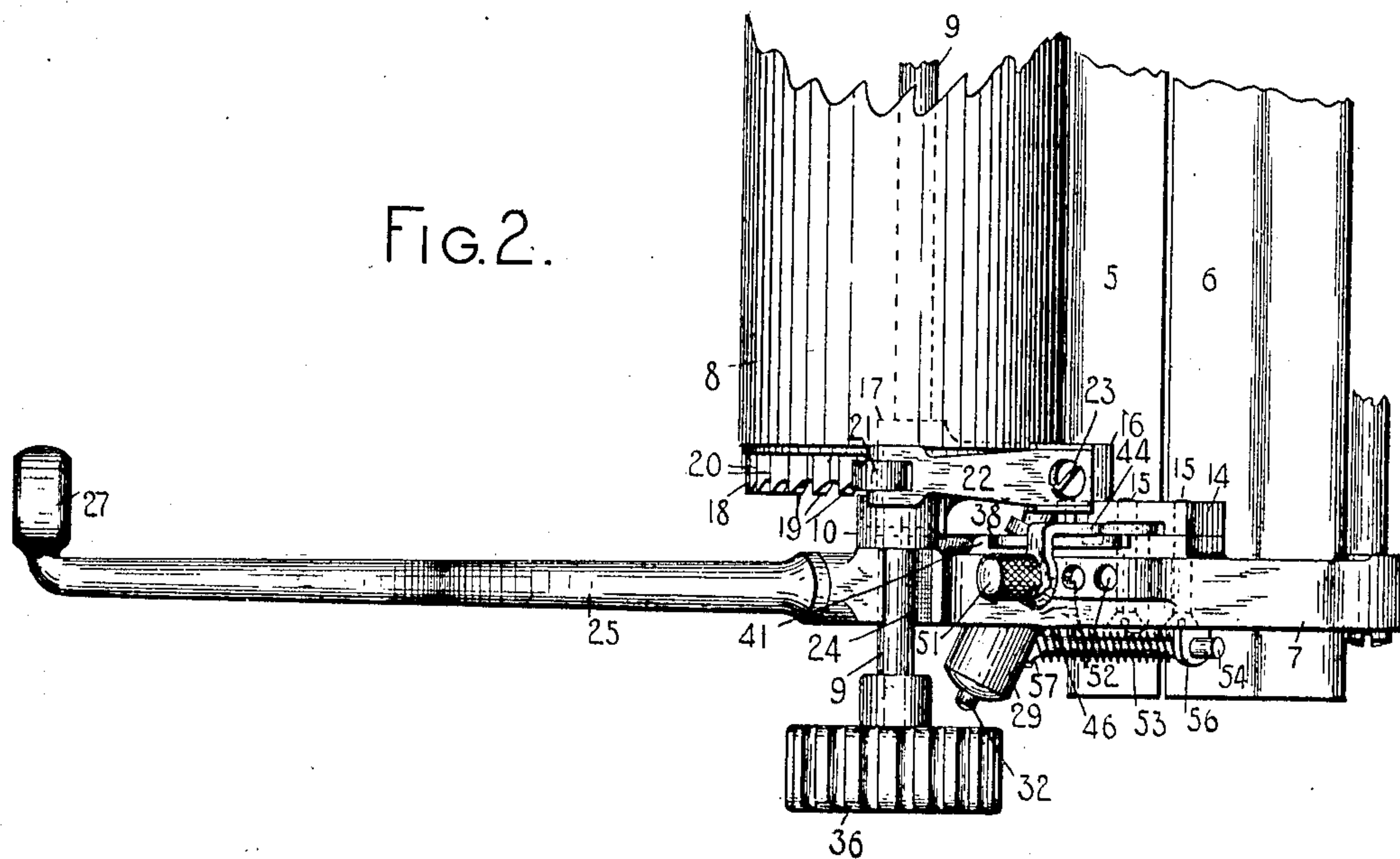
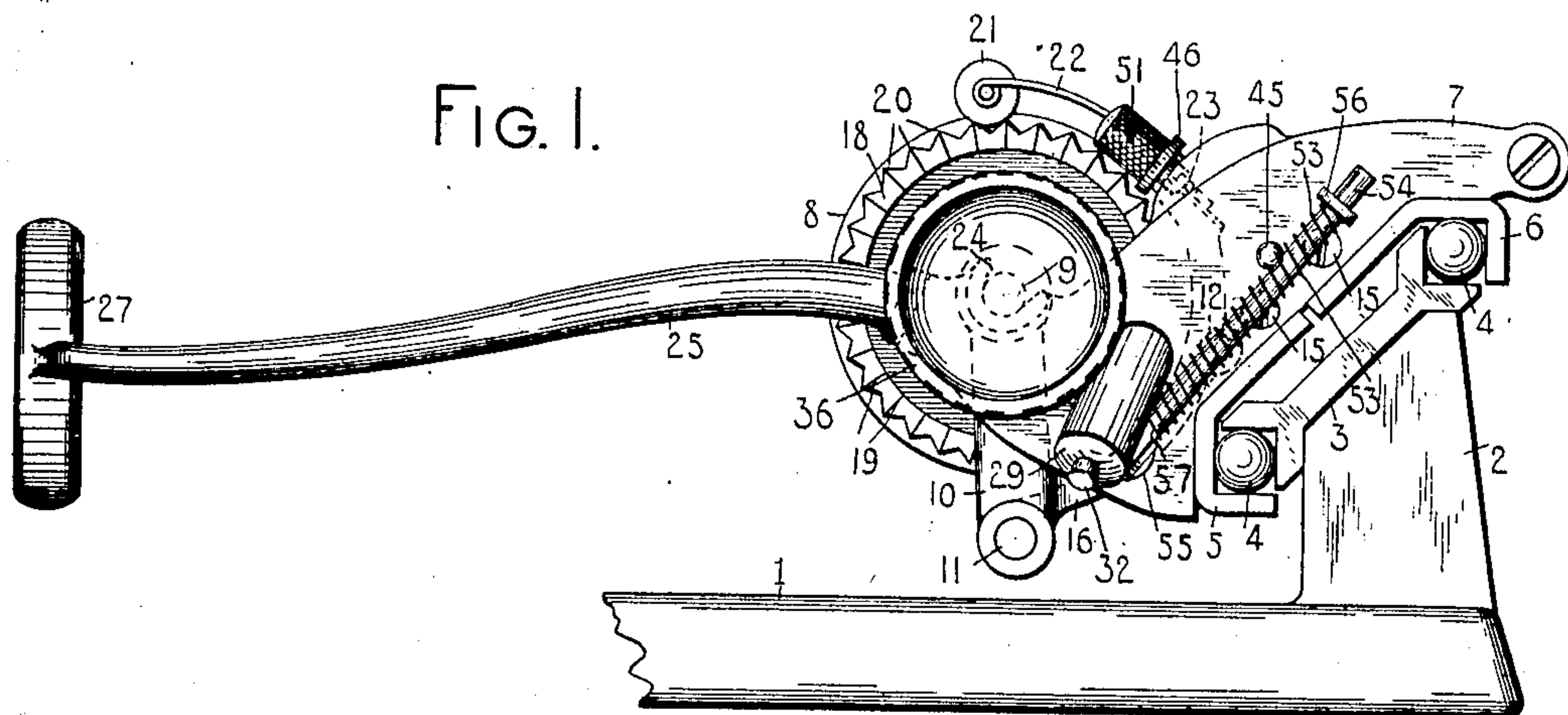


No. 887,584.

PATENTED MAY 12, 1908.

A. T. BROWN.  
TYPE WRITING MACHINE.  
APPLICATION FILED APR. 24, 1906.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

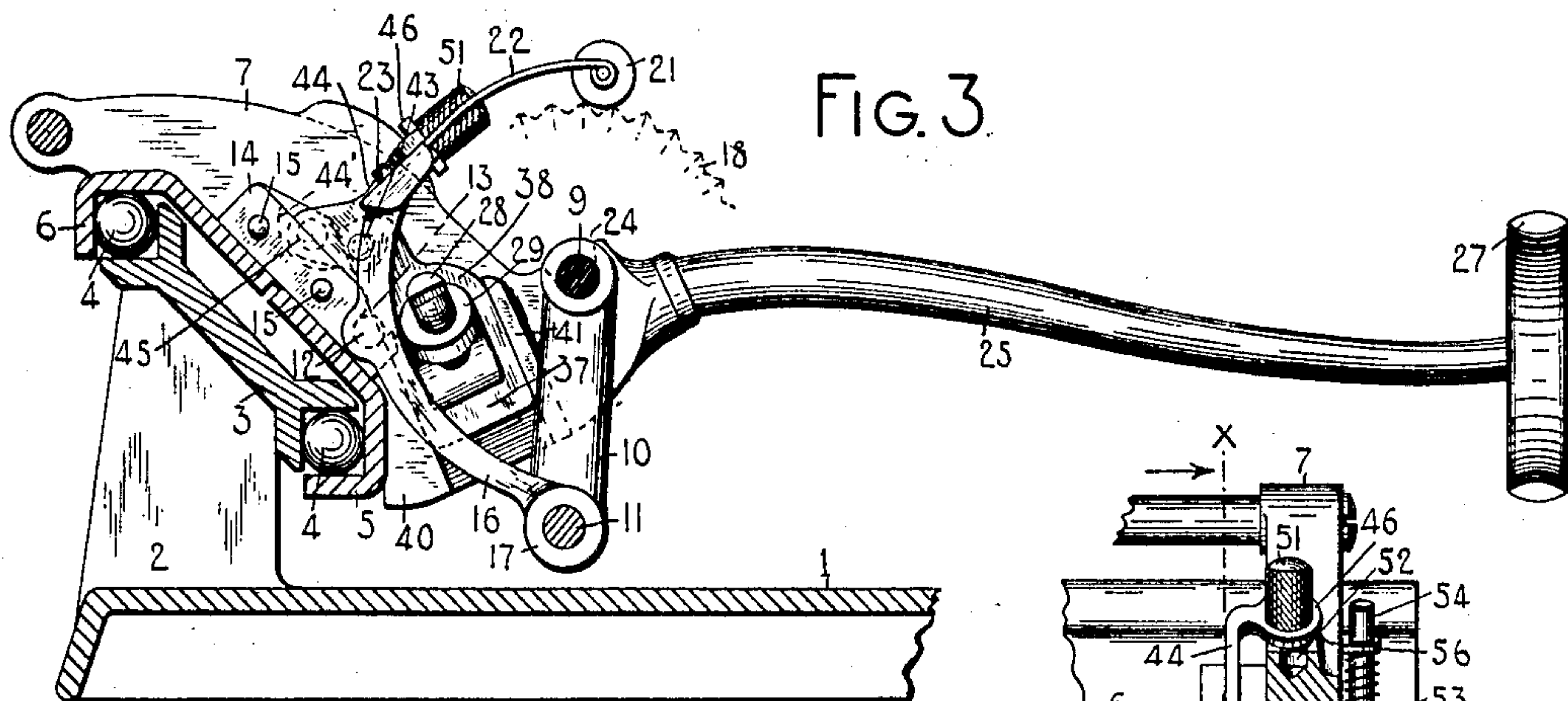


FIG. 3.

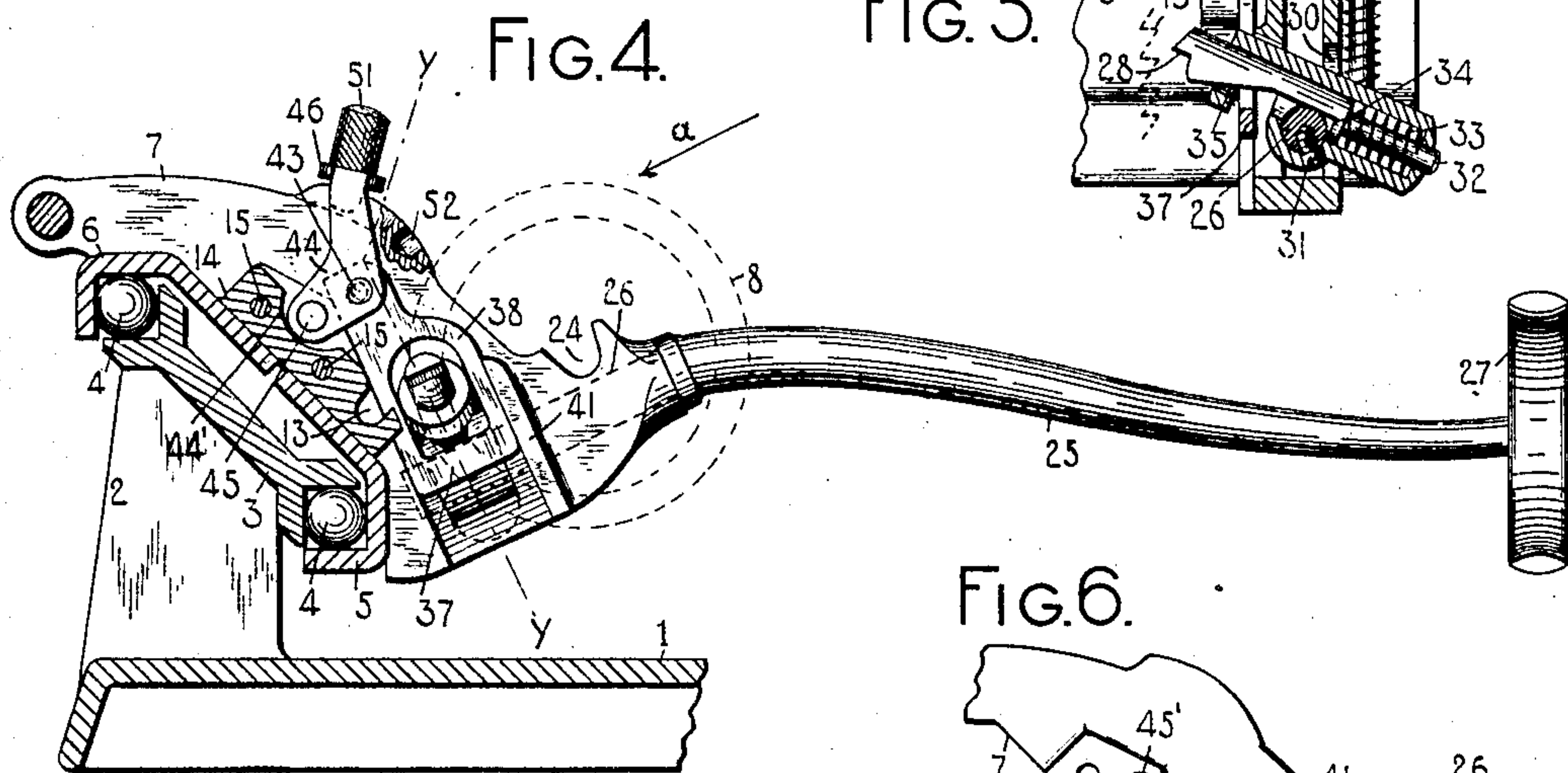


FIG. 4.

FIG. 5.

FIG. 6.

FIG. 7.

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# UNITED STATES PATENT OFFICE.

ALEXANDER T. BROWN, OF SYRACUSE, NEW YORK.

## TYPE-WRITING MACHINE.

No. 887,584.

Specification of Letters Patent.

Patented May 12, 1908.

Application filed April 24, 1906. Serial No. 313,422.

*To all whom it may concern:*

Be it known that I, ALEXANDER T. BROWN, citizen of the United States, and resident of Syracuse, in the county of Onondaga and State of New York, 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 it has for its principal object to provide an improved line space mechanism for such machines.

To the above and other ends my invention consists in certain features of construction and combinations and arrangements of parts, all of which will be fully set forth herein and particularly pointed out in the claims.

One form of the invention is illustrated in the accompanying drawings in which,

Figure 1 is a right-hand end elevation of the upper part of a typewriting machine having my invention applied thereto, parts of said machine being omitted and parts broken away. Fig. 2 is a top plan view of the right-hand end portion of the carriage and parts mounted thereon. Fig. 3 is a view in vertical section, the section being taken just to the right of the right-hand end of the platen. Fig. 4 is a view similar to Fig. 3, but with the platen frame removed and the carriage shown in section on the line  $x$  of Fig. 5 and looking in the direction of the arrow at said line. Fig. 5 is a view in section on the line  $y-y$  of Fig. 4 and looking in the direction of the arrow  $a$  in said figure. Fig. 6 is a view showing a fragment of the right-hand end piece of the carriage as seen from the left, said end piece being shown partly in section and showing detached, certain parts which are mounted on said end piece. Fig. 7 is an enlarged fragmentary sectional view showing the construction of a locking device forming part of my line spacing mechanism.

I have shown my invention applied to a front-strike typewriter although said invention is applicable to typewriting machines generally.

The machine, parts of which are shown in the drawings, comprises a top plate 1 from which rise posts or standards 2 that support a stationary rail 3 on which the carriage is adapted to move back and forth across the machine. The rail 3 is inclined downward and toward the front of the machine, as

shown, and it has formed in its opposite edges, race-ways for anti-friction balls or rollers 4 that coöperate with grooved carriage rails 5 and 6, the whole constituting a ball or roller bearing for the carriage. Said carriage also comprises end pieces 7 which are secured to the rails 5 and 6 in any suitable manner and which support the platen frame. Only one of these end pieces is shown in the drawings. These end pieces may be of any suitable construction so far as the present invention is concerned, but I prefer to make them somewhat thick, as shown in the drawings, and to make them hollow as indicated in the sectional view in Fig. 5.

The platen 8 has a shaft 9 that is journaled in a platen frame which comprises arms 10 secured to a frame rod 11 extending longitudinally of the platen beneath the same. This platen frame in the machine shown in the drawings is pivotally and detachably mounted in the carriage. At its right-hand end said platen frame is pivotally mounted on a pin 12 (Fig. 3) that rests in a notch 13 (Fig. 4) in the upper edge of a block 14 that is secured by screws 15 to the inner face of the right-hand end piece 7. The pin 12 projects toward the right from an arm 16 that projects from the hub 17 of the right-hand arm 10 of the platen frame, said arm curving rearwardly and upwardly around the platen and the line space wheel 18 that is mounted on the right-hand end thereof. The construction is such that the arm 16 does not interfere with the line space wheel 18 nor with the pawl that operates said wheel. The platen frame at its left-hand end is, or may be, pivoted to the left-hand end piece of the carriage in any suitable manner. The line space wheel 18 has crown ratchet teeth 19 cut in its right-hand face for coöperation with the feed pawl, and teeth 20 (Fig. 1) cut in its periphery for coöperation with a detent roller 21 that is journaled in the free end of a plate spring 22 which is secured by a screw 23 to an upward extension of the arm 16 of the platen frame. The detent roller is pressed against the teeth 20 by the resilience of the spring arm 22. When the platen frame is in position on the machine the shaft 9 normally rests in bearing depressions or notches 24 (Fig. 4) formed in the end pieces 7.

As herein shown the forwardly projecting portion 25 of a shaft 26 that is journaled in the right-hand end piece 7, constitutes the line spacing lever. Within said end piece 7



the shaft 26 is inclined downward toward the back of the machine as shown in Figs. 4 and 6 and the lever 25 is bent off at an angle with the shaft 26 so that said lever stands approximately horizontal. The lever 25 has a thumb piece or handle 27 formed on its free end, said thumb piece being in the nature of an up and down cross piece suitably curved to receive the thumb of the right hand of the operator. The construction is such that if the thumb piece or handle 27 be pressed toward the right it will tend to rock the shaft 26. As this rocking motion of the shaft 26 imparts the line space feed to the platen it will be seen that a pressure against the thumb piece 27 will result in both imparting a line space feed to the platen and also returning the carriage to its right-hand position. The shaft 26 may also be rocked by grasping the thumb piece 27 and imparting a twisting motion thereto without moving the carriage toward the right.

The line space pawl or dog 28 consists of a spring-pressed plunger mounted in a barrel 29 which in turn is mounted on the shaft 26, extending crosswise of said shaft through a slot or opening 30 (Figs. 5 and 6) in the end piece 7. This slot or opening extends entirely through the end piece 7 and is elongated in a direction at right angles to the direction of the axis of the shaft 26 so that the barrel 29 has a limited freedom of motion in said slot when the shaft 26 is rocked. Said barrel is rigidly secured to said shaft by a screw 31 (Fig. 5) that passes through the barrel and is threaded into the shaft. The pawl or plunger 28 has its right-hand end 32 reduced in diameter and passing through the right-hand end of the barrel 29, and a spring 33 is seated in said barrel and coiled about said reduced end 32 and compressed between the end of the barrel and the annular shoulder formed by the enlarged part of the plunger. The pawl or plunger 28 is cut away on its under side as shown in Fig. 5, forming a shoulder 34 which is normally pressed by the spring 33 against the side of the shaft 26 which thus limits the outward motion of the pawl under the impulse of the spring. The shaft 26 contacting with the flattened part of the plunger where said plunger is cut away prevents rotation of the plunger in its barrel. The other end of the cut-away portion of the pawl or dog 28 is inclined as shown at 35 (Fig. 5) and this inclined part of the lower side of the pawl stands over an opening or cut out part in the lower side of the barrel 29. The left-hand or operative end of the pawl or dog 28 normally stands a little to the right of the ratchet teeth 19 as shown in Fig. 5 so that the platen is free to be turned by the finger wheels 36, but when the shaft 26 is rocked by the handle 27 the dog moves downward and engages one of the teeth 19 and turns the line space

wheel. The downward motion of the pawl is limited by a stop 37 which consists of the lower part or cross piece of a stirrup-shaped slide 38 that is mounted on the inner face of the end piece 7. This slide, as shown in Fig. 6, consists of a plate of sheet metal having an opening 39 therein through which the barrel 29 and the dog 28 extend. The slide 38 is mounted for adjustment in the same general direction as that of the motion of the dog 28.

In order to guide the slide in its motion the face of the end piece 7 is formed with two lugs or projecting parts 40 and 41 which guide the edges of the slide. At its upper end said slide is formed with a slot 42 into which there projects a pin 43 from an angled lever 44 that is pivoted in the end piece 7. The pivot of this lever consists of a pin 45 secured to the lever and extending through a hole 45' (Fig. 6) in the end piece 7. The lever 44 is retained in position by the block 14 which, as shown at 44' in Figs. 3 and 4, is cut away on its right-hand face next the end piece 7 in such fashion as to provide a slot in which the pivotal end of the lever 44 lies when the parts are assembled. The block 14 at its forward end also extends over the face of the slide 38, as shown in Fig. 4, and assists in preventing said slide from falling out of its guides. At its upper end the lever 44 is bent to the right so that the end 46 of said lever lies over the upper edge of the end piece 7. As shown in Fig. 7 a barrel or tube 47 is screwed into the part 46 of the lever and a plunger 48 is adapted to play up and down in said barrel. The upper part of said plunger is made of reduced diameter and has coiled about it a compression spring 49 that bears at its lower end against the plunger and at its upper end against the end of the barrel 47, the spring serving to press the plunger downward. At its extreme upper end said plunger is still further reduced, as shown at 50, this end of the plunger being riveted into the top of a cap-like finger piece 51 that encircles and covers the barrel 47. The plunger 48 is adapted to be pressed by the spring 49 into any one of three holes 52 formed in the upper edge of a part of the end piece 7 that is struck concentrically with the pivot 45. The construction is such that the plunger 48 may be lifted by the cap 51, and the lever 44 may be moved to any one of three positions, in either of which it may be locked by the plunger 48 being seated in the corresponding one of the holes 52. When said plunger is in the rear one of the three holes 52, as shown in Fig. 4, the stop 37 is so positioned that the dog 28 will be arrested after moving the line space wheel 18 the distance of one tooth. When said plunger is in the middle or second hole a feed of two teeth will be imparted to the platen by the line space pawl or dog upon each operation thereof, and when said plunger is in the third or



foremost hole said line space wheel will have imparted thereto a feed of three teeth at each operation of the pawl. The pawl is arrested by the inclined part 35 contacting with the stop 37. The effect of this is to prevent the pawl at the moment it is arrested from being pushed to the right in the barrel 29. The pawl is thus jammed in between two of the ratchet teeth 19 and positively prevents overthrow of the platen.

In order to restore the line space lever and the parts connected therewith to their normal position, a returning spring 53 is coiled about a rod 54 that extends along the right-hand face of the end piece 7 and is pivoted at its lower end on a screw 55 (Fig. 1) that is threaded into the barrel 29. The upper end of the rod 54 passes loosely through an opening in an ear 56 projecting from the right-hand face of the end piece 7, and the spring 53 is compressed between this ear and a shoulder 57 formed on the rod 54 near the lower end thereof.

It will be observed that the platen and platen frame at their right-hand end rest only by gravity in the notches 13 and 24 but the pawl 28 is adapted to cooperate with the line space wheel near the rear side thereof so that said dog when operated presses downward on said wheel and has no tendency therefore to lift these parts out of their notches, but on the contrary presses them more firmly in place. The barrel 29 working in the slot 30 prevents the shaft 26 from being withdrawn from its bearing in the end piece.

The inclined carriage mounting shown and described in the present application is not claimed herein but is claimed in my pending application Serial No. 305,053, filed March 9, 1906. The tilting and detachable platen frame construction is claimed in my pending application Serial No. 313,604, filed April 25, 1906.

Various changes may be made in the details of construction and arrangement without departing from my invention.

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

1. In a typewriting machine, the combination of a platen, a line-space wheel connected with said platen, a pawl or dog movable back and forth to operate said line-space wheel, and a stop for arresting said pawl on its operating stroke, said stop being mounted to slide in the general direction of the motion of said pawl, and means for moving said sliding stop to and securing it in different positions to vary the extent of feed imparted to said platen by said pawl at each actuation thereof, whereby the same contact face of said stop is adapted to arrest the pawl at different distances from normal position.

2. In a typewriting machine, the combination of a platen, a line-space wheel, a pawl

movable to and fro to operate said line-space wheel, a stop for arresting said pawl on its operating stroke, said stop being movable rectilinearly in the same general direction as said pawl to different positions to regulate the extent of movement imparted to said line-space wheel by said pawl at each actuation thereof, a hand lever for adjusting said stop, and means for retaining said hand lever in different positions.

3. In a typewriting machine, the combination of a platen, a line-space wheel, a pawl for operating said line-space wheel, and a stop for said pawl having an opening through which said pawl passes, said stop being adjustable to vary the extent of feed imparted to said line-space wheel by said pawl at each operation thereof.

4. In a typewriting machine, the combination of a platen, a line-space wheel, a pawl for operating said line-space wheel, a stop having an opening through which said pawl passes, a hand operated lever for moving said stop to different positions to vary the extent of feed imparted to said line-space wheel by said pawl at each operation thereof, and means for retaining said lever in different set positions.

5. In a typewriting machine, the combination of a carriage having an end piece, a platen mounted in said carriage, a line-space wheel for said platen, a pawl for operating said line space wheel, a stop for said pawl slidably mounted on said end piece, a lever separate from but connected with said sliding stop, and means for retaining said lever in different set positions.

6. In a typewriting machine, the combination of a carriage having an end piece, a platen mounted in said carriage, a line space wheel for said platen, a rocking member journaled in said end piece, a pawl carried by said rocking member for operating said line space wheel, a stop for said pawl slidably mounted on said end piece, a lever connected with said sliding stop piece, and a hand operated detent carried by said lever for retaining said lever in different set positions.

7. In a typewriting machine, the combination of a carriage having an end piece, a platen mounted in said carriage, a line space wheel for said platen, a rocking member journaled in said end piece, a pawl carried by said rocking member for operating said line space wheel, a stop for said pawl slidably mounted on said end piece, a lever connected with said sliding stop piece, and a hand operated plunger mounted on said lever over said end piece, and openings in said end piece with which said plunger cooperates to retain said lever in different set positions.

8. In a typewriting machine, the combination of a carriage, a platen having a shaft journaled in said carriage, a line-space wheel for said platen, a line space dog arranged to

engage said line space wheel back of and below the platen shaft, and a rock shaft journaled in said carriage and extending back to said dog beneath said shaft at an inclination  
5 and having an approximately horizontal arm projecting toward the front of the machine and constituting a line space handle.

Signed at Syracuse, in the county of Onondaga, and State of New York, this 21 day of April A. D. 1906.

ALEXANDER T. BROWN.

Witnesses:

C. E. TOMLINSON,  
GEO. M. BLOWERS.