

No. 886,660.

PATENTED MAY 5, 1908.

B. C. STICKNEY.
TYPE WRITING MACHINE.
APPLICATION FILED AUG. 10, 1903.

2 SHEETS—SHEET 1.

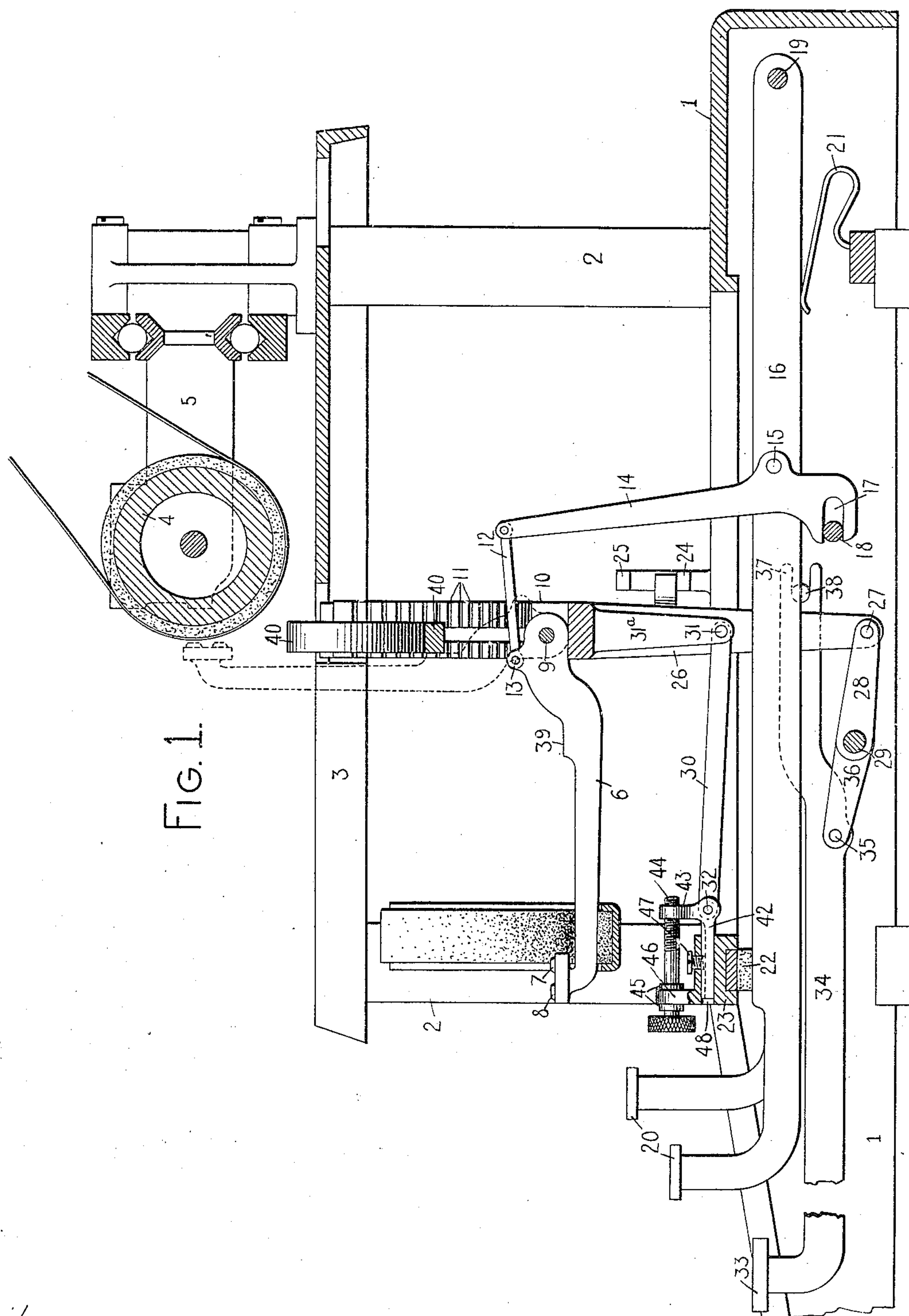


FIG 1

WITNESSES:

Marie F. Hammer
K. U. Donovan

INVENTOR=

INVENTOR:
BURNHAM C. STICKNEY
By Jacob F. Fildel
HIS ATTORNEY

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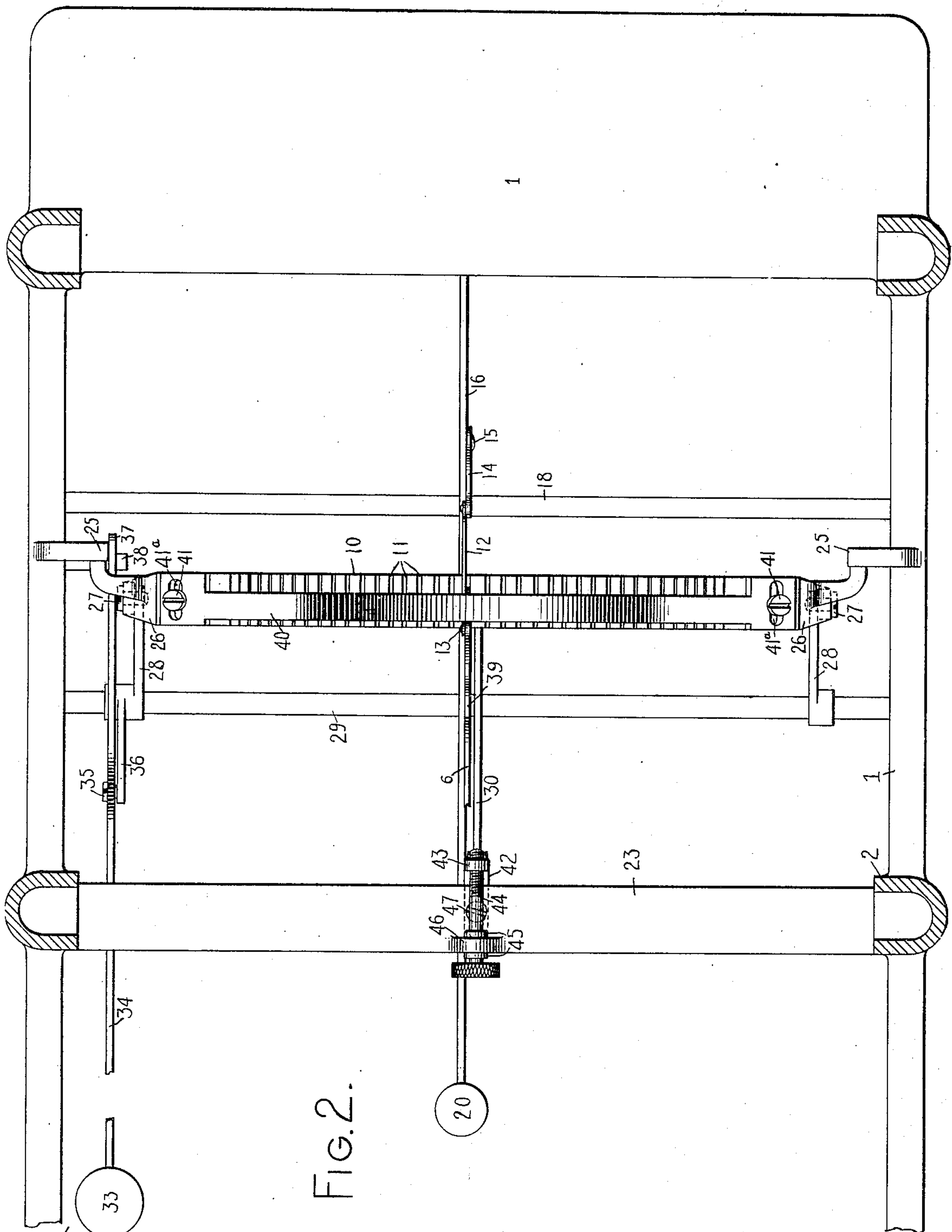


FIG. 2.

WITNESSES.

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UNITED STATES PATENT OFFICE.

BURNHAM C. STICKNEY, OF ELIZABETH, NEW JERSEY, ASSIGNOR TO UNION TYPEWRITER COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

No. 886,660.

Specification of Letters Patent.

Patented May 5, 1908.

Application filed August 10, 1903. Serial No. 168,950.

To all whom it may concern:

Be it known that I, BURNHAM C. STICKNEY, citizen of the United States, and resident of Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to typewriting machines, particularly those known as "visible writers;" and its objects are to provide means for regulating the strength of the blows of the types, and to improve and simplify the case-shifting mechanism.

My invention consists in certain combinations of devices, features of construction and arrangements of parts, all as will be hereinafter described and particularly pointed out in the concluding claims.

In the drawings forming part of this specification, Figure 1 is a central longitudinal vertical section of a front-strike typewriting machine embodying my present improvements in one form. Fig. 2 is a sectional plan showing the type-bar segment frame and its connections, including means for effecting fine horizontal adjustments thereof.

In the views, like parts are identified by like signs.

The framework of the machine comprises a rectangular base 1, corner posts 2, and top plate 3. Above the top plate is supported in the usual manner a platen 4, which as usual is mounted upon a carriage 5, the movements whereof are controlled by the usual feeding mechanism (not shown). Radial type bars 6, carrying at their forward ends upper-case types 7 and lower-case types 8, are pivoted at their rear ends upon a curved fulcrum rod 9, the latter being mounted in a vertically disposed segment 10, which is slotted radially at 11 to receive the type bar hubs. The type bars may swing about said fulcrum rod upwardly and rearwardly against the platen 4.

The movements of the type bars are effected by means of a series of pull links 12, pivoted to the type bars at 13 and extending rearwardly therefrom, and pivoted at their rear ends to upstanding sub-levers 14. The latter are pivoted between their ends at 15 to horizontal key levers 16, and below the key levers are forked at 17 to embrace a trans-

verse fulcrum rod 18, whereby when the key levers are depressed, said sub-levers are caused to vibrate rearwardly to pull the type bars up to print. Said key levers 16 are fulcrumed at their rear ends upon a transverse rod 19, and at their forward ends bear keys 20. By means of springs 21 said key levers are pressed up against a pad 22, provided upon the under side of a transverse bar 23 forming part of the framework of the machine.

The segment 10 is movable up and down to enable the different types 7 and 8 to print, the movements of the segment being limited by means of suitable stops 24 and 25. The segment 10 forms a portion of a frame, which also comprises downwardly extending integral side arms 26. The latter are hinged at their lower ends at 27 to a pair of arms 28, which extend forwardly from the segment frame and are fixed upon a horizontal transverse rock shaft 29, whereby said arms 28 are enabled to guide the lower portion of the segment frame in its up and down movements. As a cooperating guide, I provide a link 30, whose rear end is pivoted at 31 to a lug 31^a depending from the segment about midway of the width of the latter, and extends forwardly therefrom and is pivoted at its forward end at 32 to an adjustable part upon the bar 23 of the framework. It will be seen that the guide arms or links 28, 28 and 30 constitute a complete supporting and guiding means for the segment frame, said links and frame taken together forming a link motion, and the movements of the segment with its type bars being vertical or otherwise to conform to the positions of the types upon the type bars. The shifting movement of the segment is effected by means of a shift key 33, provided upon a lever 34, which is pivoted at 35 upon an arm 36 extending forwardly from the rock shaft 29 and rigid therewith; said lever extending rearwardly from said pivot and being forked at its rear end at 37 to engage a fixed fulcrum pin 38 projecting from the side wall of the machine base. It will be seen that by depressing the shift key 33, the lever 34 is vibrated, carrying down the arm 36, and raising the arms 28, together with the segment frame and type bars, to enable the up-

per case types to print. Upon relief of the key from pressure, the segment gravitates to normal position.

The type bars are illustrated as provided about midway between their ends with nibs 39, which, when the types are close to or touching the platen, contact with a stop or anvil 40, of preferably segmental form, the purpose of the anvil being to insure even blows of the types, or to secure perfect type impressions. The type bars may be somewhat springy, and may contact with the anvil before the types quite touch the platen, the remainder of the movements of the types being permitted by the spring of the type-bars. In this way the anvil prevents the type blows from being too heavy and marring the appearance of the work. The anvil spans the segment above the type bars and type bar links, the anvil being above the segment and adjustably secured to the segment at the ends of the latter by means of screws 41 and slots 41^a.

It will be understood that the type is very close to the platen when the nib on the type bar contacts with the anvil, and hence that when several sheets of paper are passed around the platen, as in manifolding, the types strike the paper freely without contact with the anvil, thereby losing the advantage of the latter. In order to avoid the loss of accuracy arising from this and other causes, I make the anvil adjustable in the direction of type blows, this adjustment being preferably effected by means of a device which adjusts not only the anvil itself but also the segment whereon the anvil is fixed. To this end I provide for adjusting the support 42, to which the forward end of the guide link 30 is secured. Said support is mounted for forward and backward movement upon the cross bar 23, and is provided at its rear end with a lug 43, into which is threaded a screw 44, whose forward end is provided with collars 45, one upon each side of a lug 46 formed upon the cross bar 23. Said collars prevent endwise movement of the screw, so that by turning the latter, the support 42 is advanced or retracted, and the link 30 is moved endwise accordingly, thereby tipping the type bar segment, together with the anvil thereon, about the hinge 27. Thus the anvil may be readily adjusted to accommodate different thicknesses of paper, or different sizes of platens, or to compensate for other slight variations. The support 42 is fastened in its adjusted position by means of a set screw 47, tapped into the cross bar, and bearing upon the support, which works in a horizontal perforation or bearing 48 formed in said cross bar.

Variations may be resorted to within the scope of my invention, and portions of my improvements may be used without others.

If desired, the anvil may be adjusted so that the type strikes the paper practically simultaneously with the striking of the type bar against the anvil.

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

1. In a typewriting machine, the combination with a platen, a series of type bars, and an anvil with which each type bar of the series contacts in its printing movement, the contact of any type bar of the series with the anvil preventing a further movement in the printing direction of that portion of the type bar which strikes the anvil, of means for effecting and maintaining a relative fixed adjustment between said platen and anvil in the direction of the type bar movement.

2. In a typewriting machine, the combination with a platen, a series of type bars, and an anvil with which each type bar of the series contacts in its printing movement, the contact of a type bar with the anvil preventing a further movement in the printing direction of that portion of each type bar of the series which strikes the anvil, of means for effecting and maintaining a fixed adjustment of said anvil so as to regulate the force of the blows of the types.

3. In a typewriting machine, the combination with a platen, of a series of type bars, a segment whereon said type bars are mounted, an anvil fixed upon said segment in position to contact with the type bars at the printing moment, and means for effecting adjustment of said segment with the anvil thereon so as to vary the force of the type blows.

4. In a typewriting machine, the combination with a platen, of a series of type bars, a segment whereon said type bars are mounted, an anvil fixed upon the segment for preventing the type bars from striking the platen with undue force, and means for shifting one of said platen and anvil elements to enable different types to print; said shifting means including a member which is adjustable so as to enable such a relative movement between the platen and the anvil as to enable the strength of the type impressions to be regulated.

5. In a typewriting machine, the combination with a platen, of a series of type bars, a segment whereon said type bars are mounted, an anvil upon said segment for preventing the type bars from striking the platen with undue force, and means for shifting said segment to enable different types to print; said shifting means including a part which is adjustable so as to enable fine adjustments of the segments in a direction transverse to its shifting movement.

6. In a typewriting machine, the combination with a platen, of a series of rearwardly striking type bars, a segment slotted upon its

upper side to receive said type bars, a type-bar fulcrum-rod mounted in said segment, links extending rearwardly from the type bars above said segment, key-operated levers connected to the rear ends of said links, a type bar anvil spanning the segment above the type bars and secured at its ends to the ends of the segment, and means for effecting a fore and aft adjustment of said segment.

7. In a typewriting machine, the combination with a platen, of a series of rearwardly striking type bars, a segment whereon said type bars are mounted, means for operating said type bars, a system of guide links whereon said segment is mounted, means for shifting said segment upon said links to enable different types to print, an anvil upon said segment, and means for effecting relative adjustment of the segment and links for varying the effect of said anvil.

8. In a typewriting machine, the combination with a platen of a series of rearwardly striking type bars, a segment frame whereon said type bars are mounted, a system of key operated levers, links connecting said type-bars to said levers, a rock shaft, guide arms fixed upon said rock shaft and extending to said segment frame, a cooperating guide arm pivoted at one end to a part upon the framework of the machine and at the other end to said segment frame, a shift key, an anvil mounted upon said segment, and means for effecting longitudinal adjustment of said cooperating guide arm.

9. In a typewriting machine, the combination with a platen of a series of rearwardly striking type bars, a segment whereon said type bars are mounted, side arms provided upon said segment and extending downwardly, a horizontal rock shaft, guide arms extending from said rock shaft to said downwardly extending arms and hinged thereto, a shift key, a guide link pivoted at one end to a part upon the framework of the machine and pivoted at the other end to the middle portion of said segment, means for adjusting said part so as to swing the segment upon said guide arms, and an anvil mounted upon said segment.

10. In a typewriting machine, the combination with a platen of a series of rearwardly striking type bars, a segment whereon said type bars are mounted, side arms provided upon said segment and extending downwardly, a horizontal rock shaft, guide arms extending from said rock shaft to said downwardly extending arms and hinged thereto, a shift key, a guide link pivoted at one end to a part upon the framework of the machine and pivoted at the other end to the middle portion of said segment, a third arm upon said rock shaft, a shift-key lever pivoted upon said arm, and a bearing for said lever.

11. In a front strike typewriting machine,

the combination with a platen of a series of rearwardly striking type bars, a segment frame whereon said type bars are mounted, a horizontal rock shaft, guide arms extending from said rock shaft to said segment frame and hinged to the latter, a shift key, a guide link cooperating with said guide arms to guide said segment frame in up and down shifting movements, and a type bar anvil mounted upon said segment frame.

12. In a front strike typewriting machine, the combination with a platen of a series of rearwardly striking type bars, a segment frame whereon said type bars are mounted, a shift key, means at the sides of said frame for guiding the same in up and down movements, a guide link cooperating with said guiding means, said link being pivoted at one end to said segment frame and at the other end to a support upon the frame work, and a type bar anvil mounted upon said segment; said support being adjustable so as to vary the position of said segment and anvil with relation to the platen.

13. In a front strike typewriting machine, the combination with a platen, of a series of rearwardly striking type bars, a segment frame whereon said type bars are mounted, a shift key, means at the sides of said segment frame for guiding the same in up and down movements, a link connected at one end to said segment frame, a movable support mounted upon the framework and pivoted to said link, means for effecting fine adjustments of said support, means for fastening said support in its adjusted position, and a type bar anvil carried by said segment frame.

14. In a front strike writing machine, the combination with a platen of a series of rearwardly striking type bars, a segment frame whereon said type bars are mounted, a shift key, a rock shaft, arms mounted upon said rock shaft and hinged to said segment frame at the sides thereof, a link pivoted at one end to said segment frame near the middle thereof and extending from said segment and pivoted to the other end of said link, a screw having a bearing upon the frame work and engaging said support to adjust the same, and a screw for fastening said support in its adjusted position.

15. In a typewriting machine, the combination with a platen, of a series of rearwardly striking type bars, a segment whereon said type bars are mounted, means for operating said type bars, a system of guide links whereon said segment is wholly mounted and whereby said segment is guided solely by said links, and means for shifting said segment upon said links to enable different types to print.

16. In a typewriting machine, the combination with a platen of a series of rearwardly striking type bars, a segment frame whereon

said type bars are mounted, a system of key operated levers, links connecting said type bars to said levers, a rock shaft, guide arms fixed upon said rock shaft and extending to
5 said segment frame, a cooperating guide arm pivoted at one end to a part upon the framework of the machine and at the other end to said segment frame and a shift key.

17. In a typewriting machine, the combination with a platen of a series of rearwardly striking type bars, a segment whereon said type bars are mounted, side arms provided upon said segment and extending downwardly, a horizontal rock shaft, guide arms
15 extending from said rock shaft to said downwardly extending arms and hinged thereto, a shift key, and a guide link pivoted at one end to a part upon the framework of the machine and pivoted at the other end to the middle
20 portion of said segment.

18. In a typewriting machine, the combination with a platen of a series of rearwardly striking type bars, a segment whereon said type bars are mounted, side arms provided
25 upon said segment and extending downwardly, a horizontal rock shaft, guide arms extending from said rock shaft to said downwardly extending arms and hinged thereto, a shift key, and a guide link pivoted at one end
30 to a part upon the framework of the machine and pivoted at the other end to the middle portion of said segment, and means for adjusting said part so as to swing the segment upon said guide arms.

35 19. In a front strike typewriting machine, the combination with a platen of a series of rearwardly striking type bars, a segment frame whereon said type bars are mounted, a horizontal rock shaft, guide arms extending
40 from said rock shaft to said segment frame and hinged to the latter, a shift key, adjustable means cooperating with said guide arms to guide said segment frame in up and down shifting movements, and a
45 type bar anvil mounted upon said segment frame.

20. In a front strike typewriting machine, the combination of a carriage, a platen carried by said carriage, a series of type bars
50 which strike upwardly and rearwardly against the front face of the platen, a segment frame whereon said type bars are mounted, a horizontal rock shaft, guide arms extending from said rock shaft to said segment frame and
55 hinged to the latter, a shift key, and adjustable means cooperating with said guide arms to guide said segment frame in up and down shifting movements and capable of receiving an adjustment fore and aft of the
60 machine.

21. In a front strike typewriting machine, the combination of a carriage, a platen carried by said carriage, a series of type bars which strike upwardly and rearwardly

against the front face of the platen, a segment frame whereon said type bars are
65 mounted, a shift key, swinging arms at the sides of said frame for guiding the same in up and down movements, and a guide link cooperating with said swinging arms to wholly
70 guide the segment in its movements, said link being pivoted at one end to said segment frame and at the other end to a support upon the frame work.

22. In a front strike typewriting machine,
75 the combination with a platen of a series of rearwardly striking type bars, a segment frame whereon said type bars are mounted, a shift key, means at the sides of said frame for guiding the same in up and down move-
80 ments, and a guide link cooperating with said guiding means, said link being pivoted at one end to said segment frame and at the other end to a support upon the framework, and a type bar anvil mounted upon said seg-
85 ment.

23. In a typewriting machine, the combination with a platen, a series of type bars and an anvil with which each type bar of the series contacts in its printing movement, the
90 contact of any type bar of the series with the anvil preventing a further movement in the printing direction of that portion of the type bar which strikes the anvil, of hand-actuated means readily accessible to the operator for
95 effecting a relative adjustment between said platen and anvil in the direction of the type bar movement, the adjustable part being held in the different set positions to which it may be adjusted by said hand-actuated ad-
100 justing means.

24. In a typewriting machine, the combination with a platen, a series of rearwardly striking pivoted type bars, a segment and an
105 anvil with which each type bar of the series contacts in its printing movement, the contact of any type bar of the series with the anvil preventing a further movement in the printing direction of that portion of the type bar which strikes the anvil, of means for
110 changing the position of the anvil with reference to the platen and for maintaining the anvil in different set positions so as to enable the anvil to cooperate effectively with the type bars and cause them to print by spring-
115 ing after they strike the anvil, whether the platen have one or more sheets of paper thereupon.

25. In a typewriting machine, the combination with a platen, a series of rearwardly
120 swinging pivoted type bars and a segment carrying an anvil, of means for adjusting the segment and anvil.

26. In a typewriting machine, the combination of a platen, a series of rearwardly
125 swinging pivoted type bars, a segment carrying an anvil, a system of guide links on which said segment is mounted, and a micrometer

screw for adjusting said segment and anvil through said system of links.

27. In a typewriting machine, the combination of a type bar segment shiftable in a direction transverse to the length thereof, a system of links by which said segment is wholly guided and supported during its shift movements, and key actuated means for shifting said segment.

Signed at the borough of Manhattan, city 10 of New York, in the county of New York, and State of New York, this 4th day of August A. D. 1903.

BURNHAM C. STICKNEY.

Witnesses:

K. V. DONOVAN,
M. F. HAUMREBER.