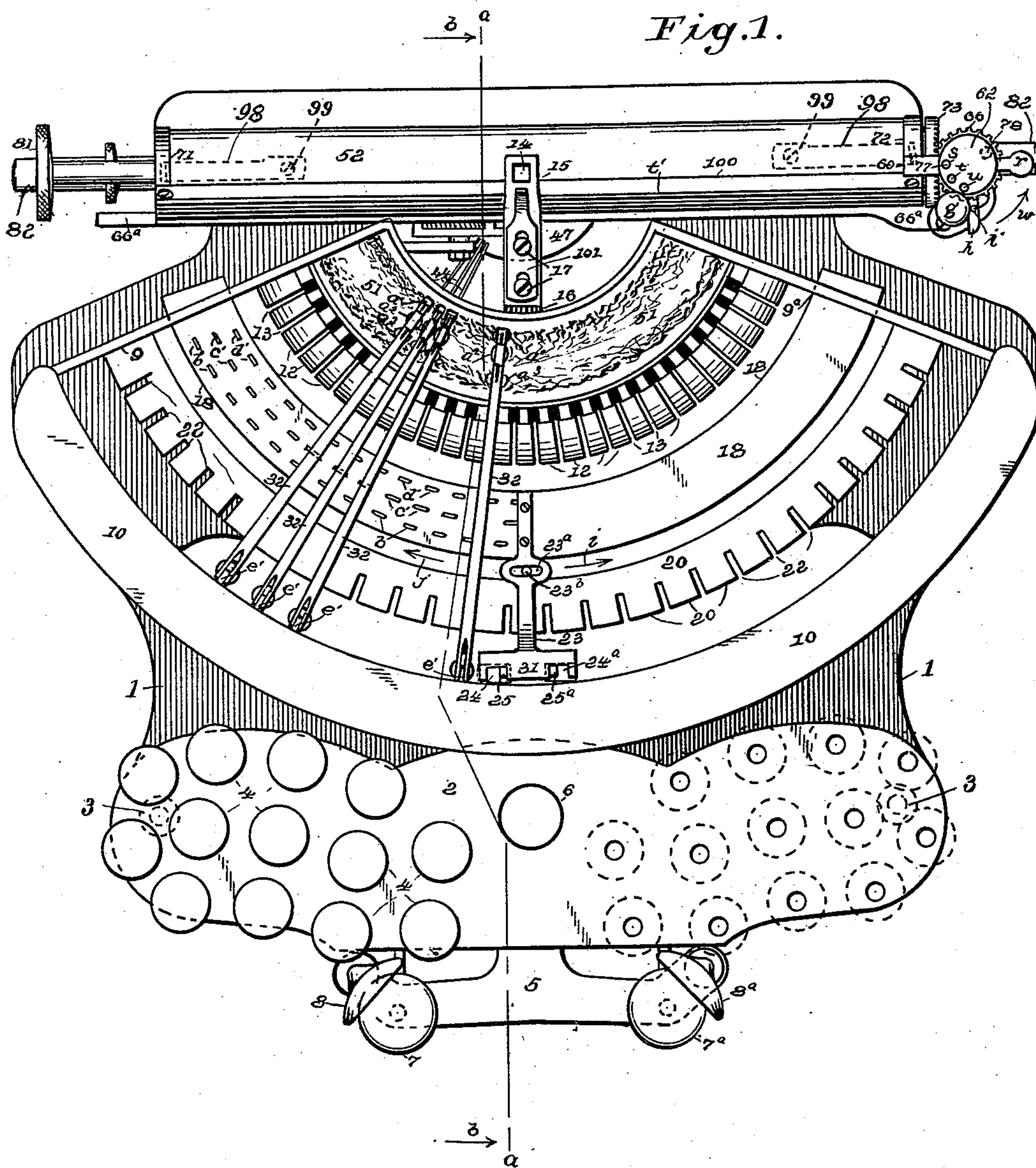


4 Sheets—Sheet 1.

E. L. DAVIDSON, Administrator.  
TYPE WRITING MACHINE.

Patented Apr. 21, 1896.



**INVENTOR**

Edwin L Davidson,  
Admr. of Alexander Davidson, deceased.  
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(No Model.)

4 Sheets—Sheet 2.

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E. L. DAVIDSON, Administrator.

TYPE WRITING MACHINE.

No. 558,484.

Patented Apr. 21, 1896.

Fig. 2.

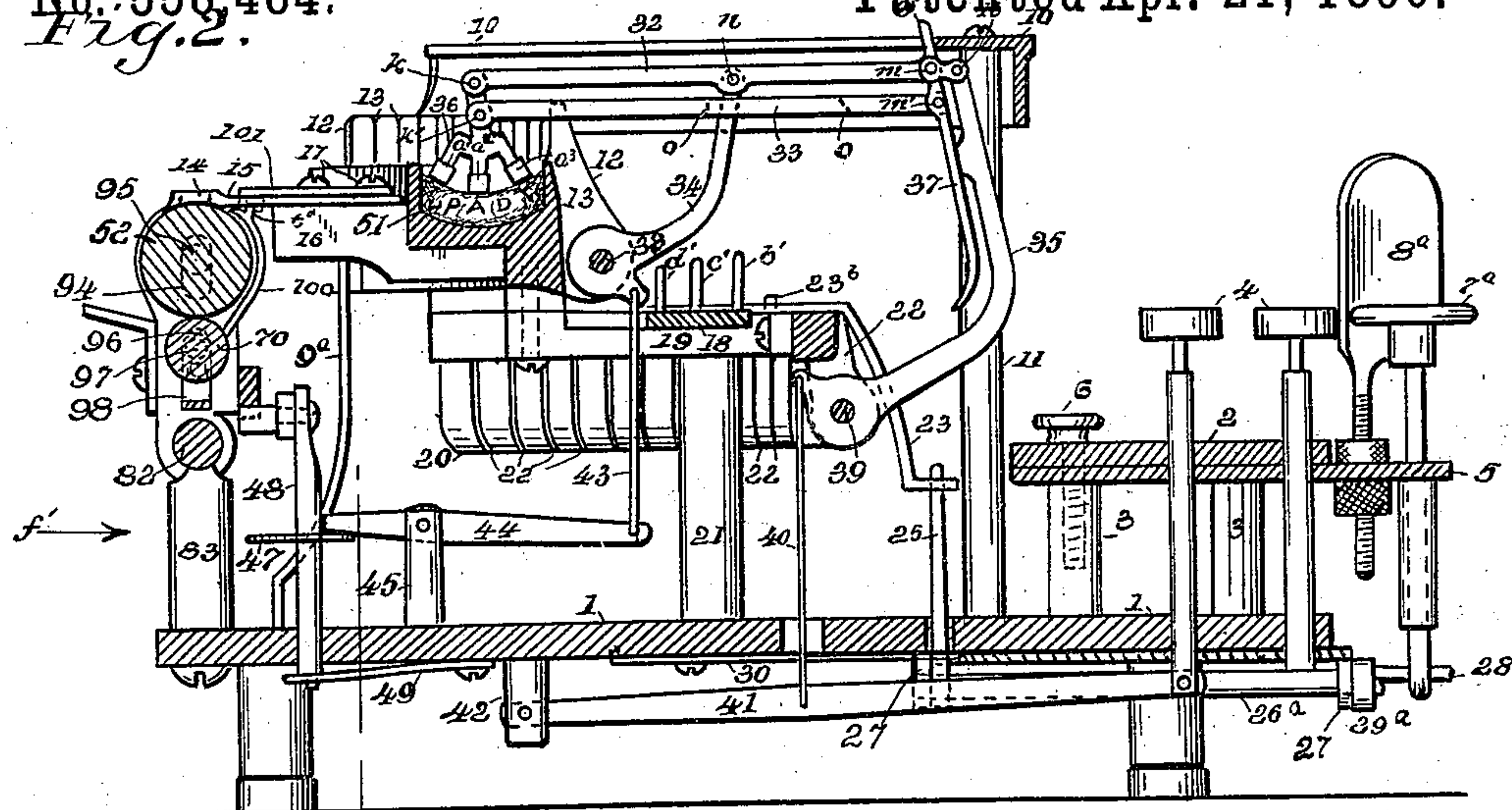
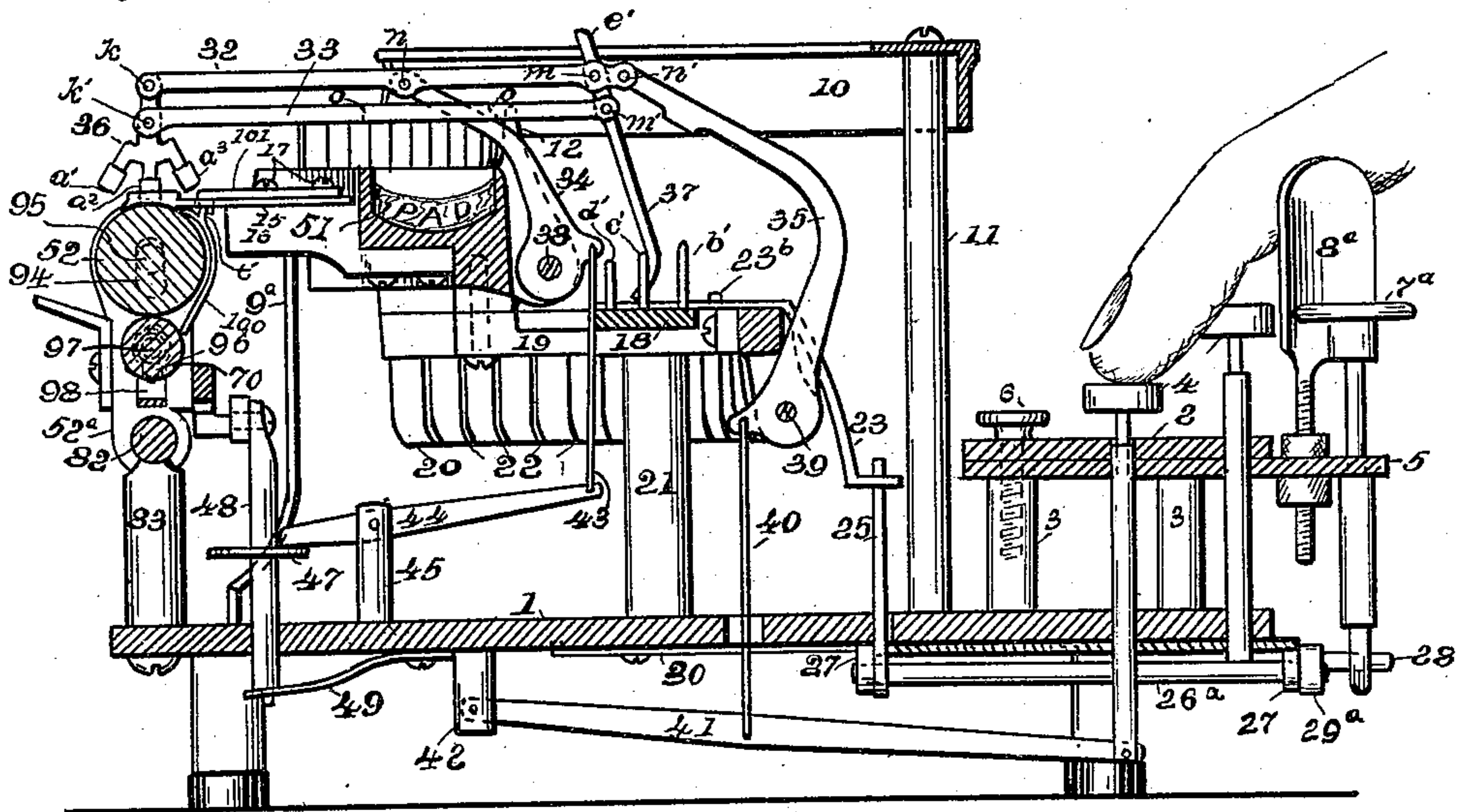


Fig. 15

Fig. 14

Fig. 3.



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Fig. 4

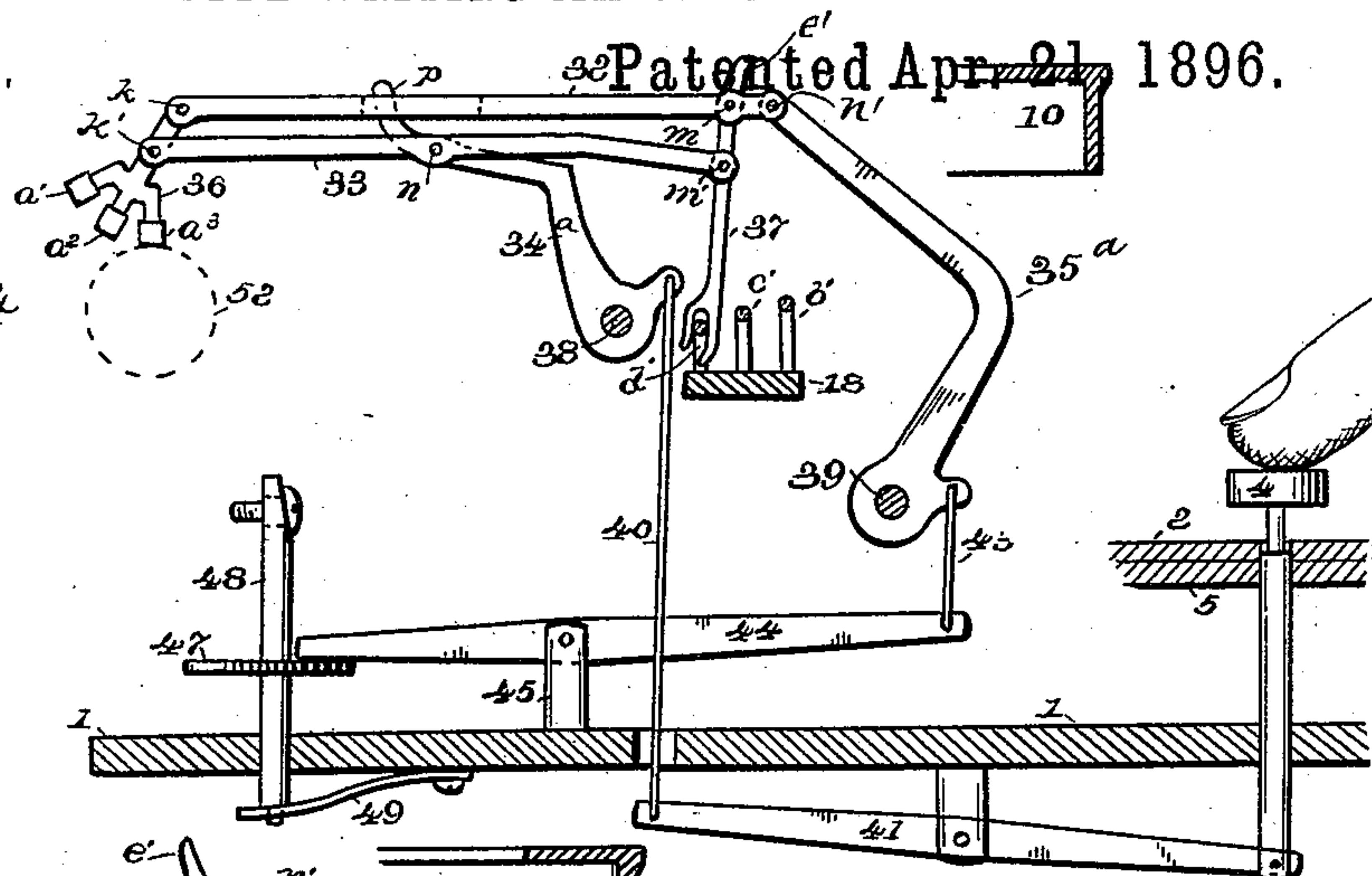


Fig. 5

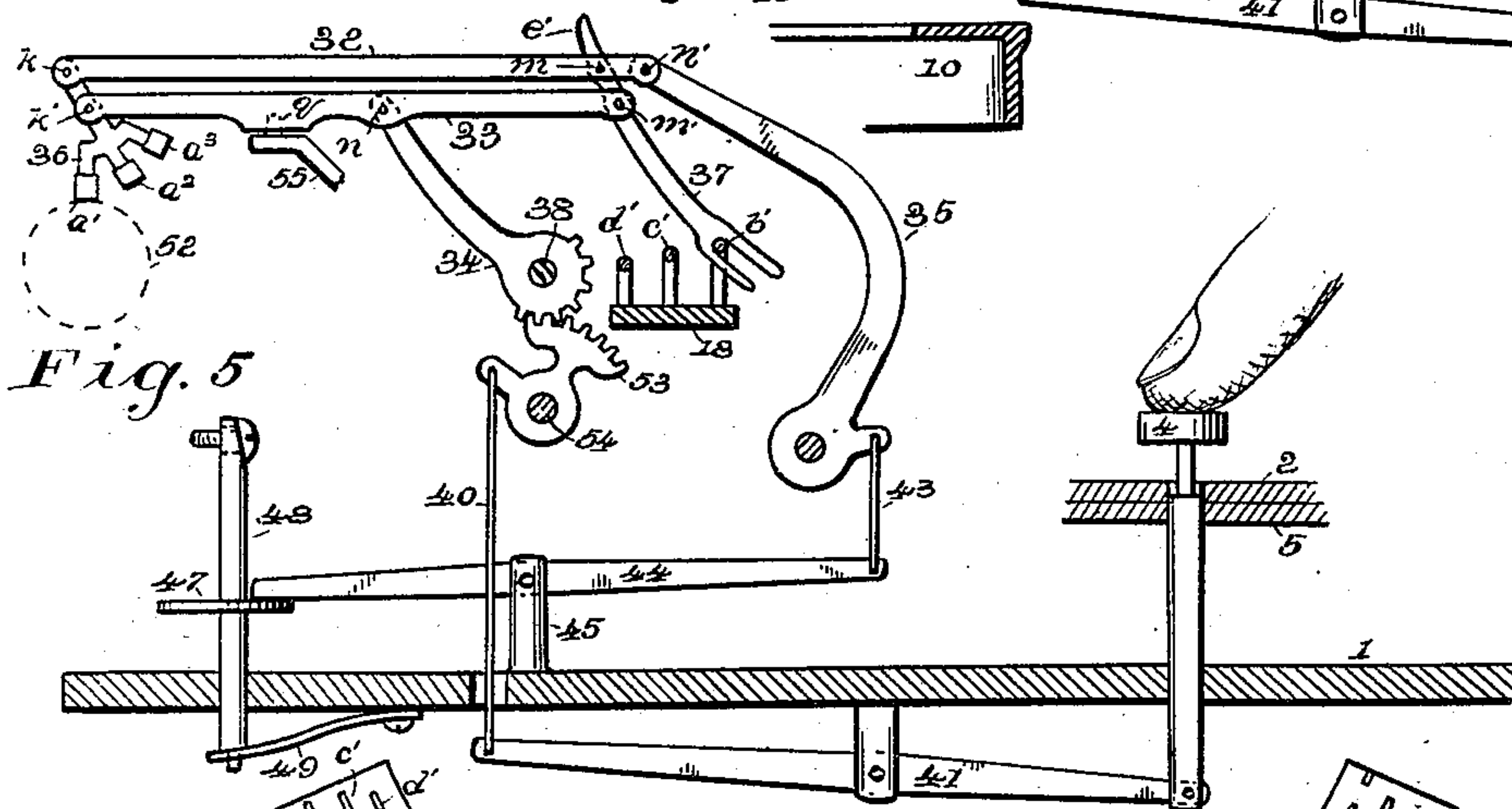


Fig. 6

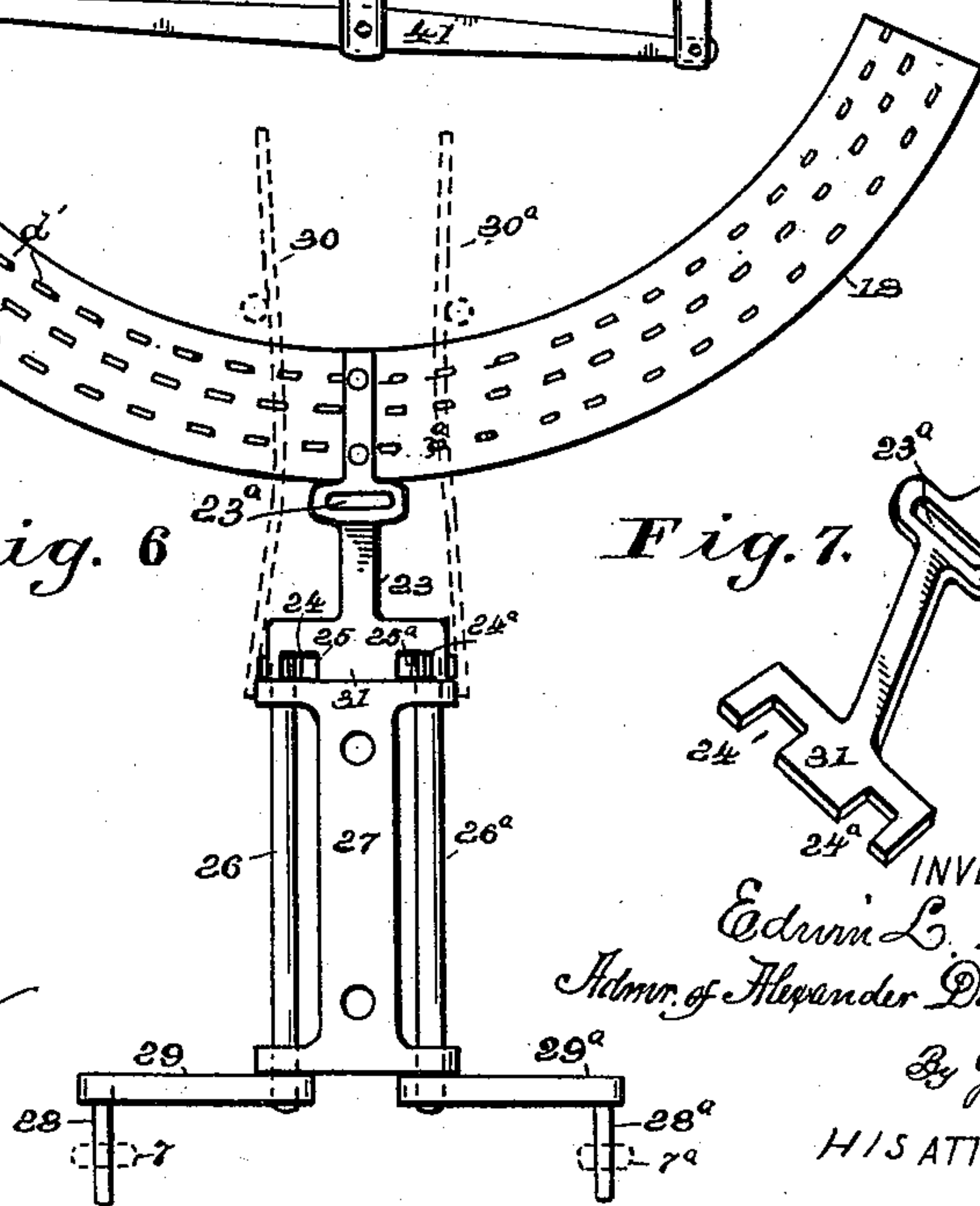
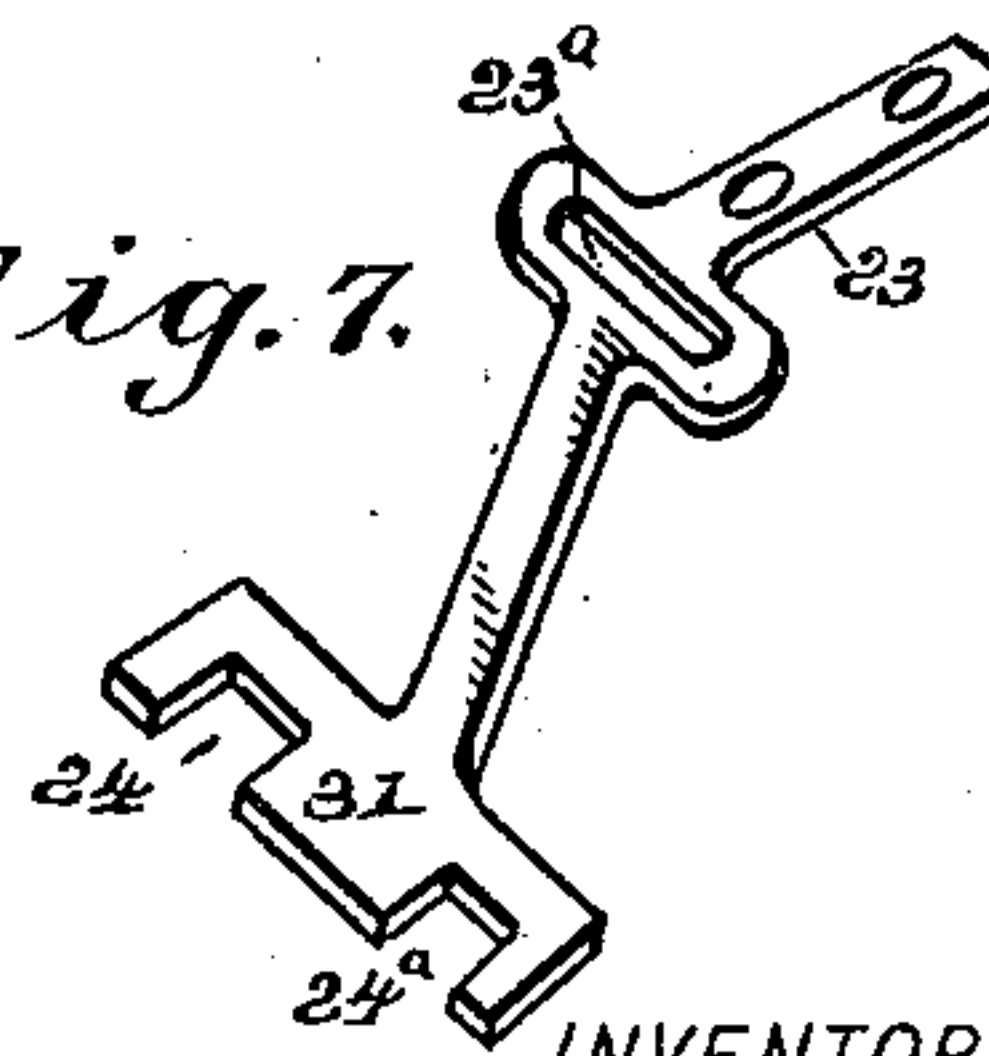


Fig. 7



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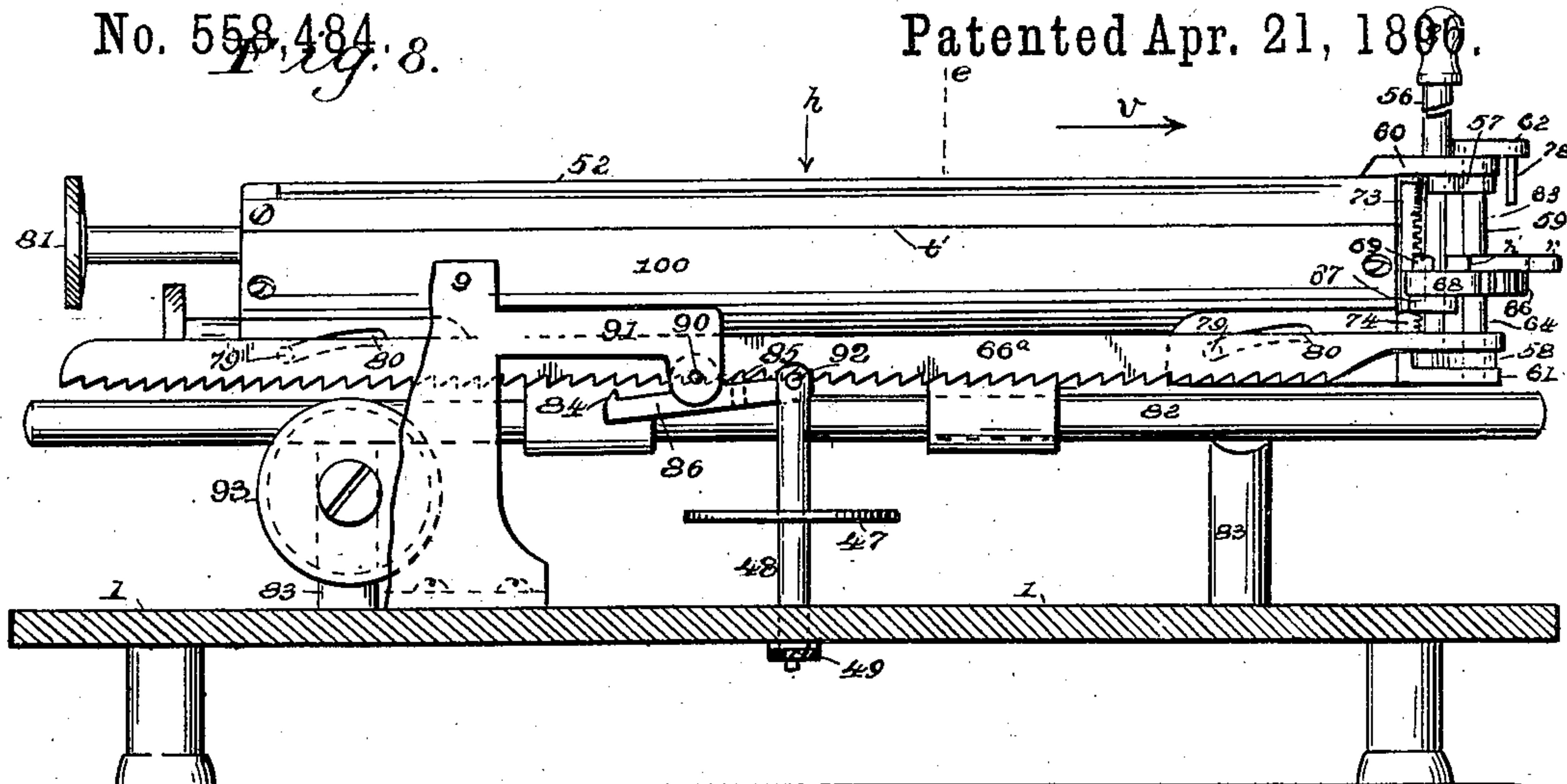


Fig. 10.

Fig. 9.

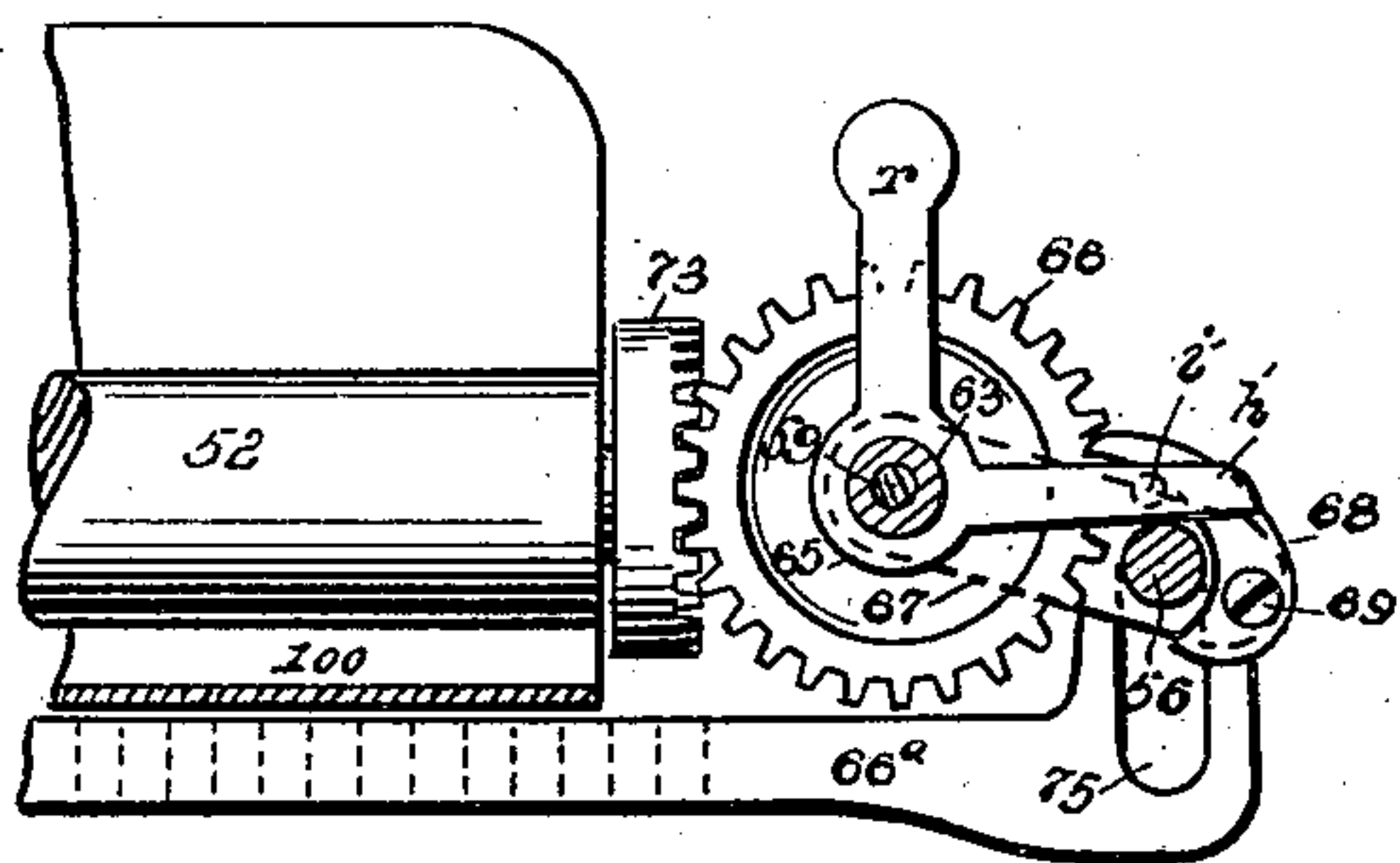


Fig. 11.

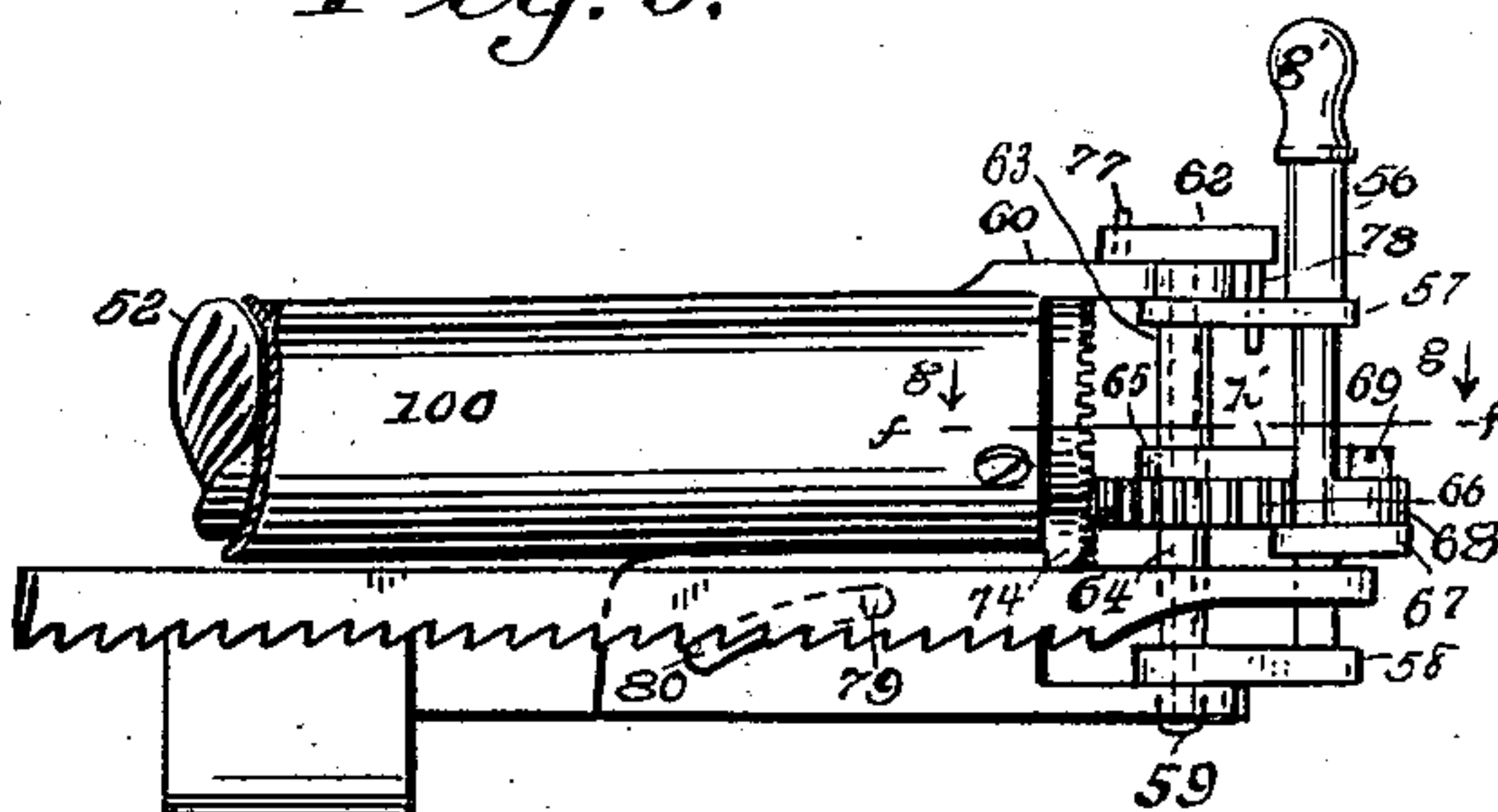


Fig. 13.

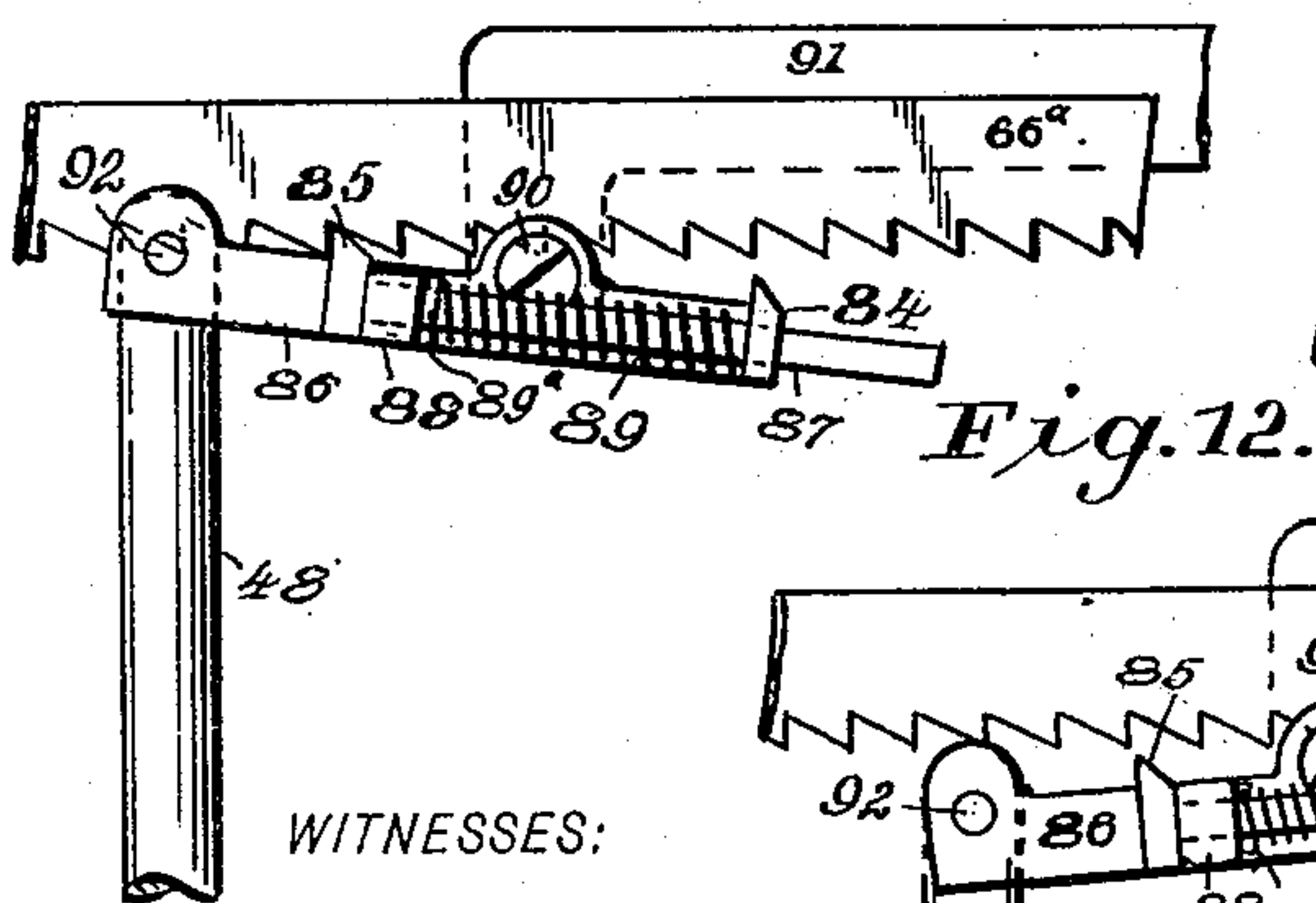
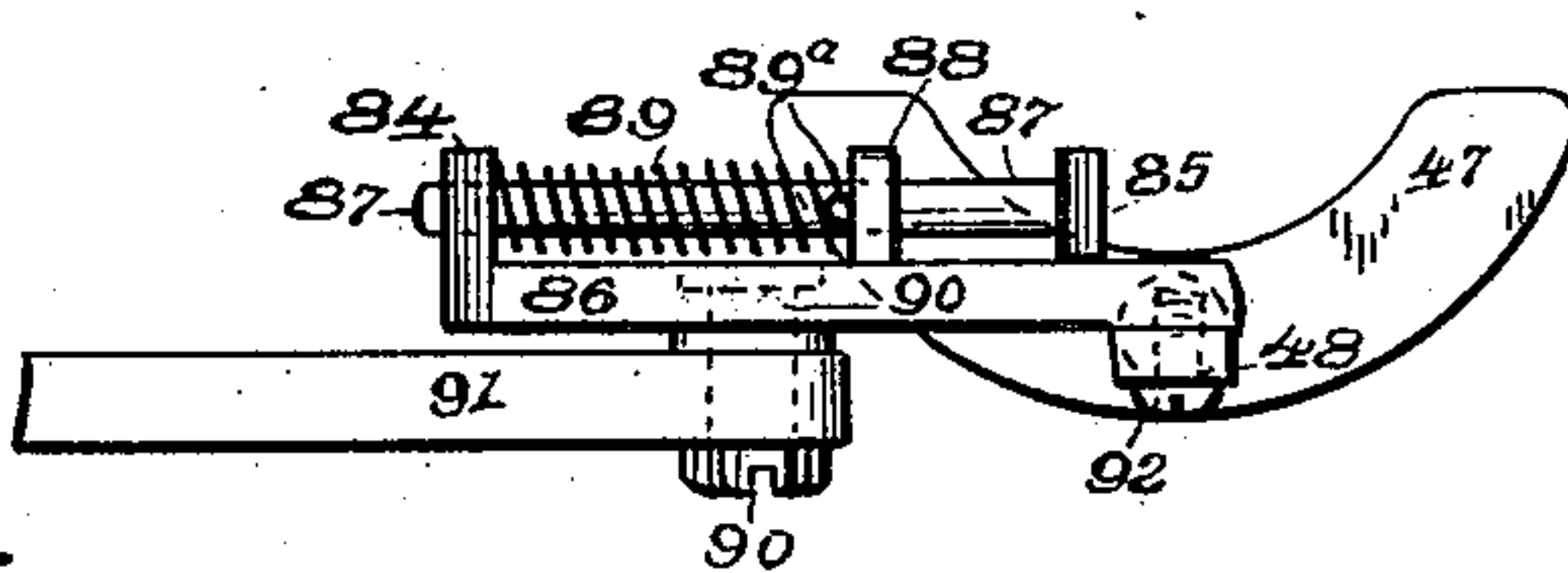


Fig. 12.



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# UNITED STATES PATENT OFFICE.

EDWIN L. DAVIDSON, OF PARKERSBURG, WEST VIRGINIA, ADMINISTRATOR  
OF ALEXANDER DAVIDSON, DECEASED.

## TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 558,484, dated April 21, 1896.

Application filed May 10, 1894. Serial No. 510,827. (No model.)

*To all whom it may concern:*

Be it known that ALEXANDER DAVIDSON, deceased, late of Bridgeport, county of Fairfield, State of Connecticut, did invent new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to an improvement in type-writing machines, and particularly to that class giving an overhead printing blow upon the platen; and it consists in the features of construction and combination of devices hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 represents an upper plan view of the machine with all of the type-bars removed except three, and the type carried by the same resting on the inking-pad. Fig. 2 is a vertical section through line *a* of Fig. 1, looking in the direction of arrow *b*. Fig. 3 is a view similar to Fig. 2, but showing a key-lever depressed and its type-movement actuated thereby, thus bringing the center type of the trio against the platen. Fig. 4 is a detail side elevation of a modified form of the type-movement, with respect to the manner of connecting the key-lever thereto, showing a key depressed and the type-movement connected therewith thrown forward, with the last type of the trio against the platen shown in dotted position; also, broken section of the base of the machine, keyboard, shift-ring, shift-pins, and turret-ring. Fig. 5 is another modified form of the type-movement, wherein the lower end of the fulcrum-lever is provided with gear-teeth engaging with a toothed segment situated below the fulcrum-ring, (not shown,) the key-lever depressed, with the type-movement in its forward position and the first type of the trio in contact with the platen; also, broken view of the base, turret-ring, shift-ring, and its pins. Fig. 6 is a detail upper plan view of the shift-ring, pins thereon, shift-lever fork attached thereto, and shift-levers adapted to engage with said fork, all in a normal position. Fig. 7 is a perspective detail view of the shift-lever fork. Fig. 8 is a side elevation of platen and the mechanism connected therewith, looking in

the direction of arrow *c*, Fig. 2, and a broken view of the base on line *d*. Fig. 9 is a broken detail view of the platen and feed-rack through line *e* of Fig. 8, showing the independent operating mechanism for said rack and platen. Fig. 10 is a broken detail upper plan view of the platen and feed-rack, section of the horizontal gear-supporting shaft, pawl-carrying and rack-operating shaft, through line *f* of Fig. 9, looking in the direction of arrow *g*. Fig. 11 is a detail broken side elevation of the feed-rack, escapement connected therewith, in closed position, broken view of escapement-support, and rod for operating the same, looking in the direction of arrow *f'*, Fig. 2. Fig. 12, a view similar to Fig. 11, shows the escapement and open position of the sliding pawl. Fig. 13 is an upper plan view of the escapement, broken view of its support, universal wheel, looking in the direction of arrow *h*, Fig. 8. Fig. 14 is a detail view of one of the springs to keep the feed-roll in frictional engagement with the platen. Fig. 15 is a detail view of the guide to prevent the tilting of the carriage.

In the several views the same part will be found designated by the same numeral or letter of reference.

In Figs. 1, 2, and 3, 1 represents the base of the machine, and 2 the keyboard elevated above said base and supported thereon by posts 3.

4 are the keys, twenty-six in number.

5 is an adjustable sliding plate secured to the under side of the keyboard by thumb-screw 6, Fig. 6. Said plate carries the shift-keys 7 7<sup>a</sup> and concave thumb-supports 8 8<sup>a</sup>, by which the thumbs of the operator are anchored with respect to the position of the keyboard slide, shift-keys, and thumb-supports will require no further description here, as they are fully illustrated and described in the former applications, Serial No. 403,554, filed August 4, 1891, and Serial No. 403,162, filed August 20, 1891.

The arrangement of all the parts of the type-movement is within the sector of a circle bounded by the sides 9 9<sup>a</sup>, representing the radii thereof and the intercepted arc or turret-ring 10. The ends of the latter are sup-



ported on such sides, while its central portion is supported on stud 11, projecting from the base 1.

12 is a semicircular inner fulcrum-ring, having the slots 13 therein, which slots radiate from the common printing-point represented by the hole 14 of the guide-piece 15, attached to the support 16 of the frame by the screws 17, as shown.

18 is a semicircular shift-ring, whose free ends are operatively supported in the sides 9 9<sup>a</sup>, and its center portion on the bracket 19, which bracket is also supported to the inner fulcrum-ring 12, outer fulcrum-ring 20, and standard 21. This outer fulcrum-ring is also provided with the radial slots 22, similar to the before-mentioned slots of the inner fulcrum-ring 12. The shift-ring is operated a short distance to the right and left of the center of the machine, as indicated by arrows *i* and *j*, in the following manner and for the purpose hereinafter to be more fully described. To the central part of said ring is secured the shift-lever fork 23; (see Figs. 1, 2, 3, 6, and 7,) whose movement is limited by the elongated slot 23<sup>a</sup> and the pin 23<sup>b</sup>, projecting from the outer fulcrum-ring 20. The free end of this fork is also provided with notches 24 24<sup>a</sup>, which embrace the free end of the vertical shift-rods 25 25<sup>a</sup>, whose lower ends are rigidly attached one to each of the horizontal shift-levers or rock-shafts 26 26<sup>a</sup>, while these levers are rotatively supported in the brackets 27, attached to the under side of the base 1. The stems of the shift-keys 7 7<sup>a</sup> are journaled to the pins 28 28<sup>a</sup> of the arms 29 29<sup>a</sup> of the said shift-levers. Springs 30 30<sup>a</sup>, Fig. 6, keep the free ends of the vertical shift-rods 25 25<sup>a</sup> normally against the tongue 31 of the shift-lever fork 23. These features, embracing the shift-levers or rocker-shafts, shift-lever fork, vertical shift-rods, and springs therefor, are in many respects similar to devices shown and described in the before-mentioned former applications.

#### *Type-Movement Construction.*

Referring to Figs. 2, 3, 4, and 5, the parallel type-bars 32 33, fulcrum-links 34 35, type-carrier 36, and trip-lever 37 comprise the four elements necessary for a parallel motion. Lever 34 is located in one of the slots 13 of the inner fulcrum-ring 12 (see also Fig. 1) and is operatively mounted on the wire 38 therein, while the lever 35 is similarly placed on wire 39 in the slots 22 of the outer fulcrum-ring 20. The type-carrier 36 is pivoted at *k* *k'* to the parallel bars 32 and 33. The free end thereof carries the type *a' a<sup>2</sup> a<sup>3</sup>*, each representing a different character. The trip-lever 37 is also pivoted in like manner at *m m'* to said bars. Levers or fulcrum-links 34 and 35 are in Figs. 2 and 3 pivoted to the bar 32 at *n* and *n'*. In order that all the parts of the parallel movement shall lie in the same plane, the bars 32 and 33 are formed of sheet-metal and longitudinally folded over, so as to

embrace the other elements of said movement. The link 34 passes through an opening in the lower bar 33, the end walls of which are shown by the dotted lines *o*, Figs. 2 and 3.

The connecting-rod 40 in Figs. 2 and 3 unites the fulcrum-lever or link 35 with the key-lever 41, pivoted to the post 42 below the base, while the connecting-rod 43 unites the fulcrum-lever or link 34 with its lever 44, pivoted to the post 45 above said base. It will be readily understood that the key-lever 41 and the other lever 44 are each one of a series of similar levers equaling in point of numbers the twenty-six type-movements. The short end of lever 44 is supported on the horizontally-arranged shift-wheel 47, rigidly attached to the vertically-operating rod 48, whose lower end extends through the base 1 and rests on its actuating-spring 49. The upper end of said rod is pivotally secured to the escapement-frame, presently to be described. The face of the type *a' a<sup>2</sup> a<sup>3</sup>* being arranged on an arc of a circle whose center of motion is the pin *k'*, it is necessary that the inking-pad 51 should also be made circular in cross-section, so that all the type shall be in contact therewith, as shown in Fig. 2. This pad is arranged in a semicircle about the impression-point of the type and equidistant therefrom, as shown at Fig. 1. Trip-pins *b' c' d'* project upward from the shift-ring 18, which pins are diagonally arranged thereon for the purpose presently to be described.

#### *Operation of the Type-Movement.*

Depressing the key connected with any one of the twenty-six movements will, through the instrumentality of the connecting-rods before mentioned, rotate the fulcrum-levers 34 and 35 on their supports and carry the bars 32 and 33 forward to the platen 52. While *en route* and just before reaching that point the free curved end of the trip-lever 37 will engage with the central trip-pin *c'*, which action, although not interfering with this forward movement, will nevertheless operate to rotate the type-carrier on its axis-pin *k'* sufficient to bring the central type *a<sup>2</sup>* directly over the hole 14 in the guide 15, causing it to descend vertically therein and make its impression at the printing-point, as shown in Fig. 3. Releasing the key, the movement will be carried, by means of the spring 49, back to the normal position shown at Fig. 2. Just previous, however, to its reaching this point the projecting end *e'* of the trip-lever 37 will engage with the inner surface of the turret-ring 10 and cause the type-carrier to assume a position conformable to the circular shape of the inking-pad 51, so that each one of the type will receive its due share of ink.

Depressing the shift-key 7, Fig. 1, will carry the shift-ring 18 far enough to the left, in the direction of arrow *j*, so as to bring the inner trip-pin *d'* in the path of the advancing trip-lever 37. As this pin is nearer the platen than the central pin *c'*, which was instrumen-



tal in bringing the center type into position, the carrier will travel that much farther before it is rotated to give the impression, as shown at Fig. 4.

5 Depressing shift-key 7<sup>a</sup> will carry the shift-ring 18 to the right, in the direction of arrow *i*, bringing the outer trip-pin *b'* in the path of the advancing trip-lever, which operation will bring the type *a'* to the printing-point, 10 as shown in Fig. 5. Releasing either of the shift-keys 7 7<sup>a</sup>, the normal or central position will be reestablished by the vertical shift-rods 25 25<sup>a</sup>, under the influence of their springs 30 30<sup>a</sup>, Fig. 6.

15 As the gist of the invention relating to the type-movement resides, essentially, in those features consisting of the type-bars, fulcrum-links, type-carrier and trip-lever, which when linked together form substantially a parallel 20 movement, the details of construction which operate these parts are of minor importance and they may vary accordingly. Therefore, in Figs. 2 and 3, it will be observed that the fulcrum-lever 35 operates as the driver, while 25 the lever 34, through the instrumentality of the universal wheel 47 and its controlling-spring 49, returns the type to their normal position on the inking-pad; also, in this case, the trip-lever 37 has a curved form in its free 30 end.

In Fig. 4 the lever 34<sup>a</sup>, being connected directly to the key-lever, operates as the driver, while the lever 35<sup>a</sup> will return the type-movement to its normal position. The lever 34<sup>a</sup> 35 is in this view pivoted to the lower parallel bar 33 at *n*, while its upper end *p* projects through an opening in the upper bar 32, which latter arrangement is provided to preserve the vertical alinement of said bars. The lower 40 end of the trip-lever 37 is also forked, which feature will no doubt assist very materially, under a rapid impulse of the type-movement, to preserve the engagement of said lever with its trip-pin.

45 In Fig. 5 other modifications are shown. The toothed segment 53 is interposed between the fulcrum-lever 34<sup>b</sup> and the key-lever 41 and is rotatively mounted on the wire 54. In this case teeth will be provided in the lower end 50 of the fulcrum-lever registering with said toothed segment.

55 55 is a broken view of an arm projecting from the machine, which supports the pin *q*, with which the lower bar 33 engages to still further preserve the alinement of the type with the central guide-aperture 14.

It will be observed that the fulcrum-ring 12 and also the slots 13 therein extend upward far enough so that said slots will embrace not 60 only the larger portion of the fulcrum-lever 34 when projected forward, but a portion also of the lower bar 33, which operation will assist in preserving the alinement of the whole type-movement with respect to the guide- 65 opening 14.

The trip-pins *b' c' d'*, as previously observed, are diagonally arranged on the upper surface

of the shift-ring 18, Fig. 1, which feature enables the inner circle of pins *c' d'* to engage the trip-lever with but a slight horizontal 70 movement of the said shift-ring. The said trip-pins, Figs. 2, 3, 4, and 5, also gradually decrease in height, as shown, proportionate to the circular movement of the fulcrum-levers 34 and 35. 75

### Carriage Mechanism.

The line-space mechanism is shown in a normal position in Figs. 1 and 8, and consists of the upright 56, whose upper end is furnished 80 with the handle portion *g'*. Rigidly attached to said upright are the arms 57 and 58, the other ends of which arms are operatively mounted on the rod 59, shown in dotted position, (see also Fig. 9,) which rod is journaled in the arms 85 60 61, projecting from the head of the platen. The upper end of this rod carries the head 62, which determines the number of line-spaces to be made, regarding which a more detailed description will hereinafter be given. Op- 90 eratively mounted on rod 59 are the upper and lower sleeves 63 and 64, the former of which carries the bell-crank lever 65, and the lower the horizontal gear 66. On the arm 67, also rigidly mounted to the upright 56, is the 95 pawl 68, pivotally supported to the screw 69. The arm *h'* of the bell-crank lever 65 (see also Fig. 10) carries the downward-projecting pin *i'* to engage the pawl 68 and throw it out of engagement with the gear 66. The other arm 100 *r* of this bell-crank lever is used as a handle by which the operation just described is independently performed.

The platen 52 and the paper-feed roll 70 (see also Figs. 2 and 3) have each journals 95 105 and 97, for which bearings are provided in the heads 71 72, Fig. 1, of the carriage 52. Rigidly mounted on each projecting journal of said platen and roll are the face-gears 73 and 74, Fig. 9, which gears register with the 110 wide horizontal gear 66.

The elongated slot 75, Fig. 10, of the rack 66<sup>a</sup> embraces the upright 56, and said rack is operated by such engagement in a manner 115 presently to be described.

Projecting from the arm 60, Fig. 9, is the pin 77, which pin is arranged to register with any one of the three holes *s t u*, Fig. 1, of the head 62, which holes represent each a line-space. Projecting downward from the un- 120 der side of this head is the stop-pin 78, Figs. 8 and 9, for limiting the throw of the upright 56.

When required to move the carriage in the direction of arrow *v*, Fig. 8, for the commencement of a new line, the operator will grasp 125 the handle *g'* and rotate the upright 56 and the pawl 68 in the direction of arrow *w*, Fig. 1. This operation will, through the medium of the pawl 68, rotate the horizontal gear 66, which by its engagement with the gears 73 130 and 74 of the platen and feed-roll before mentioned will also rotate the platen a distance represented by the position of the stop-pin 78 with respect to any one of the holes *s t u* in



the head 62 and their pin 77, which in Fig. 1 is shown as being in the third hole *s*, representing thereby a three-line space. This operation just described will also elevate the rack 66<sup>a</sup> by reason of the engagement of its pins 79 with the angularly-arranged slots 80 of the carriage, so as to clear said rack from the escapement-dog and thus permit the carriage to be returned. When necessary to move the carriage back without making a line-space, the pawl 68 is raised just a trifle in advance of the rotary movement of the upright 56, which latter operation will elevate the rack without rotating the platen. The platen is independently rotated for the insertion of the paper by means of the head 81.

The escapement mechanism, Figs. 8, 11, and 13, connected with the rack 66<sup>a</sup>, consists of the dogs 84 and 85, the former being integral with the bar 86, while the latter is integral with the rod 87, operatively mounted in the lug 88 of said bar and the dog 84, between which lug and dog is placed the controlling-spring 89 to throw the dog 85 forward to the position shown in Fig. 13. The bar 86, Fig. 11, is pivotally mounted on the screw 90, attached to the arm 91 of the side piece 9, Fig. 8. The other end of said bar is pivoted to the screw 92 of the universal-wheel rod 48. The carriage-feed spring in the case 93 is connected with the carriage by a piece of wire or catgut (not shown) in the usual manner of such devices. When, therefore, the universal wheel 47 is depressed by the operation of the key movement previously mentioned, the dog 84 will be engaged with the teeth of the rack, Fig. 12, and hold it against further advancement.

The coiled spring 89, acting against the pin 89<sup>a</sup> in the rod 87, will carry said rod with its dog 85 forward, as shown in Fig. 13. Releasing the universal wheel, the dog 85 will be carried up thereby into engagement with the teeth of the rack, which engagement is brought about just before the dog 84 is disengaged therefrom. Under the impulse of the carriage-feed spring before mentioned the forward movement of the rack will close the dog 85 against the lug 88, Fig. 11, thus representing an advance movement of said rack one tooth or word-space. This feature of the longitudinal moving dog will effectually prevent an accidental forward movement of the rack beyond one tooth, as one of the dogs will always be engaged with the teeth of the rack.

The platen 52 and paper-feed roll 70 are made vertically adjustable in the carriage-heads 71 and 72, Figs. 1, 2, and 3, by means of the elongated hole 94 for one of the end journals 95 of the platen and elongated hole 96 for one of the end journals 97 of the feed-roll. The springs 98, (see also Fig. 14,) attached to the carriage by screws 99, have a right-angle bend near their free ends, the hole *s'* in such bent portion to embrace the journals of the paper-feed roll, so that such feed-roll will always remain in frictional en-

gagement with the platen and the latter in frictional contact with the upper portion of the paper-shield 100. This vertical adjustment enables several sheets of paper to be introduced, while the spring-tension against the shield insures a positive feeding of such sheets.

To prevent tilting of the carriage on its round supporting-rod 82, Fig. 8, the paper-shield 100, Figs. 2 and 3, is provided with the upturned ledge or bead *t'*, with which the groove *u'* of the guide 101, Fig. 15, operatively engages. This guide overlies the type-guide, Fig. 1, and is secured thereto by screws 17.

Having thus described the invention, what therefore is claimed as new, and desired to be secured by Letters Patent, is—

1. The combination, in the type-movement of a type-writing machine, of the double type-bars arranged substantially parallel with each other and in the same plane, and means for operating them, a type-carrier pivotally linked to the free ends of said bars, said carrier having a series of type at its free end and arranged circumferentially about its pivotal support, a trip-lever pivotally linked to said bars, means whereby said trip-lever is engaged during the forward movement of said bars, and by such engagement cause the type-carrier to turn on its pivotal support, so as to bring any one of the series of type to the printing-point.

2. The combination, in a type-movement of a type-writing machine, of the double parallel type-bars arranged in a vertical plane; a type-carrier pivotally linked to the free ends of said bars and carrying at its free end a series of type, whose printing-faces are placed circumferentially about the pivotal support; fulcrum-levers pivotally connected with said bars; a trip-lever also pivotally linked to said bars; a shift-ring carrying trip-pins with which the free end of said trip-lever engages and causes the said type-bars to be operated in opposite directions so as to turn the type-carrier on its pivotal support and thus bring any one of the type to the printing-point, and reversely to bring all of the type onto the ink-ing-pad by means of the fulcrum-levers, and means whereby said fulcrum-levers are operated, substantially as shown.

3. The combination, in a type-movement of a type-writing machine, of the double parallel type-bars, type-carrier and trip-lever operatively linked thereto, and arranged substantially as described and for the purpose set forth, fulcrum-levers pivotally connected with said bars, one near the ends thereof, the other intermediate, pivotal supports for said fulcrum-levers, means for connecting the said type-movement with the key-actuating mechanism, and means for operating the trip-lever, as set forth.

4. In a type-writing machine, the combination with the type-movement, consisting of the double parallel type-bars, type-carrier and trip-lever operatively linked thereto, ful-



crum-levers arranged as shown, of a shift-ring having trip-pins or stops thereon to engage the trip-lever of the type-movement and thereby rotate the type-carrier.

5 5. In a type-writing machine, the combination with the type-movement consisting of the double parallel type-bars, type-carrier and trip-lever operatively linked thereto, fulcrum-levers pivotally engaging said type-bars  
10 in the manner substantially as shown, a pivotal support for such levers, means whereby they are brought into engagement with the key-actuating mechanism, of a shift-ring carrying stops or trip-pins to engage the trip-lever of the type-movement and thereby turn  
15 the type-carrier upon its pivotal support so as to bring any one of the series of type thereon to the printing-point, means for operating such shift-ring.

20 6. The combination, in a type-writing machine, of a platen, a series of pivotally-supported type-carriers, each of which carries a series of type arranged in a semicircle about such platen, parallel double type-bars, trip-levers pivotally connected thereto, fulcrum-levers, also pivotally connected with said  
25 bars, pivotal supports for said fulcrum-levers, guide-slots in said supports therefor, a semicircular shift-ring carrying a series of stops or trip-pins to engage the trip-levers of the type-movement and thus cause the type-carriers to be rotated on their pivotal support so  
30 as to bring any one of the series of type that they carry to the printing-point, an inking-pad, a support therefor, said pad circularly arranged with respect to the semicircular arrangement of the type-carriers, and so shaped in cross-section as to meet the printing-faces  
35 of the series of type on each carrier, means substantially as shown for operating the shift-ring and type-carriers.

7. In a type-writing machine, the combination with the carriage and platen, of mechanism for line-spacing, consisting of a gear on  
45 the projecting end of the platen-rod, a horizontally-arranged gear with which such platen-gear registers, a sleeved support for such horizontal gear, a central supporting-pin upon which the gear-sleeve operates, an index-head provided on such pin, combined  
50 with means on the carriage for determining the line-spaces, an upright having a handle portion, said upright having radial arms journaled to the central supporting or index pin, said upright carrying a pawl to engage with  
55 the horizontal gear, a stop on the index-head to limit the throw of the said upright, so that by means of the radial movement or throw of the upright the platen is rotated a distance equal to the position occupied by the index-head and stop of the same.

8. In a type-writing machine, the combina-

tion with the carriage, of mechanism for rotating the platen for line-spacing and also for releasing the carriage and returning the same, 65 consisting of the platen-gear, a sleeved horizontal gear registering therewith, central supporting-pin for said sleeved gear, said pin having an index-head, as shown, movable upright whose radial arms are journaled on 70 the index-pin, said upright carrying a pawl to engage the sleeved gear, feed-rack operatively engaged with said upright, so that when said upright is rotated to revolve the sleeved gear and thereby turn the platen it will also 75 elevate the feed-rack from its engagement with the escapement, as set forth.

9. In a type-writing machine, in combination with the carriage, of mechanism for rotating the platen for line-spacing and also for 80 releasing said carriage so that it may be returned, which mechanism consists of the platen-gear 73, sleeved gear 66 registering therewith, index-head 62 in combination also with means on the carriage for determining 85 the line-spaces, said index-head having the pin or body portion 59 for supporting the sleeved gear and means on the carriage for supporting said pin, upright 56 whose arms 57 and 58 are rigidly attached thereto and 90 operatively supported on said index-pin, pawl 68 carried by such upright, stop-pin 78 to limit the throw of said upright, rack 66<sup>a</sup> having elongated slot 75 with which said upright engages whereby said rack is longitudinally 95 moved by said upright, pins 79 on said rack and slots 80 on the carriage whereby the rack is elevated to clear the escapement verges, all arranged and combined as set forth.

10. In a type-writing machine, in combina- 100 tion with the carriage and platen rotating mechanism, whereby said carriage is released, so as to be returned with rotating the platen, consisting of the sleeved bell-crank lever 65 operatively mounted on the index-pin 59; 105 means, substantially as shown, on one arm of said lever to engage with and lift the pawl 68 out of engagement with horizontal gear 66 so as to prevent a rotary movement of said gear when upright 56 is rotated, said upright engaging rack 66<sup>a</sup> having angular slots 80 so 110 that, said rack may be vertically thrown out of engagement with the escapement dogs, as set forth.

Signed at Parkersburg, in the county of 115 Wood and State of West Virginia, this 27th day of March, A. D. 1894.

EDWIN L. DAVIDSON,  
*Administrator of the estate of Alexander Davidson.*

Witnesses:

W. W. DALE,

W. H. TERRY.