

W. P. KEENE.  
TYPE WRITING MACHINE.  
APPLICATION FILED NOV. 29, 1905.

915,679.

Patented Mar. 16, 1909.  
2 SHEETS—SHEET 1.

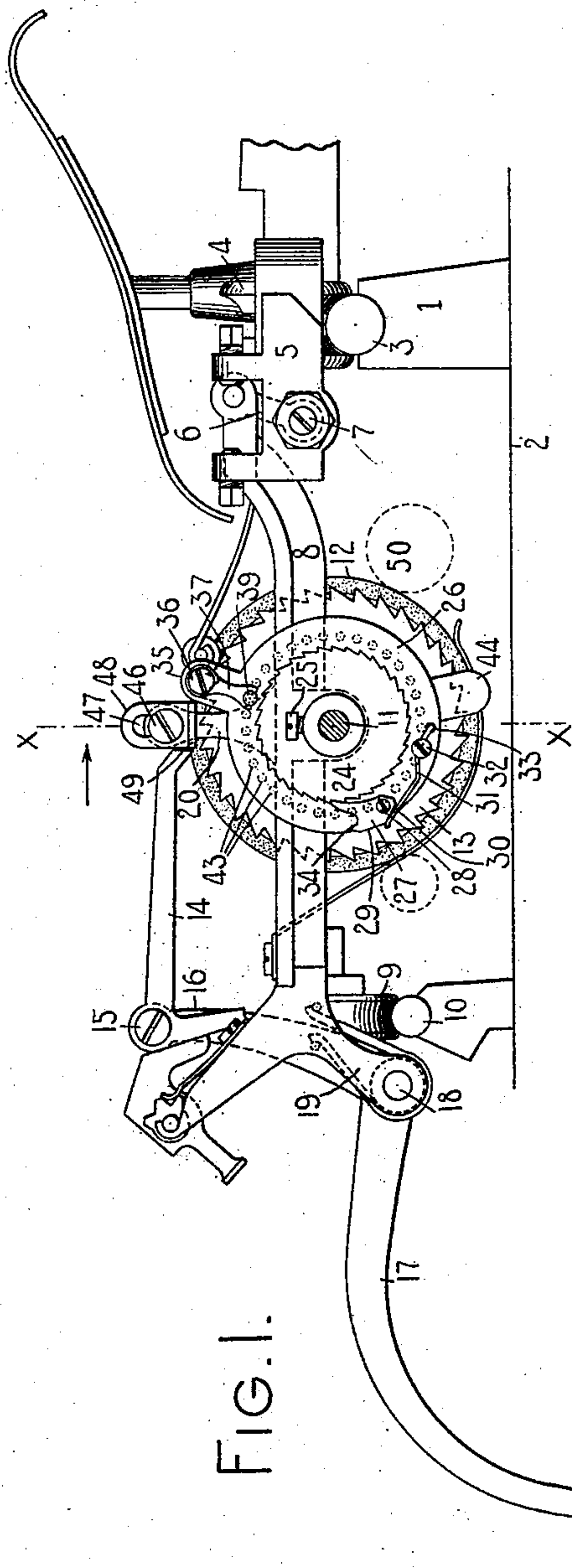


FIG. 1.

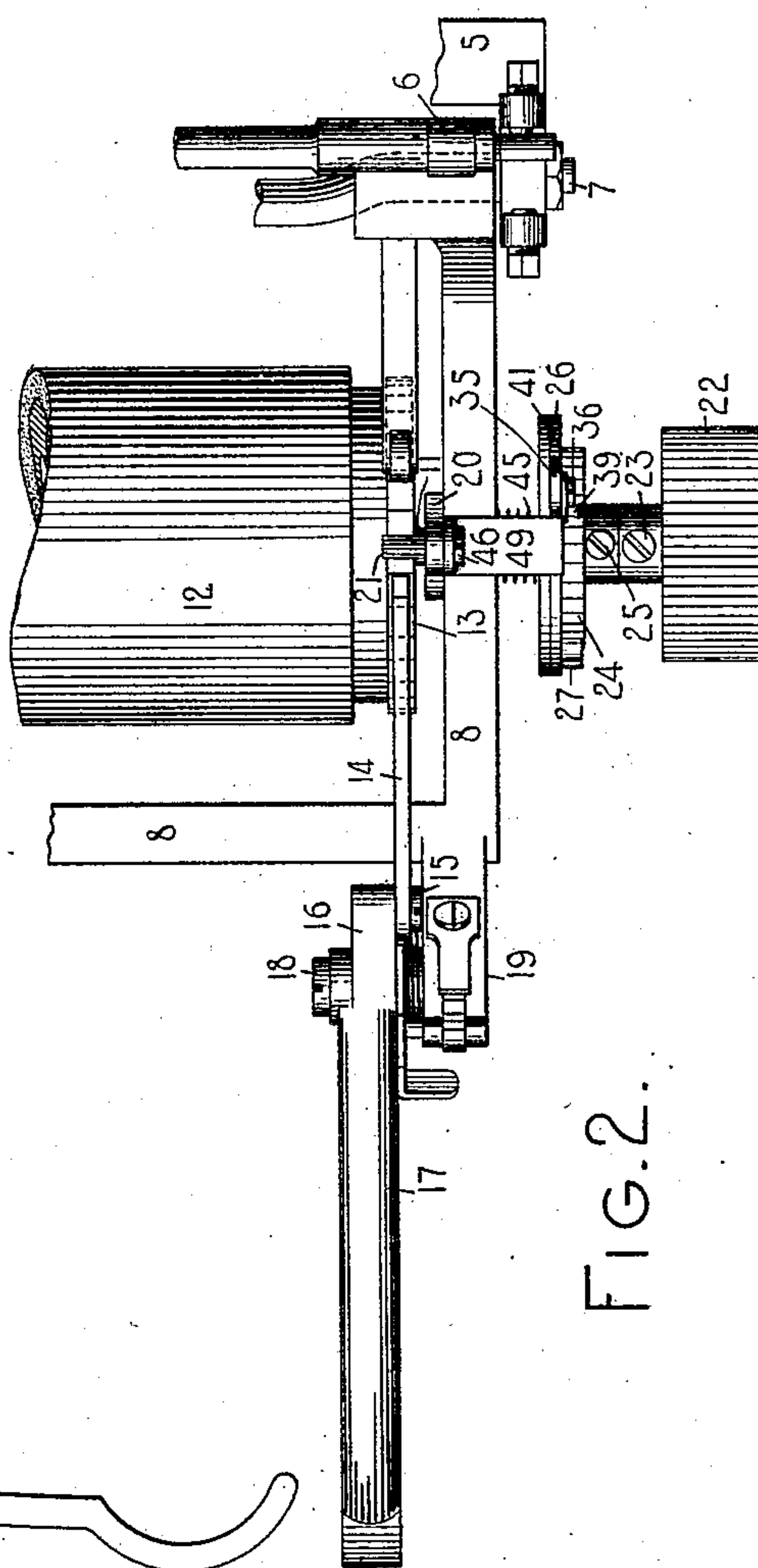


FIG. 2.

WITNESSES.

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*Charles Smith*

INVENTOR.

*Wendell P. Keene*  
*By Jacob Felbel*  
HIS ATTORNEY

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2 SHEETS—SHEET 2.

FIG. 5.

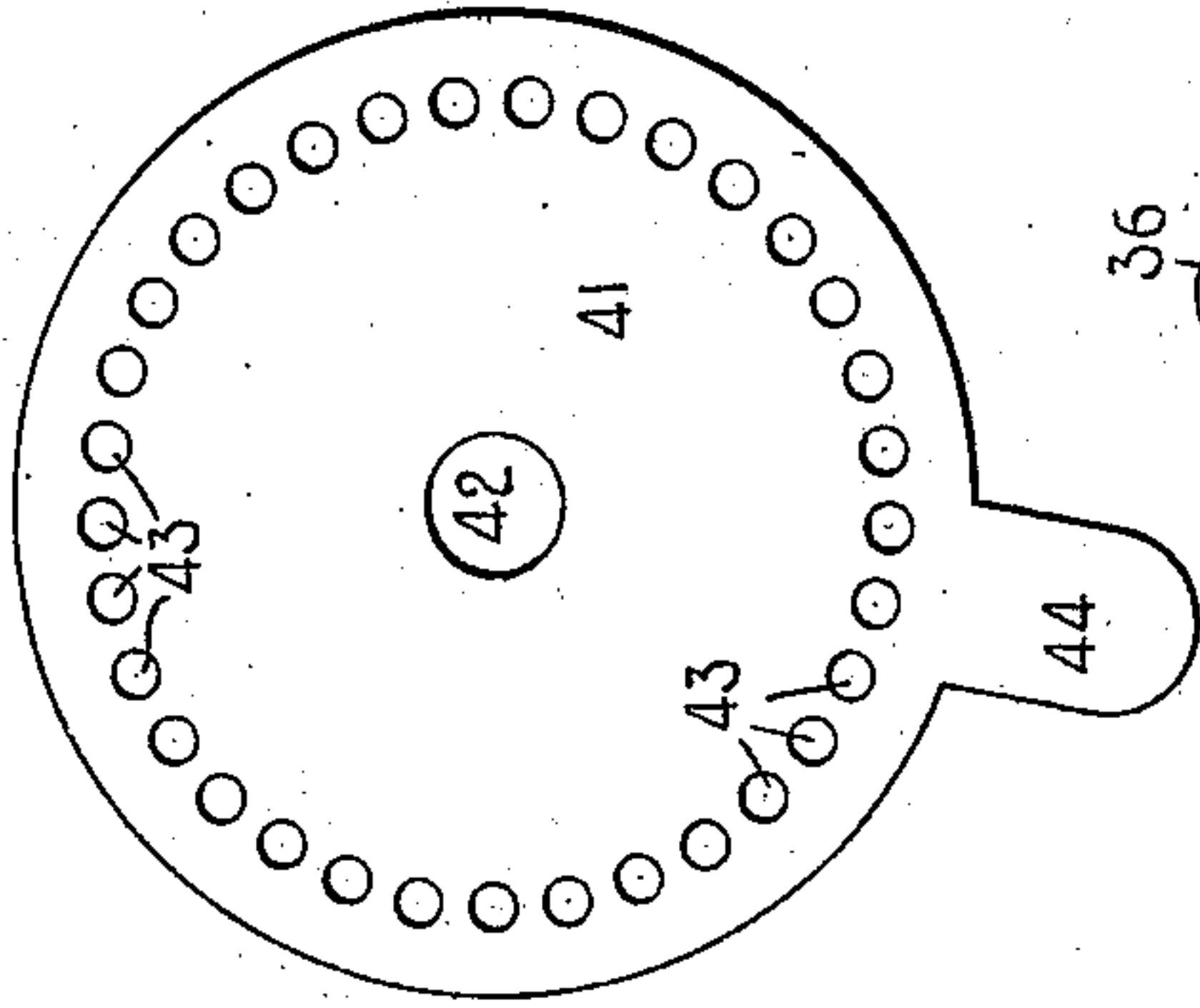


FIG. 6.

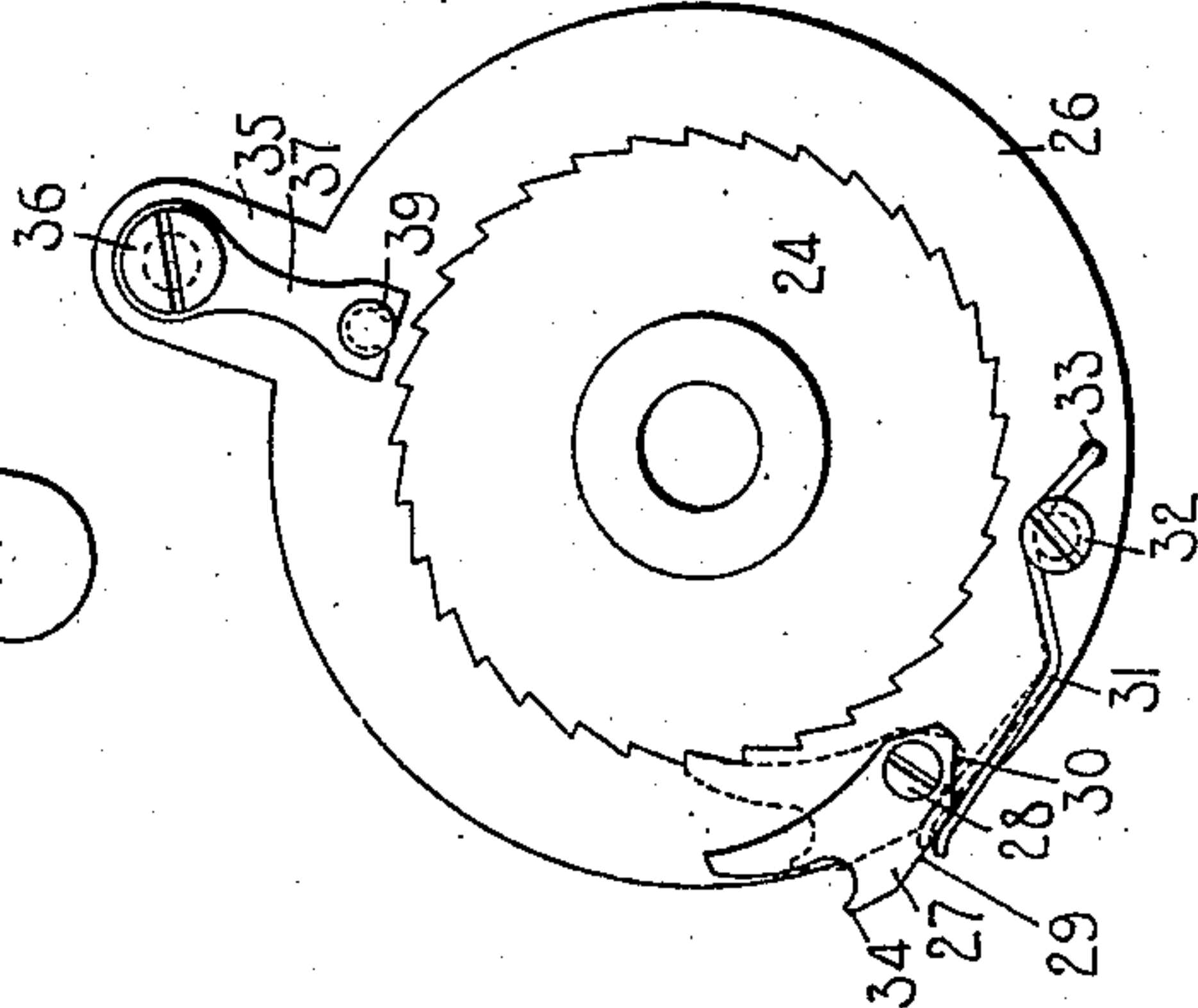


FIG. 3.

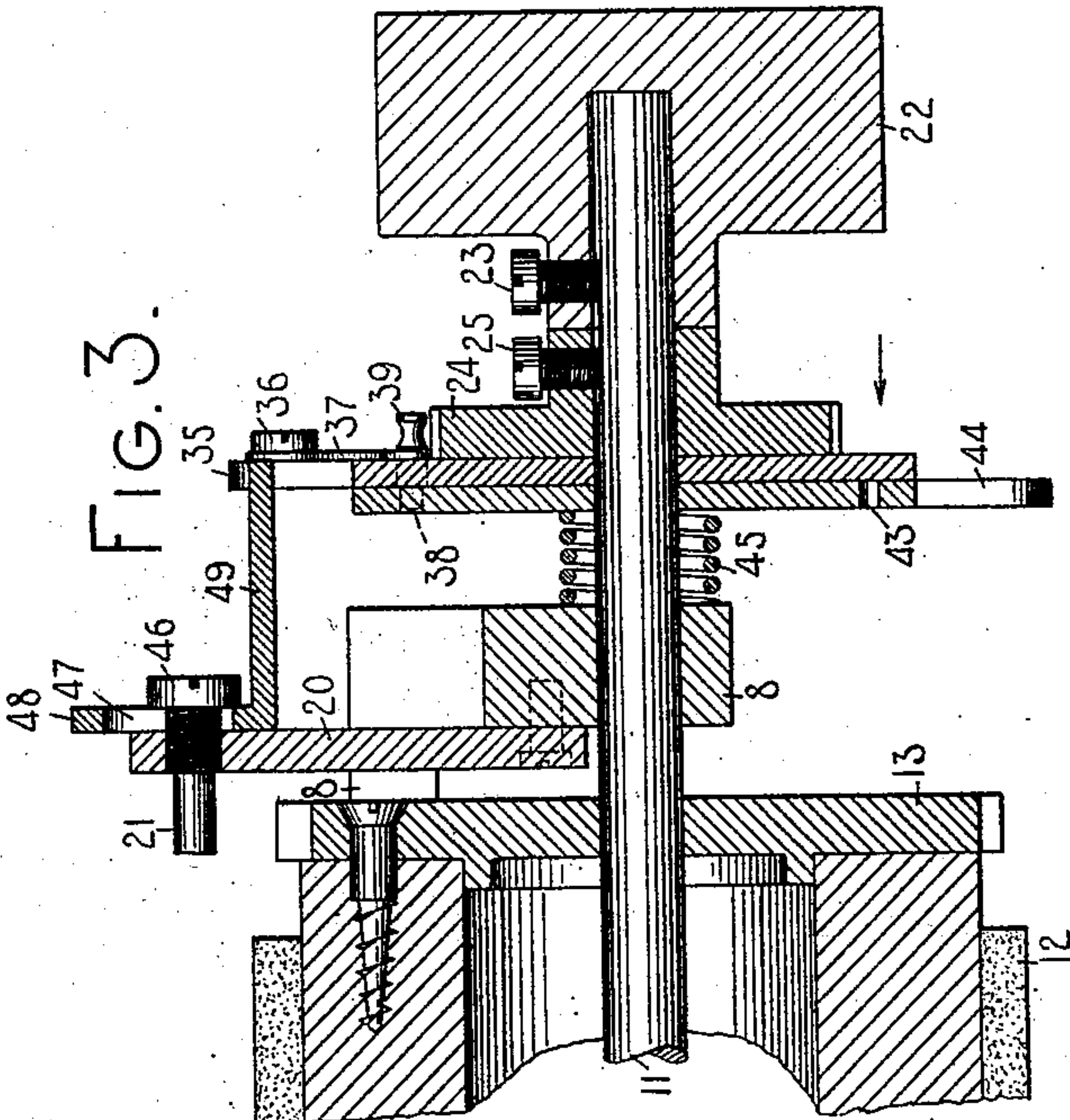
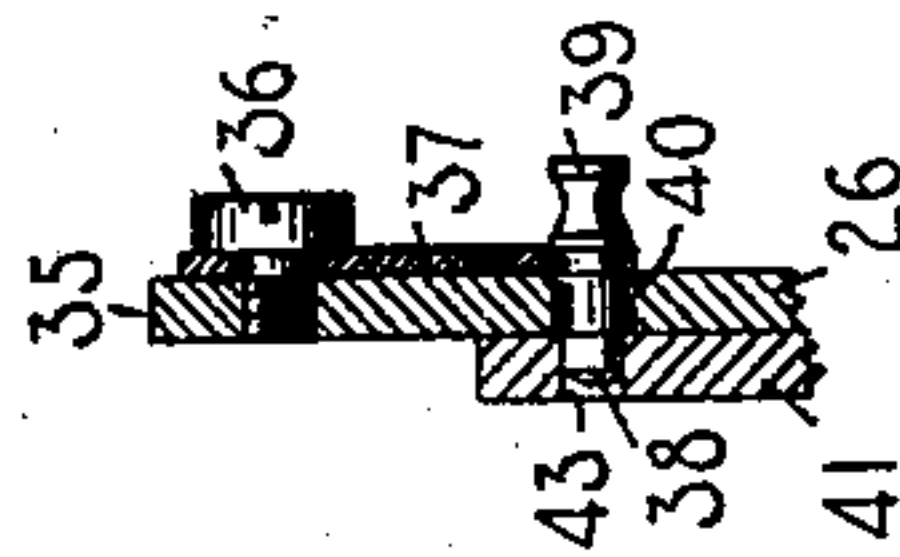


FIG. 4.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

WENDELL P. KEENE, OF PORTLAND, MAINE, ASSIGNOR TO WYCKOFF, SEAMANS & BENEDICT,  
OF ILION, NEW YORK, A CORPORATION OF NEW YORK.

## TYPE-WRITING MACHINE.

No. 915,679.

Specification of Letters Patent.

Patented March 16, 1909.

Application filed November 29, 1905. Serial No. 289,644.

*To all whom it may concern:*

Be it known that I, WENDELL P. KEENE, citizen of the United States, and resident of Portland, in the county of Cumberland and State of Maine, 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 billing mechanism therefor.

One object of my invention is to provide simple, cheap and efficient billing mechanism.

Another object of my invention is to provide billing devices in the nature of attachments which can be readily applied to existing forms of typewriting machines without modifying the structural features of said machines.

A further object of my invention is to provide billing mechanism which will positively arrest the platen after a predetermined extent of rotation to facilitate the proper positioning of the platen.

A still further object of my invention is to combine with means for positively arresting the platen after a predetermined extent of rotation in one direction, means for indicating a predetermined extent of rotation of the platen in an opposite direction.

To the above and other ends which will hereinafter appear, my invention consists of the 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 views, Figure 1 is a side elevation with parts sectioned away of the upper portion of a typewriting machine with the devices of my invention applied thereto. Fig. 2 is a top plan view of the same. Fig. 3 is an enlarged fragmentary vertical sectional view of the same taken on a line  $x-x$  of Fig. 3 and looking in the direction of the arrow at said line. Fig. 4 is an enlarged detail fragmentary sectional view showing the means for locking the stop carrying disks together. Fig. 5 is a detail side view of one of the top carrying disks; and Fig. 6 is a detail side view showing the other

stop carrying disk and the ratchet wheel for turning it.

I have shown my invention applied to a No. 6 Remington machine to which the devices may be applied without in any manner changing the structural features of said machine. It should be understood, however, that the devices may be attached to various forms of typewriting machines and are in fact applicable to almost all cylindrical rotary platen machines without the necessity of modifying the structural features thereof.

Upwardly extending posts or lugs 1 project from a top plate 2 of the machine and support a traverse rail 3. Anti-friction rollers 4 cooperate with the traverse rail to support and guide the carriage in its movement from side to side of the machine. The feed rollers 4 are mounted in a carriage truck 5 of the usual construction and links 6 are pivoted to the truck at 7 and are likewise pivotally connected to a platen frame 8, which carries an anti-friction roller 9 at the front portion thereof for cooperation with the usual shift rail 10. The side bars of the platen frame are formed with bearing openings to receive a platen shaft 11 which is rigidly connected in the usual manner to a cylindrical rotary platen 12. The platen shaft extends beyond the platen frame as shown in Fig. 3, where it is provided at one end with billing attachments as will hereinafter more clearly appear. A line spacing wheel 13 is connected to the platen at the right hand end thereof and a line spacing pawl 14 cooperates with said wheel. The pawl 14 is pivoted at 15 to an upright arm 16 of a line spacing lever 17 which is pivoted at 18 to a forwardly projecting bracket 19 which is secured to the platen frame. An upwardly extending bracket arm 20 is secured to the platen frame at the right hand end thereof and carries a stop pin 21 with which the line space pawl cooperates to prevent an overthrow of the platen when it is turned by the line space pawl. A finger wheel 22 is secured at the right hand end of the platen shaft 11 by a set screw 23, and by means of which the platen may be rotated. The parts thus far described constitute parts of the No. 6 Remington machine and a further description thereof is deemed unnecessary.



My billing attachment comprises a ratchet wheel 24 rigidly secured to the platen shaft near the right hand end thereof by a set screw 25. A disk 26 has a central bearing opening through which the platen shaft projects so that the disk is loosely mounted on the shaft and is adapted to bear at one side thereof against the inner side of the ratchet wheel 24, as shown in Fig. 3. A pawl 27 is pivoted at 28 to the disk or plate 26 and is provided with two flat faces 29 and 30 with which a spring 31 coöperates. This spring is formed with a convolute near one end through which the stem of a headed screw 32 projects, the screw taking into a threaded opening in the disk and the adjacent end of the spring being bent and seated in an opening 33 in the disk. A small finger piece 34 is provided on the pawl so that it may be moved by hand to either the full or dotted line position shown in Fig. 6. When the pawl is in the full line position the spring 31 coöperates with the flat face 29 on the pawl and tends to maintain the pawl in said full line position and out of engagement with the co-operating ratchet wheel 24. When, however, the pawl is moved to the dotted line position the spring 31 coöperates with the flat face 30 of the pawl and exerts a pressure thereon to force the nose of the pawl into engagement with the teeth of the ratchet wheel 24. This construction constitutes a pawl and ratchet connection between the platen shaft and the disk 26 and indirectly between the platen and the disk. The disposition of the teeth on the ratchet wheel is such that when the pawl is in engagement therewith the disk 26 will be positively connected to be turned with the platen in the backward rotation thereof, though when the disk is arrested as will hereinafter appear, the platen may be turned forwardly, or in the direction of its line spacing movements, to any desired extent independently of the disk 26. The disk 26 has an integral stop 35 which projects outwardly from the periphery thereof and the stop has a threaded opening therein for coöperation with a shouldered pivot screw 36 which connects one end of a leaf-spring 37 to the disk or to the stop carried thereby. The other free end of the leaf spring carries an engaging pin 38 which has an integral finger piece 39 by which it may be withdrawn from an opening 40 in the disk 26, and from effective engagement with the contiguous disk 41, as will hereinafter appear. The disk or plate 41 is preferably co-extensive in diameter with the disk 26 and like the disk 26 has a central opening 42 through which the platen shaft 11 projects so that the disk 41 is loosely mounted on the platen shaft. The disk 41 has a series of engaging openings 43 which are circularly arranged and are spaced apart to correspond to the spacing between the teeth of the line

spacing ratchet wheel 13. This disk 41 is likewise provided with an integral stop 44 which projects outwardly from the periphery thereof. The disks 26 and 41 are arranged side by side and the engaging openings 43 are so arranged that the locking pin 38 when projected through the opening 40 in the disk 26 enters one of the openings 43 in the disk 41 so as to positively lock the two disks together in the relation in which they may be adjusted relatively to each other. A coiled expansion spring 45 is interposed between an end or side bar of the platen frame 8 and the disk 41 so as to press the disk 26 into frictional engagement with the ratchet wheel 24, in order that both disks may be caused to rotate with the platen through frictional engagement of the disk 26 with the ratchet wheel 24. The stop pin 21 hereinbefore referred to constitutes a part of a headed screw 46, the stem of which extends through a slot 47 in a bracket arm 48. An outwardly extending arm 49 of this bracket extends across the side bar of the platen frame and into the path of the stops 35 and 44 as they are rotated with the platen, as shown in Fig. 3. The devices of my invention are useful in connection with several kinds of billing work, though they are more especially adapted for "condensed record" work.

From the foregoing description it will be understood that the billing devices are located outside of the platen frame where they can be readily applied to the machine without dismantling or disconnecting any parts of the machine except the finger wheel 22 which can be readily removed and replaced.

One mode of operating the devices for "condensed record" billing work is as follows: Assuming that the pawl 27 is in engagement with its coöperating ratchet wheel 24, then the platen is turned backwardly until the stop 35 is brought into engagement with the coöperating fixed stop 49 and a further backward movement of the platen is prevented. It will be understood that this backward rotation of the stop 35 is effected by the ratchet wheel 24 which is positively connected to the platen and positively transmits backward movement to the disk 26 and its stop 35 through the pawl 27. The "condensed record" sheet, the invoice sheet and the interposed carbon sheet are then introduced into the machine with the leading edges of the sheets brought together into the bight between the main paper feed rollers 50 and the platen. The operator will then turn the platen forwardly in the direction of its line feed movement until the point on the invoice sheet where the first line of writing is to appear is at the printing line. This may be determined in the first instance by the operator swinging the platen back and observing when the point in question arrives at the printing line. During this feed move-



ment, the disks and stops are carried along with the platen by the frictional contact of the disk 26 and ratchet wheel 24. The locking pin 38 is then withdrawn from its engaging opening 43 and the disk 41 is turned until the stop 44 thereon is brought into contact with the forward edge of the fixed stop 49 and the two plates are locked together by the pin 38, thus effecting a relative adjustment between the stops 35 and 44 appropriate to the particular bill head employed, and this adjustment is maintained as long as that particular kind of bill head is being used. During this relative adjustment of the stops 35 and 44, the stop 35 will be maintained by the pawl 27 engaging the ratchet wheel 24 in the position to which it was automatically moved by the forward turning movement of the platen. When the relative adjustment of the stops 35 and 44 has been effected in the manner described the locking pin 38 is seated in the proper engaging opening 43 so as to positively lock the stops in the relation to which they have been adjusted. The stops having been set in the manner described, with the stop 44 in contact with the fixed stop 49, then the operator may proceed to write the invoice in the usual manner and the written matter will be reproduced through the carbon on the condensed record sheet. During the line feed movement of the platen, produced in writing the invoice, the frictional means will maintain the stop 44 in contact with the fixed stop 49. After the invoice has been written the operator should give the platen, say, two line space movements in order to provide proper space on the condensed record sheet between the last line of the first invoice reproduced thereon and the first line of the next invoice to be written. The platen is then given a rearward rotation until the stop 35 contacts with the fixed stop 49; the platen being positively arrested when the stops are brought into contact. The second invoice sheet is then introduced into the machine with the leading edge thereof in the bight between the feed rollers and platen; the first written invoice remaining in the machine. The platen is then given a forward rotation until the stop 44 is brought into contact with the fixed stop 49, when the first writing line of the new invoice sheet will be in printing position. The operator may then proceed to write the second invoice which will be reproduced through the carbon on the condensed record sheet, with the first line of the second invoice situated two line space distances from the last line of the previously written invoice reproduced on the record sheet. When the second invoice is completed the operator again gives the platen a double line space movement to provide a requisite spacing between invoices on the condensed record sheet and then turns the platen back until it is arrested by the

stop 35 coming into contact with the fixed stop 49. The third invoice sheet may then be introduced as before. The platen is then again given a forward rotation until the stop 44 is brought into contact with the fixed stop 49. The third invoice sheet is then written as before and the operation is repeated until the record sheet is filled. The invoice sheets will be automatically fed out of the machine one at a time as subsequent invoice sheets are written or will be fed forwardly to a position where they can be readily removed from the machine without disturbing the other invoice sheets, the carbon sheet, or condensed record sheet.

When the stops 35 and 44 are once set in the manner described, the machine may be used without further change as long as invoice sheets having the same depth of heading are employed. After this it is merely necessary to effect a rearward and a forward rotation of the platen and to produce two line space movements thereof for each new invoice sheet introduced into the machine as above described.

When the machine is to be used for ordinary work, and not for billing work, the pawl 27 may be moved from the dotted line to the full line position in Fig. 6 where it will be maintained out of cooperation with the ratchet wheel 24. The stop devices will then be out of operation and the platen can be rotated backwardly or forwardly to any desired extent without interference by the stops. While it is true that at this time the stops 35 and 44 will, through their frictional connection with the platen, rotate with it until arrested by the stop 49, after which the platen rotates independently of the stops, nevertheless, the friction exerted by the spring 45 is so slight that it is not appreciable in the ordinary operation of the machine and does not interfere with such operation in the slightest degree.

The foregoing description applies to one manner of operating the devices for "condensed record" billing work. It should be understood, however, that various changes in the mode of operating the devices may be made. For instance, it may be found desirable to give the first invoice sheet introduced into the machine with each condensed record sheet and the interposed carbon a "lead" over the condensed record sheet and carbon, in order that the space at the top of the condensed record sheet may be economized and the first line of writing of the first invoice sheet be made to appear at any desired distance from the top of the condensed record sheet.

From the foregoing description it will be seen that I have provided simple, cheap and efficient billing mechanism which is in the nature of attachments that may be readily applied to existing forms of typewriting ma-



chines without modifying the structural features of said machines; that the devices are simple in operation and mechanically determine the proper relations between the different invoice sheets and the condensed record sheet as the former are successively introduced into the machine; that no mental calculations are necessary on the part of the operator in either setting or actuating the devices; that there is no burden placed on the mind of the operator in actuating the devices; that the operator has little to remember in order to accurately operate the devices, the stops 35, 44 and 49 coöperating to determine the extent of backward and forward rotation of the platen necessary to properly position the various invoice sheets with reference to the condensed record sheet; that the platen is positively arrested in its movement in one direction or in the direction of the backward rotation of the platen when it is turned backwardly to receive a new invoice sheet and properly position the same with reference to the condensed record sheet; that, nevertheless, the platen may receive a forward rotation to any desired extent; that the stops 35 and 44 are positively held in their relative adjustment; and that the frictional means interposed between the stops 35 and 44 and the platen cause the stops to rotate with the platen and afford an independent rotation of the platen after the stop 44 has been brought into contact with the coöperating fixed stop 49.

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

1. In a typewriting machine, the combination with a rotary platen, of billing mechanism comprising relatively adjustable stop devices, and coöperating means for causing certain of said stops to rotate with the platen in both directions for predetermined limited distances and for positively limiting the rotation of the platen in one direction and for affording a rotation of the platen independently of said stop devices in the other direction after certain of the stop devices have rotated with the platen a predetermined extent.

2. In a typewriting machine, the combination with a rotary platen, of billing mechanism comprising two relatively adjustable stops, means for positively securing the relatively adjustable stops in the relation to which they are adjusted, a coöperating fixed stop, means for positively connecting said relatively adjustable stops to rotate with the platen in one direction, and means for frictionally connecting said relatively adjustable stops to rotate with the platen in an opposite direction.

3. In a typewriting machine, the combination with a rotary platen, of billing mechanism comprising two relatively adjustable stops, a fixed stop, a frictional device for causing the relatively adjustable stops to rotate with the platen in one direction, and

pawl and ratchet mechanism between the relatively adjustable stops and the platen for causing said relatively adjustable stops to be positively rotated with the platen in an opposite direction.

4. In a typewriting machine, the combination with a rotary platen, of billing mechanism comprising stop devices, certain of said stop devices being normally connected to the platen, and the stop devices being normally operative for arresting the rotation of the platen, and means whereby said stop devices may at will be rendered inoperative to arrest the platen.

5. In a typewriting machine, the combination with a rotary platen, of billing mechanism comprising stop devices certain of which are normally operatively connected with the platen for determining the extent of forward rotation of the platen and for positively arresting the platen in its backward rotation, and means operable at will for rendering said stop devices inoperative to arrest the platen.

6. In a typewriting machine, the combination with a rotary platen, of billing mechanism comprising stop devices, normally operative coöperating means for causing certain of the stop devices to rotate with the platen in one direction for limited distances, normally operative means for positively connecting certain of said stop devices to rotate with the platen in another direction, and means for rendering said last mentioned stop devices inoperable by said positive connecting means.

7. In a typewriting machine, the combination with a rotary platen, of billing mechanism comprising relatively adjustable stop devices, coöperating normally engaged means for causing certain of said stops to rotate with the platen in both directions for predetermined limited distances and for positively limiting the rotation of the platen, and means for rendering said billing mechanism inoperative to arrest the platen.

8. In a typewriting machine, the combination with a rotary platen, of billing mechanism comprising stop devices, coöperating means for indicating a predetermined extent of forward rotation of the platen, for affording a forward rotation of the platen independently of said stop devices after such indication has been effected, and for positively arresting the platen after a predetermined extent of backward rotation thereof, and means for rendering said billing mechanism inoperative to arrest the platen.

9. In a typewriting machine, the combination of a platen, two disks, means for affording a relative adjustment between said disks and for positively locking them together in their relative adjustment, a stop carried by each disk, normally engaged means for causing said disks to rotate with the platen in one direction and for affording a rotation of the platen independently of



said disks in an opposite direction, and a cooperating relatively fixed stop.

10. In a typewriting machine, the combination of a platen, two disks, means for  
5 affording a relative adjustment between said disks, and for positively locking them together in their relative adjustment, a stop carried by each disk, means for causing  
10 said disks and platen to rotate together in one direction and for affording a rotation of the platen independently of said disks in the other direction, and a cooperating relatively fixed stop.

11. In a typewriting machine, the combination of a platen, two disks, means for  
15 affording a relative adjustment between said disks and for positively locking them together in their relative adjustment, a stop carried by each disk, pawl and ratchet  
20 mechanism between said disks and said platen for causing said disks and platen to rotate together in one direction and for affording a rotation of the platen independently of said disks in the other direction, and  
25 a cooperating relatively fixed stop.

12. In a typewriting machine, the combination of a platen, two relatively adjustable stops, a normally engaged pawl and ratchet  
30 for operatively connecting said stops to the platen, means operable at will for throwing said pawl out of engagement with the ratchet and for maintaining it thus indefinitely, thereby rendering the pawl and ratchet  
35 inoperative to move said stops, and a relatively fixed stop that cooperates with said relatively adjustable stops.

13. In a typewriting machine, the combination of a platen, two relatively adjustable stops, pawl and ratchet mechanism for  
40 causing said stops to turn with the platen in one direction and for affording a turning movement of the platen in the opposite direction independently of said stops, frictional means for causing the stops to rotate  
45 with the platen, and a fixed stop that cooperates with said relatively adjustable stops.

14. In a typewriting machine, the combination of a platen, two relatively adjustable  
50 stops, pawl and ratchet mechanism for causing said stops to turn with the platen in one direction and for affording a turning movement of the platen in the opposite direction independently of said stops, means  
55 for throwing said pawl and ratchet mechanism out of operation, frictional means for causing the stops to rotate with the platen, and a fixed stop that cooperates with said relatively adjustable stops.

15. In a typewriting machine, the combination of a platen, a platen shaft, a ratchet  
60 wheel secured to said platen shaft, two relatively adjustable stop carriers, a stop carried by each of said carriers, a pawl carried by one of said stop carriers and coop-

erating with said ratchet wheel, and a fixed stop cooperating with the stops on said stop carriers.

16. In a typewriting machine, the combination of a platen, a platen shaft, a ratchet  
70 wheel secured to said platen shaft, two relatively adjustable stop carriers, a stop carried by each of said carriers, a pawl carried by one of said stop carriers and cooperating  
75 with said ratchet wheel, a fixed stop cooperating with the stops on said stop carriers, and means for throwing said pawl out of cooperation with its ratchet wheel.

17. In a typewriting machine, the combination with a platen, of two relatively adjustable stop carriers, a stop carried by each  
80 of said carriers, a series of engaging openings in one of said carriers, a locking pin adapted to be received in said openings to maintain the stop carriers in their adjusted relation,  
85 normally engaged means for causing said stops to rotate with the platen, and means cooperating with said stops to arrest the rotation of the platen.

18. In a typewriting machine, the combination of a platen, stop devices comprising  
90 an adjustable stop, a part having a series of openings, a locking pin adapted to engage in said openings and to secure the adjustable stop in its adjusted relation, normally  
95 engaged means for causing said adjustable stop to rotate with the platen, and means cooperating with said stop devices for positively arresting the platen.

19. In a typewriting machine, the combination of a rotative platen and billing devices  
100 for determining the extent of rotation of the platen, said billing devices comprising stop devices, pawl and ratchet mechanism between certain of said stop devices and the  
105 platen, and hand actuated controlling means operable independently of the rotation of the platen for throwing the pawl and ratchet mechanism into and out of cooperative relation at will.  
110

20. In a typewriting machine, the combination with a rotary platen, of billing mechanism comprising stop devices for arresting  
the rotation of the platen, pawl and ratchet mechanism connecting certain of said stop  
115 devices to the platen, and means for affording a movement of the pawl to and for retaining it in the inoperative position.

21. In a typewriting machine, the combination with a rotary platen, of billing mechanism comprising stop devices for arresting  
120 the rotation of the platen, and pawl and ratchet mechanism connecting certain of said stop devices to the platen, the ratchet having teeth with abrupt and inclined faces,  
125 and the pawl normally engaging the abrupt sides of the ratchet teeth to positively connect the parts to rotate together when the platen is turned in one direction and said  
130 pawl being adapted to ride freely over the



beveled sides of the teeth when the platen is rotated in an opposite direction.

22. In a typewriting machine, the combination with a rotary platen, of billing mechanism for arresting the platen in its backward rotation after a predetermined extent of movement and for affording a forward rotation of the platen for an unlimited extent, said mechanism comprising stops and a spring pressed pawl and a cooperating ratchet wheel which constitute normally engaged operative connections between certain of said stops and the platen, said ratchet wheel having teeth with abrupt and inclined faces, and the pawl normally co-acting with the abrupt faces of the ratchet teeth during the rotation of the platen in one direction and adapted to slide over the inclined sides of the teeth when the platen is rotated in the opposite direction.

23. In a typewriting machine, the combination with a rotary platen, of billing mechanism for arresting the platen in its backward rotation after a predetermined extent of movement and for affording a forward rotation of the platen for an unlimited extent, said mechanism comprising stop members, a spring-pressed pawl carried by and pivoted to one of said stop members, a cooperating ratchet wheel operatively connected with the platen, said pawl and ratchet wheel constituting normally engaged operative connections between the platen and the stop member which carries the pawl, the pawl co-acting with the abrupt sides of the ratchet teeth

during the rotation of the platen in one direction and adapted to slide over the inclined sides of the teeth when the platen is rotated in the opposite direction, and means for retaining said pawl out of coöperation with said ratchet wheel.

24. In a typewriting machine, the combination with a rotative platen, of billing mechanism for arresting the rotation of the platen in one direction and for affording an unlimited rotation of the platen in the opposite direction, said mechanism comprising stop devices, pawl and ratchet mechanism for positively connecting certain of said stop devices to rotate with the platen in one direction, and a spring and co-acting means for effecting a frictional connection between the platen and the last mentioned stop device or devices.

25. In a typewriting machine, the combination of a platen, a ratchet wheel fixed to rotate therewith in both directions, a pair of stop-carrying members each having a stop to co-act with an arresting means on the platen frame, said stops being relatively adjustable, and a pawl mounted on one of said stop-carrying members to engage said ratchet wheel.

Signed at Portland, in the county of Cumberland, and State of Maine, this 24th day of November A. D. 1905.

WENDELL P. KEENE.

Witnesses:

CHARLES J. NICHOLS,  
EDITH A. DILL.