation with the ratchet and for applying the brake.

34. In a typewriting machine, the combi-

nation of a platen, means for moving the platen predetermined line space distances, means for moving the platen a predetermined fraction of a line space distance as determined by said first mentioned means, and means for automatically returning the platen to the writing line position determined by said first mentioned moving means.

35. In a typewriting machine, the combination of a platen, means for moving the platen predetermined line space distances, fractional spacing means for moving the platen a predetermined fraction of a line space distance as determined by said first mentioned means, means for automatically returning the platen to the writing line position determined by said first mentioned moving means, and adjustable means for regulating the extent of fractional spacing effected by said fractional spacing means.

36. In a typewriting machine, the combination of a platen, means for moving the platen a predetermined line space distance at each operation, and means for moving the platen a predetermined fractional extent of the distance it is capable of being moved at each operation by said first mentioned means.

Signed at the borough of Manhattan, city of New York, in the county of New York, and State of New York, this 27th day of March, A. D. 1901.

CHARLES H. SHEPARD.

Witnesses:

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