

No. 871,283.

PATENTED NOV. 19, 1907.

W. A. LORENZ.  
TYPE WRITER.

APPLICATION FILED SEPT. 11, 1905.

3 SHEETS—SHEET 1.

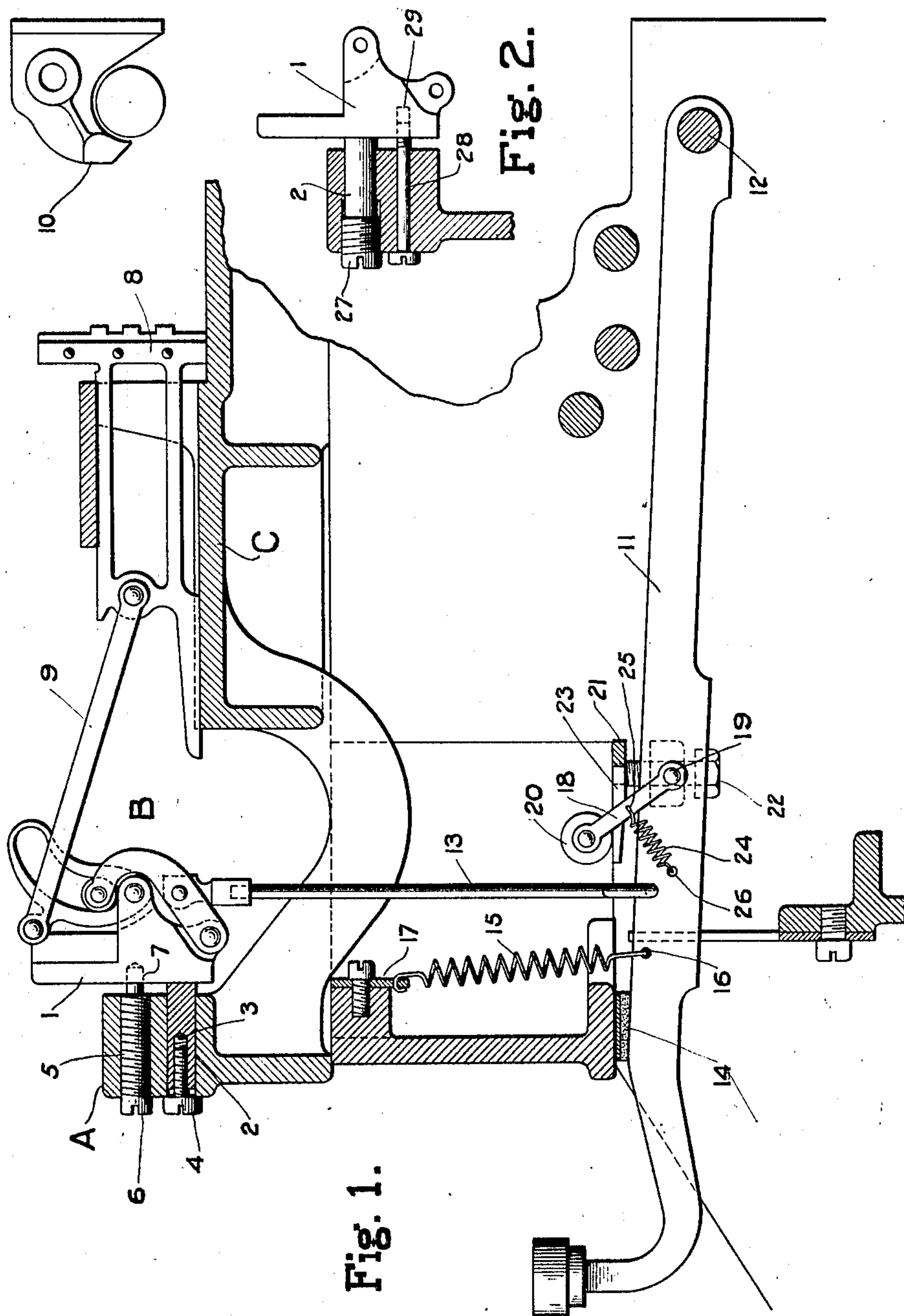


Fig. 1.

Fig. 2.

WITNESSES:

*J. P. R. R. R. R. R.*  
*C. H. Wilson*

INVENTOR  
*W. A. Lorenz*  
BY  
*Wanfield & Duff*  
ATTORNEYS

No. 871,283.

PATENTED NOV. 19, 1907.

W. A. LORENZ.  
TYPE WRITER.

APPLICATION FILED SEPT. 11, 1905.

3 SHEETS—SHEET 2.

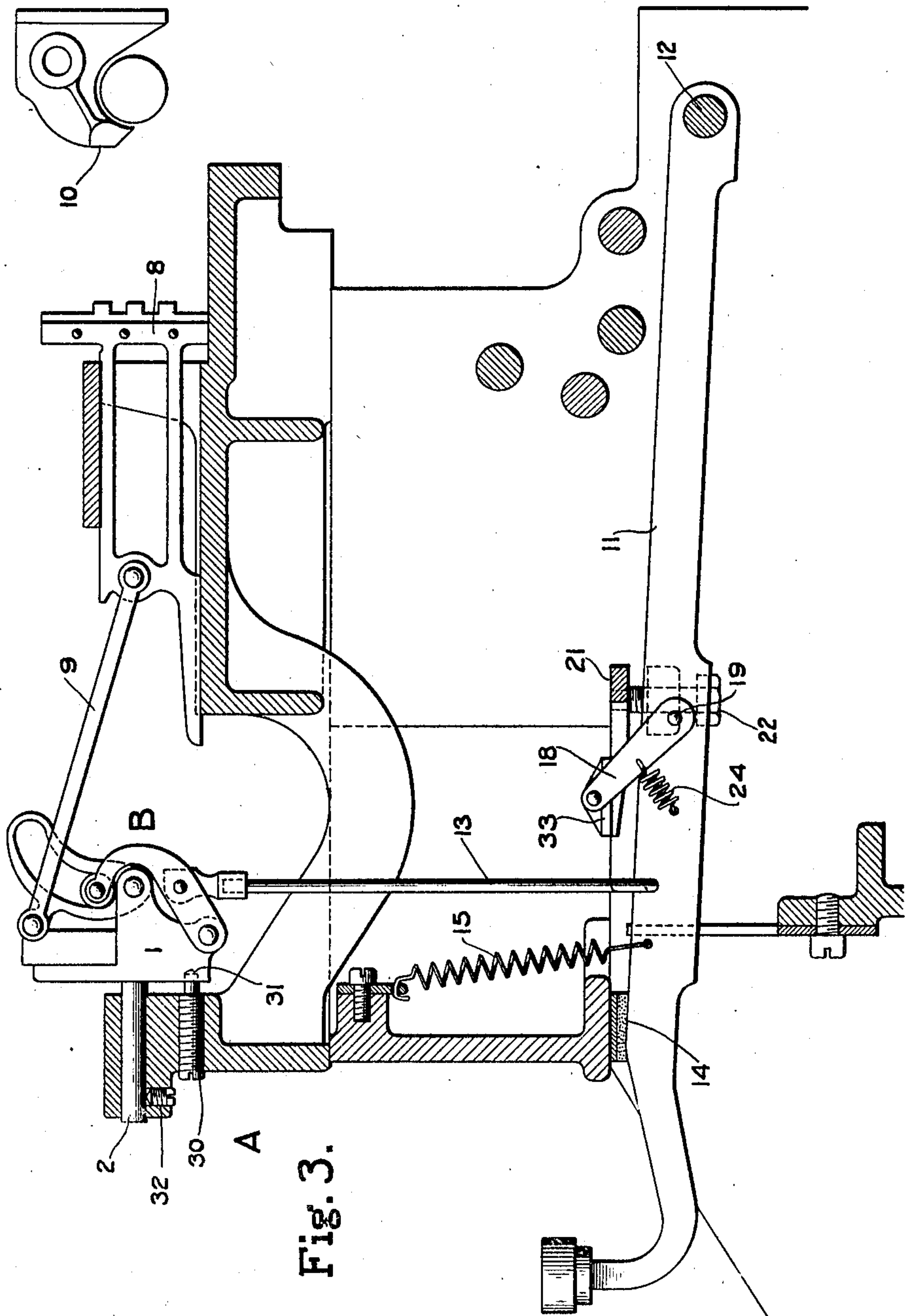


Fig. 3.

WITNESSES:

*J. E. Kipley*  
*C. H. Wilson*

INVENTOR

*W. A. Lorenz*  
BY  
*Warfield & Duff*  
ATTORNEYS

No. 871,283.

PATENTED NOV. 19, 1907.

W. A. LORENZ.  
TYPE WRITER.

APPLICATION FILED SEPT. 11, 1905.

3 SHEETS—SHEET 3.

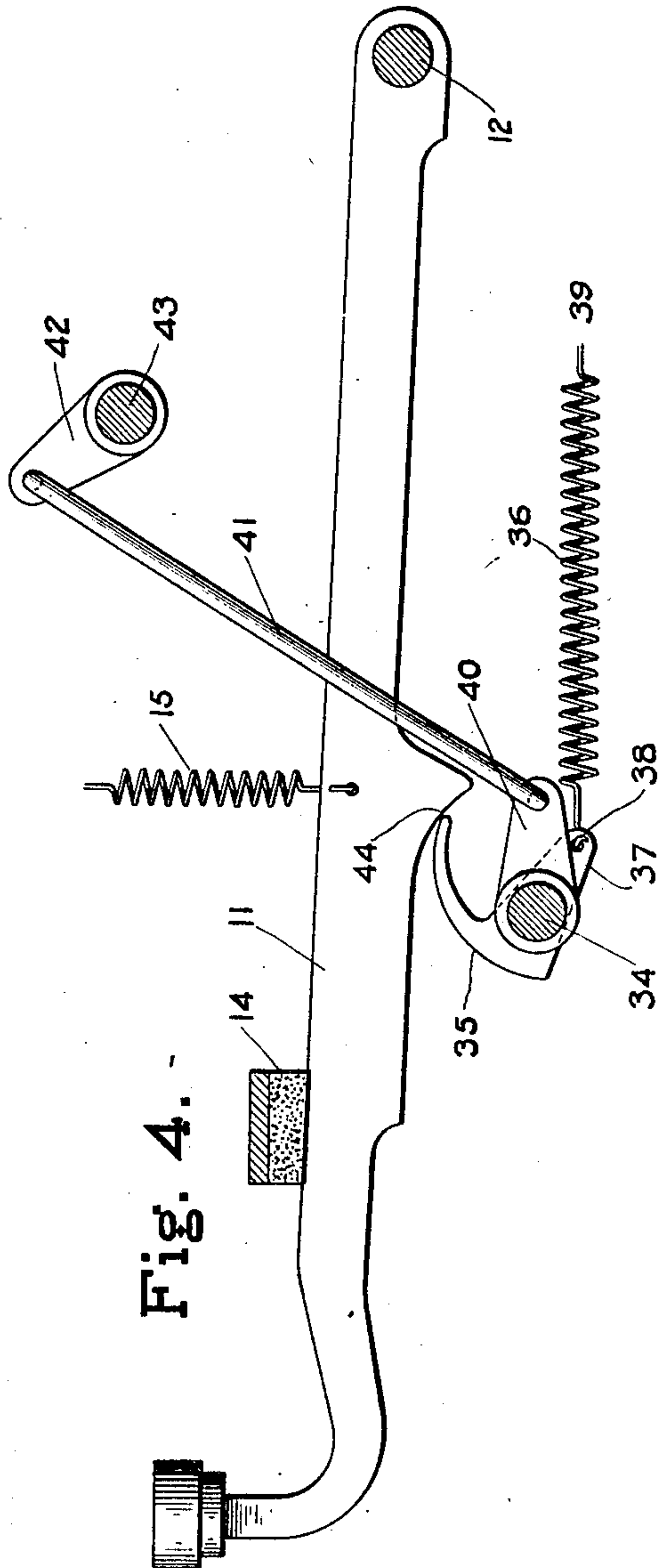


Fig. 4.

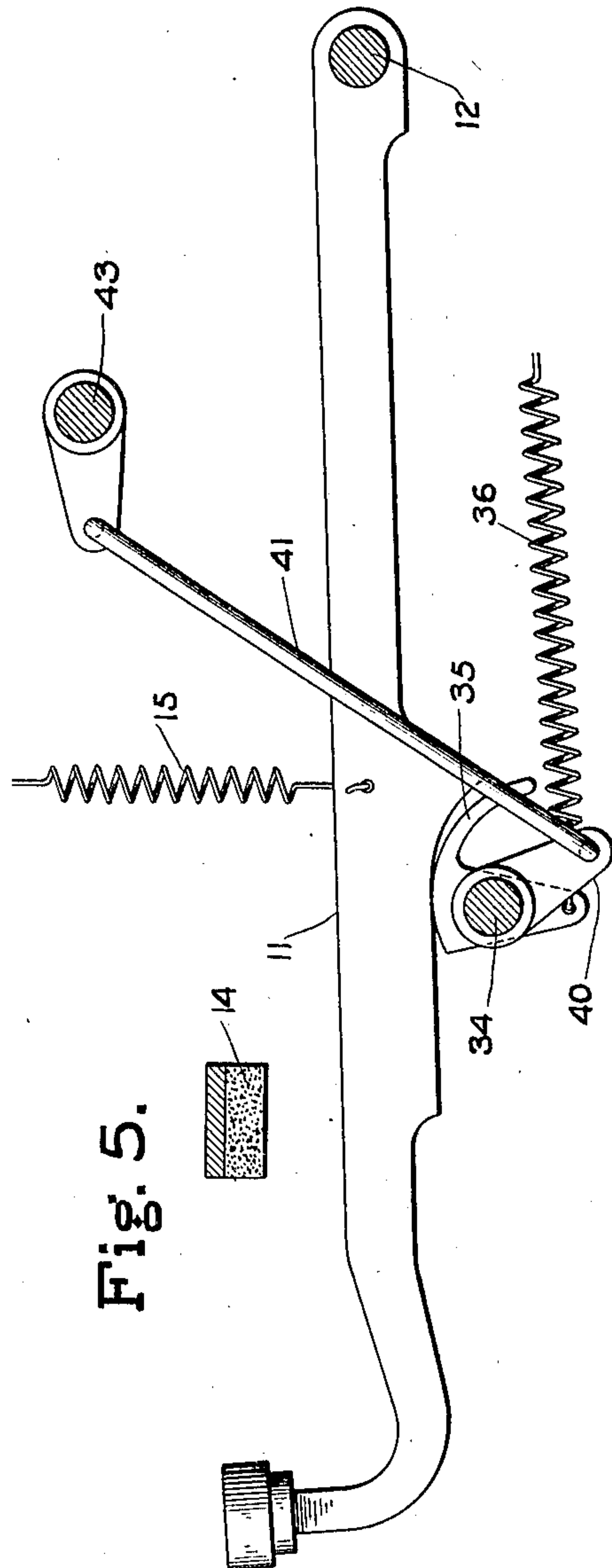


Fig. 5.

WITNESSES:

*J. Clydesdale*  
*C. Wilson*

INVENTOR

*W. A. Lorenz*  
BY *Warfield & Dull*  
ATTORNEYS



# UNITED STATES PATENT OFFICE.

WILLIAM A. LORENZ, OF HARTFORD, CONNECTICUT, ASSIGNOR TO PARKER MACHINE COMPANY, OF BUFFALO, NEW YORK, A CORPORATION OF NEW YORK.

## TYPE-WRITER.

No. 871,283.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed September 11, 1906. Serial No. 277,915.

*To all whom it may concern:*

Be it known that I, WILLIAM A. LORENZ, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Type-Writers, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to typewriting machines and the like and, while capable of employment in many forms of machines, is especially adapted for use in those known as "silent typewriters."

It has for one of its objects the provision of mechanism designed to substantially eliminate noise during the operation of the machine.

Another object is to provide means whereby the type-actuating devices may be easily adjusted toward or from the platen and firmly fixed in position after such adjustment.

Another object is to provide an effective stop for the key levers such that movement thereof may be arrested without impact or concussion and, therefore, noiselessly.

The above and other advantages are secured in constructions of the nature of that hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements and the arrangement of parts which will be exemplified in the mechanism hereinafter described, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, wherein are shown several of the various possible embodiments of my invention, Figure 1 is an elevation partly diagrammatic and partly in section, of my preferred embodiment of the same. Fig. 2 is a vertical sectional view of a modified form of bracket adjusting means. Fig. 3 is a view similar to Fig. 1 of another embodiment of my invention. Fig. 4 is an elevation showing a different embodiment of the mechanism for arresting the movement of the key levers. Fig. 5 is a view similar to Fig. 4 but showing the parts in another position.

Similar reference characters refer to simi-

lar parts throughout the several views of the drawings.

Preliminary to a description of the specific features of my invention, it may here be noted that, in machines of this type, especially those wherein the printing is accomplished by pressure without impact or concussion, it is necessary to adjust the type actuating mechanism toward or from the platen of the machine, in order that the type may be brought to a uniform printing position and, further, it is essential that the several parts be securely held in position after adjustment. As above indicated, in the production of a machine of this type, which will operate in all respects without noise, means should be provided to arrest as silently as possible the movements of the key levers at the end of their strokes. In the accomplishment of the above purposes, I have, therefore, found it desirable to provide a bracket designed to carry the type actuating devices such that the same may be easily adjusted with respect to the platen, and so constructed as to be capable of being secured in a rigid position after adjustment. I have also found it desirable to arrange stops for the key levers or other movable mechanism, whereby motion may be arrested without impact or concussion, thus substantially eliminating the disagreeable noise prevalent during the operation of machines of other types. The above and other advantages are secured in constructions of the nature of that hereinafter described.

Referring now to the drawings, there is shown in Fig. 1 a bracket 1 having a projecting milled shank 2 extending into an opening in the frame A of the machine, which shank is provided with an opening 3 in the end thereof, the walls of which are threaded to engage with an adjusting screw 4. The head of adjusting screw 4 engages frame A and said screw, by a rotation thereof in one direction, is adapted to draw bracket 1 toward frame A, and by a rotation in an opposite direction to permit a movement of said bracket from said frame A. In an internally threaded opening 5 in frame A, a clamping screw 6 is provided, which extends through and without the frame to enter a slight depression 7 in bracket 1. It will be apparent



that by a rotation of screw 6, bracket 1 may be forced from frame A, the extent of such movement being determined by the position of adjusting screw 4 in shank 2, the movement being limited by the engagement of the head of the adjusting screw 4 with said frame. Either of screws 4 or 6 may therefore, operate as adjusting screws, the remaining one in such instances operating as a clamping element and, as the direction of force exerted by said screws is diametrically opposed to each other, bracket 1 is held in a fixed position upon the tightening thereof.

B indicates broadly the type actuating mechanism not specifically described herein, as the same forms no part of my present invention, certain features of which are shown described and claimed in an application, Serial No. 274,650 filed by Charles W. Spon-  
 sel August 18, 1905.

A type bar 8 sliding upon the bed or table C of the machine and having a pivotal connection with the type actuating devices B, by means of link 9, is adapted to be projected toward or from the platen 10 by key lever 11 journaled upon rod 12 positioned in the frame of the machine, which key lever 11 has a pivotal connection with the actuating devices B by means of connecting rod 13. It will be understood, of course, that key lever 11 is one of a set or series, the others being similarly constructed and have been omitted in the interest of clearness of illustration. Key lever 11 is held in its upward position against a cushion 14 by means of spring 15 connected thereto at 16, and at 17 to a fixed part of the machine, and is provided with a swinging arm 18 pivoted at 19 to said key lever, the upper end of which has suitably journaled thereon a roller 20. Roller 20 is adapted to operate upon one member or tooth of an adjustable bar or comb 21 extending transversely of the machine, and over the entire set or series of key levers. This bar is carried upon the upper ends of adjusting screws, as shown in the drawings, said adjusting screws being threaded into lugs extended from the frame of the machine. Bar or comb 21 is provided with a plurality of projecting aligned teeth and is adjustable by means of adjusting screws 22, and between adjacent teeth 23, swinging arm 18 is adapted to operate during the movement of roller 20 over the exterior surface of one of said teeth. Arm 18 is normally drawn toward key lever 11 by means of a spring 24 connected at 25 to arm 18 and at 26 to key lever 11. Although from the above description the operation of this embodiment of my invention should be largely obvious, it will be understood that by a proper manipulation of screws 4 and 6, bracket 1 may be adjusted to determine the proper position of type bar 8 with respect to

the platen 10. The downward stroke of key lever 11 will compel arm 18 to swing to the right until the axis of roller 20 is in vertical alignment with pivot 19, thus limiting the stroke of lever 11, springs 15 and 24 operating to interpose a yielding resistance to such stroke. At the end of the stroke of key lever 11, spring 15 returns the same to its upward position and, during this upward movement, spring 24 draws arm 18 toward lever 11 and thus maintains a constant engagement between roller 20 and the co-acting tooth of bar or comb 21.

In Fig. 2 I have shown a slightly modified form of bracket adjusting means, in that bracket 1 is adjusted with respect to the platen by adjusting screw 27 threaded into the frame of the machine and having engagement with the end of shank 2. Binding screw 28 extending through the frame is threaded into bracket 1 at 29 and serves to bind the same against adjusting screw 27.

In the embodiment shown in Fig. 3, bracket 1 is adjustable with respect to platen 10 by adjusting screw 30 threaded into frame A and engaging with bracket 1 at 31, and a set screw 32 extending through frame A operates to bind shank 2, thereby maintaining bracket 1 in a fixed position. In this embodiment, I have provided a sliding block 33 pivoted upon swinging arm 18 in place of roller 20, as shown in Fig. 1, the operation being in all respects substantially similar to that above described.

In Figs. 4 and 5, I have shown a different arrangement of the key lever arresting mechanism. In this embodiment, I have positioned upon a shaft 34 journaled in the frame of the machine, a wiper cam 35, which extends under and supports the entire set or series of key levers and is held in operative position, as shown in Fig. 4, by means of spring 36 connected to arm 37 at 38 and to a fixed part of the machine at 39. To an arm 40 secured to shaft 34 there is pivoted a rod, 41, which, in turn, is pivoted to arm 42 positioned upon a rock shaft 43 journaled in the frame of the machine. Rock shaft 43 is, in this instance, designed to be connected with the carriage feed, ribbon feeding means, or any other actuated means and, accordingly, operates as the usual universal bar. Key lever 11, has, in this instance, a curved periphery, as at 44, which periphery co-acts with wiper cam 35, and it should be apparent that, upon a downward stroke of said key lever, cam 35 will be rocked and during such movement will slide along said curved periphery, the stroke of key lever 11 being arrested when the position shown in Fig. 5 is reached, and during this movement rock shaft 43, through its connection with wiper cam 35 will have been operated, as heretofore explained. Upon the releasing of pres-



sure from key lever 11, spring 15 operates to return the same to its original position against cushion 14, and spring 36 maintains a constant engagement between wiper cam 35 and said key lever.

Accordingly, it will be seen that I have devised mechanism well adapted to accomplish the objects of my invention and one, while simple in form, is characterized by great efficiency, the several parts operating to produce a substantially silent operation, and the advantages herein set forth, are inherent in all the embodiments shown.

While in this illustrative I have shown my invention in connection with machines of the above type, I do not wish to be understood as being limited to use in machines of such type, as it is adapted as to many of its features to machines of other types, although peculiarly advantageous in the relation shown.

As many changes could be made in the above construction and many apparently widely different embodiments of my invention could be made without departing from the scope thereof, I intend that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a typewriting machine, in combination, a platen, a bracket adapted to carry the printing devices, a shank upon said bracket and extending into the frame of the machine, means for adjusting said bracket with respect to the platen, and means operating upon said shank to fasten said bracket in position after adjustment.

2. In a typewriting machine, in combination, a platen, a bracket adapted to carry the printing devices, a shank upon said bracket and extending into the frame of the machine, means for adjusting said bracket with respect to the platen, and screw threaded means operating upon said shank to fasten said bracket in position after adjustment.

3. In a typewriting machine, in combination, a platen, a bracket adapted to carry the printing devices, a shank upon said bracket extending into the frame of the machine, screw threaded means operating in the frame of the machine for adjusting said bracket with respect to the platen, and a clamping screw operating upon said shank to fasten said bracket in position after adjustment.

4. In a typewriting machine, in combination, a platen, a bracket adapted to carry the printing devices, said bracket being provided with a shank extending into the frame of the machine, means extending through

the frame of the machine and engaging said bracket to adjust the same with respect to the platen, and means operating in said shank adapted to clamp said bracket against such adjusting means.

5. In a typewriting machine, in combination, a platen, a bracket adapted to carry the type actuating devices, said bracket being provided with a shank extending into the frame of the machine, screw threaded means extending through the frame of the machine and engaging said bracket to adjust the same with respect to the platen, and means for clamping said bracket against said screw threaded adjusting means.

6. In a typewriting machine, in combination, a platen, a bracket adapted to carry the printing devices and having a shank extending into the frame of the machine, means for adjusting said bracket toward the platen, and means for adjusting said bracket from the platen, either of said adjusting means being capable of operation to clamp said bracket in an adjusted position.

7. In a typewriting machine, in combination, a platen, a bracket adapted to carry the printing devices and having a shank extending into the frame of the machine, means operating in said shank for adjusting said bracket from the platen, and means for adjusting said bracket toward the platen, either of said adjusting means being capable of operation to clamp said bracket in an adjusted position.

8. In a typewriting machine, in combination, a platen, a type bar, a bracket, type actuating devices carried by said bracket and connected with said type bar, said bracket being provided with a shank extending into the frame of the machine, an adjusting screw engaging said shank and adapted to adjust the bracket with respect to the platen, and a clamping screw adapted to engage said bracket to clamp the same against movement after adjustment.

9. In a typewriting machine, in combination, a platen, a type bar, type actuating devices connected with said type bar, a bracket adapted to carry said type actuating devices, said bracket being provided with a milled shank extending into the frame of the machine, means co-acting with said shank for adjusting the bracket from the platen, and means acting directly upon said bracket adapted to clamp the same in an adjusted position, said adjusting means and said clamping means being capable of a reverse operation, whereby said first-mentioned means operates to permit an adjustment of said bracket toward the platen and said second-mentioned means operates to adjust the same and to clamp the bracket in said adjusted position.

10. In a typewriting machine, in combi-



nation, a platen, a type bar, actuating devices connected with said type bar, a bracket adapted to carry said actuating devices, said bracket being provided with a milled shank  
 5 extending into the frame of the machine, an adjusting screw co-acting with said shank to adjust the bracket from the platen, a clamping screw acting directly upon said bracket adapted to clamp the same in an  
 10 adjusted position, said adjusting screw and said clamping screw being capable of a reverse operation whereby said first-mentioned adjusting screw may be operated to permit a movement of the bracket toward the platen,  
 15 said clamping screw operating to adjust the bracket and also to clamp the same in an adjusted position.

11. In a typewriting machine, in combination, a platen, a type bar, means adapted  
 20 to actuate said type bar, a key lever connected with said actuating means, a fixed stop for said key lever disposed above the same, and means interposed between said key lever and said fixed stop adapted to  
 25 interpose a yielding resistance to the stroke of said key lever.

12. In a typewriting machine, in combination, a platen, a type bar, means adapted to actuate said type bar, a key lever con-  
 30 nected with said actuating means, a fixed stop for said key lever arranged above the same, means interposed between said key lever and said fixed stop adapted to interpose a yielding resistance and ultimately to  
 35 arrest the stroke of said key lever, and a spring connected with said last-mentioned means adapted to oppose a movement thereof.

13. In a typewriting machine, in combination, a platen, a type bar, means adapted to actuate said type bar, a key lever connected with said actuating means, a fixed  
 40 stop for said key lever disposed above the same, a swinging member adapted to move relatively to said type bar and such relative movement to interpose a yielding resistance to the movement thereof, said swinging  
 45 member acting in conjunction with said fixed stop to interpose a yielding resistance to the stroke of said key lever and also operating to arrest the movement thereof.

14. In a typewriting machine, in combination, a key lever, a fixed stop arranged above  
 50 the same, and means pivoted to said key lever and moving along said fixed stop adapted to limit the stroke of said key lever.

15. In a typewriting machine, in combination, a key lever, a fixed stop arranged above  
 60 the same, and swinging means pivoted to said key lever and moving along said fixed stop adapted to furnish a yielding resistance and ultimately to arrest the stroke of said key lever.

16. In a typewriting machine, in combina-

tion, a key lever, a fixed stop arranged above  
 65 the same, means connected to said key lever and moving over said fixed stop adapted to limit the stroke of said key lever, and means for returning said key lever to its original position. 70

17. In a typewriting machine, in combination, a key lever, a fixed stop arranged above  
 the same, means connected with said key lever and moving over said fixed stop and  
 adapted to limit the stroke of said key lever, 75 means for returning the same to its original position, and a cushioned stop adapted to silently arrest such returning movement.

18. In a typewriting machine, in combination, a pivoted key lever, a fixed stop ar-  
 80 ranged above the same, movable means connecting said key lever with said fixed stop, and means carried by said connecting means adapted to move over said fixed stop upon a  
 stroke of said key lever, said fixed stop being 85 adapted to operate through the medium of said connecting means to limit the stroke of said key lever.

19. In a typewriting machine, in combination, a key lever, an adjustable bar arranged  
 90 over the same, and means attached to said key lever and operating upon said fixed bar and movable along said bar upon a stroke of  
 said key lever, said means being adapted to interpose a resistance to the movement of 95 said key lever and ultimately to arrest the movement thereof.

20. In a typewriting machine, in combination, a key lever, a fixed bar arranged above  
 the same and a swinging member pivotally 100 attached to said key lever and operating upon said fixed bar upon a stroke of said key lever, said swinging member being adapted to interpose a resistance to the movement of said key lever and ultimately to arrest the 105 movement thereof.

21. In a typewriting machine, in combination, a key lever, a fixed bar arranged above  
 the same, a swinging member pivotally at- 110 tached to said key lever and adapted to operate upon said fixed bar upon a stroke of said key lever, said swinging member being adapted to interpose resistance to the stroke of said key lever and ultimately arrest the movement thereof, and a spring connecting 115 said key lever and said swinging member adapted to resist a movement of the same with respect to said fixed bar.

22. In a typewriting machine, in combination, a key lever, an adjustable fixed bar ar-  
 120 ranged above the same, a swinging member pivoted to said key lever, a roller rotatably mounted upon said swinging member and adapted to operate upon said fixed bar upon  
 a stroke of said key lever, said swinging 125 member being adapted to interpose resistance to the movement of said key lever and ultimately arrest the movement thereof, and



a spring connecting said key lever and said swinging member adapted to resist a movement of the same with respect to said adjustable fixed bar.

- 5 23. In a typewriting machine, in combination with the type-carrying members of a bracket adapted to support the same, said bracket being seated upon the frame of the machine, and a pair of opposed members  
10 engaging said bracket and adapted to move

the same in opposite directions thereto, said members being adapted to clamp the bracket against the other member after adjustment.

In testimony whereof I affix my signature, in the presence of two witnesses.

WILLIAM A. LORENZ.

Witnesses:

JANETTE S. ELLSWORTH,  
CAROLINE M. BRECKLE.