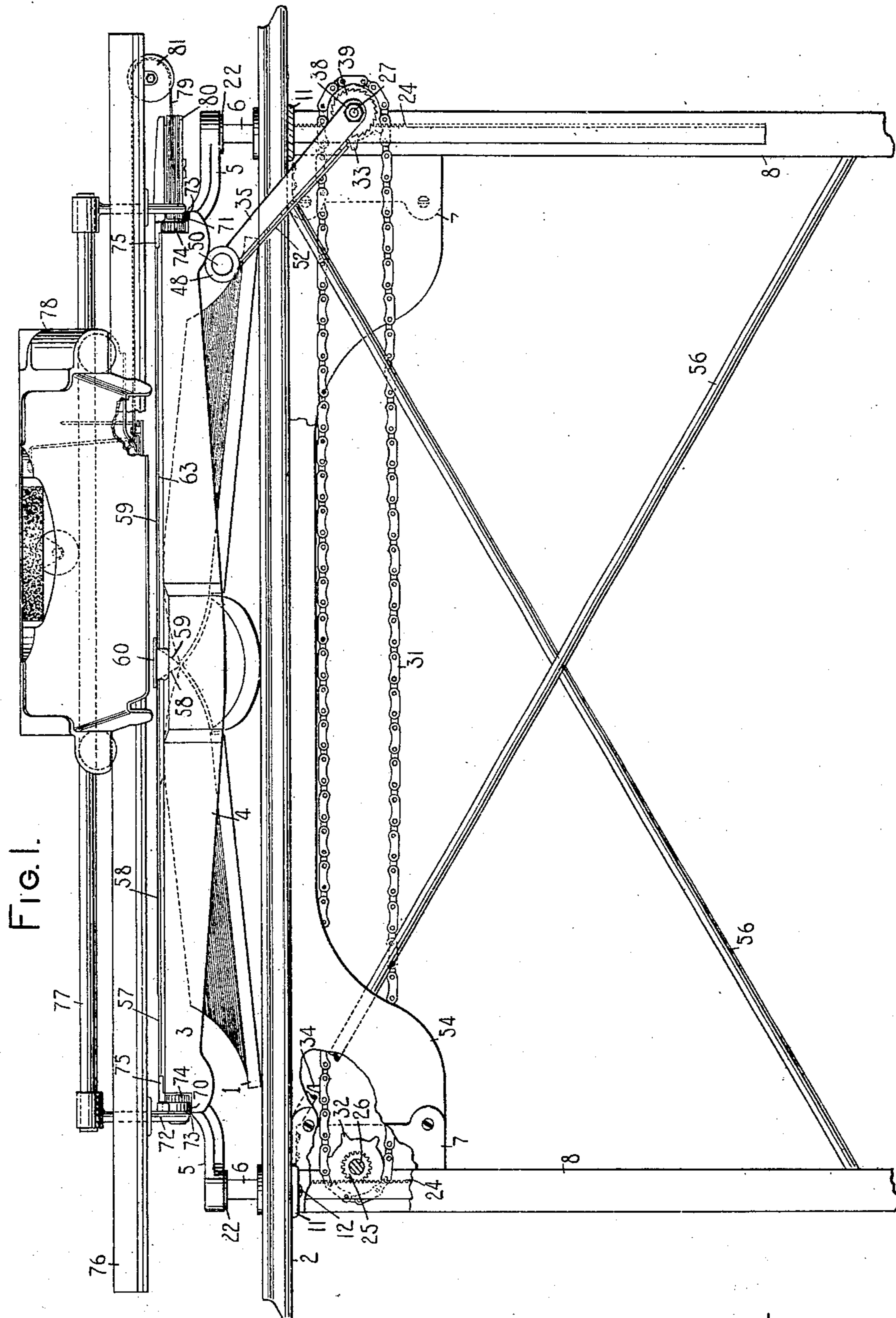


No. 862,703.

PATENTED AUG. 6, 1907.

A. T. BROWN.
TYPE WRITING MACHINE.
APPLICATION FILED NOV. 11, 1904.

3 SHEETS—SHEET 1.



WITNESSES
Mr. F. Hammer.
E. M. Wells.

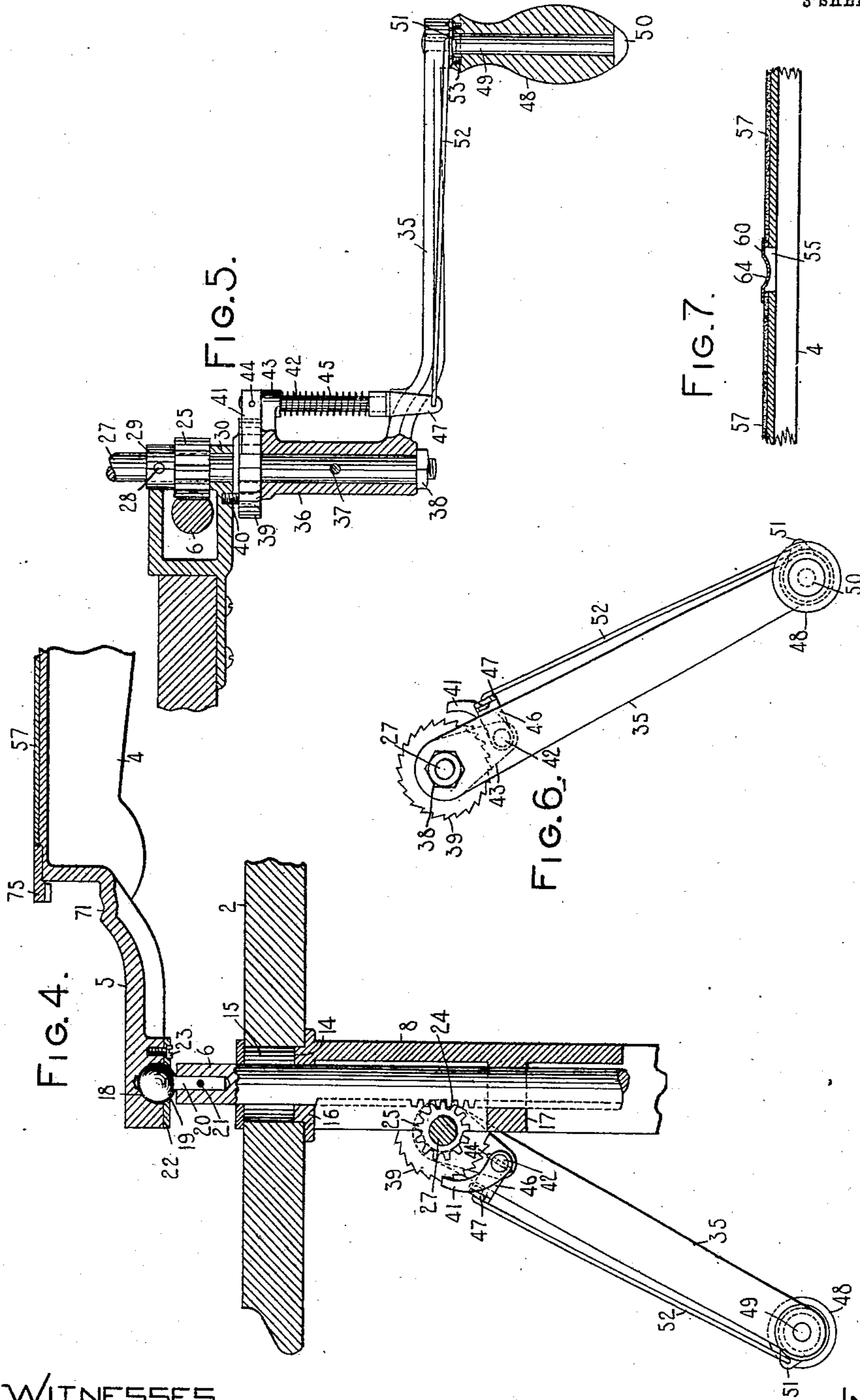
INVENTOR
Alexander T. Brown
by Jacob Felbel
HIS ATTORNEY

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UNITED STATES PATENT OFFICE.

ALEXANDER T. BROWN, OF SYRACUSE, NEW YORK.

TYPE-WRITING MACHINE.

No. 862,703.

Specification of Letters Patent.

Patented Aug. 6, 1907.

Application filed November 11, 1904. Serial No. 232,302.

To all whom it may concern:

Be it known that I, ALEXANDER T. BROWN, a citizen of the United States, and a resident of Syracuse, in the county of Onondaga and State of New York, have
5 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 especially to that class of typewriting machines
10 which are adapted to write or print upon the leaves of books.

The object of this invention is to provide an improved platen and book support for such machines.

My invention consists in certain features of construction and combinations and arrangements of parts which
15 will be fully set forth herein and particularly pointed out in the claims.

In the accompanying drawings, wherein like reference characters designate like parts in the several
20 views, Figure 1 is a front elevation of a typewriting machine embodying my invention; Fig. 2 is an end elevation; Fig. 3 is a fragmentary elevation showing the paper clamp and also showing part of the platen in section; Fig. 4 is a detail sectional view showing a part
25 of the platen frame and table and the crank which is used for raising and lowering the platen; Fig. 5 is a horizontal detail view of the same partly in section; Fig. 6 is a front view of the same; and Fig. 7 is a fragmentary view in vertical section, showing the slot in the platen
30 and the paper clamp covering said slot.

The book 1 in which the writing is to be done, is supported upon the flat top of a table 2, and the platen frame 3 is adjustably supported above the book, as shown. Said platen frame is provided with strengthening webs 4 at the front and rear edges thereof and at
35 each corner with a supporting bracket 5. Said brackets rest upon the upper ends of posts 6, and means are provided for moving all of said posts up or down in unison and for supporting them in adjusted position.
40 Although the exact structure of the table is immaterial for most of the purposes of my invention, yet I prefer the form shown in the drawing. As shown, the flat top 2 of the table is supported upon two castings 7, one at each end thereof. Each of said castings is constructed with two legs 8 and each of said legs consists
45 of two parallel parts 9 and 10, between which the lower portions of the posts 6 are placed. When the parts are arranged in this manner, the legs of the table serve as guards or shields to prevent the clothing of the operator from coming into contact with the posts 6. Each
50 of the castings is formed at its upper part with a flange 11 to which the top 2 is secured by screws 12. A strengthening web or flange 13 joins the legs at the top. Over each of the legs the castings are formed with annular projections 14 (Fig. 4) which are seated in openings 15 in the top 2. The castings 7 may be secured

near the tops thereof to a stiffening web 54, as shown in Fig. 1, and said castings may also be braced as by rods 56. The posts 6 are guided in bearings 16 and 17 in the legs 8 (Fig. 4). Each of the posts 6 is connected to its
60 bracket 5 by a universal joint in order to prevent any binding of the parts as the platen frame is moved up and down. To this end each bracket 5 has formed on its underside a spherical recess 18 in which is seated a ball 19 formed on the top of a stem 20 seated in the end
65 of the post 6 and secured in position by a pin 21 extending through said post and stem. The ball 19 is secured against displacement from its socket 18 by an annular plate 22 secured to the bracket 5 by screws 23. Each of the posts 6 has cut in one side thereof a rack 24, and
70 these racks are engaged by pinions 25 fixed on shafts 26 and 27 by pins 28 (Fig. 5) extending through the hubs 29 of said pinions and through said shafts.

The shaft 27 is journaled in lugs 30 projecting from the right-hand casting 7, and the shaft 26 is journaled
75 in similar lugs projecting from the left-hand casting 7. The shafts 26 and 27 are constrained to turn in unison by a driver connecting said shafts, which driver in the present instance is a sprocket chain 31 running on sprocket wheels 32 and 33 fixed to the shafts 26 and 27
80 respectively. In order to limit the extent of rotation of the shafts 26 and 27 to prevent the pinions 25 from being turned so far as to run entirely off the racks 24, one of the links of the chain 31 is provided with a lug 34 (Fig. 1) adapted to engage a stationary portion of the
85 framework and thus arrest the motion of the chain. In the present instance, the lug 34 is adapted to engage the flange 13 above described. It will be observed that the length of the chain 31 and the position of the stop 34 are such as to afford to the shafts 26 and 27 a plurality
90 of rotations before they are arrested by said stop 34 engaging the flange 13. The shaft 27 is extended beyond the framework of the table and is provided with a crank 35 for turning the same. The crank 35 has a sleeve or hub 36 mounted on the shaft 27 and fixed thereto by a
95 pin 37 passing through the hub and the shaft, and also by a nut 38 threaded on the end of said shaft. A stationary ratchet 39 surrounds the shaft 27 and is secured to the framework of the table by screws 40 (Fig. 5). A pawl 41, engaging said ratchet, is fixed to one end of a
100 shaft 42 which is journaled at one end in an arm 43 projecting from the hub 36 and at the other end in the crank 35. The pawl 41 is rigidly secured on the shaft 42 by a pin 44 passing through said pawl and said shaft. A spring 45 coiled about the shaft 42 is secured at one
105 end to said shaft and at the other end to the arm 43, and said spring tends to press the pawl 41 into engagement with the ratchet 39. At its end next the crank 35 the shaft 42 is provided with an arm 46 and said arm is formed with a portion 47 extending over the crank 35.
110 The crank handle 48 is loosely mounted on a rod 49 rigidly secured to or forming part of the free end of the

crank 35, and said handle is held on said rod by a head or washer 50 on the end thereof. The handle 48 is provided with an arm 51 projecting from its inner end and connected to the arm 47 by a link 52 pivoted to the arms 51 and 47. In the present instance, the arm 51 is part of a plate secured to the end of the handle 48 by screws 53 (Fig. 5).

From the description above given, it will be seen that the pawl 41 is normally held in engagement with the ratchet 39 by the spring 45 but that said pawl may be lifted from said ratchet by imparting a turning movement to the handle 48 on its rod 49. Such movement of the handle will be communicated to the shaft 42 by the link 52. It will be observed that the arrangement of the parts above described is such that if the handle 48 be grasped by the hand of the operator and the crank 35 be turned in the right-hand direction to raise the platen frame 3, the handle will turn in the hand of the operator and the force due to the friction of said handle thus turning in the hand will tend to press the pawl 41 into engagement with the ratchet 39; but if the handle 48 be used to turn the crank 35 toward the left to lower the platen frame, then the force due to the friction of the hand on said handle will tend to hold the pawl 41 out of engagement with the ratchet 39. In order to lower the platen frame, the operator slightly turns the handle 48 to raise the pawl out of engagement with the ratchet and having done this, the friction of his hand on said handle will automatically hold the pawl out of engagement with the ratchet, as the handle is manipulated to turn the shaft 27. So far as I am aware, this mode of controlling a pawl is broadly new.

The platen is flat and has a central slot or opening 55 (Fig. 7) extending from front to rear thereof and dividing the platen in two parts, each of which is covered by a sheet 57 of rubber or similar material. The construction is such that two consecutive leaves 58 and 59 (Fig. 1) of the book 1 may be drawn upward through said slot 55 and spread out one on each half of the platen. A clamp 60 is pivotally mounted on a rod 61 (Fig. 3) supported back of the platen and said clamp is adapted to be turned down, covering the slot and clamping both leaves of the book in position as shown in Fig. 1. In the present instance, the right and left hand edges of the platen frame which support the tracks 70 and 71 and the racks 75, are extended for some distance back of the platen; and the rod 61 has its ends supported by these backward extensions. The paper clamp 60 has its free end bent to form a catch 62, and this catch snaps under the front edge 63 of the platen and holds the paper clamp in position. The clamp 60 is preferably formed with a stiffening ridge 64 as shown in Figs. 3 and 7. The platen frame is formed with tracks 70 and 71, (Fig. 1) which tracks are depressed below the left and right hand edges of the platen frame respectively. The line-space frame 72 is supported by rollers 73 running on said tracks; and pinions 74 connected to said line-space frame, engage rack teeth formed on the lower sides of rack bars 75 fixed to the edges of the platen frame. The line-space frame 72 has rails 76 and 77 on which a carriage 78, which supports the printing mechanism, is adapted to travel back and forth, drawn by a cord 79 attached to a spring drum 80 and running over a pulley 81.

I have not shown or described the line-space and printing mechanisms in detail herein. Line-space and printing mechanisms adapted for use in connection with the present invention form the subject-matter of other applications co-pending herewith.

The operation of my invention will be readily understood. The platen frame is raised by the handle 48 to permit the book 1 to be placed in position on the table 2; and the leaf or leaves upon which it is desired to write are drawn through the slot 55. The platen frame is then lowered by manipulating the handle 48 in the manner which has been described until the platen is at the desired height, and the leaves 58 and 59 are then clamped in position by the clamp 60.

It will, of course, be understood that loose sheets of paper may be clamped to the platen in position to be written upon if desired.

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

Certain features of the line space frame and its mounting shown in the present case are more fully set forth and are claimed in my pending application Serial No. 232,303 filed November 11th, 1904. The carriage 78 and the means for propelling and controlling said carriage are more fully set forth and claimed in my pending application Serial No. 232,301, filed November 11th, 1904.

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

1. In a typewriting machine, the combination with a frame, of means for adjusting said frame including a shaft and a handle for turning said shaft; retaining means; and means whereby the friction of the hand in manipulating said handle controls said retaining means.
2. In a typewriting machine, the combination with a frame, of means for raising and lowering said frame including a shaft, a crank handle for said shaft, a stationary ratchet and a retaining pawl engaging said ratchet and means whereby the friction of the hand in manipulating said handle controls said pawl.
3. In a typewriting machine, the combination with a frame, of means for controlling said frame comprising a rotary shaft; a crank connected to said shaft; a loosely mounted crank handle for said crank; a stationary ratchet; and a cooperating pawl moving with said crank and controlled by said handle.
4. In a typewriting machine, the combination of a part normally tending to move in one direction; a handle for moving said part in the opposite direction and for controlling its motion in the first named direction; a stationary ratchet; a movable pawl normally engaging said ratchet; and a connection between said pawl and said handle operative automatically to hold said pawl out of engagement with said ratchet when said handle is used to control the motion of said part in the direction in which it normally tends to move.
5. In a typewriting machine, the combination of a movable frame; a handle adapted to control the movement of said frame; a pawl and ratchet adapted normally to allow said handle to move in one direction but to restrain it against motion in the other direction; and a connection between said pawl and said handle adapted to automatically hold said pawl out of engagement with said ratchet when said handle is manipulated to move the same in a direction contrary to that normally allowed by said pawl and ratchet.
6. In a typewriting machine, the combination of a movable frame; a rotary shaft for controlling the movement of said frame; a crank on said shaft; a fixed ratchet; a pawl adapted to move with said crank; a handle for said crank, and a link connecting said handle and said pawl.
7. In a typewriting machine, the combination of a

- frame; posts for supporting said frame, said posts having racks; two shafts having pinions engaging said racks; means comprising a sprocket chain for causing said shafts to turn in unison; a stop on said sprocket chain; and a co-
- 5 operating fixed stop.
8. In a typewriting machine, the combination of a frame; supports for said frame; rotary members for raising and lowering said supports; a sprocket chain connecting said rotary members, and means on said sprocket
- 10 chain for limiting the motion of the parts.
9. In a typewriting machine, the combination with a frame, of supports for said frame; rotary members for raising and lowering said supports; a sprocket chain connecting said rotary members; and a lug projecting from
- 15 said sprocket chain and adapted to limit the motion thereof.
10. In a typewriting machine, the combination with a frame, of three or more supports each connected to said frame by a universal joint, and means for raising and lowering said supports in unison.
- 20 11. In a typewriting machine, the combination with a frame, of three or more posts for supporting said frame, and connected thereto by ball and socket joints; and means for raising and lowering said posts in unison.
- 25 12. In a typewriting machine, the combination with a platen frame, of frame supports having racks; shafts having pinions engaging said racks; a sprocket chain connecting said shafts; a lug on said sprocket chain adapted to limit the motion thereof; a crank on one of said shafts; and a pawl and ratchet for said shaft.
- 30 13. In a typewriting machine, the combination of a fixed platen having an opening adapted to receive two consecutive leaves of a book, and a movable paper clamp adapted to be secured over said opening.
- 35 14. In a typewriting machine, the combination of a platen having an opening adapted to receive two consecutive leaves of a book, and a pivoted paper clamp adapted to span said opening.
- 40 15. In a typewriting machine, the combination of a book support, a fixed platen having an opening adapted to receive two leaves of the book, means for regulating the distance between said book support and said platen, and a movable clamp cooperating with both of the leaves of the book.
- 45 16. In a typewriting machine, the combination of a book support, a platen having an opening adapted to receive two leaves of the book, a pivoted paper clamp adapted to span said opening, and means for affording a relative adjustment of said book support and said platen.
- 50 17. In a typewriting machine, the combination of a table, a frame adjustably supported on said table by means of posts, said table being provided with guides for said posts and said posts being connected to said frame by universal joints.

18. In a typewriting machine, the combination of a 55 table; a frame supported on said table at four points; supports for said frame connected thereto by universal joints; and means for actuating said supports to raise and lower said frame.

19. In a typewriting machine, the combination of a 60 table; a frame supported on said table at four points; supports for said frame connected thereto by universal joints, said supports being provided with racks; a driving shaft provided with two pinions spaced apart and each meshing with one of said racks; a driven shaft provided 65 with two pinions spaced apart and each meshing with one of said racks; and a flexible connection between the shafts.

20. In a typewriting machine, the combination of a table; a frame; frame supports provided with racks; a driving shaft provided with pinions meshing with certain 70 of said racks; a driven shaft provided with pinions meshing with certain others of said racks; a flexible connection between said driving and driven shafts; and means movable with said flexible connection for limiting its movement, whereby the movement of said frame is limited. 75

21. In a typewriting machine, the combination of a table provided with wells or sockets; rack-like supports arranged in said sockets; a frame carried by said supports; and means for actuating said supports to raise and lower said frame. 80

22. In a typewriting machine, the combination of a table provided with wells or sockets; supports arranged in said wells or sockets; a frame connected with said supports by universal joints; a driving shaft connected with certain of said supports; a driven shaft connected with 85 certain others of said supports; and a flexible connection between the driving and driven shafts.

23. In a typewriting machine, the combination of a frame, gearing for raising and lowering said frame, a ratchet and pawl for retaining said frame in different positions, a crank for operating said gearing, a handle loose or revoluble on the crank arm, and connections between the handle and the pawl by means of which the pawl is operated by the independent movement of the handle. 90

24. In a typewriting machine, the combination of a 95 frame, gearing for raising and lowering said frame, a ratchet and pawl for retaining said frame in different positions, a crank for operating said gearing, a loose sleeve surrounding the crank pin, and connections between said loose sleeve and said pawl by means of which the pawl is 100 operated by the independent movement of the sleeve.

Signed at the borough of Manhattan, city of New York, in the county of New York, and State of New York, this 9th day of November, A. D. 1904.

ALEXANDER T. BROWN.

Witnesses:

M. F. HAUNWEBER,
E. M. WELLS.