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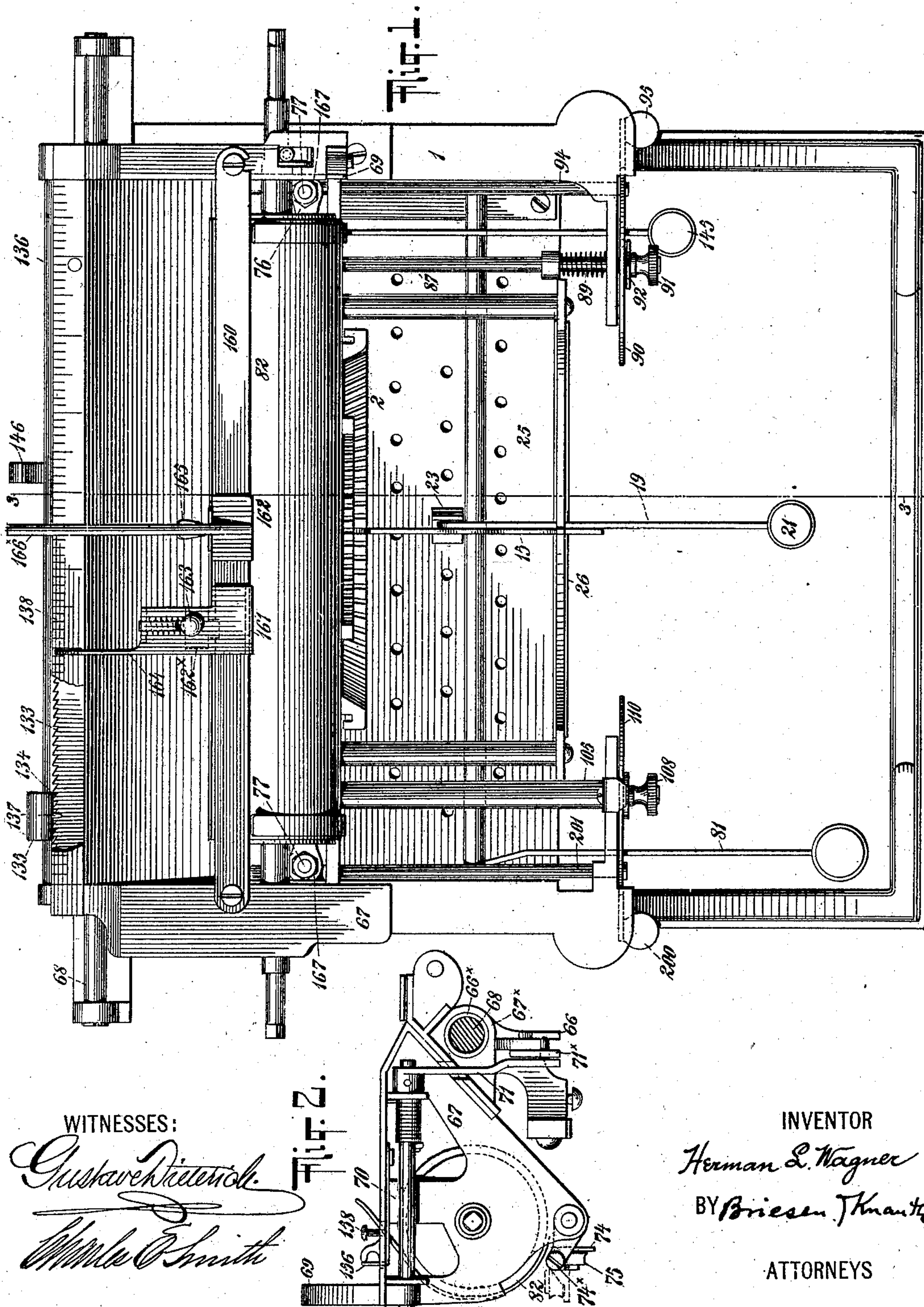
Patented Mar. 19, 1901.

H. L. WAGNER.
TYPE WRITING MACHINE.

(Application filed Nov. 11, 1899.)

(No Model.)

6 Sheets—Sheet 1.



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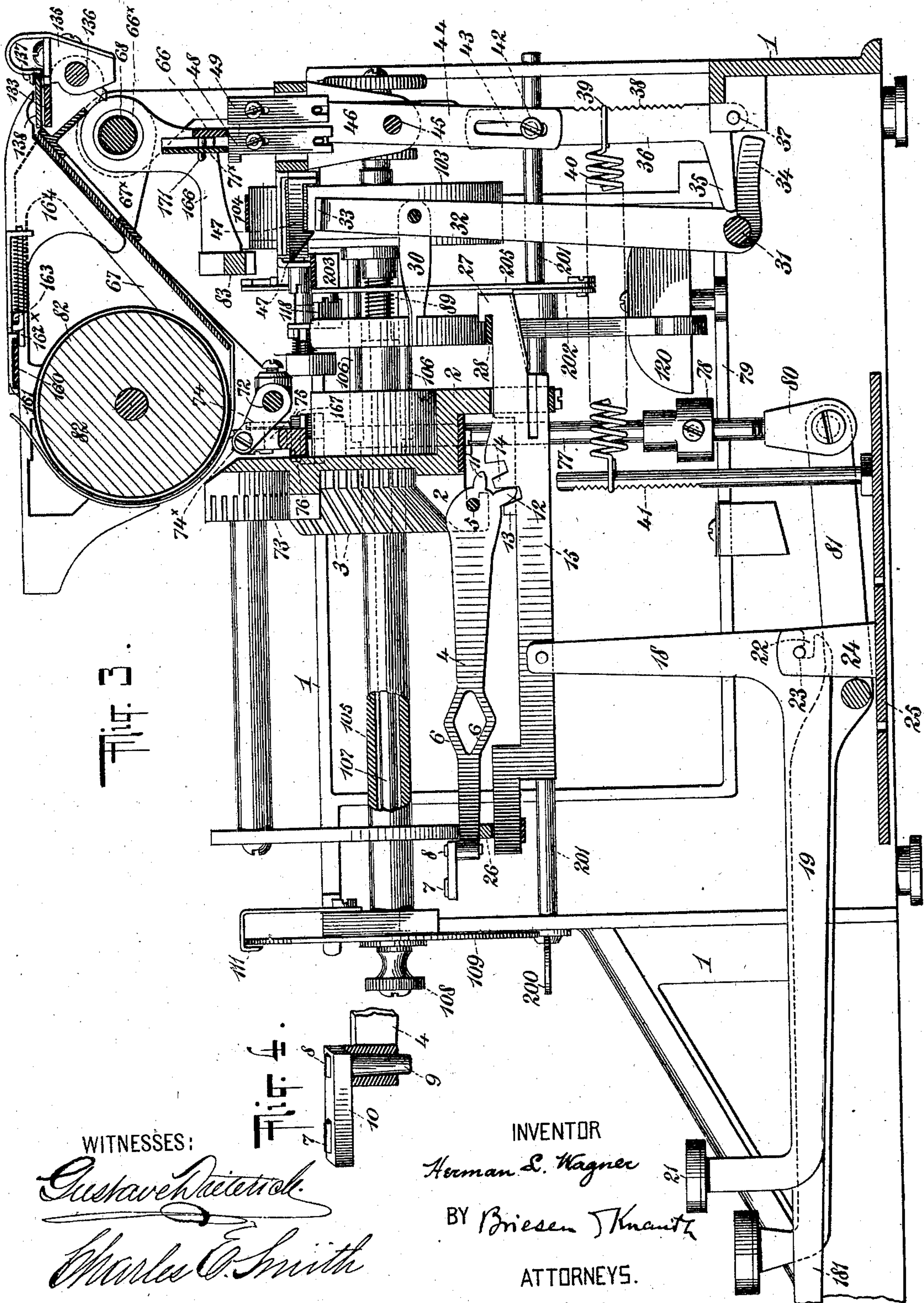


Fig. 3.

Fig. 4.

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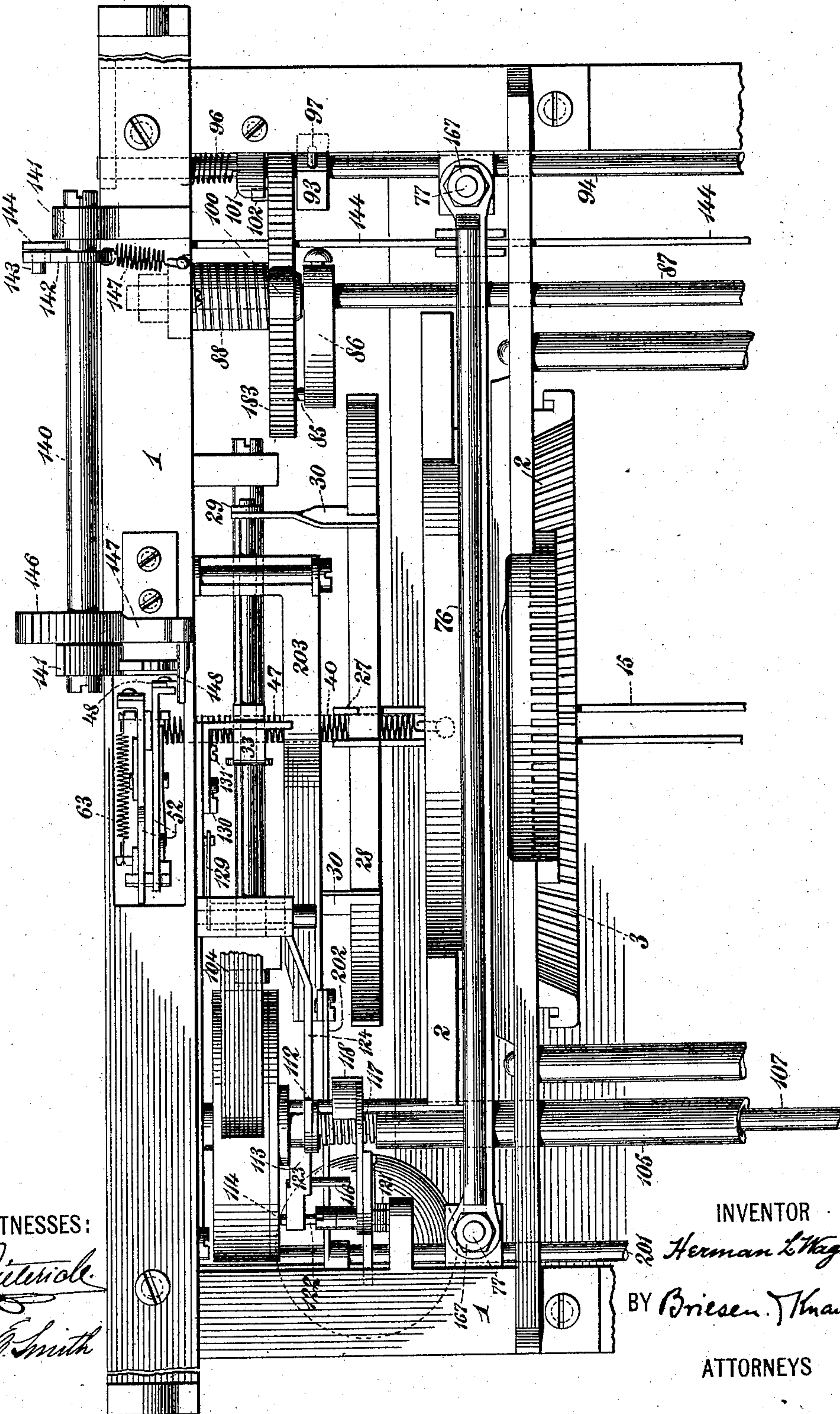
H. L. WAGNER.
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Fig. 5.



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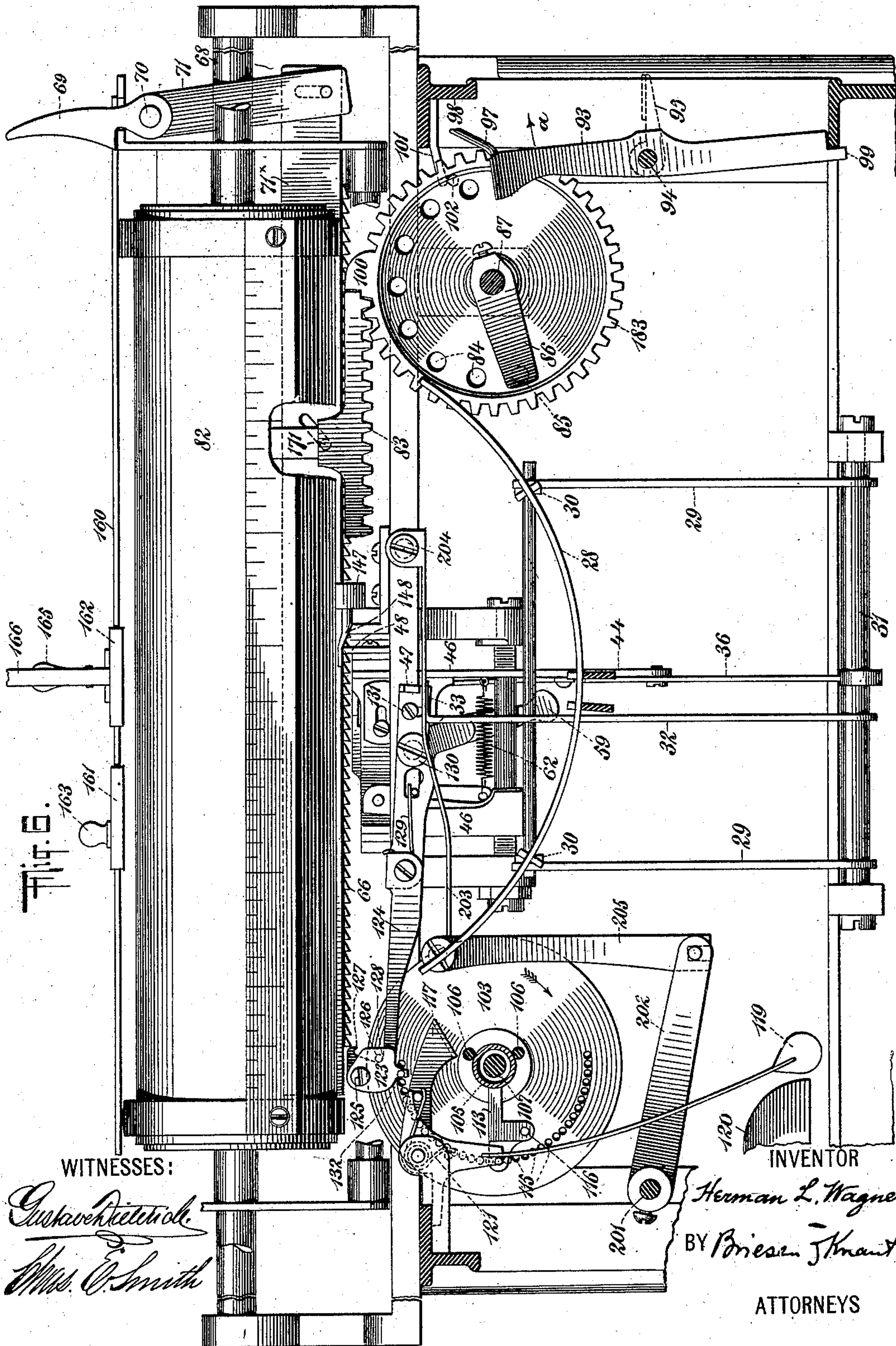
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6 Sheets—Sheet 4.



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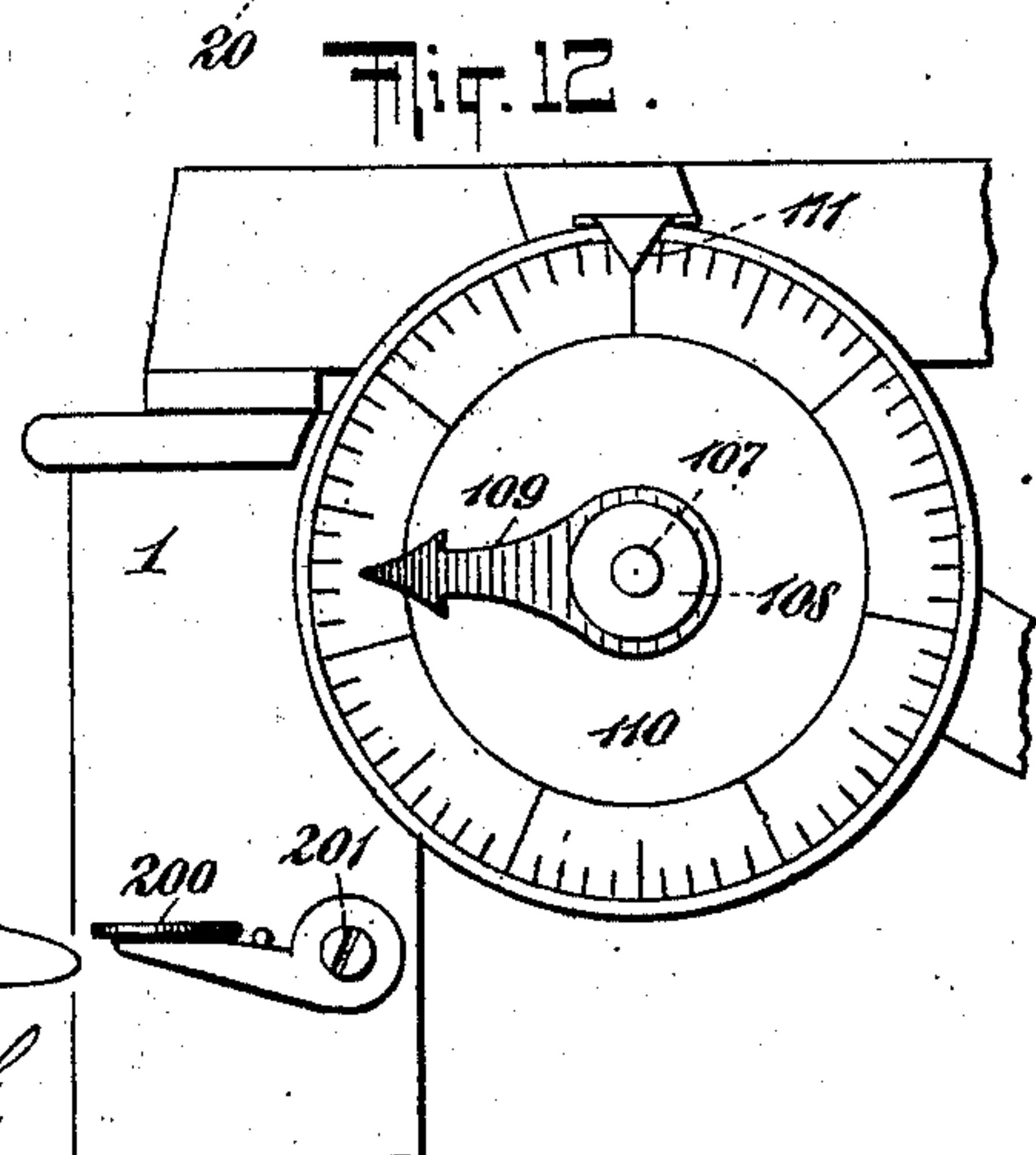
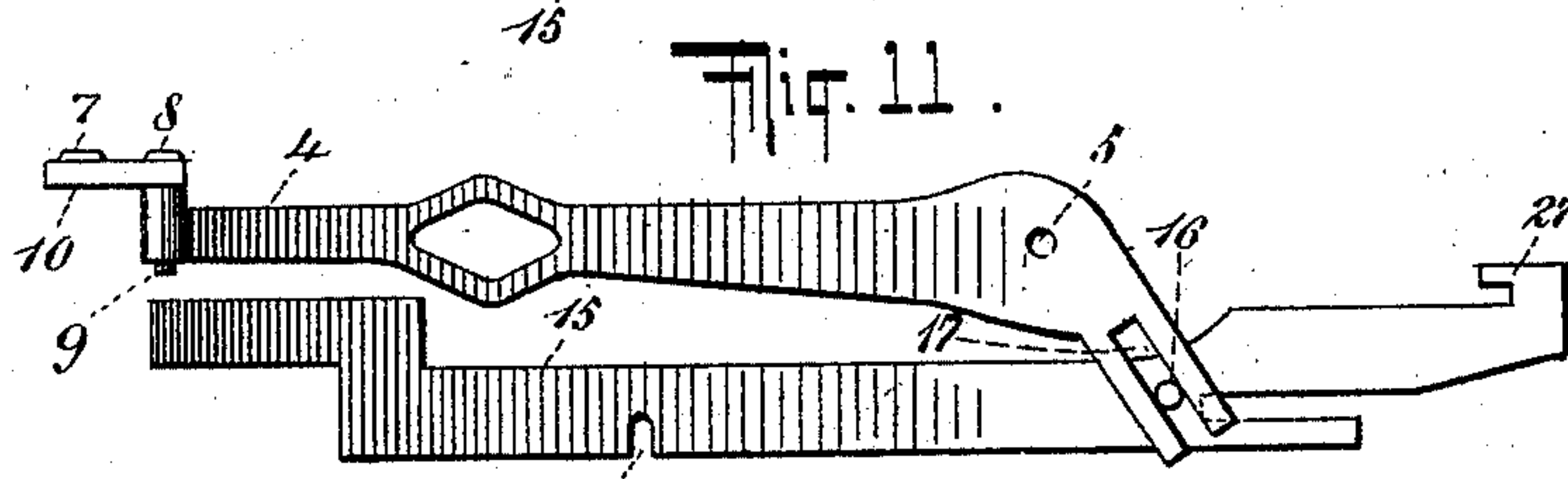
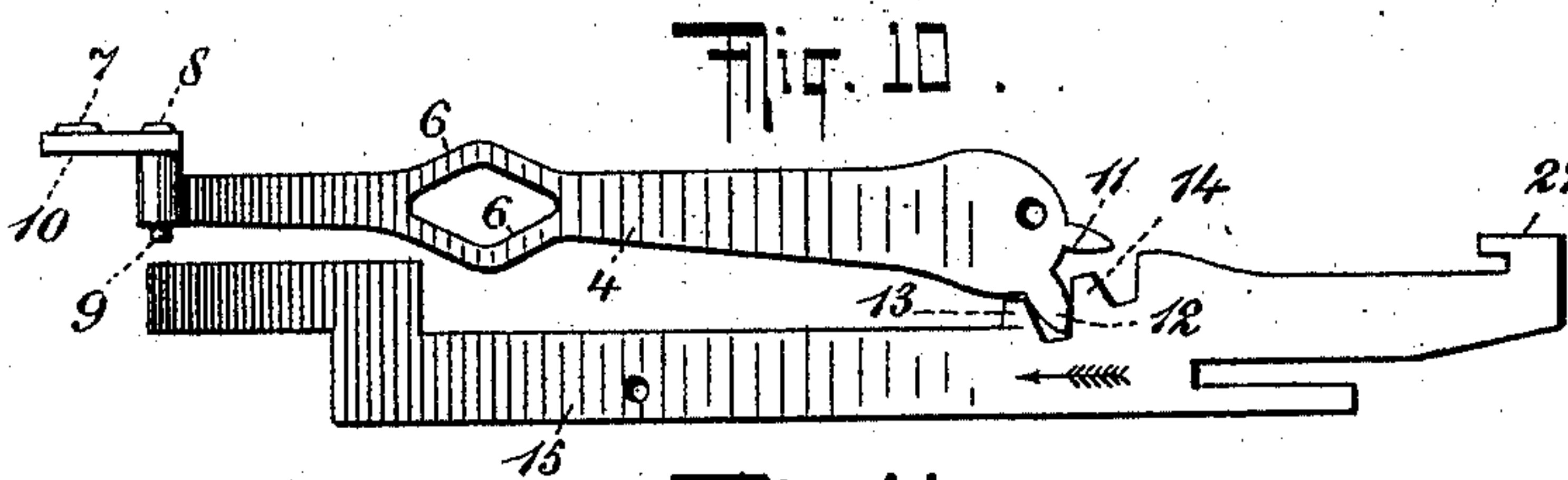
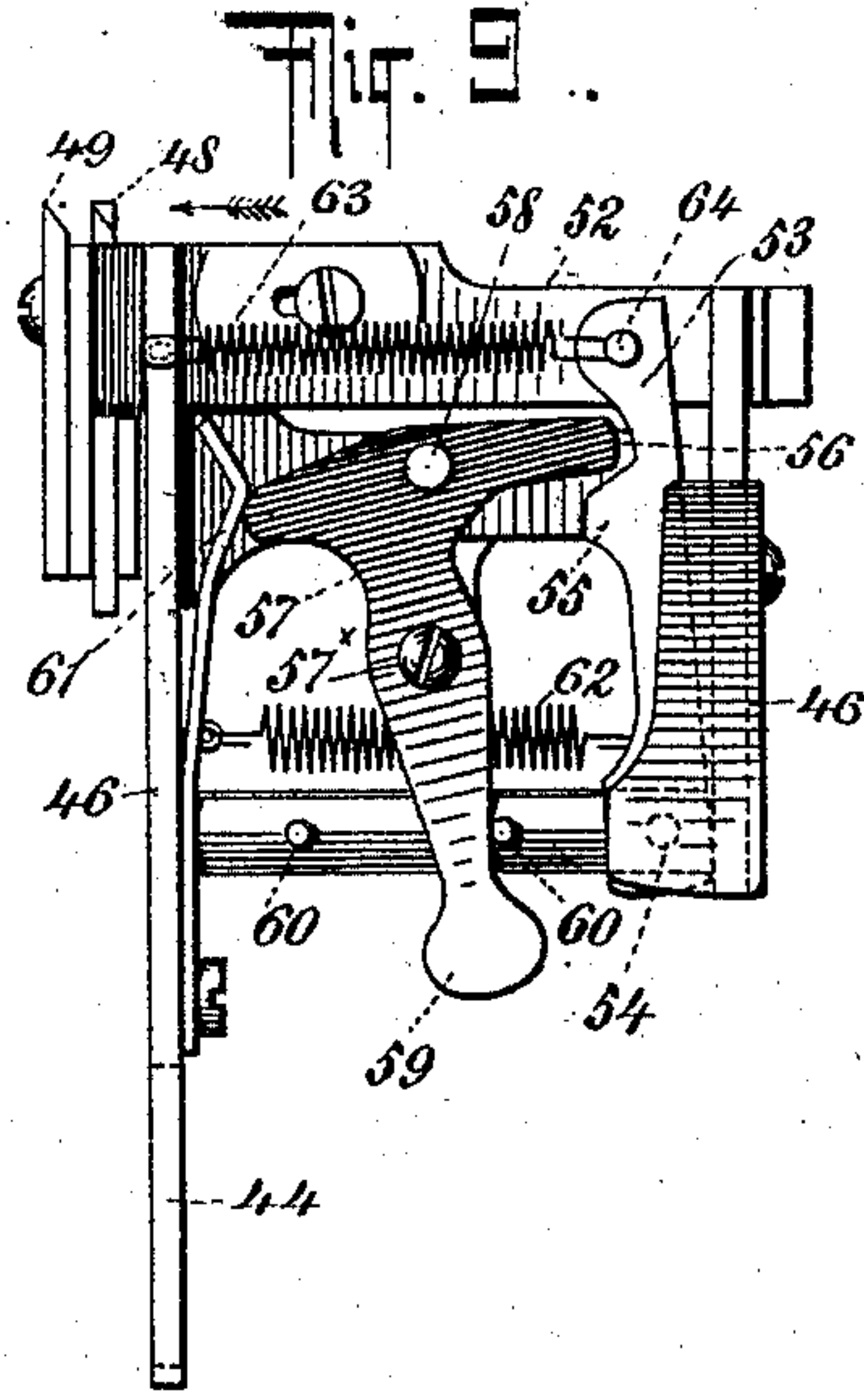
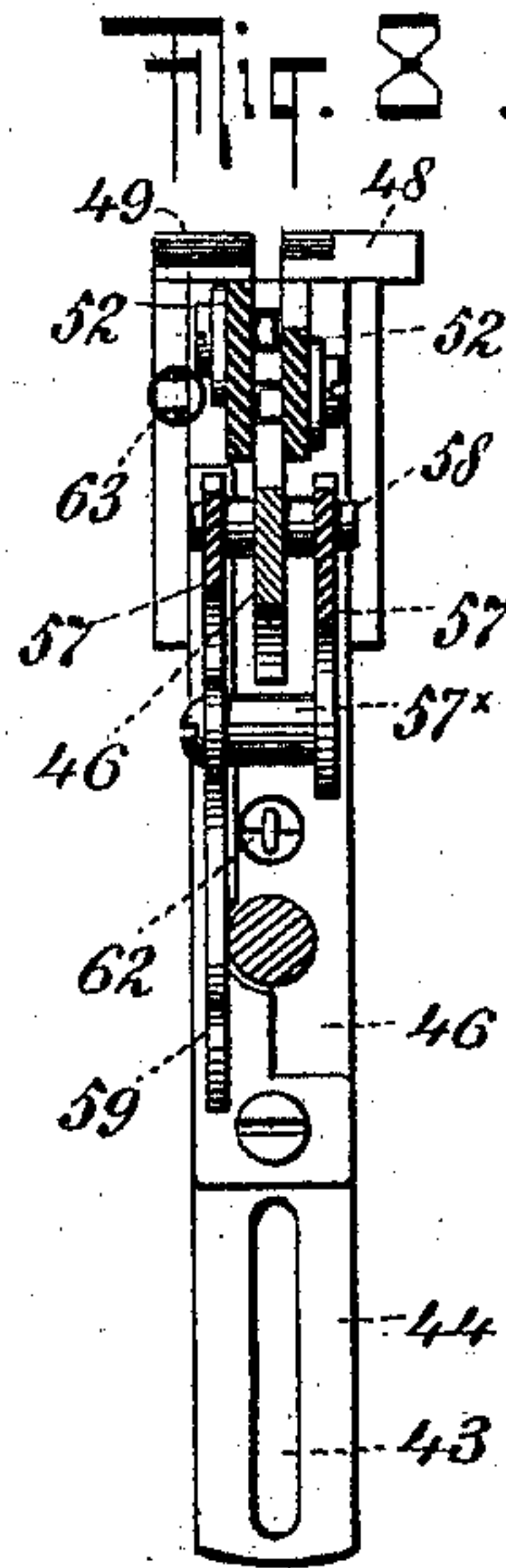
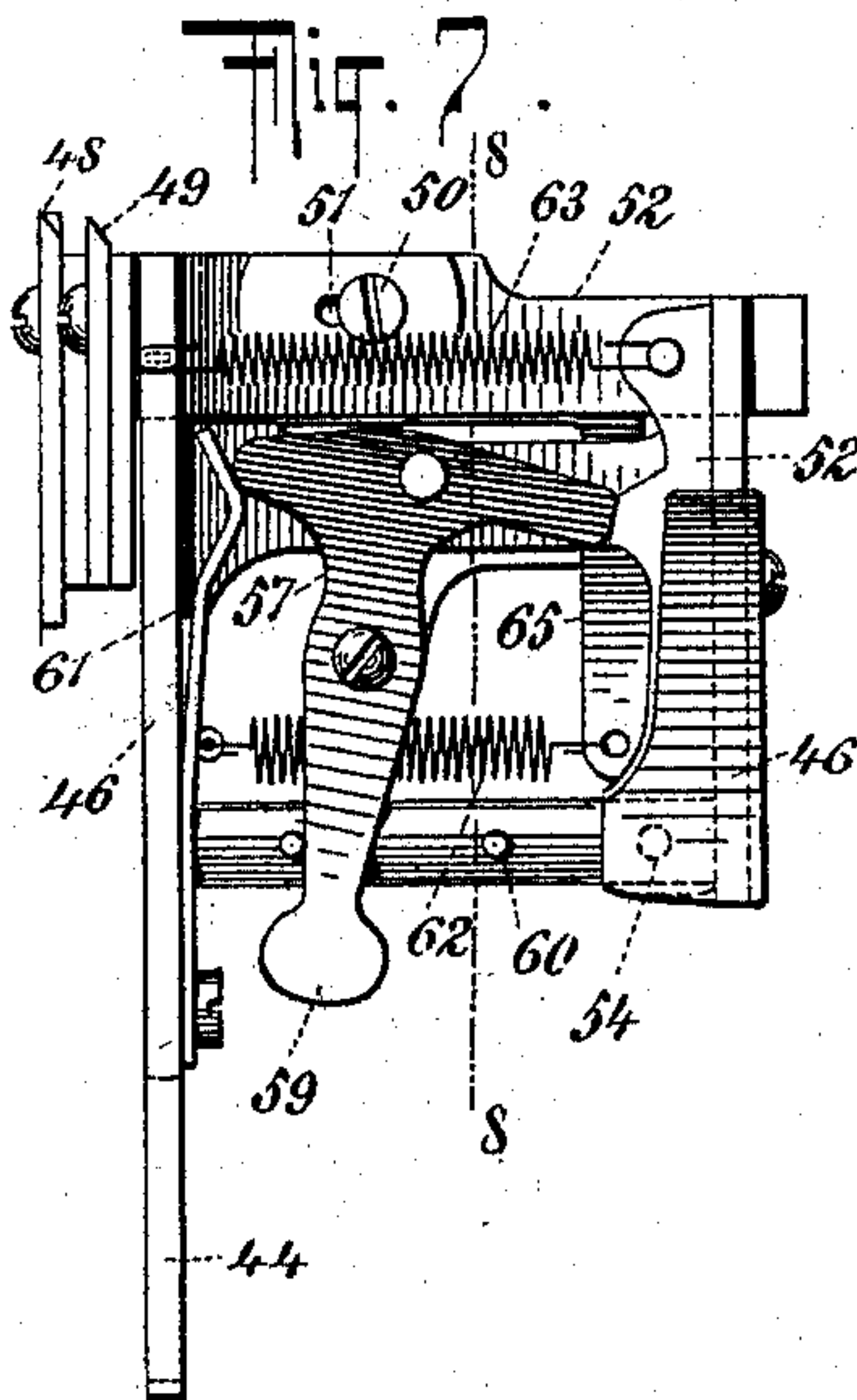
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6 Sheets—Sheet 5.



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(Application filed Nov. 11, 1899.)

(No Model.)

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Fig. 13.

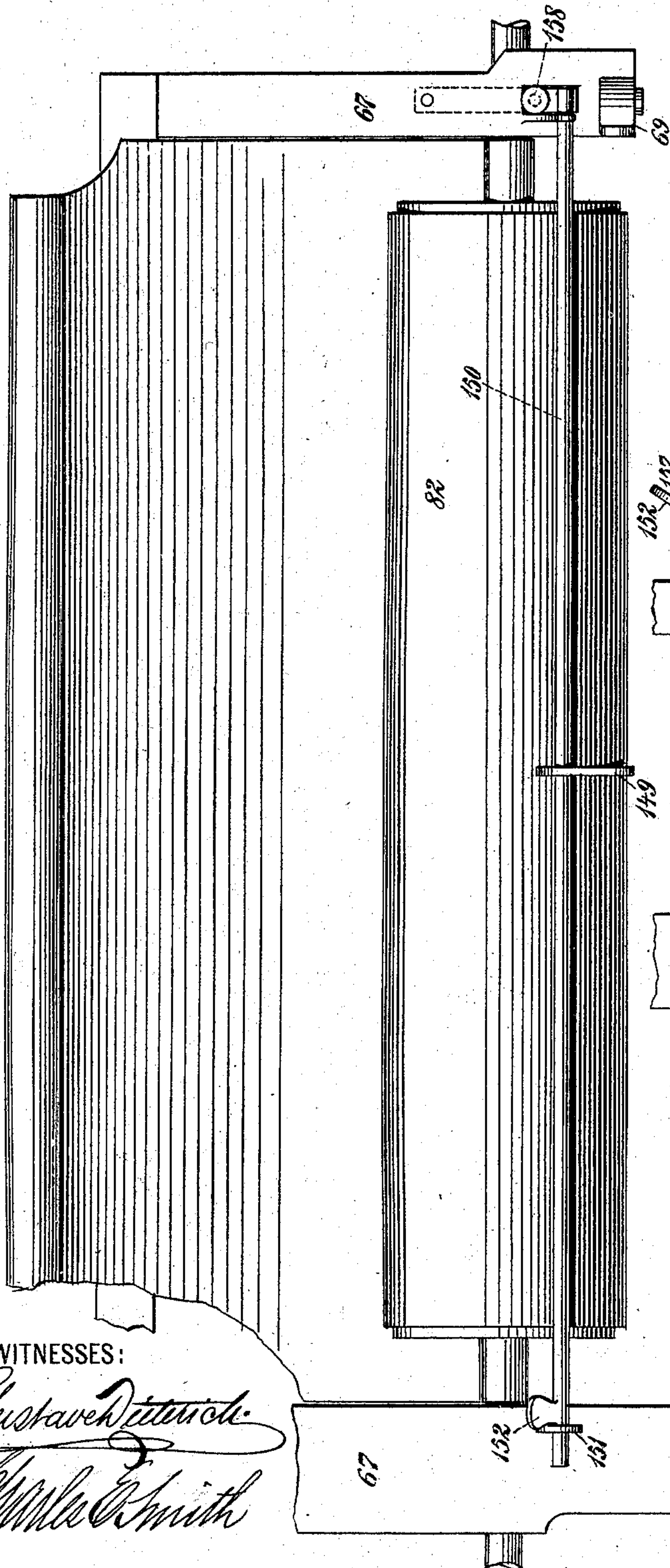


Fig. 15.

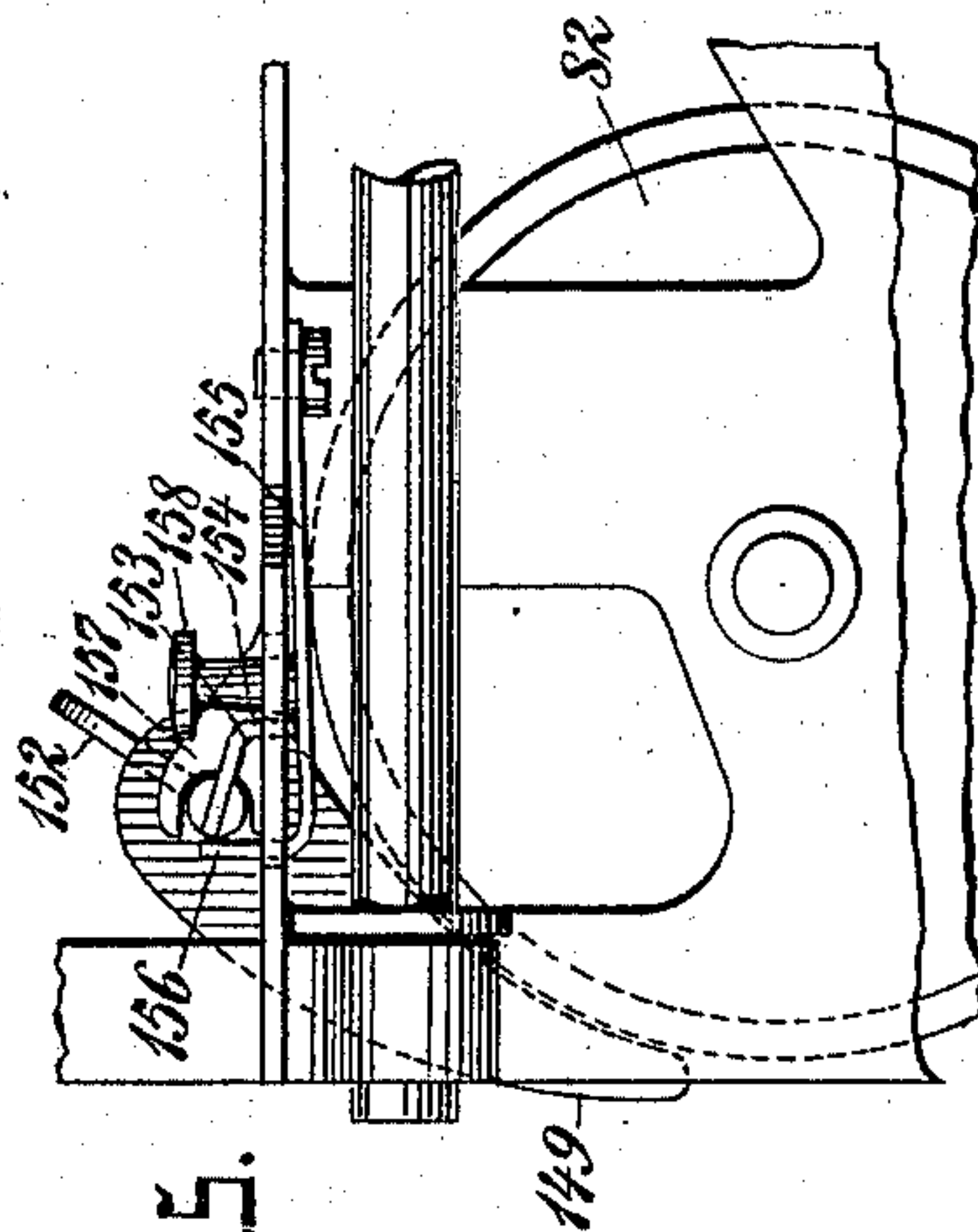
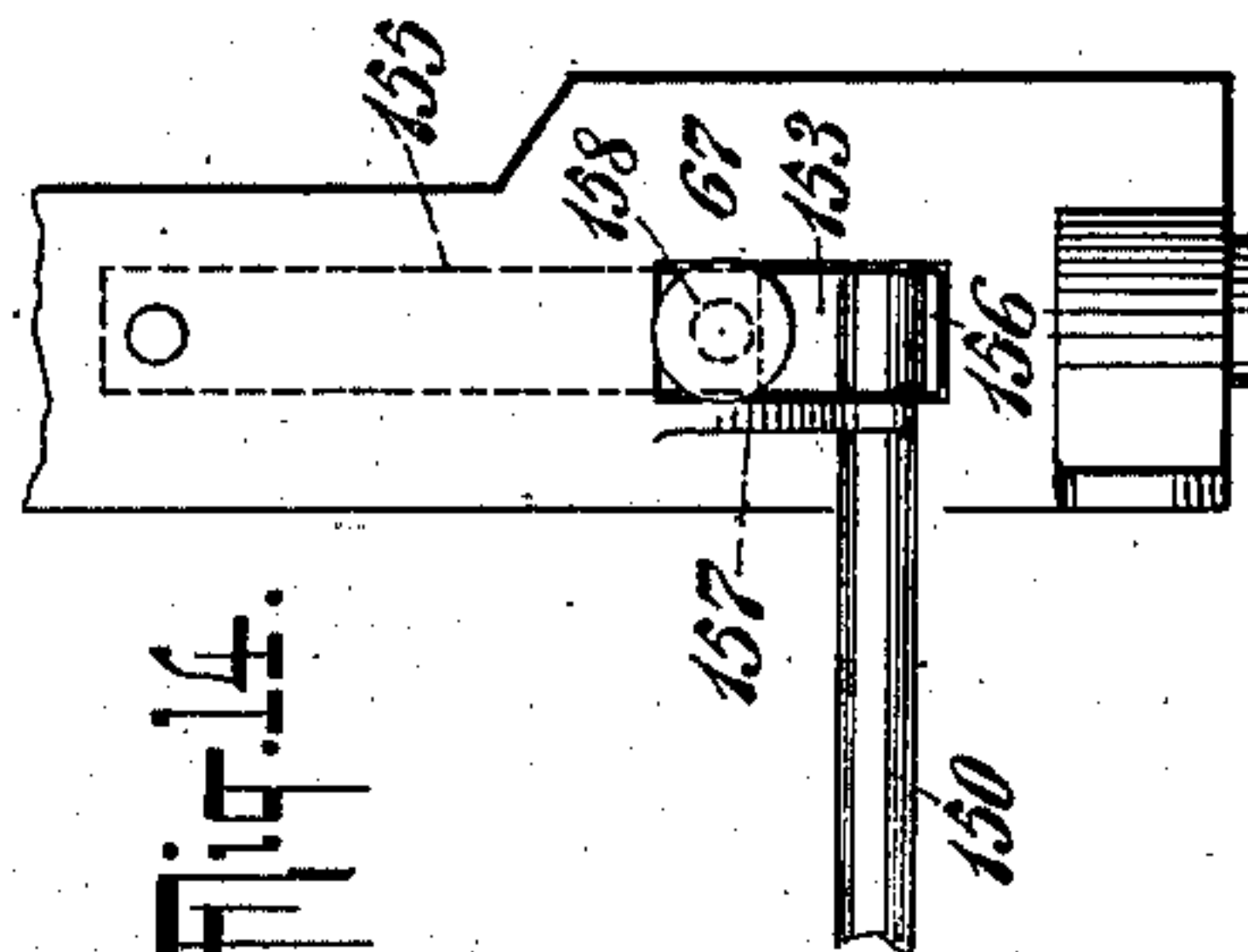


Fig. 14.



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UNITED STATES PATENT OFFICE.

HERMAN L. WAGNER, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE
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TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 670,009, dated March 19, 1901.

Application filed November 11, 1899. Serial No. 736,587. (No model.)

To all whom it may concern:

Be it known that I, HERMAN L. WAGNER, a citizen of the United States, residing at Brooklyn, Kings county, New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to type-writing machines; and the principal objects of said invention may generally be said to be as follows—first, to provide a simple and efficient type-writing machine wherein each character is in full view of the operator immediately after the impression is made; second, to provide an efficient carriage construction and feed mechanism therefor which may be changed at will to feed the carriage just before or just after each imprint is made upon the platen; third, to provide an efficient mechanism which will automatically actuate the alarm and lock the universal bar out of action at or near the end of a line as the same is determined by the line-stop, and thereby prevent the type-carriers or type-bars from being moved when the end of the line is reached, and, fourth, to provide a new and efficient indicating mechanism to determine the position of the platen with relation to the printing-point and an alarm and stop mechanism coöperating therewith.

The invention consists in the novel construction and arrangement of parts to attain the ends above specified and in the details of construction and mechanism for other purposes, as will hereinafter more fully appear and which are defined in the claims forming part of this specification.

In the accompanying drawings, wherein corresponding parts are represented by like characters in the various views, Figure 1 is a plan view of a sufficient number of parts of a type-writing machine to illustrate my invention. Fig. 2 is a detail end view of the platen and platen-carriage. Fig. 3 is a transverse sectional view of the machine, taken on the line 3 3 of Fig. 1. Fig. 4 is an enlarged detail fragmentary view of a portion of a type-bar, the view illustrating the manner in which a type-block is mounted upon a bar. Fig. 5 is a plan view of the machine with parts removed and broken away for the purposes of

clearer illustration. Fig. 6 is a rear view of the same with parts removed and broken away to more clearly illustrate the invention. Fig. 7 is a detail face view of feed-dogs embodying my invention. Fig. 8 is a transverse sectional view of the same, taken on the line 8 8 of Fig. 7. Fig. 9 is a view similar to that shown in Fig. 7, the parts being shown in somewhat different positions. Fig. 10 is an enlarged detail view of one form of type-bar and its coöperating slide, showing an embodiment of my invention. Fig. 11 is another form of type-bar construction embodying my invention. Fig. 12 is an enlarged fragmentary detail face view of a portion of the carriage-scale or index mechanism. Fig. 13 is a detail plan view of a portion of the carriage, the view showing the envelop-guide in place. Fig. 14 is a fragmentary detail plan view of the same. Fig. 15 is a fragmentary detail end view of the same.

The present invention is illustrated as embodied in what is known as a "front-strike visible-writing type-writing machine," though obviously various features of the invention may be applied to machines of radically different construction from that illustrated.

The main frame 1 of the machine has mounted therein a segmental plate 2, that has radiating slots 3 formed therein, in which slots the various type-bars 4 are pivoted upon a single rod 5, which is properly supported in place upon a segmental plate 2. The type-bars 4 are each provided with a slotted or doubled portion 6, by means of which the type 7 8 may be brought nearer to or forced farther from the pivot of the type-bar for the purpose of alining said type. Thus, for instance, a lateral compression of the doubled portion of a type-bar will cause the type thereon to be forced farther from the pivot, while a lateral expansion of said doubled portion will cause said type to be brought nearer to the pivot of the bar. Each of the type-bars is provided with a conical transverse opening at its end, as indicated in Fig. 4, for the reception of a conical stem 9, carried by the type-block 10. It will be observed that the stem 9 is in line with one of the type 8 on the type-block, so that the impact of said type on the platen will be in line with the stem

instead of to one side of the point where the type-block is connected to the type-bar, as heretofore. By this construction the type can be quickly adjusted and are not so liable to get out of alinement as type-bar constructions employing a plurality of type on a bar heretofore used.

Upon reference to Figs. 3 and 10 of the drawings it will be observed that each of the type-bars is provided at the heel thereof with a plurality of teeth 11 12, the tooth 11 being nearer the pivotal axis of the type-bar than the tooth 12. These teeth are adapted to cooperate with teeth 13 14, carried by a reciprocating slide 15, one of such slides being provided for each type-bar. It will be observed that by this construction a reciprocating motion imparted to one of the slides 15 will cause the corresponding type-bar to be moved around its axis, and the movement of the type-bar will be accelerated as it approaches the printing-point by reason of the change of leverage.

Another form of type-bar and the means for imparting movement thereto are illustrated in Fig. 11 of the drawings, wherein a slide 15 and type-bar 4, pivoted at 5 and having a type-block 10, &c., are employed, as in the construction previously described. In this last construction, however, a lateral projecting pin 16 is carried upon each of the slides and engages in an elongated slot 17 in the cooperating type-bar 4. Each of the slides 15 may be operatively connected to an arm 18 of a key-lever 19 by a pin-and-slot connection. The pins may be carried upon the slides, as represented in Fig. 10, or upon the arms 18, as indicated in Fig. 3. In the latter case the slides 15 are formed with notches, as represented at 20 in Fig. 11. The key-levers 19 are provided with suitable finger-keys 21 and with notches 22, which permit them to be seated upon pivots 23, carried by studs 24, secured to the bed-plate 25, connected to the framing of the machine.

Each of the slides 15 is supported and adapted to slide in the ways formed in the segmental plate 2 and the segmental support 26, and the rear end of each of these slides has a hook-like portion 27, which permits each of the slides to move rearwardly independently of the suitably-supported segmental universal bar 28, with which the slides cooperate. A forward movement, however, of any of the slides will cause the universal bar to be moved forward with it. This universal bar 28 is suitably connected to vibratory arms 29, Fig. 6—as, for instance, by links 30. These arms 29 are fixed to a rock-shaft 31, and secured to the same rock-shaft is an upwardly-projecting arm 32, provided with a right-angle projection 33. Cooperating with the right-angle projection 33 on the arm 32 is a gravity locking-pawl 47, which when in its lowermost position will retain the universal bar 28 against movement, as will hereinafter more fully appear. The rock-shaft 31 likewise has

an arm 34 (see Fig. 3) connected thereto, which arm is adapted to contact and cooperate with a projection 35, extending from a lever 36, pivoted at 37. This lever 36 has serrations 38 on one side, into which a free end 39 of a retractile spring 40 is adapted to engage, the opposite end of this spring being adjustable along the serrated edge 41 of a pin secured to a fixed portion of the machine, and by these means the tension exerted upon the lever 36 may be varied. A pin-and-slot connection 42 43 operatively connects the lever 36 to the lever 44, pivoted at 45 and connected to the dog-carrying frame 46, so that each movement imparted to the universal bar 28 will cause the dog-carrying frame to be moved to feed the carriage in the direction of its feed.

From an inspection of Figs. 7, 8, and 9 it will be seen that the feed-dogs 48 and 49 are carried upon the feed-dog frame 46 by means of pin-and-slot connections 50 51, so as to move in the direction of the feed of the carriage. The feed-dog 48 is likewise capable of moving downward or at right angles to the feed of the carriage, so as to release the dog from the feed-rack, as will hereinafter more clearly appear. To each of these dogs 48 49, or to each of the slides 52, which carry them, is pivoted a link 53, which has its lower end pivoted at 54 to the dog-carrying frame 46. Each link 53 is provided with a cam nose or abutment 55, which is adapted to cooperate with the end 56 of a bell-crank lever or switch 57, pivoted at 58. One of these switches 57 has a hand-operated extension 59, which is limited in its movement by pins 60. The switches 57 are maintained in either one of two positions by means of a spring 61, as represented in Figs. 7 and 9 of the drawings. The switches 57 are connected to move together, as indicated at 57^x, and are in effect one switch and will be hereinafter referred to as one switch. The dogs 48 and 49 are pressed in the direction of the arrow in Fig. 9 by springs 62 63, the latter of which is connected at one end to a pin 64, that unites the link 53 to the slide of the dog 49, whereas the spring 62 is connected to a depending arm 65, that forms part of the slide that carries the dog 48. By this means of connection the dog 48 is not only normally held in the direction of the arrow in Fig. 9, but it is likewise normally maintained up in position to engage the rack, as represented in Fig. 3. It will be understood that there is a link 53 provided for each dog and that these links and the slides with which they cooperate are movable independently of each other. It should likewise be understood that there are two arms 56, which cooperate with the abutments 55 upon the links 53. As before stated, the arms 56 are united to move together when the hand-operated extension 59 is moved; but the relation of these arms 56 to their cooperating abutments 55 is such that when one arm is in contact with its cooperating abutment, as represented in Fig. 7 of the drawings, the other

arm will be out of contact with its cooperating abutment, as represented in Fig. 9 of the drawings. Thus it will be understood that when the arm 59 has been moved to the position represented in Fig. 7 of the drawings the dog 49 will be maintained against movement in the direction of the feed of the carriage, whereas the dog 48 will be free to move in such direction. On the other hand, when the hand-operated extension 59 is moved to the position illustrated in Fig. 9 of the drawings the dog 49 is free to move in the direction of the feed of the carriage, whereas the dog 48 will be maintained against movement in such direction, and when the arm 59 has been moved in the manner described the relation of the dogs 48 and 49 will be changed, as will be seen upon a comparison of Figs. 7 and 9 of the drawings. By these means I am enabled to readily change the feed-action of the machine, so that the carriage may be fed just before or just after the imprint of a type-bar in accordance with the setting of the hand-operated lever 59, as will be understood by those skilled in the art.

Cooperating with the feed-dogs 48 49 is a feed-rack 66, which is carried by the arms 166, pivoted upon sleeves 66^x, carried by lugs 67^x, extending from what may be termed a "platen-carriage" 67. This platen-carriage 67 is supported at the rear portion thereof upon a rod 68, which passes through the lugs 67^x of said platen-carriage, so that the carriage is adapted to slide and when desired to be swung back independently of the rack 66 and the arms 166. The dogs are released from the feed-rack to permit a free movement of the carriage by the following means: A finger or release piece is employed upon each end of the carriage. From an examination of Figs. 2 and 6 it will be seen that these finger-pieces 69 are each connected to a spring-pressed rock-shaft 70, which in turn is connected to a depending arm 71, that is united to a bar 71^x, extending longitudinally throughout the length of and adjacent to the rack 66, and said bar has inclined slots, (see Fig. 6,) through which pins 171 project. By this construction the lower edge of the bar 71^x is always maintained just above the feed-dog 48, (see Fig. 3,) and when either of the finger-pieces 69 is moved from the normal position the bar 71^x will be given a slight longitudinal movement and by reason of the inclination of the slots therein will be simultaneously lowered to bring the under face thereof into contact with the feed-dog 48 and depress it against the tension of its spring 62. This depression of the feed-dog 48 will cause it to be disengaged from the feed-rack 66, and the carriage is free to move in either direction. Supported by and constituting a portion of the platen-carriage 67 is a bar 72, that is seated in the end plates of the carriage. This bar 72 is provided with arms 73, to which a frame 74 is pivoted, as indicated at 74^x. The frame 74 has an antifriction-roller 75 jour-

naled thereon, and this roller bears upon a rail or track 76, and thus supports the forward end of the platen-carriage. The rail 76 is supported upon rods 77 at each side of the machine. These rods 77 each carry an adjustable abutment 78, that is adapted to contact in its downward movement with a fixed portion 79 of the framing of the machine, while the rods 77 themselves are screw-threaded and adjustable in suitable carriers 80, which are pivoted to levers 81 of the shift-key 181. By these means it will be observed that the track or rail 76 can be adjusted at each end, so as to readily adjust the platen 82 in a vertical direction.

I will now describe the margin or back-stop mechanism whereby the carriage may be stopped at any desired point in its movement from left to right, according to adjustment.

Depending from the arms 166, which move with the platen-carriage, is a rack 83, (see Figs. 3 and 6,) which rack cooperates with the gear-wheel 183, pivoted to the framing of the machine, and has therein a series of apertures 84, into each of which a pin 85, carried by an arm 86, is adapted to engage in accordance with the adjustment of said arm. This arm 86 is adjustably fixed upon a shaft 87, that projects from the rear of the machine to the front thereof and constitutes a pivot upon which the gear 183 is free to turn. This shaft 87 is capable of being moved in a longitudinal direction, as well as being capable of rotating. A spring 88 (see Fig. 5) rotates and returns the shaft to the normal position when permitted to do so, whereas a spring 89 (see Fig. 1) tends to force the shaft in a longitudinal direction and to normally maintain the shaft 87 and the parts connected thereto properly positioned in a longitudinal direction. The end of the shaft 87 which projects to the front of the machine passes through a dial or index plate 90, (see Fig. 1,) and said shaft is provided with a milled head 91 and a fixed pointer 92, which cooperates with the scale on the dial or index plate 90, which scale, it will be understood, corresponds to the spacing of the machine. From an examination of Fig. 6 of the drawings it will be seen that an abutment or stop 93 is rigidly mounted upon a rock-shaft 94, which is mounted in and projects to the front of the machine, as indicated in Fig. 1, and that said rock-shaft is provided with a finger-piece 95, by means of which the shaft can be rocked against the tension of its spring 96, (see Fig. 5,) so as to move the abutment in the direction of the arrow *a*. A projection 97, Fig. 6, on the stop is adapted to abut against a fixed portion of the machine, as indicated at 98, and limit the movement of said stop in one direction, whereas the lower end 99 of the stop is adapted to contact with a fixed portion of the machine, and thus limit the movement of the stop in an opposite direction.

From the foregoing description it will be

understood that the shaft 87 can be drawn out or moved longitudinally by means of the milled head 91, which will cause the pin 85 to be withdrawn from the hole 84, in which it is seated. After the pin has been thus withdrawn the shaft 87 may be rotated by the head 91 until the pointer 92, which moves therewith, is opposite the numeral on the scale which designates the point where it is desired to stop the carriage in its movement toward the right-hand side of the machine. The head is then released, and the spring 89 will force the shaft in a longitudinal direction, carrying the pin 85 into one of the apertures 84 in the gear 183. The gear 183 and shaft 87 are thus locked to rotate together. When the rack 83, with the carriage, is moved toward the right, the end of said rack will be brought into contact with a lug 100 (see Fig. 6) on the gear-wheel 183, and said rack and gear will be brought into mesh. A continued movement of the carriage in this direction will cause the gear and the parts locked thereto to rotate until the arm or stop 86 is brought into contact with the stop 93, when the carriage will be arrested. When the carriage is moved toward the left, the spring 88 will rotate the gear-wheel 183 and the parts locked thereto back to the normal position, and the stop mechanism is in position to again arrest the carriage in its next movement to the right.

It will be understood that it is necessary to provide some means to arrest the backward movement of the gear-wheel 183 and the parts connected thereto, so that the same will be normally maintained at a given point with the lug 100 on the gear-wheel in the path of the rack 83. In the present instance I have illustrated in Fig. 6 of the drawings, an abutment 101, carried by the framing of the machine and adapted to project into the path of a pin 102, carried by the gear-wheel, so that the movement of the stop mechanism to the normal position will be arrested at a given point. It is sometimes desirable to convey the carriage past the margin-stop, so that writing may be effected outside of the margin. I have provided mechanism in this construction whereby this may be accomplished without affecting the fixed adjustment of the mechanism. Thus when it is found necessary to write outside of the margin it is merely necessary to depress the finger-piece 95, which will cause the stop 93 to be rocked out of the path of the cooperating arm or stop 86, thus permitting the carriage to be moved the full limit of movement thereof to the right. In the return movement of the carriage the stop 93 is forced to one side against the tension of its spring by the arm or stop 86, and the parts are again in a position to arrest the carriage in its movement toward the right-hand end of the machine at the point that the margin-stop mechanism has been set for.

It will be understood that the rotation of the shaft 87 with the carriage produces a cor-

responding movement of the pointer 92, so that the position of the carriage can be readily determined.

I will now describe the mechanism for operating the alarm at any desired point in the movement of the carriage and for locking the universal bar out of operation when the end of the line has been reached.

The spring-drum 103 is connected to a band 104, that in turn is connected to the carriage to move it in the direction of its feed in the usual manner. This spring-drum 103 is connected to a sleeve 105, which extends from the drum to the front of the machine, the rods 106 constituting the connection between the spring-drum and the sleeve, as illustrated in Figs. 3 and 6 of the drawings. Extending through the sleeve 105 is a freely-rotatable and longitudinally-movable shaft 107. The inner end of this shaft is seated in a suitable bearing formed in the spring-drum, and the outer end of the shaft is provided with a milled head 108 and a pointer 109, which coöperates with a scale upon a dial or index-plate 110, which is connected to and rotates with the sleeve 105. An indicating-finger 111 likewise coöperates with the scale on the dial 110, and this finger 111 is secured to a fixed portion of the machine, as indicated in Fig. 3 of the drawings. The shaft 107 is normally maintained against longitudinal movement by a spring 112, (see Fig. 5,) which bears at one end against the sleeve 105 and at the other end against an arm 113. The arm 113 is secured to the shaft 107 and is provided with an engaging pin 114, that is adapted to be received in any one of the series of apertures 115 in the drum 103, and thereby lock the shaft 107 to rotate with the drum. This arm 113 likewise carries a pin or bell-trip 116, that is in position to contact with the bell-hammer lever 117 when the drum is rotated and the arm is locked to rotate with it. The lever 117 is provided with a laterally-projecting flange 118, (see Fig. 5,) with which the pin 116 contacts to only a very slight degree when the drum is rotated in the direction of the arrow in Fig. 6 of the drawings. When, however, the drum is rotated in an opposite direction, which is the direction of rotation the drum has during the feed of the carriage, the pin will move under the flange and will cause a considerable movement to be given to the lever, thus conveying the bell-hammer 119 to a position where it will strike the bell 120 with considerable force when the pin 116 has traveled beyond the flange 118 and has thus released the hammer-operating lever 117. The hammer 119 is moved to strike the bell by a suitable spring 121. Upon reference to Fig. 5 of the drawings it will be seen that the pin 114 is projected through the arm 113, so as to form what in effect is a second pin or locking-trip 122, and this pin 122 is adapted to contact with a gravity-block 123, which is pivoted to a lever 124, as indicated at 125. (See Fig. 6.) The gravity-block is provided

with a stop-pin 126, that contacts with the shoulders or abutments 127 128 on the lever 124 and limits the movement of the block with relation to said lever. The lever 124 is normally maintained in the position illustrated in Fig. 6 of the drawings by a spring 129, and to the opposite end of this lever from that which carries the block 123 is pivoted, as indicated at 130, the gravity locking-pawl 47, hereinbefore referred to. The movement of this pawl independent of the lever which carries it is limited by a pin 131, which is carried by the lever and projects through a slot in the pawl, as shown in Fig. 6 of the drawings. The outer end of the gravity locking-pawl 47 is provided with a hook-like portion by means of which the arm 33, connected to the universal bar 28, can be engaged and maintained against movement, as has been previously described, in order to lock the universal bar and the machine out of operation when the end of a line is reached. From the foregoing description of the construction of this portion of the machine it will be understood that the shaft 107 can be moved out longitudinally by means of the milled head 108, connected thereto, and this movement will disengage or withdraw the pin 114 from an aperture 115 in the drum. The shaft can then be rotated by the milled head until the pointer carried by the shaft is opposite a numeral which corresponds to the point where it is desired to lock the machine out of action at the end of a line. The milled head is then released and the tension of the spring 112 will force the pin 114 into the proper aperture in the drum, and the shaft 107 with its arm 113 will thus be locked to rotate with the drum. When the drum is rotated in a direction opposite to that indicated by the arrow in Fig. 6 during the ordinary feed movement of the carriage and the arm 113 has been locked to rotate with the drum in the manner described, the trip or pin 116 will at the proper moment be brought into contact with the flange 118 on the hammer-lever 117 and the alarm will be sounded. Immediately after sounding the alarm the pin 116 will be brought into contact with the nose 132 of the block 123 and the end of the lever which carries the block 123 will be elevated by reason of the fact that no movement of the block independently of the lever can take place when the pin 116 is moving in this direction. The effect of the elevation of the block-carrying end of the lever 124 is to depress the opposite end of the said lever, thereby carrying the locking-pawl 47 into engagement with the arm 33, connected to the universal bar 28 of the machine. In case the arm 33 is in such a position that the nose of the gravity-pawl would at this moment be brought into contact therewith and not engage behind it the locking-pawl will by reason of its pivotal connection to the lever 124 merely rest upon the arm 33 until it has moved to the normal position, (see Fig. 3,) when the pawl will by its own

weight drop into the engaging position, and will thus efficiently lock the universal bar out of action, and consequently no movement of the parts can be given. In the movement of the carriage back in the opposite direction the drum is rotated in the direction of the arrow in Fig. 6 of the drawings and the locking trip or pin 116 will in this movement of the drum contact with the block 123 upon the opposite side from that in which it was brought into contact during the movement of the drum in an opposite direction. The result of the pin coming in contact with the block during the rotation of the drum in the direction of the arrow is merely to force the block around its pivot without transmitting movement to the lever 124.

When the carriage has been moved from right to left and the universal bar has been locked in the manner described, the effect is to limit the movement of the carriage, because the mechanism by which the carriage is fed is locked out of action. It sometimes becomes desirable to write one or more letters beyond this point to complete a word or sentence. I have therefore provided a hand-operated mechanism for releasing the lock to permit a further action of the parts when desired. This hand-operated mechanism consists of a finger-piece 200, (see Figs. 1 and 12,) which is connected to a rock-shaft 201, that is provided with an arm 202. This arm 202 is united to an arm 203, that is pivoted to a fixed portion of the machine, as indicated at 204, the connection being made through an intermediate link 205. The arm 203 is adapted to be rocked by the finger-piece 200 into the path of the locking-pawl 47. (See Fig. 6.) By these means it is merely necessary to depress the finger-piece 200, when the rock-shaft 201 will be operated to elevate the arm 203, and thus move the said arm into contact with the locking-pawl 47 and raise said locking-pawl out of engaging position, it being understood that the locking-pawl is free to move independently of the lever 124, which carries it. As soon as the finger-piece 200 is released the parts will assume their normal position, when they are again ready to act as before.

I will next describe the tabulating mechanism or column-stop construction, whereby the carriage is permitted to move any desired number of spaces by the depression of a key and to be arrested at a predetermined point which is controlled by one or more adjustable stops.

Upon the rear of the carriage is carried a rack-bar 133, whose teeth extend along the rear edge thereof. From an examination of Fig. 1 of the drawings it will be seen that these teeth are adapted to be engaged by the corresponding teeth 134 upon an adjustable stop 135. This adjustable stop 135 is carried upon a rod 136, supported at its end in the end plates of the carriage 67. This stop is likewise provided with a finger or pointer 137, which is adapted to coöperate with a scale 138,

which is carried by the carriage just above the rack 133. (See Figs. 1 and 3.) By oscillating the stop 135 on its rod or carrier 136 the teeth thereof are adapted to be brought into engagement with the teeth of the bar 133 and maintain the stop in its adjusted position. By oscillating the stop in its opposite direction the teeth thereof are disengaged from the rack 133 and the stop is free to be adjusted along the rod 136 to the proper point, which is indicated on the scale 138. From an examination of Fig. 5 of the drawings it will be seen that a rock-shaft 140 is mounted in brackets 141, projecting from the framing of the machine. This rock-shaft is provided with a depending arm 142, which is provided with a cam-like end against which a pin 143 upon a key-lever 144 is adapted to contact, so that when the key 145 (see Fig. 1) is depressed the shaft 140 will be rocked. This rock-shaft likewise carries an arm 146, which is adapted to be moved into the path of the stop 135 on the carriage, though the arm is normally maintained out of the path of said stop by a spring 147. The arm 146 is provided with an extension 147^x, that carries a pin 148, which bears upon the feed-dog 48, so that as the rock-shaft 140 is oscillated the stop 146 will be interposed in the path of the stop on the carriage, and the same movement will depress the feed-dog 48, thus releasing the feed-dog from the rack and permitting the carriage to travel freely until it is arrested by the contact of the two tabulating stops. It is obvious that the adjustable stop may, if desired, be placed upon the rock-shaft 140, and the fixed or non-adjustable stop may be placed upon the carriage without in any way modifying the operation of the tabulating device.

From an inspection of Figs. 13, 14, and 15 of the drawings it will be observed that the end plates of the platen-carriage 67 are provided with bearings for a removable paper or envelop guide 149, which is carried upon a rock-shaft 150. One end of this rock-shaft is projected through an ear or bearing 151 on the left-hand end plate of the carriage. This end of the shaft is likewise provided with a finger-piece 152 for vibrating the shaft and the guide carried thereby. The opposite end of the rock-shaft 150 is provided with a bearing-piece 153, which is bent, as indicated at 154, to provide a flat bearing-face, against which a leaf-spring 155 is adapted to bear when the rock-shaft is vibrated to move the guide out of the operative position in order to maintain the parts so positioned after this movement has taken place.

From an examination of Fig. 15 it will be observed that normally the free end of the bearing-piece 153 contacts with the leaf-spring 155, so as to exert tension upon the guide 149 through the rock-shaft. The leaf-spring 155 has its end bent at right angles to the main body portion, as indicated at 156, so as to project up to one side of the rock-

shaft and retain it within the open-mouthed bearing 157. The leaf-spring 155 is likewise provided with a button or stud 158, whereby it may be depressed by hand for the purpose of removing the free end of the spring out of the path of the shaft, so as to permit the rock-shaft to be withdrawn from the bearing in order that the envelop-guide may be removed from the machine when desired.

From an inspection of Figs. 1 and 6 of the drawings it will be seen that a supporting-bar 160 is removably secured to the carriage and extends throughout the length thereof from one end plate to another above the platen. This bar constitutes a bearing for the adjustable paper-guides 161 162. The first of these guides 161 is adjustable laterally along the supporting-bar 160 and is likewise detachable from said bar. The guide 161 is provided with a spring-pressed clamp 162^x, which is adapted to bear against one edge of and under the supporting-bar 160 and maintain the guide connected to the bar and fixed in the adjusted position. A finger-piece 163 is connected with this spring-pressed clamp in order to release the same from the supporting-bar 160 to permit the guide to be detached or adjusted. The guide 161 is provided with a depending arm 164, (see Fig. 3,) which is the effective portion of the guide and the portion with which the paper contacts. It will be understood that this guide is to be used in connection with sheets of paper which are narrower than the length of the platen. An examination of Figs. 1 and 3 of the drawings will show that the effective portion 164 of the guide 161 is in a plane at right angles to the axis of the platen and projects adjacent to the usual paper-guide, so as to form an abutment for one edge of the paper in order that narrow sheets may be guided to the platen and presented straight thereto. Supported upon the supporting-bar 160 is a second paper-guide or, more properly speaking, a paper-support 162, hereinbefore referred to. The body portion of this guide is connected to the supporting-bar in a similar manner to the guide 161, the finger-piece 165 being effective to release the spring-pressure of the parts for the purpose of adjusting said paper guide or support 162 along the bar 160 or for removing it entirely therefrom. Projecting upwardly and rearwardly at an angle to the plane of the bar 160 is an extension-arm 166^x, which is carried by the body portion of the guide 162 and which in reality constitutes the guide or support proper. The purpose of this extension-arm 166^x is to support and maintain the paper in full view of the operator—that is to say, as the upper end of the paper is fed around with the platen from rear to front it will be brought in contact with the guide or support 166^x and maintained in such a position that the writing thereon will be in full view of the operator.

It is thought that from the foregoing description the operation of the various portions

of my device will be understood and that no further detail description of the operation is necessary.

Instead of adjusting the rail or track 76 by means of the mechanism hereinbefore described, reliance may be had for this purpose upon a plurality of jam-nuts 167, (see Figs. 3 and 5,) which are screw-threaded upon the upper end of each of the rods 77 and above and below the track.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a type-writing machine, the combination of a rack, a pair of feed-dogs cooperating therewith, said dogs being adapted to move in the direction of the feed of the carriage and one of said dogs being mounted to move in a direction at right angles to the line of feed, means for locking either of said dogs against movement in the direction of feed of the carriage and hand-operated means carried by the carriage for depressing one of the dogs at right angles to the direction of feed of the carriage to disengage the dog from the rack in order to free the carriage.

2. In a type-writing machine, the combination of a feed-rack carried by the carriage, a pair of feed-dogs cooperating therewith, said dogs being carried by the framing of the machine and adapted to move in the direction of feed of the carriage and one of the said dogs being mounted to move in a direction at right angles to the line of feed, means for locking either of said dogs against movement in the direction of feed of the carriage, and a hand-operated bar carried by the carriage adjacent to the feed-rack and adapted to contact with one of the dogs to move the same at right angles to the direction of feed of the carriage to disengage the dog from the rack in order to free the carriage.

3. In a type-writing machine, the combination of a feed-rack, a pair of feed-dogs cooperating therewith, said dogs being adapted to move in the direction of the feed of the carriage and one of said dogs being mounted to move in a direction at right angles to the line of feed, means for locking either of said dogs against movement in the direction of feed of the carriage, hand-operated means for depressing one of the dogs at right angles to the direction of feed of the carriage to disengage the dog from the rack, a tabulating-stop on the carriage and a cooperating stop on the framing of the machine, said stops being adjustable with relation to each other, means for vibrating one of the stops into the path of movement of the other and means connected to the vibrating stop to depress a feed-dog at right angles to the direction of feed of the carriage and out of engagement with the feed-rack when said vibrating stop is moved into the path of the stop on the carriage.

4. The combination of two feed-dogs, spring-pressed slides upon each of which one of the dogs is carried, said slides being movable in

the direction of feed of the carriage and one of them being capable of moving in a direction at right angles to the said feed, a pivoted link connected to each of said slides and a switch cooperating with each of said links whereby one or the other of said dogs will be maintained against movement in the direction of the feed of the carriage in accordance with the position of said switches but one of which dogs will at all times be free to move in a direction at right angles to the direction of feed of the carriage.

5. In a margin-stop mechanism for type-writing machines, the combination of a carriage, a spring-drum for moving the same, a rotatable part independent of said spring-drum adapted to be operatively connected to and rotated by the carriage in its movement to the starting-point, a stop carried by said rotatable part and a second stop adapted to cooperate with said first-named stop to limit the movement of the carriage in its movement toward the starting-point.

6. In a margin-stop mechanism for type-writing machines, the combination of a carriage, a spring-drum for moving said carriage, a rotatable part which is independent of said drum and is adapted to be operatively connected to and positively rotated by the carriage in its movement to the starting-point and in the direction in which it is effective to stop the carriage, a stop carried by said rotatable part, a second stop adapted to cooperate with said first-named stop to limit the movement of the carriage in its movement toward the starting-point and means for adjusting said stops with relation to each other to vary the movement of the carriage.

7. In a margin-stop mechanism for type-writing machines, the combination of a carriage, a spring-drum for moving said carriage, a rotatable part which is independent of the drum and is adapted to be operatively connected to and be positively rotated by the carriage in its movement to the starting-point and in the direction in which it is effective to stop the carriage, a stop carried by said rotatable part, a second stop adapted to cooperate with said first-named stop to limit the movement of the carriage in its movement toward the starting-point, means for adjusting said stops with relation to each other to vary the limit of movement of the carriage and means for determining the position of the adjustable stop.

8. The combination of a carriage, a rotatable part the movement of which is controlled by the carriage, an adjustable stop carried by and adjustable with relation to said rotatable part, a second stop adapted to cooperate with said adjustable stop to limit the movement of the carriage, a dial provided with a scale, a pointer connected to move with the adjustable stop to determine the position of the adjustable stop in its movement and the point at which the carriage will be arrested.

9. In a margin-stop mechanism for type

writing machines, the combination of a carriage, a spring-drum for moving the carriage, a rotatable part independent of the spring-drum and the movement of which is controlled by the carriage, a stop carried by the said rotatable part, a second stop adapted to cooperate with said first-named stop to limit the movement of the carriage toward the starting-point, each of said stops being normally in the path of movement of the other during the movement of the carriage toward the starting-point and hand-operated means for moving one of the said stops out of the path of movement of the other in order to permit the carriage to move beyond the point at which the stops are arranged to arrest the carriage in its movement toward the starting-point.

10. The combination of a rotatable part the movement of which is controlled by the movement of the carriage, a stop-arm carried by said rotatable part, a second stop adapted to cooperate with said first-named stop to limit the movement of the carriage in one direction and to permit the stops to ride freely past each other in an opposite direction, means for adjusting said stops with relation to each other to vary the limit of movement of the carriage, means for indicating the position of the adjustable stop and hand-operated means for moving one of said stops out of the path of the other and for permitting said hand-operated means to automatically assume its normal position.

11. The combination of a carriage, a rack connected to move with the carriage, a gear-wheel adapted to mesh with the rack and to be moved thereby in a positive manner when the carriage is moved, a stop carried by the gear-wheel and a second stop cooperating with the stop carried by the gear-wheel to limit the movement of the carriage.

12. The combination of a carriage, a rack carried by said carriage, a gear-wheel adapted to mesh with the rack on the carriage, an adjustable stop adapted to be locked to rotate with the gear-wheel, a second stop cooperating with the first-named stop to limit the movement of the carriage, an indicating mechanism operatively connected to the adjustable stop and adapted to indicate the point at which the adjustable stop is set to limit the movement of the carriage.

13. The combination of a carriage, a rack carried by said carriage, a gear-wheel adapted to mesh with the rack on the carriage, an adjustable stop adapted to be locked to rotate with the gear-wheel at various points thereon, a second pivoted stop cooperating with the adjustable stop to limit the movement of the carriage, a hand-operated finger-piece connected to said pivoted stop to rock the same out of the path of the adjustable stop to permit the carriage to move beyond the limit of movement thereof as determined by the stops, a pointer connected to the adjustable stop and a scale with which said pointer

cooperates to indicate the point at which the adjustable stop is set to limit the movement of the carriage.

14. The combination of a carriage, a rack carried by said carriage, a gear-wheel adapted to mesh with the rack on the carriage, said gear-wheel having a series of apertures therein, a spring-pressed adjustable stop having a pin which is adapted to be seated in any one of the series of apertures in the gear-wheel, a second pivoted spring-pressed stop cooperating with the adjustable stop to limit the movement of the carriage, a hand-operated finger-piece connected to said pivoted stop to rock the same out of the path of the adjustable stop to permit the carriage to move beyond the limit of movement thereof as determined by the stops, a pointer connected to the adjustable stop and a scale with which said pointer cooperates to indicate the point at which the adjustable stop is set to limit the movement of the carriage.

15. In a type-writing machine, the combination of a carriage, a spring-drum for moving said carriage, a universal bar, a lock adapted to retain the universal bar against movement, an adjustable locking-trip adapted to be positively secured at any one of a series of points on said drum to rotate therewith, a bell-trip connected to move with said locking-trip, a bell-hammer adapted to be operated by the bell-trip, a bell adapted to be sounded by the hammer and movable index mechanism, the movement of which is controlled by the movement of the carriage for indicating the position at which the locking-trip is set to lock the universal bar and the position of the carriage with relation to the starting-point.

16. In a type-writing machine, the combination of a carriage, a spring-drum for moving said carriage, a universal bar, a lock adapted to retain the universal bar against movement, an adjustable locking-trip adapted to be secured at any one of a series of points on said drum to rotate therewith, a bell-trip connected to move with said locking-trip, a bell-hammer adapted to be operated by the bell-trip, a bell adapted to be sounded by the hammer, a pointer connected to the locking-trip, a dial with which said pointer cooperates, said dial being connected to the spring-drum to move therewith and a second fixed pointer cooperating with said dial to indicate the position of the carriage with relation to the frame of the machine.

17. In a type-writing machine, the combination of a carriage, a rotating part controlled by the movement of said carriage, an index mechanism controlled by the rotating part for indicating the position of the carriage with relation to the frame of the machine and carriage-stop mechanism cooperating with said index mechanism.

18. In a type-writing machine, the combination of a platen-carriage, the usual paper-guide for guiding the paper to the platen, a

supporting-bar carried by the platen-carriage, a paper-guiding finger or support carried by the said supporting-bar and adapted to project above the platen and to the rear of the paper thereon from a point adjacent to the platen and intermediate of the ends thereof to guide and support the paper from beneath and to maintain the same within view of the operator as it leaves the platen.

19. In a type-writing machine, the combination of a platen-carriage, the usual paper-guide for guiding paper to the platen, a supporting-bar carried by the carriage and extending substantially throughout the length of the platen, and an inclined paper-guiding finger or support adjustable on said supporting-bar and adapted to project above the platen, the lower end of said guide being adjacent to the platen and intermediate of the ends thereof in order to guide and maintain the paper within view of the operator as it leaves the platen.

20. In a type-writing machine, the combination of a platen-carriage, the usual paper-guide for guiding paper to the platen, a supporting-bar carried by the carriage and extending substantially throughout the length of the platen and an inclined paper guide or support detachable from and adjustable on said supporting-bar and adapted to project above the platen the lower end of said guide being adjacent to the platen and intermediate of the ends thereof in order to guide and maintain the paper within view of the operator as it leaves the platen.

21. In a type-writing machine, the combination of a platen-carriage, a pivoted detachable spring-pressed paper or envelop guide carried by the carriage and cooperating with the platen, a bearing-piece for said guide, a spring cooperating with the bearing-piece to maintain the guide in the shifted position and hand-operated means for moving the guide into or out of contact with the platen.

22. In a type-writing machine, the combination of a platen-carriage, a track upon which the platen-carriage is adapted to move

and independent means for adjusting both ends of said track.

23. In a type-writing machine, the combination of a platen-carriage, a vertically-movable track upon which said platen-carriage is supported and adapted to move, means for shifting said track in a vertical direction and independent means for adjusting both ends of the track.

24. In a type-writing machine, the combination of a platen-carriage, a supporting-bar carried thereby, the usual paper-guide for guiding the paper to the platen and an adjustable paper-guide carried by the supporting-bar, the effective or contact face of said guide being in a plane at right angles to the axis of the platen.

25. In a type-writing machine, the combination of a platen-carriage, a supporting-bar carried thereby and extending throughout the length of the platen, the usual paper-guide for guiding the paper to the platen and a paper-guide carried by and adjustable along the supporting-bar, the effective or contact face of said guide being in a plane at right angles to the axis of the platen and extending adjacent to the usual paper-guide of the machine so as to form an abutment for one edge of the paper.

26. In a type-writing machine, the combination of a platen-carriage, a supporting-bar carried thereby and extending throughout the length of the platen, the usual paper-guide guiding the paper to the platen, a paper-guide carried by and adjustable along the supporting-bar, the effective or contact face of said guide being in a plane at right angles to the axis of the platen and intermediate of the ends thereof and extending adjacent to the usual paper-guide of the machine so as to form an abutment for one edge of the paper and a scale cooperating with said adjustable guide.

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Witnesses:

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