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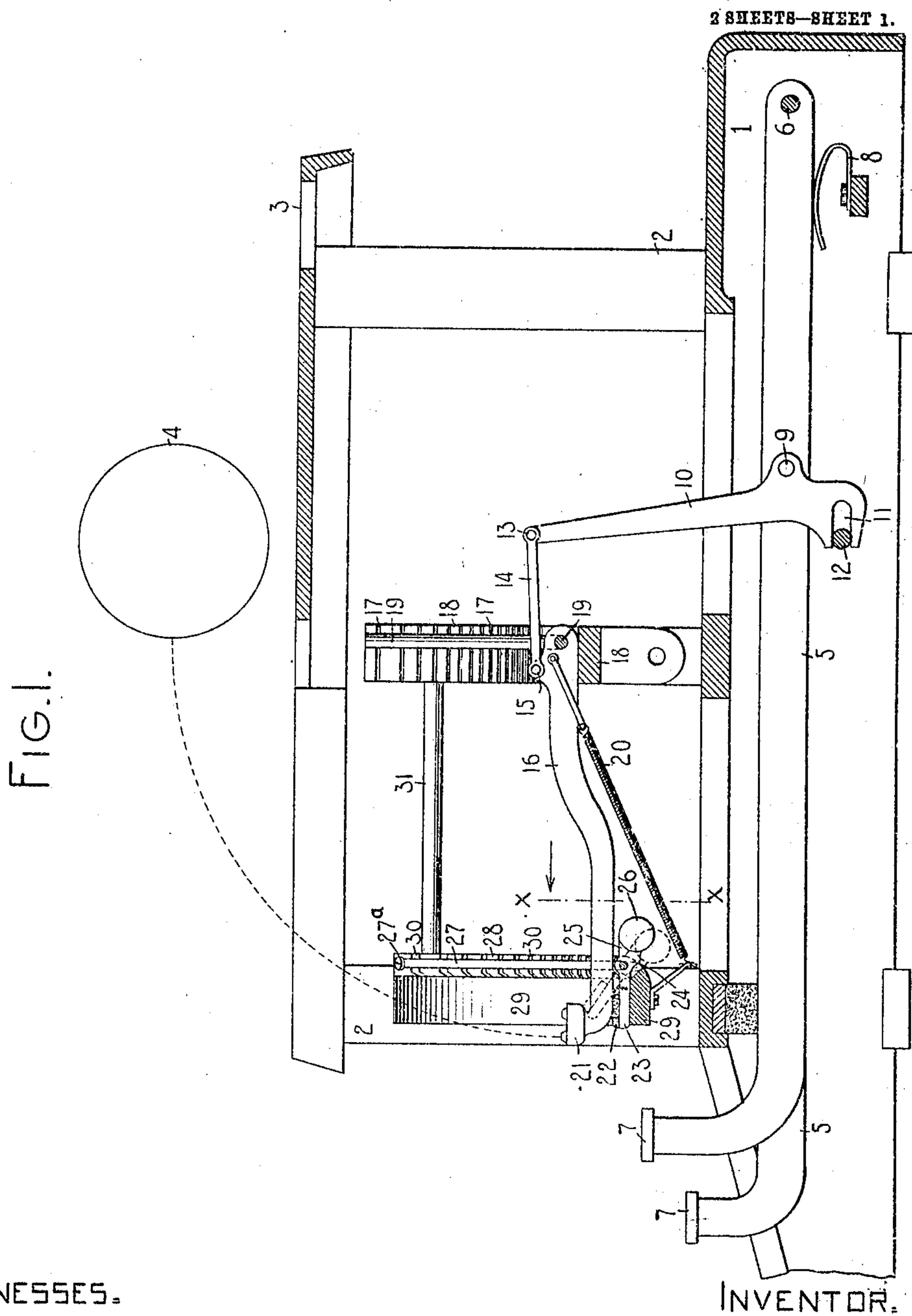
PATENTED NOV. 19, 1907.

J. FELBEL.

TYPE WRITING MACHINE.

APPLICATION FILED MAR. 16, 1906.

2 SHEETS—SHEET 1.



WITNESSES.

W. F. Hanover

M. W. Paul

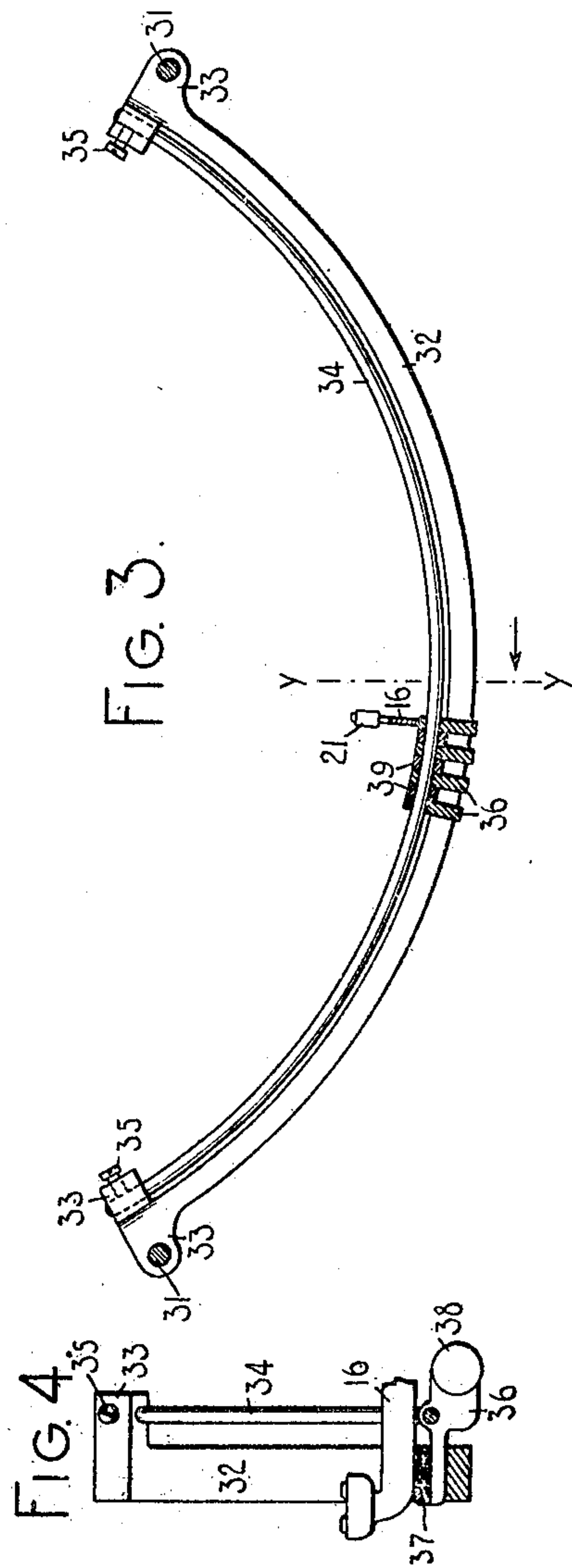
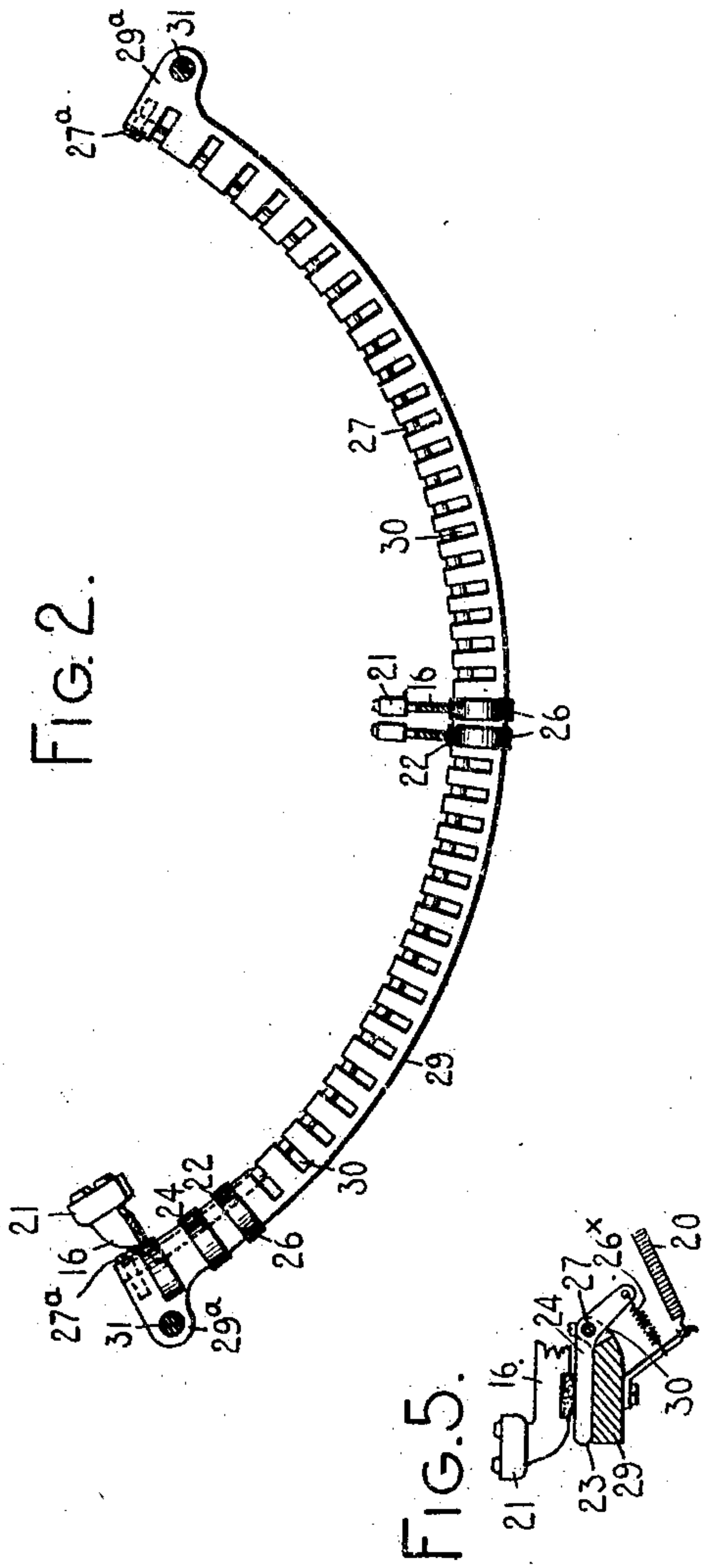
Jacob Felber

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2 SHEETS—SHEET 2.



WITNESSES.

M. J. Hammer.

Wm. Pool.

INVENTOR.

Jacob Felbel

UNITED STATES PATENT OFFICE.

JACOB FELBEL, OF NEW YORK, N. Y., ASSIGNOR TO UNION TYPEWRITER COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

No. 871,116.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed March 15, 1905, Serial No. 250,222.

To all whom it may concern:

Be it known that I, JACOB FELBEL; a citizen of the United States, and resident of the borough of Manhattan, city of New York, in the county of New York 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 typewriting machines and has for its main object to provide a type rest or cushion adapted to reduce the rebound of the type bars when they fall back to normal position.

15 To the above and other ends which will hereinafter appear, my invention consists in the parts, features of construction and combinations of devices to be hereinafter more fully set forth and particularly pointed out in the claims.

20 My invention is shown as applied to a machine having the general characteristics of the Monarch typewriting machine, but it may be embodied in other forms of writing machines.

In the accompanying drawings, Figure 1 is a view taken in longitudinal central section of so much of a typewriting machine as is necessary to illustrate the invention. 30 Fig. 2 is a rear elevation of the type rest and the forward ends of some of the type bars taken on a plane represented by the line $x-x$ of Fig. 1, various parts being omitted. Fig. 3 is a view, similar to Fig. 2, of a modification of the invention, the type rests being shown in section. Fig. 4 is a sectional view taken on the line $y-y$ of Fig. 3. Fig. 5 is a side view of a modification.

40 Considering first Figs. 1 and 2, 1 is the base of the machine sustaining corner posts 2 which support the top plate 3, upon which is mounted a carriage (not shown) carrying a platen 4, diagrammatically illustrated. Key levers 5 are pivoted at 6 in the rear of the base and each of said key levers is provided with a key cap 7 and a restoring spring 8. Pivoted at 9 to each key lever is a sub-lever 10, the lower portion of which is formed with a slot 11 embracing a fulcrum rod 12 which passes from side to side of the machine beneath the series of key levers, and is secured in the side walls of the base 1. The upper end of each sub-lever is pivotally connected at 13 to the rear end of a link 14, 55 the forward end whereof is pivoted at 15 to a

type bar 16. Each type bar is arranged in one of a series of radial slots 17 formed in a type bar segment 18 and is mounted upon a pivot rod 19 which is seated in a groove in the top of the segmental support 18; but the type bars may be otherwise pivotally mounted. Each type bar is provided with a restoring spring 20 and its free end, which carries a type block 21, bears normally against a pad or thin facing 22 of some soft material, such as felt or leather. The facing or pad 22 is suitably secured to the forward arm 23 of a lever 24, the rear arm 25 whereof terminates in a counterweight 26. The series of levers 24 is pivotally mounted on a segmental bearing rod 27, which is seated in a groove formed in the top of the inner flange 28 of a segmental support 29, said bearing rod being held in place by a headed screw 27^a at each end. The flange 28 is provided with a series of radial slots 30 in each of which one of the levers 24 is arranged. The support 29 is formed at its ends with ears 29^a in which are secured horizontally disposed arms 31, these latter projecting forwardly from the type bar segment 18 to which they are fixed.

Each lever 24 with its associate pad 22 and counterweight 26 comprises an individual pivoted type rest or cushion for one of the type bars 16. As best appears in Fig. 1, the forward portion of each type rest is held normally depressed by its associated type bar, with the arm 23 contacting with the inner face of the support 29. When the key lever 5 is depressed, the type bar is swung about its pivot and toward the platen in a well-known manner. During the initial part of this movement the facing 22 will follow the type bar towards the printing point, the lever arm 23 to which said facing is attached being swung upwardly and rearwardly, and the lever arm 25 being swung downwardly and forwardly about the pivot rod 27 by the action of gravity upon the counterweight 26. This turning movement of the lever 24 about its pivot 27 continues until the under edge of the arm 25 contacts with the bottom of the slot 30. When this occurs the type rest will be in the position shown by the dotted lines of Fig. 1. As the type bar nears the end of its return movement it will contact with the raised facing 22 and will depress the latter until it reaches its normal position and will swing the lever

24 back to the position shown in full lines in Fig. 1, raising the counterweight 26 against the force of gravity. The type bar strikes the lever 24 a sharp blow and the motion of said type bar is communicated to the weighted lever which, by its inertia, absorbs the momentum of said type bar and prevents or diminishes the rebound of said type bar.

I do not, of course, desire to be limited to the precise construction and arrangement hitherto described, and various changes may be made in these and other respects within the scope of my invention. An example of some of such changes is shown in Figs. 3 and 4 of the drawings. In the modification illustrated in these last named views, the segmental support 32 of the individual type rests is formed at its ends with rearwardly projecting ears or lugs 33, and these ears are perforated to receive the ends of the segmental bearing rod 34 which is secured in position by the screws 35, the latter screwing into tapped holes in the ears 33 and contacting with the rod 34 within said ears. The lever members 36 are of similar construction to the lever members 24. Each lever member 36 is provided with a facing 37 and a counterweight 38, the three elements, as in the previously described construction, comprising an individual type rest for one of the type bars 16. The series of individual type rests are pivotally mounted on the bearing rod 34, and are held properly spaced apart by washers 39, said washers being threaded upon the bearing rod alternately with the individual type rests. The action of this modified construction of type rest is similar to that of the first described construction. An equivalent construction is shown at Fig. 5 where a spring 26^x is employed to act on the type rest levers in the same manner as the counterweight; and in this view the pad is on the type bar instead of on the type rest lever.

Various other changes may, of course, be made without departing from the gist of my invention.

It will be noted that I have provided a type rest which constantly tends towards the printing point but which is normally pressed in an opposite direction by the type bar itself; that the type bar normally holds the type rest at the limit of its movement in a direction away from the printing point; that as the type bar is swung towards the printing point, the type rest also swings about its pivot and its pad end follows the type bar in the radial plane of the latter until said type rest reaches the limit of its movement in a direction towards the printing point; that the means employed to cause this movement of the pad end of the type rest towards the printing point is the counterweight; that the counterweight or means

for raising the type rest is located between the free end of the type bar and the pivot of the type bar; that the inner face of the supporting segment 29 serves as a stop to limit the movement of the type rest in one direction, and that the bottom of the slot 30 serves as a stop to limit the movement of the type rest in the other direction; that the type-rest moves from normal position in a direction towards the printing point with the type bar, so that, as the latter returns, it contacts with and moves said rest, which thus gradually absorbs the energy of the bar, until, when the latter arrives at normal position, so much of this energy has been dissipated that the tendency of the bar to rebound has been greatly lessened and an easy and effective cushioning effect is obtained.

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

1. In a typewriting machine, the combination with a type bar and actuating mechanism therefor, of a type rest normally pressed away from the printing point by said type bar, said type rest comprising a two-arm lever, one arm whereof is connected with the type bar, and means connected with the other arm of said lever and tending to counteract the type bar, said means being independent of the type bar actuating mechanism.
2. In a typewriting machine, the combination of a movable pivoted type rest, stops limiting the movement of said rest in either direction of its travel, and means for swinging said type rest from one limiting stop to the other.
3. In a typewriting machine, the combination of a type rest comprising a pivoted lever having a pad on one arm thereof and a counterweight on the other arm thereof, stops adapted to contact with the arms of said type rest, and means for causing movement of said type rest between said stops.
4. In a typewriting machine, the combination of a type rest support, movable individual type rests pivotally mounted on said support, stops limiting the rotary movement of said type rests, and means for swinging said type rests from one stop to the other.
5. In a typewriting machine, the combination of a slotted type rest support, individual type rests pivoted in the slots of said support, limiting stops on said support, and means for causing movement of said rests between said stops.
6. In a typewriting machine, the combination of a slotted type rest support, and individual type rests pivoted in the slots of said support, one face of said support serving as a stop to limit the movement of said type rests in one direction, and the bottom of the slots in said support serving as a stop to limit the movement of the stops in the other direction.

7. In a front strike typewriting machine, the combination of a segmental type rest support, levers pivotally mounted on said support, a pad on one arm of each of said levers, a counterweight on the other arm of each of said levers, and a series of type bars, the forward end of each type bar normally pressing one of the levers in a direction away from the printing point against the influence of the counterweight.

8. In a front strike typewriting machine, the combination of a slotted segmental type rest support, levers pivoted in the slots in said support, pads carried on the forward arms of said levers, counterweights carried on the rear arms of said levers, and a series of pivoted type bars the forward ends whereof normally contact with said pads and serve to keep said pivoted levers in contact with the inner face of said type rest support.

9. In a typewriting machine, the combination of a type bar, actuating mechanism therefor, a type rest pivoted to swing in the plane of the type bar, and means independent of the type bar actuating mechanism for causing the type rest to swing in the direction of the printing point when the type bar is actuated to print, the said type rest intercepting the type bar on its return movement and swinging therewith to normal position where it is held by the type bar until the latter is again actuated.

10. In a typewriting machine, the combination of a type bar, a curved support, and a type bar rest pivotally mounted on said support, the latter serving also as stops for the type rest in normal position and in abnormal position of the type rest.

11. In a typewriting machine, the combination of a series of pivoted type bars, actuating mechanism therefor, a curved support for the free ends of the type-bars, and a series of pivotally mounted type rests provided each with means independent of the actuating mechanism of the type bars for causing the type rest to swing towards the printing point when its associated type bar is actuated and each adapted to intercept the type bar on its return movement and be carried thereby to its normal position.

12. In a typewriting machine, the combination of a series of pivoted type bars, a curved support for the free ends thereof, a series of type rests pivotally mounted between their ends on said support, the type bars bearing normally on one side of the pivots of the type rests and holding the latter down against their support, and means arranged on the opposite side of the pivots of the type rests for swinging the latter when the type bars are actuated to print; whereby the contact portions of the type rests are moved towards the printing point when the type bars are lifted and are brought to a position to intercept the type bars on their

return movement and travel therewith back to normal position, the type bar during this movement being compelled to move the intercepting type rest against the force tending to raise the type rest when the type bar is lifted to print.

13. In a typewriting machine, the combination of a series of pivoted type bars, a series of pivoted type rests therefor arranged to swing in the radial planes of the type bars, each type rest comprising a contact portion for its associated type bar, and means for raising the type rest when the type bar is raised, the raising means being located between the free end of the type bar and the pivot of the type bar.

14. In a typewriting machine, the combination of a series of pivoted type bars, a series of levers pivoted on a curved support, each lever being provided with a type bar contact cushion and also with a means independent of the type bar actuating mechanism for raising the lever when the type bar is raised.

15. In a typewriting machine, the combination of a series of pivoted type bars, and a series of levers pivoted on a curved support; each lever being provided with a type bar contact cushion on one side of its pivot and with a counterweight on the opposite side of its pivot.

16. In a typewriting machine, the combination of a type bar, a type rest comprising two arms and a stop for each arm.

17. In a typewriting machine, the combination of a type rest, means constantly tending to press said type rest towards the printing point, and a type bar normally pressing said type rest away from the printing point, said type rest comprising a pivoted member having said means at one side of the pivot, the type bar engaging said member at the other side of the pivot.

18. In a typewriting machine, the combination of a type rest pivoted on a relatively fixed part, a counterweight maintained in a fixed relation with the type rest and constantly tending to press said type rest towards the printing point, and a type bar normally pressing said type rest away from the printing point.

19. In a typewriting machine, the combination with a type bar and actuating mechanism therefor, of a pivotally mounted type rest, and means independent of the type bar actuating mechanism for causing said type rest to swing from normal position in the direction of the printing point.

20. In a typewriting machine, the combination of type bars, means for actuating said type bars, and weighted levers arranged to be struck by said type bars as said type bars return to normal position and by their inertia to absorb the momentum of said type bars to prevent or diminish rebound of said type

bars; the said weights lying back of the type bars in the normal positions of the latter and acting to raise said levers when the type bars are moved to print.

- 5 21. In a typewriting machine, the combination of type bars, means for actuating said type bars, and weighted devices arranged to be struck by said type bars as said type bars return to normal position and by their
10 inertia to absorb the momentum of said type bars to prevent or diminish rebound of said type bars; the said weights lying back of the

type bars in the normal positions of the latter and acting to raise said devices when the type bars are moved to print.

15

Signed at the borough of Manhattan, city of New York, in the county of New York, and State of New York, this 14th day of March A. D. 1905.

JACOB FELBEL.

Witnesses:

E. M. WELLS,
M. F. HANSEWEBER.