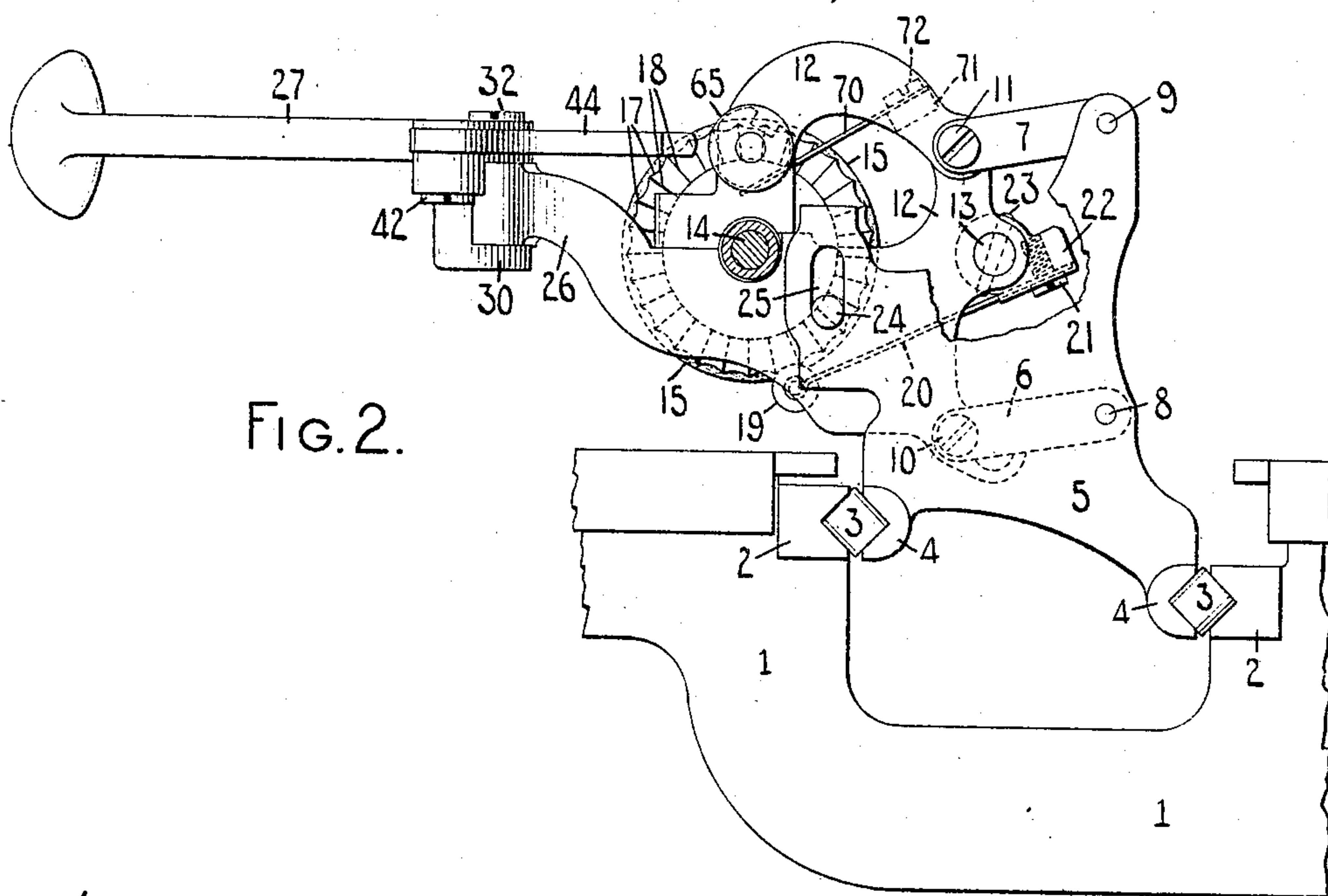
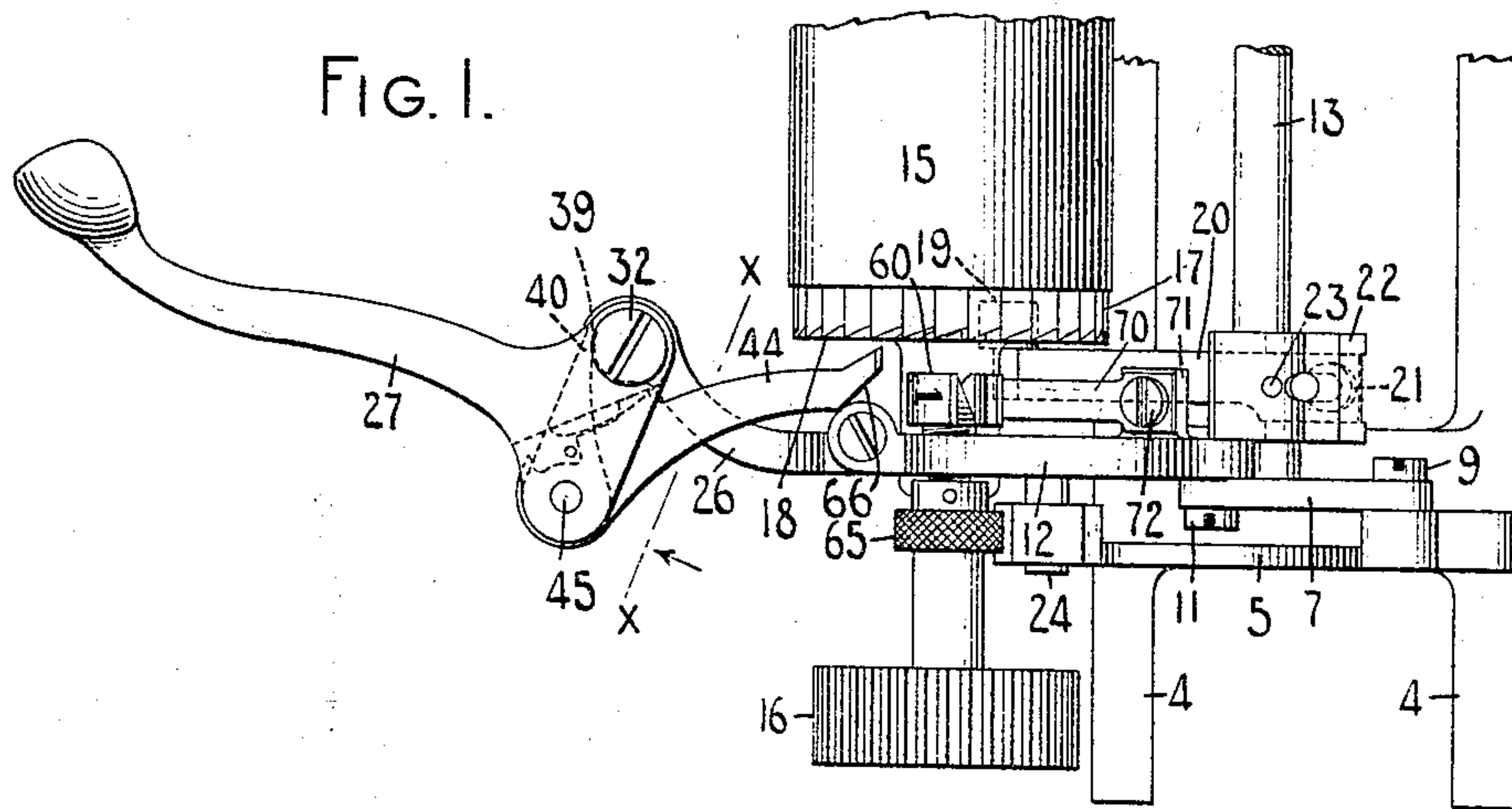


O. WOODWARD.
TYPE WRITING MACHINE.
APPLICATION FILED NOV. 12, 1909.

954,843.

Patented Apr. 12, 1910.

3 SHEETS—SHEET 1.



WITNESSES:

E. M. Wells.
Charles Smith.

INVENTOR:

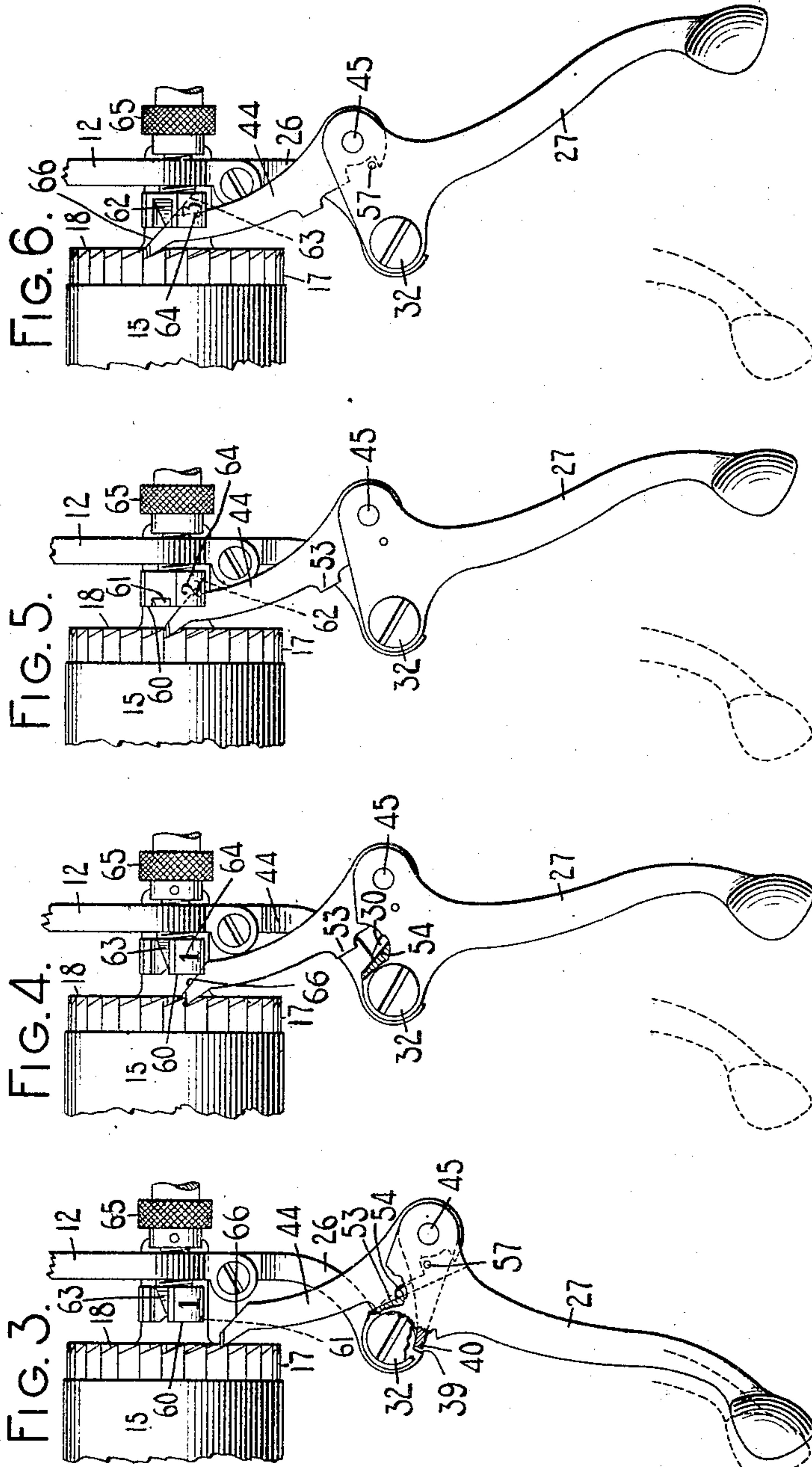
Oscar Woodward
By Jacob Falbel
HIS ATTORNEY

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3 SHEETS—SHEET 2.



WITNESSES:

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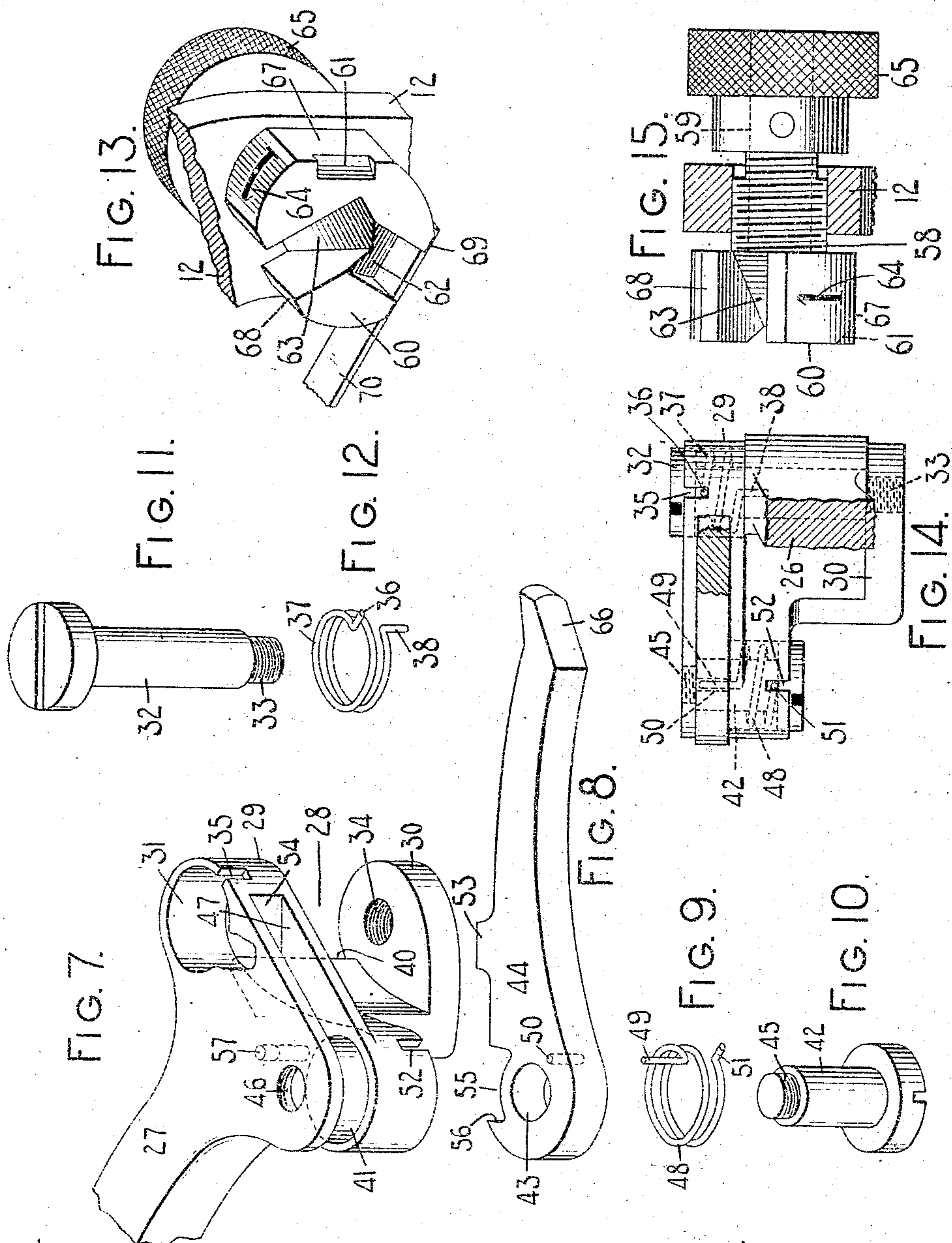
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3 SHEETS—SHEET 3.



WITNESSES

E. M. Wells
Charles E. Smith

INVENTOR

Oscar Woodward
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HIS ATTORNEY

UNITED STATES PATENT OFFICE.

OSCAR WOODWARD, OF MONTCLAIR, NEW JERSEY, ASSIGNOR TO YOST WRITING MACHINE COMPANY, OF ILION, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

954,843.

Specification of Letters Patent.

Patented Apr. 12, 1910.

Application filed November 12, 1909. Serial No. 527,629.

To all whom it may concern:

Be it known that I, OSCAR WOODWARD, citizen of the United States, and resident of Montclair, in the county of Essex and State of New Jersey, 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 line spacing mechanism for such machines.

The present invention is in the nature of an improvement on the construction disclosed in the patent to Arthur W. Smith No. 911,275, dated February 2nd, 1909.

The 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 fragmentary plan view of a carriage equipped with the line spacing devices of my invention. Fig. 2 is a fragmentary end view of the same with parts sectioned away and parts broken away. Fig. 3 is a fragmentary top plan view of the platen and its line spacing mechanism, the parts being shown as they appear when the line spacing pawl is just about to engage the line spacing wheel. Fig. 4 is a view corresponding to Fig. 3 and showing the line spacing pawl at the completion of a line spacing movement and cooperating with a line spacing stop. Fig. 5 is a view corresponding to Fig. 4 but showing the adjustable line spacing stop set differently. Fig. 6 is a view corresponding to Fig. 4 but showing the adjustable line spacing stop set differently from the positions in which they are set in Figs. 4 and 5. Figs. 7, 8, 9, 10, 11, 12 and 13 are detail perspective views showing different portions of the line spacing mechanism, the views being on an enlarged scale. Fig. 14 is an enlarged detail fragmentary sectional view taken on the line $x-x$ of Fig. 1 and looking in the direction of the arrow at said line. Fig. 15 is an enlarged detail front elevation, partly in section, showing the arresting stop for the line spacing pawl and the means for supporting and adjusting said stop.

The frame 1 of the machine supports fixed

guide rails 2 grooved to receive bearing rollers 3 which are likewise received in oppositely grooved faces of carriage guide or track bars 4. End plates 5 are connected with the guide bars 4 and have parallel links 6 and 7 pivoted thereto at 8 and 9 respectively. The forward ends of these links are pivoted at 10 and 11, respectively, to end plates 12 of the platen frame, the end plates being united by a cross bar 13. A platen shaft 14 extends through bearing openings in the platen frame and supports a cylindrical platen 15. Each end of the platen shaft has a finger wheel 16 fixed thereto and by which the platen may be rotated.

The right-hand end plate of the platen is formed as a line spacing wheel with peripheral teeth 17 and crown teeth 18. A spring-pressed roller detent 19 is mounted on the forward end of a leaf spring 20 secured by a screw 21 to a member 22 connected to the cross bar 13 by a pin 23. The spring-pressed roller detent bears against the peripheral teeth 17 of the line spacing wheel to assure the proper positioning of the platen at each line spacing movement. The right-hand end plate 12 of the platen frame is provided with an outwardly extending pin 24 which extends through a slot 25 in the platen frame to limit the case shifting movements of the platen. The right-hand end plate 12 of the platen frame is also extended forwardly to form a bracket arm 26 with a vertical bearing opening extending there-through. A line spacing lever 27 is formed at its rear end with a bifurcation 28 to provide arms 29 and 30 which extend on opposite sides of the bearing in the supporting bracket arm 26. A chamber 31 is formed in the arm 29 for the reception of the head of a shouldered pivot screw 32, the barrel of the screw passing through the bearing opening in the bracket arm 26 and engaging at its threaded end 33 in a tapped opening 34 in the arm 30 of the line spacing lever, the head of the screw closing the chamber 31. A wall of the chamber 31 is cut out as indicated at 35 to receive one end 36 of a coiled spring 37 contained within the chamber 31 and surrounding the barrel of the pivot screw 32. The opposite end 38 of the spring is received in an opening in the upper side of the supporting bracket 26, as indicated in Fig. 14. The coiled spring 37 is thus connected at one end to the platen

frame and at its opposite end to the line spacing lever to restore the line spacing lever to normal position. The bracket 26 is provided with a shoulder or stop 39 (Fig. 3) against which a stop or shoulder 40 formed on the line spacing lever is adapted to abut to arrest the line spacing lever in its normal position. The line spacing lever has a second chamber 41 formed therein and through which a shouldered pivot screw 42 passes. The head of the screw closes the lower end of the chamber and the barrel of the screw passes through an opening 43 in a line spacing pawl 44. The threaded end 45 of the pivot screw 42 is received in a tapped opening 46 in the line spacing lever, the pawl turning on the screw 45 as a pivot and working within the bifurcated opening 47 formed in the lever. A coiled spring 48 surrounds the screw 45 and is contained within the chamber 41 and one end 49 of this spring is seated within an opening 50 in the line spacing pawl, the other end 51 of the spring being seated in a cut-out 52 in the line spacing lever. Thus one end of the coiled spring 48 is connected to the line spacing pawl and the other end of the spring is connected to the line spacing lever so as to restore the line spacing pawl to normal position with reference to the line spacing lever. From an inspection of Fig. 3, it will be seen that a lug or projection 53 is provided on the line spacing pawl for cooperation with the bottom wall 54 of the bifurcated portion 47 within which the line spacing pawl works, so as to provide stops between the line spacing pawl and lever to limit the movement of the pawl with reference to the lever in one direction. A cut-out 55 is provided in the line spacing pawl and one end wall 56 of this cut-out constitutes a stop for cooperation with a stop pin 57 carried by the line spacing lever and extending through the space 47. The end wall or stop 56 and the stop pin 57 cooperate to limit the movement of the pawl with reference to the line spacing lever in an opposite direction from that previously described so that the stops 56 and 57 limit the movement of the pawl with reference to the line spacing lever in one direction and the stops 53 and 54 limit the movement of the pawl with reference to the line spacing lever in the opposite direction.

From the foregoing description it will be understood that the heads of the pivot screws 32 and 42 close the chambers 31 and 41, respectively, in the line spacing lever, so that the coiled springs 37 and 48 are completely housed within said chambers. Moreover, it will be seen that the construction of the parts is such that they may be readily assembled or disconnected when desired.

The right-hand end plate 12 of the platen frame is tapped to receive a threaded collar

or sleeve 58 through which a spindle 59 extends and by which the spindle is supported for rotative adjustment. The inner end of the spindle has a head 60 fixed thereto, the head having three inclined engaging surfaces 61, 62 and 63 thereon. The periphery of the head also has index numerals 64 thereon, these index numerals being preferably three in number to correspond to the three engaging faces 61, 62 and 63 and preferably consisting of the numerals "1," "2" and "3." The right-hand end of the spindle carries a knurled head or finger piece 65 by which the spindle 59 can be turned so as to present any of the contact faces 61, 62 or 63 for cooperation with an inclined face 66 on the line spacing pawl. Flattened faces 67, 68 and 69 are provided on the periphery of the head 60 for cooperation with a leaf spring 70 secured at one end to a bracket or projection 71 on the platen frame by a screw 72. This detent spring 70 retains the head 60 in any one of the three positions to which it may be turned in order to bring any one of the three contact faces into position to cooperate with the inclined face 66 on the line spacing pawl. The various contact faces 61, 62 and 63 determine the extent of line spacing movement which may be transmitted to the line spacing pawl 44 and causes the line spacing pawl to be jammed at the last portion of its line spacing movement so as to limit the movement of the line spacing pawl and to lock the line spacing pawl in the teeth 18 of the line spacing ratchet wheel and thus prevent an overthrow of the platen. An adjustment of the threaded supporting sleeve 58 in the direction of the axis of the spindle 59 effects a minute adjustment of the stop member 60 independently of that afforded by a turning movement of the spindle so as to nicely regulate the engagement of the line spacing pawl with the ratchet wheel and to compensate for any wear that might take place between the contact faces 61, 62 and 63 of the stop member and the inclined face 66 on the line spacing pawl.

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

1. In a typewriting machine, the combination of a platen frame; a rotary platen; a line spacing ratchet wheel operatively connected with said platen; a line spacing lever journaled on said platen frame and having a bifurcated portion embracing its journal; a line spacing pawl, said lever also having another bifurcated portion which receives the pivot end of said pawl; and stops carried by said lever for limiting the movement of the pawl relatively to said lever in both directions.

2. In a typewriting machine, the combination of a platen frame; a rotary platen; a line spacing ratchet wheel operatively con-

5 nected with said platen; a line spacing lever
pivoted on said platen frame; a line spacing
pawl pivoted on said lever; a limiting stop
on the frame for said lever; coöperative
stops on the pawl and lever for limiting the
movements of the pawl relatively to the
lever in both directions; a spring for turn-
ing the pawl on the lever; and a separate
spring for turning the lever on the platen
10 frame and against the limiting stop on the
platen frame.

3. In a typewriting machine, the combina-
tion of a platen frame; a rotative platen; a
line spacing ratchet wheel operatively con-
15 nected with said platen; a line spacing lever
pivoted on said platen frame; a line spacing
pawl pivoted on said lever; means for limit-
ing the movement of the pawl relatively to
the lever in both directions; a spring for
20 turning the pawl on said lever; a separate
spring for turning the lever on the platen
frame; a bearing sleeve adjustably mounted
in the platen frame; and a pawl stop rotata-
ble in said bearing sleeve and having a plu-
25 rality of stop faces.

4. In a typewriting machine, the combina-
tion of a platen frame; a rotative platen; a
line space wheel; a line space lever pivoted
on the platen frame; a pawl pivoted to said
30 lever, the lever having two chambers; a re-
storing spring for the lever contained and
entirely inclosed within one of the chambers
in said lever; and a restoring spring for the
pawl contained and entirely inclosed within
35 the other chamber in said lever.

5. In a typewriting machine, the combina-
tion of a platen frame; a rotative platen; a
line space wheel; a line space lever pivoted
on the platen frame; a pawl pivoted to said
lever; two chambers, one of which surrounds
the pivot for the lever and the other of
which surrounds the pivot for the pawl; and
coiled springs which are contained within

said chambers and which surround said
pivots, one of said springs being a restoring 45
spring for the lever and the other being a
restoring spring for the pawl.

6. In a typewriting machine, the combina-
tion of a rotative platen; a platen frame; a
line space wheel; a line space lever; a line 50
space pawl; two shouldered headed pivot
screws, one of which constitutes a pivot to
pivotally connect the line spacing lever with
the platen frame and the other pivotally
connecting the line space pawl with said 55
lever; a chamber surrounding each screw;
and a coiled spring contained within each
chamber and surrounding the screw therein,
the heads of the screws closing said cham-
bers. 60

7. In a typewriting machine, the combina-
tion of a rotative platen; a platen frame; a
line space wheel; a line space lever; a line
space pawl; two shouldered headed pivot
screws, one of which constitutes a pivot to 65
pivotally connect the line spacing lever with
the platen frame and the other pivotally
connecting the line space pawl with said
lever, said lever having a chamber sur-
rounding each screw; and a coiled spring 70
contained within each chamber and sur-
rounding the screw therein, one spring be-
ing connected at one end to the lever and at
the other end to said pawl, and the other
spring being connected at one end to said 75
lever and at the other end to the platen
frame, the heads of the screws closing said
chambers.

Signed at the borough of Manhattan, city
of New York, in the county of New York, 80
and State of New York, this 11th day of
November, A. D. 1909.

OSCAR WOODWARD.

Witnesses:

CHARLES E. SMITH,
E. M. WELLS.