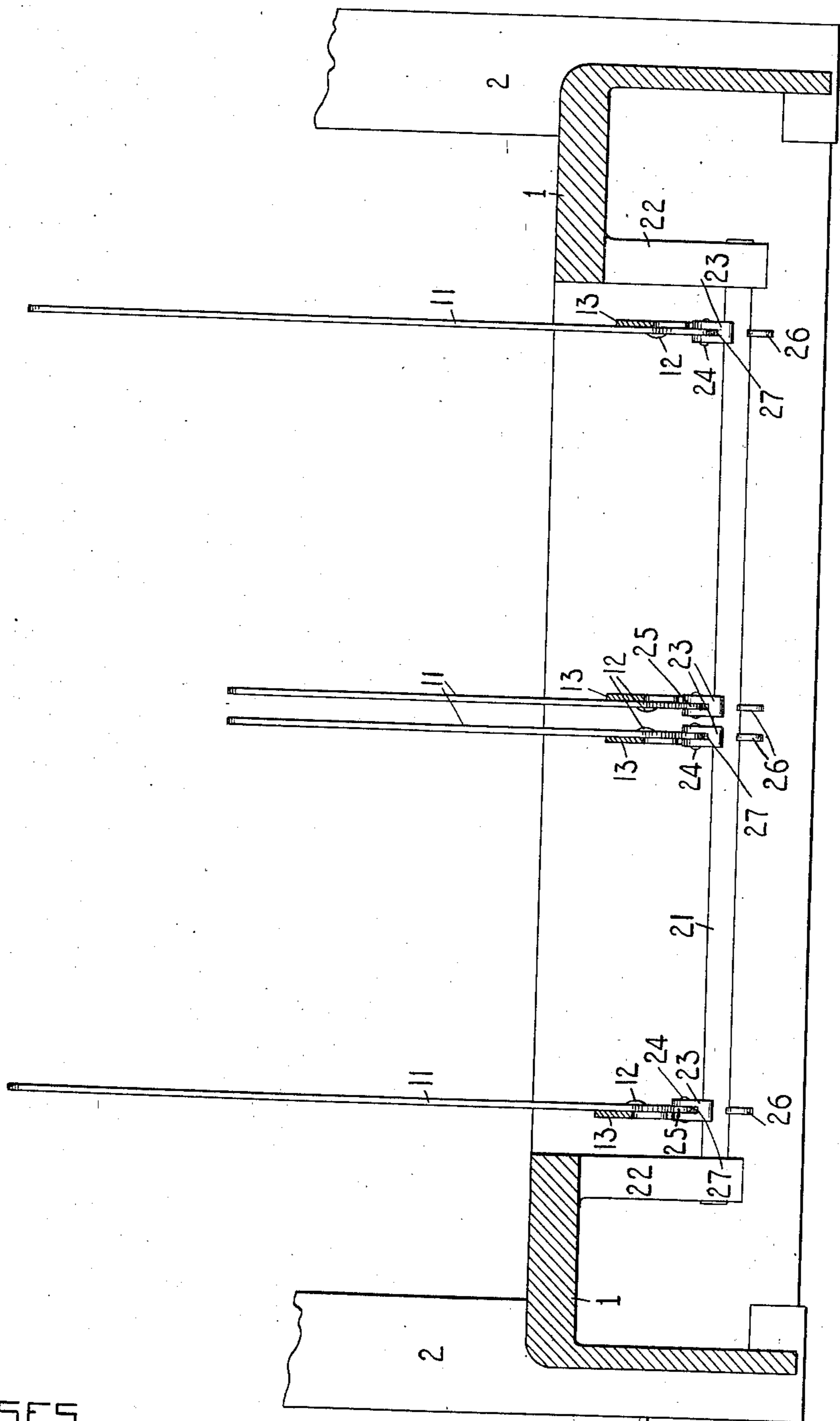


963,328.

G. A. SEIB.  
TYPE WRITING MACHINE.  
APPLICATION FILED APR. 14, 1909.

Patented July 5, 1910.  
3 SHEETS—SHEET 3.

FIG. 4.



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3 SHEETS—SHEET 2.



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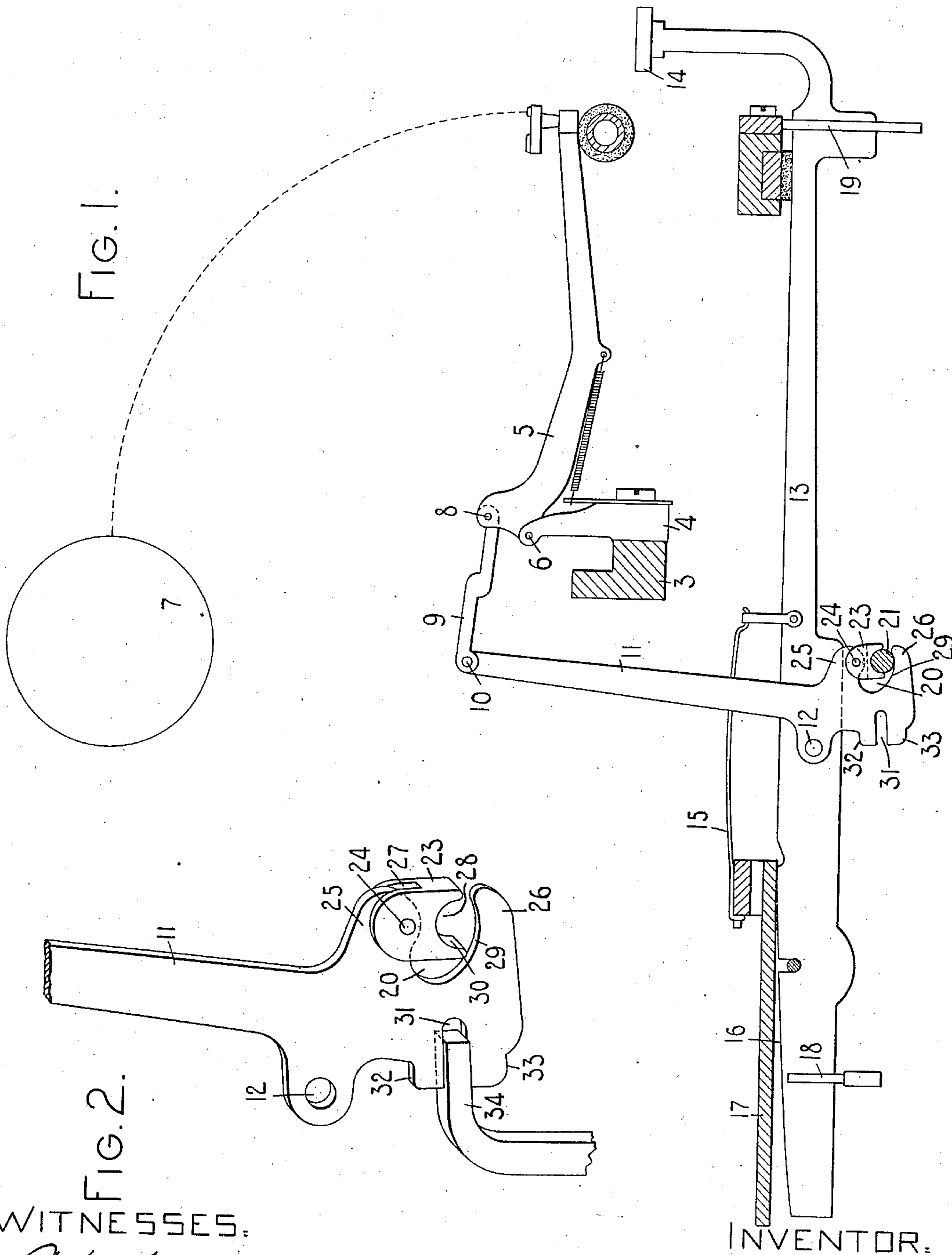
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3 SHEETS—SHEET 1.



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# UNITED STATES PATENT OFFICE.

GEORGE A. SEIB, OF ILION, NEW YORK, ASSIGNOR TO THE MONARCH TYPEWRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

## TYPE-WRITING MACHINE.

963,328.

Specification of Letters Patent.

Patented July 5, 1910.

Application filed April 14, 1909. Serial No. 489,915.

*To all whom it may concern:*

Be it known that I, GEORGE A. SEIB, citizen of the United States, and resident of Ilion, in the county of Herkimer 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 more particularly to type actions for such machines and the main object of the invention is to provide an easier and more efficient type action and one in which there will be less wear upon the parts.

A further object is to provide for adjustment between certain of the parts.

To the above and other ends which will hereinafter more fully appear, my invention consists in 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 view of a type action embodying my invention, together with certain other parts associated therewith. Fig. 2 is an enlarged detail fragmentary perspective view of a sub-lever and a tool used in adjusting the parts. Fig. 3 is a view corresponding to Fig. 1 but showing the disposition of the parts as they appear when the type bar is in printing position. Fig. 4 is a front elevation with a part of the machine sectioned away and parts broken away, the view showing several of the sub-levers at the middle and at the sides of the system with the key levers pivoted thereto.

I have shown my invention embodied in the present instance in a front-strike typewriting machine of the same general character as the Monarch machine, though it should be understood that the invention may be embodied in other styles of machines.

The frame of the machine comprises a base 1 and corner posts 2, the latter being surmounted by a top plate across which the carriage (not shown) travels in the usual manner. A type bar segment 3 constitutes a support for type bar hangers 4 to which type bars 5 are pivoted at 6. The construction is such that the type bar segment and the segmentally arranged upwardly and

rearwardly striking type bars may be shifted 55 relatively to the platen 7 diagrammatically shown in the drawings, as in the Monarch machine. Each of the type bars is pivotally connected at 8 to a pull link 9 pivoted at its rear end as at 10 to an upwardly extending 60 arm of an angular sub-lever 11 pivoted at 12 to a key lever 13 which is provided with the usual finger key 14 and a restoring spring 15. The key levers are or may be provided with curved contact faces 16 on the upper 65 edges of the rear portions thereof, which curved treads or contact faces cooperate with a fulcrum plate 17 secured to the base of the machine. The key levers are guided at their rear end portions by a guide comb 18 and 70 are guided at the front portions by a guide comb 19. Each sub-lever has an angular or off-set arm or portion slotted or bifurcated at 20 to receive a fulcrum rod or bar 21 which extends transversely beneath the key 75 levers and is secured at its ends to depending lugs 22 which project downwardly from the base of the machine. Each sub-lever is provided with oppositely disposed jaws which embrace the fulcrum rod. One of these jaws 80 is in the nature of a fulcrum link 23 pivoted at 24 to one arm 25 formed by the bifurcated portion of the sub-lever. The other jaw is formed by the other member 26 of the bifurcated portion of the sub-lever. Each link 23 85 is slotted at 27 to receive the portion or arm 25 of the sub-lever to which the link is pivoted. The pivot 24 of the link or shoe 23 is preferably secured to the two ears formed by the slot 27 in the shoe and turns with the 90 shoe within a perforation in the arm 25 and in consequence the pivot pin 24 is in the nature of a headed rivet free to turn in the perforation in the bell crank. The lower end portion of each link 23 is recessed as at 95 28 to straddle the fulcrum rod 21 and to form a broad semi-cylindrical bearing face 30 for contact with the cylindrical rod, the link being free to turn on the rod. The edge 29 of the cut-out 20 in the sub-lever is so 100 shaped that, in the movement of the sub-lever around the fulcrum rod 21, the edge 29 will bear lightly against the fulcrum rod and will thus prevent the guide link from being accidentally displaced from the rod 105 and will maintain a cooperation between the sub-lever and its fulcrum rod. It will be seen from an inspection of Figs. 2 and 4

that the bearing face 30 of each fulcrum link 23 which contacts with the fulcrum rod 21 is considerably wider than the thickness of the sub-lever so that a broad contact face or wearing shoe is provided between each fulcrum link and the fulcrum rod. Each sub-lever, on the edge thereof opposite the bifurcation 20, is slotted at 31, in a direction transverse to the general length of the sub-lever, the slot 31 extending toward the slot 20. The lower portion of the sub-lever is provided with shoulders 32 and 33 on opposite sides of the bifurcation. This slotting of the sub-lever at 31 is to weaken the metal at the neck, formed between the two slots 20 and 31 so that the portion of the sub-lever below said slots may be bent around the neck as a center and thus provide means whereby the oppositely disposed jaws 23 and 26 of the sub-lever may be adjusted toward or away from each other. If the jaws are to be brought closer together a suitable tool such as that shown at 34 in Fig. 2 may be inserted in the slot 31 and employed to force the jaws at each side of the slot apart, thereby forcing the oppositely disposed jaws 23 and 26 closer together. If, on the other hand, the jaws 23 and 26 are to be more widely separated, then an ordinary pair of pliers may be employed, each jaw of the pliers engaging one of the shoulders 32 or 33. A compression of the pliers will bring the jaws on opposite sides of the slot 31 together, thus forcing the jaws 23 and 26 apart. It will be understood that the pivot 24 under all relative adjustments of the jaws 23 and 26 maintains a fixed relation with the sub-lever above the slot or cut-out 20 therein. The effect of the adjustments previously described is to raise or lower the arm 26. If through reaction of the parts the face or edge 29 of the jaw 26 should in time become slightly worn this wear may be taken up by an adjustment of the jaw 26 in the manner described. Moreover, the adjustment described enables each sub-lever to be individually adjusted at its fulcrum to take up any undue looseness at the fulcrum without adjusting the escapement connections as was the practice in some instances heretofore.

The provision of the fulcrum link 23 in this construction divides the movement of the parts and distributes and reduces the wear. Thus, instead of the upper arm or part 25 of the sub-lever contacting directly with the fulcrum rod as in the Monarch machine, the sub-lever receives a slight pivotal movement with reference to the fulcrum link 23 and the link itself receives a slight pivotal movement on the fulcrum rod. These movements are so slight, however, that no material wear at the pivotal points is produced and a broad contact face 30 of the shoe or fulcrum link 23 bearing on the fulcrum rod distributes the wear between the

fulcrum rod and fulcrum link and reduces such wear to a minimum. Moreover, this construction provides an easier and more efficient action of the parts, affording as it does a pivotal movement of the guide link on the fulcrum rod as distinguished from a sliding and turning movement on the rod.

Various changes may be made without departing from the spirit and scope of my invention.

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

1. In a typewriting machine, the combination of a type bar, a fulcrum and a key actuated lever operatively connected with said type bar and provided with oppositely disposed jaws which embrace said fulcrum, one of said jaws being a link pivoted at one end to the sub-lever and bearing at the other end on said fulcrum.

2. In a typewriting machine, the combination of a type bar, a fulcrum, a key actuated lever operatively connected with said type bar and provided with oppositely disposed jaws which embrace said fulcrum, one of said jaws being a link pivoted at one end to the sub-lever and bearing at the other end on said fulcrum, and means whereby a relative adjustment between said jaws may be effected.

3. In a typewriting machine, the combination of a type bar, a fulcrum, and a key actuated lever operatively connected with said type bar and provided with oppositely disposed jaws which embrace said fulcrum, one of said jaws being a link pivoted at one end to the sub-lever and bearing at the other end on said fulcrum, that portion of the link which pivots on the fulcrum being broader than the sub-lever is thick to form a relatively broad contact face to cooperate with the fulcrum.

4. In a typewriting machine, the combination of a key actuated lever, a fulcrum link pivoted to said lever, and a fulcrum on which said fulcrum link turns, the contact face of the fulcrum link which contacts with the fulcrum being broader than the thickness of the lever to form a relatively broad wearing face.

5. In a typewriting machine, the combination of a series of type bars, a series of sub-levers operatively connected therewith, a series of key levers to which said sub-levers are pivoted intermediate the ends of the latter, each of said sub-levers having an angular arm beneath the associated key levers, a pivot rod that extends transversely across the machine, and a series of links each pivoted at one end to the angular arm of a sub-lever and at the other end bearing on said pivot rod and each constituting a fulcrum link for the associated sub-lever.

6. In a typewriting machine, the combination of a series of key levers, a series of

sub-levers operatively connected to said key levers, a fulcrum rod, and a series of fulcrum links each pivoted to a sub-lever and detachably bearing on said fulcrum rod.

5 7. In a typewriting machine, the combination of a series of key levers, a series of sub-levers operatively connected to said key levers, a fulcrum rod, and a series of fulcrum links each pivoted to a sub-lever and  
10 detachably bearing on said fulcrum rod, the contact face of each fulcrum link which bears on the fulcrum rod being broader than the thickness of the sub-lever to form a relatively broad wearing face for contact with  
15 the fulcrum rod.

8. In a typewriting machine, the combination of a type bar, a key lever, a sub-lever controlled by said key lever and operatively connected with said type bar, said sub-lever  
20 being slotted, a fulcrum received in the slot in the sub-lever, and a link pivoted to said sub-lever and mounted to turn on said fulcrum.

9. In a typewriting machine, the combination of a type bar, a key lever, a sub-lever controlled by said key lever and operatively connected with said type bar, said sub-lever being slotted, a fulcrum received in the slot  
25 in the sub-lever, a link pivoted to said sub-lever and pivoted to turn on said fulcrum, and means whereby parts on opposite sides of the slot in said sub-lever may be brought nearer to or moved farther away from each other.

30 10. In a typewriting machine, the combination of a type bar, a key lever, a sub-lever controlled by said key lever and operatively connected with said type bar, said sub-lever being slotted, a fulcrum received in the slot  
35 in the sub-lever, and a link pivoted to said sub-lever and mounted to turn on said fulcrum, the sub-lever being provided with a second slot whereby the parts of the sub-lever on opposite sides of the first mentioned  
40 slot therein may be brought nearer to or moved farther away from each other.

45 11. In a typewriting machine, the combination of a key actuated lever, and a fulcrum therefor, said lever being slotted independently of its bearing portion on said ful-

crum to afford a relative adjustment between said lever and its fulcrum.

12. In a typewriting machine, the combination of a key actuated lever, and a fulcrum therefor, said lever being slotted at a  
55 portion thereof near but not turning on the fulcrum to weaken the lever and enable one portion thereof to be bent relatively to another portion and relatively to the fulcrum.

13. In a typewriting machine, the combination of a key actuated lever having oppositely disposed jaws, one of said jaws being a link, and a fulcrum received between and embraced by said jaws. 60

14. In a typewriting machine, the combination of a key actuated lever having oppositely disposed jaws, one of said jaws being a link, a fulcrum received between and embraced by said jaws, and means for adjusting one of said jaws. 65 70

15. In a typewriting machine, the combination of a key lever, a sub-lever controlled thereby, said sub-lever being slotted in opposite edges transverse to the general direction of the length of the sub-lever, the slots  
75 extending toward each other, and a fulcrum for said sub-lever arranged in one of said slots.

16. In a typewriting machine, the combination of a key lever, a sub-lever controlled  
80 thereby, said sub-lever being slotted in opposite edges transverse to the general direction of the length of the sub-lever, the slots extending toward each other, a fulcrum received in one of said slots, and a fulcrum  
85 link pivoted to said sub-lever and mounted to turn on said fulcrum.

17. In a typewriting machine, the combination of a type bar, a key actuated lever therefor, a cylindrical fulcrum rod, and a  
90 fulcrum link pivoted on said fulcrum rod, said fulcrum link having a matching bearing that coöperates with the fulcrum rod.

Signed at Ilion, in the county of Herkimer, and State of New York, this twelfth  
95 day of April A. D. 1909.

GEORGE A. SEIB.

Witnesses:

JOHN E. MONTGOMERY,  
WILHELM A. SCHMIDT.