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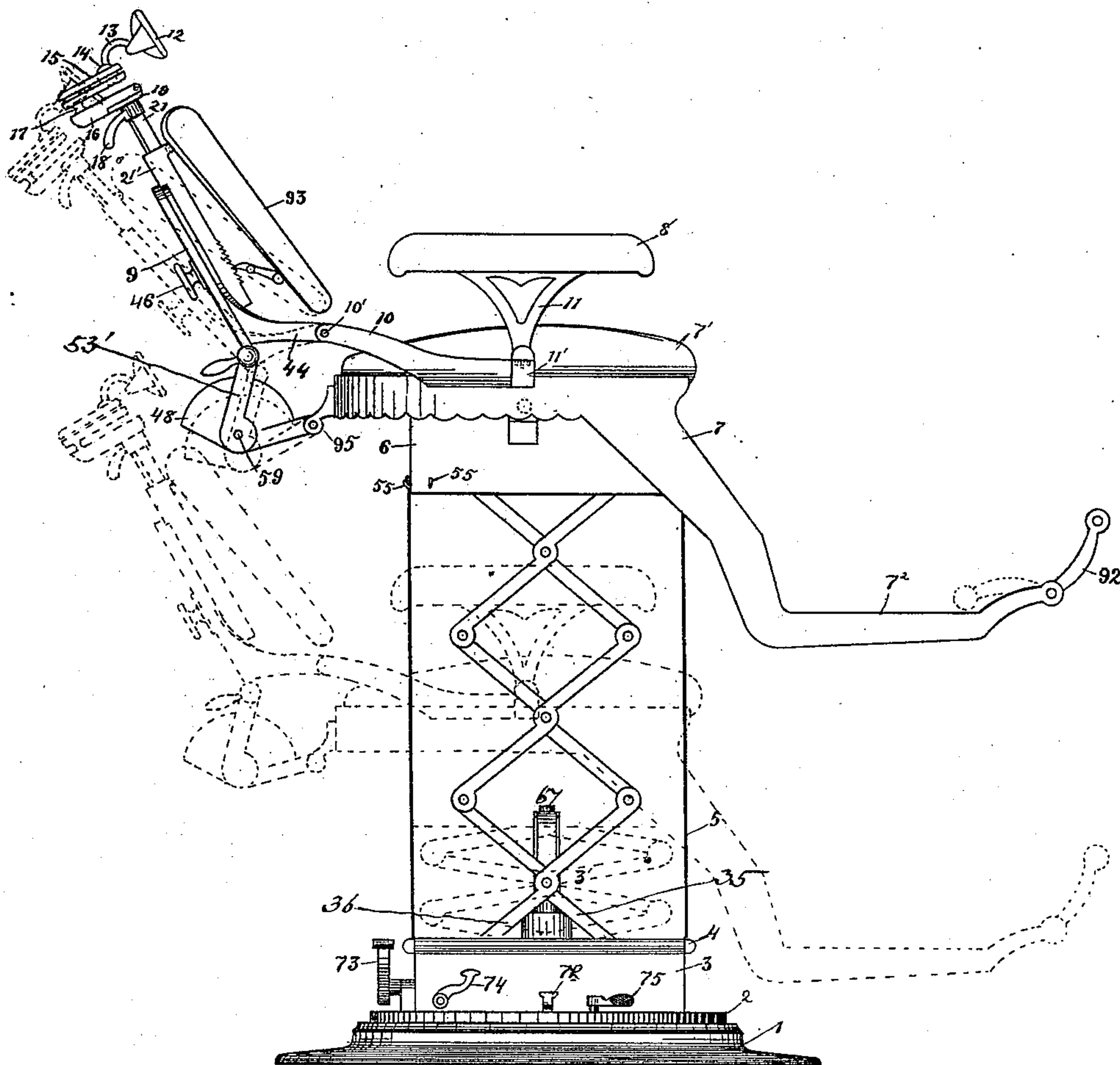
4 Sheets—Sheet 1.

J. BAXTER.
DENTAL CHAIR.

No. 575,684.

Patented Jan. 26, 1897.

Fig. 1.



WITNESSES:

Walt. G. Burns.
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his ATTORNEYS.

(No Model.)

4 Sheets—Sheet 2.

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Fig. 2.

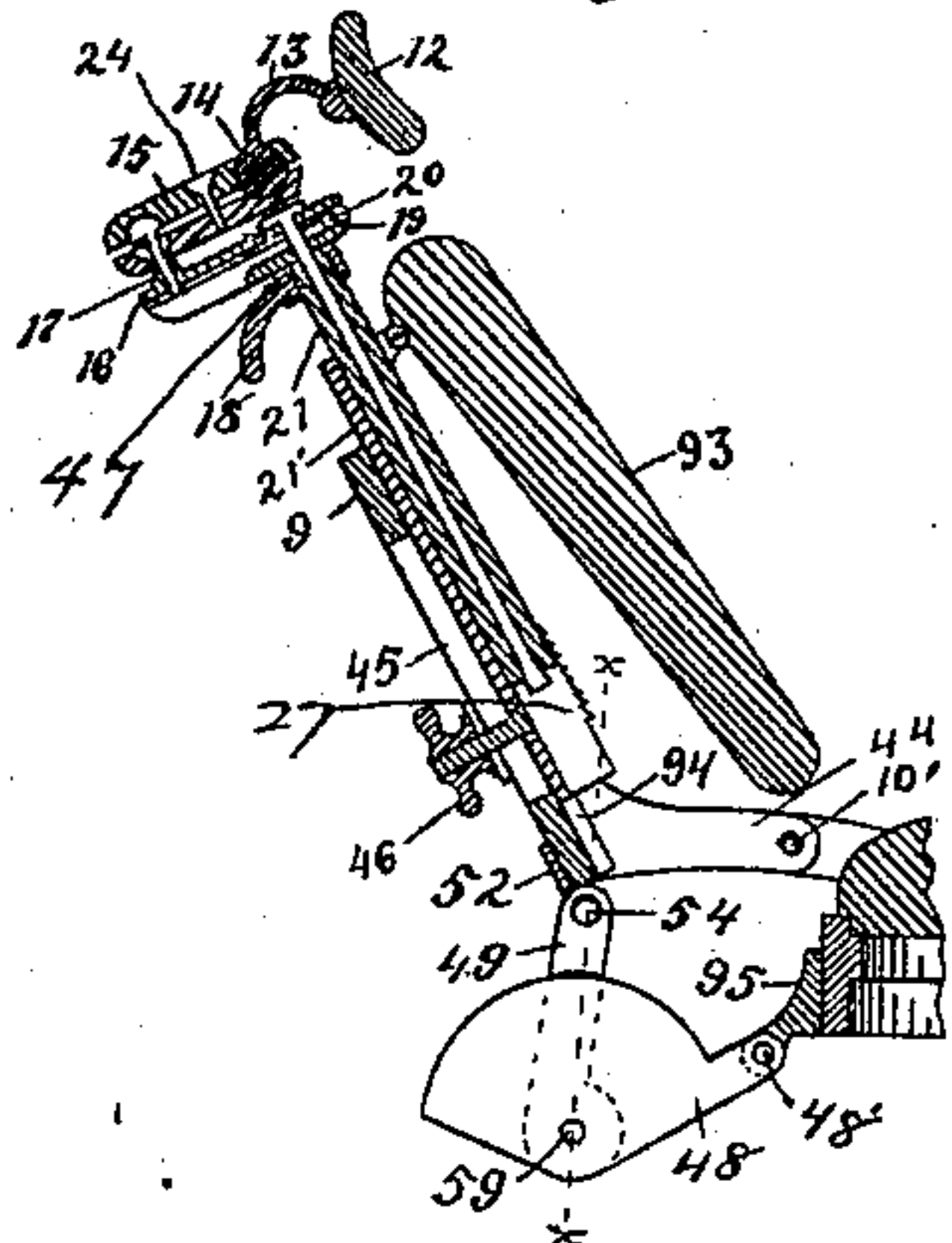


Fig. 3.

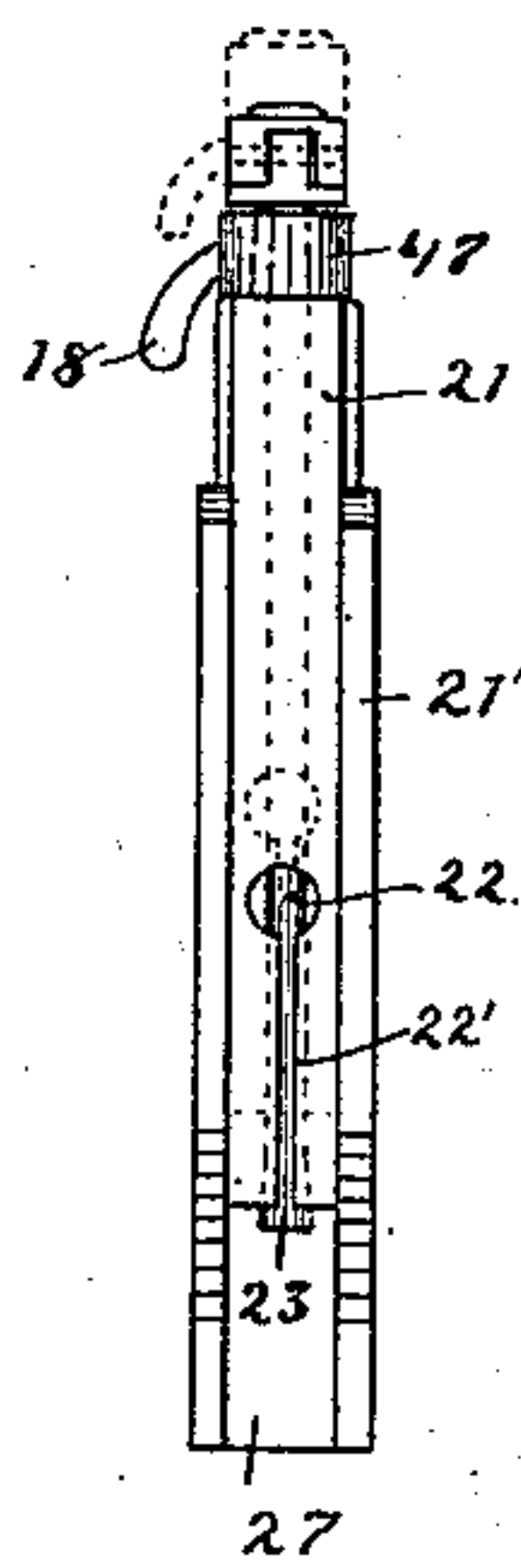


Fig. 4.

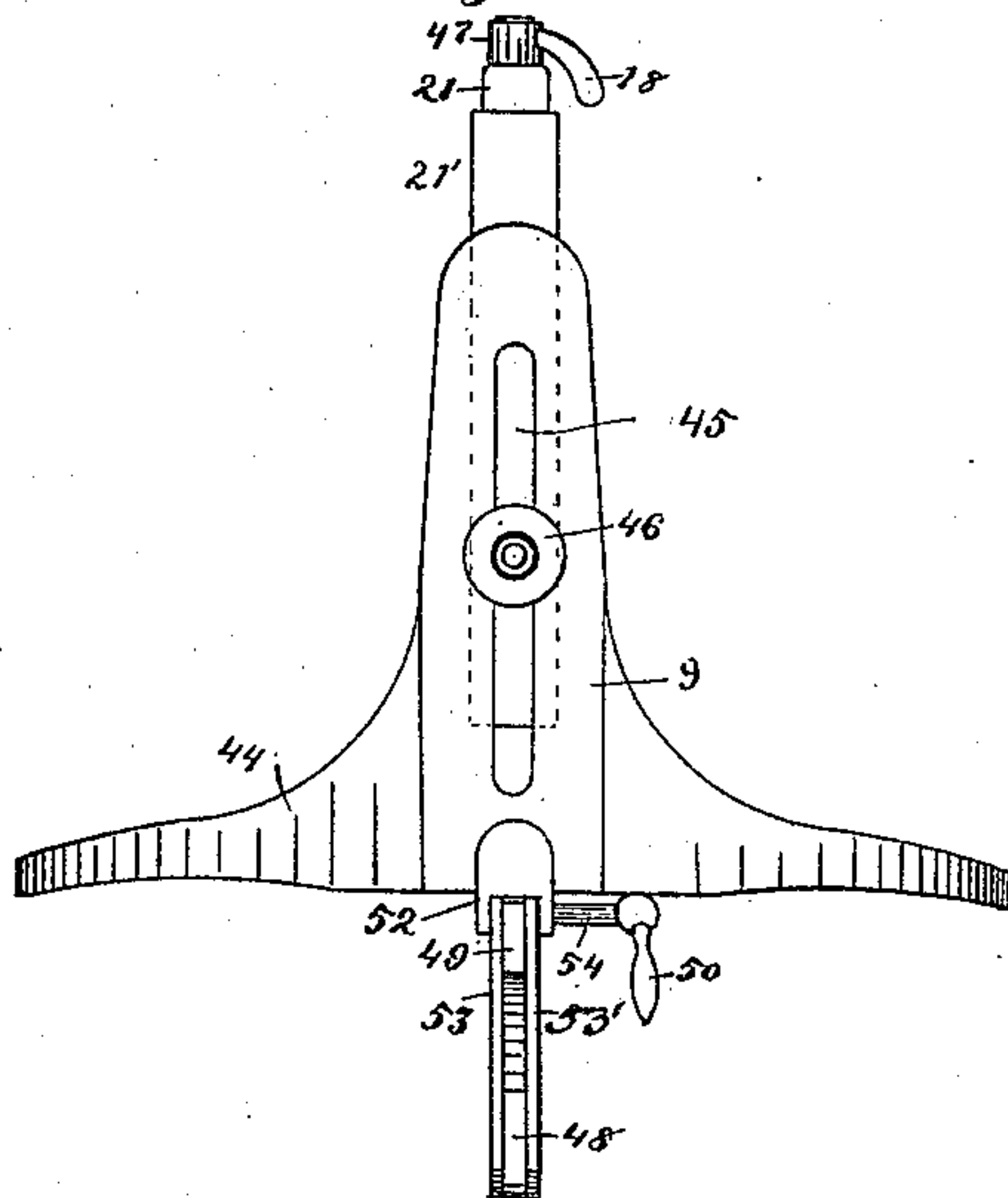


Fig. 5.

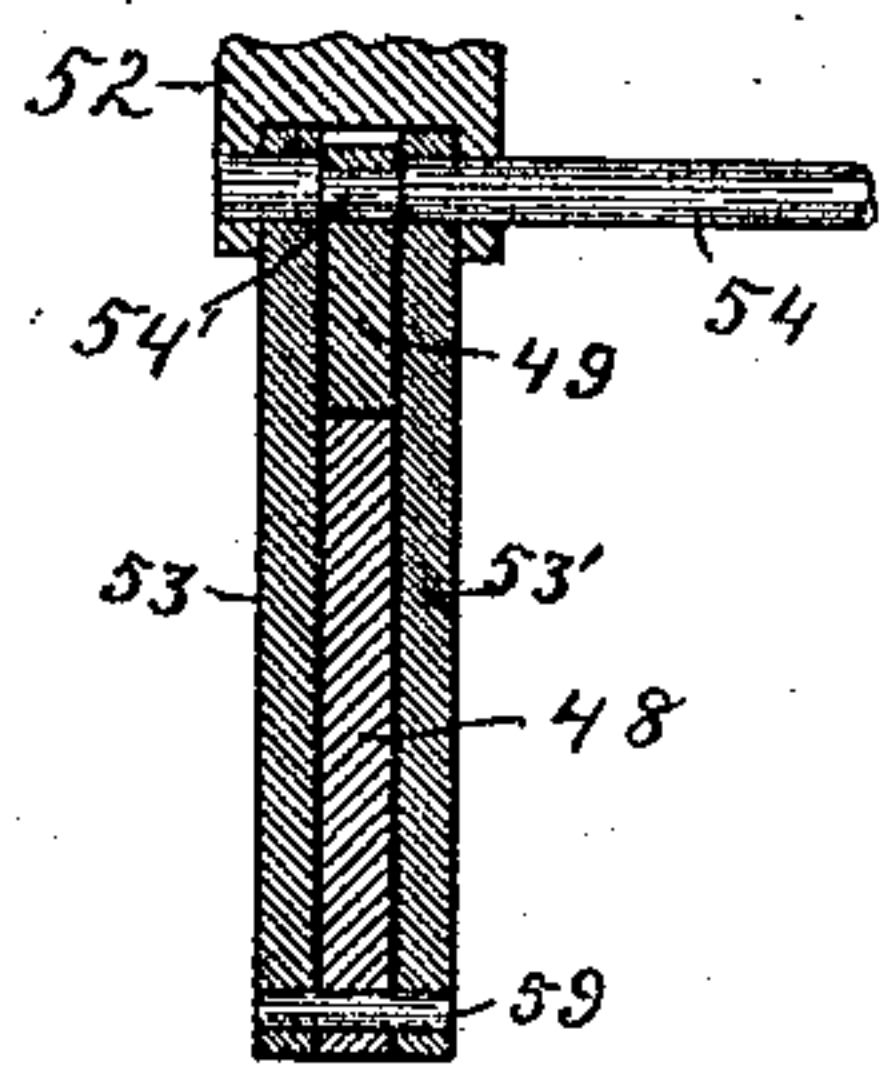


Fig. 6.

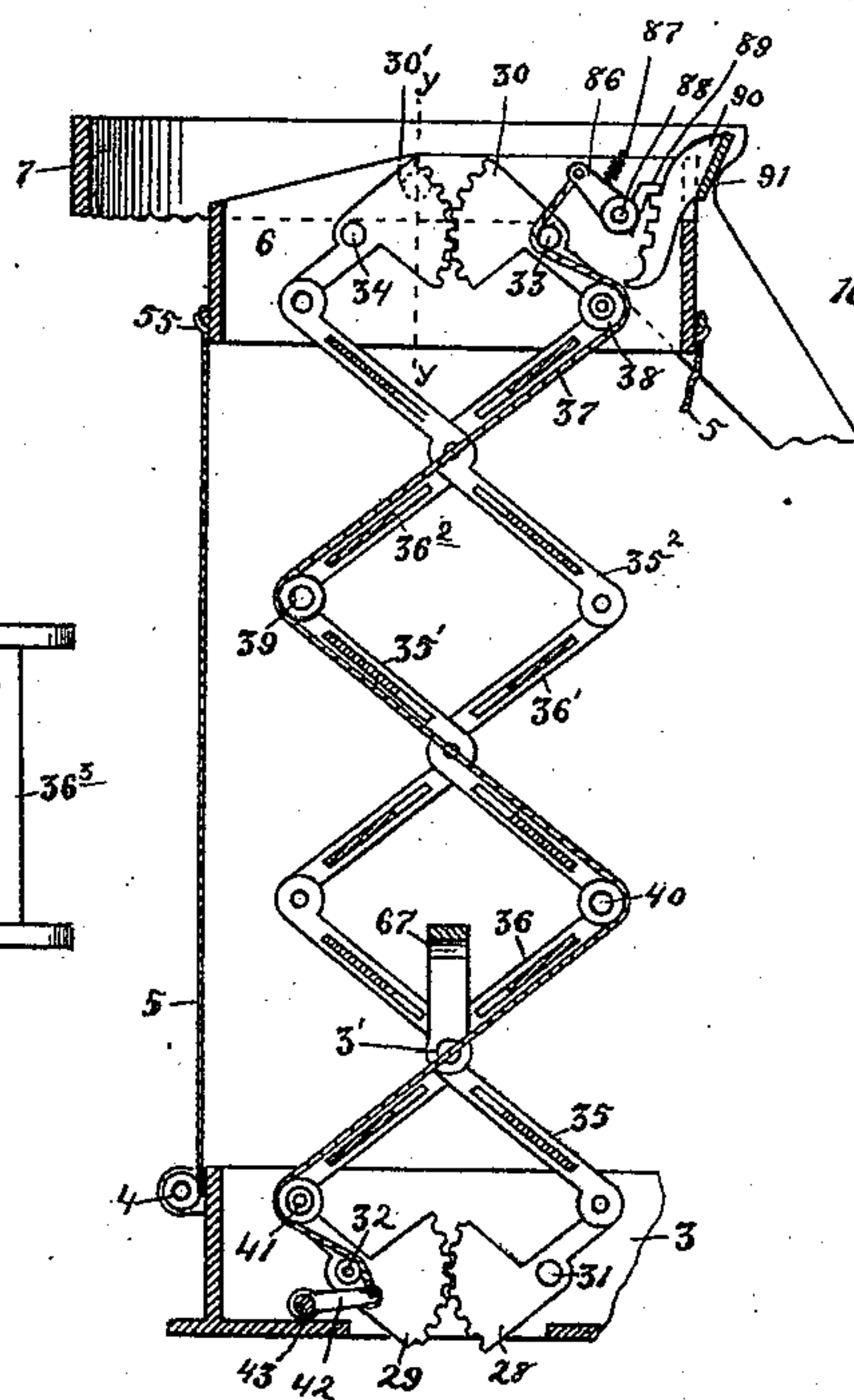


Fig. 13.

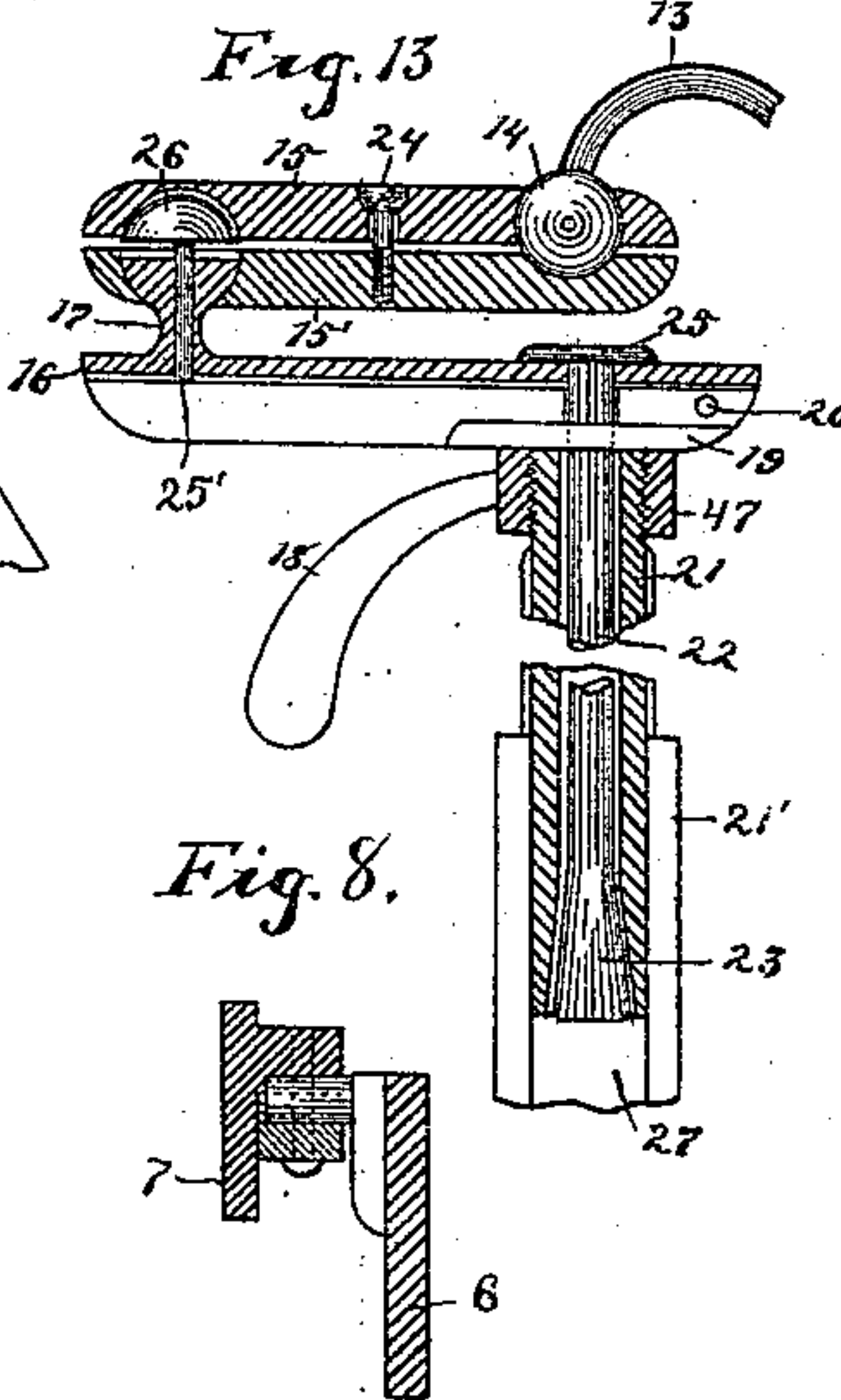


Fig. 7.

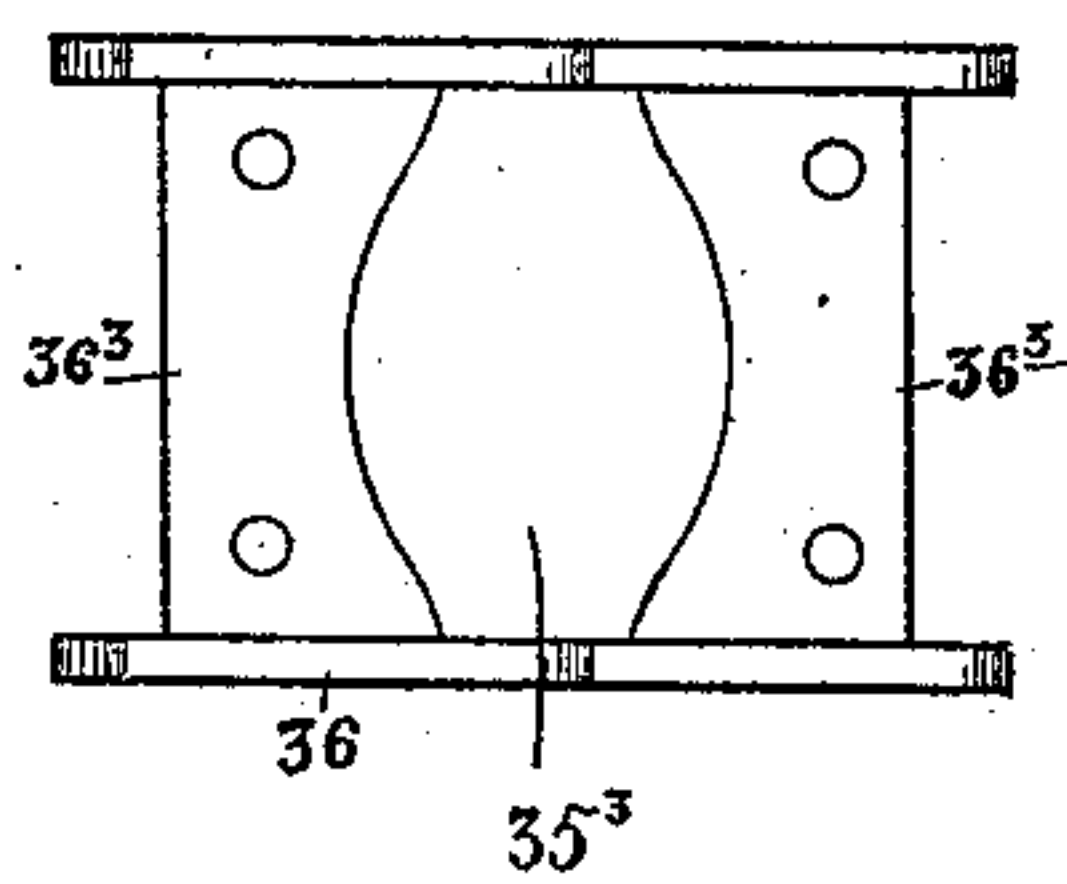
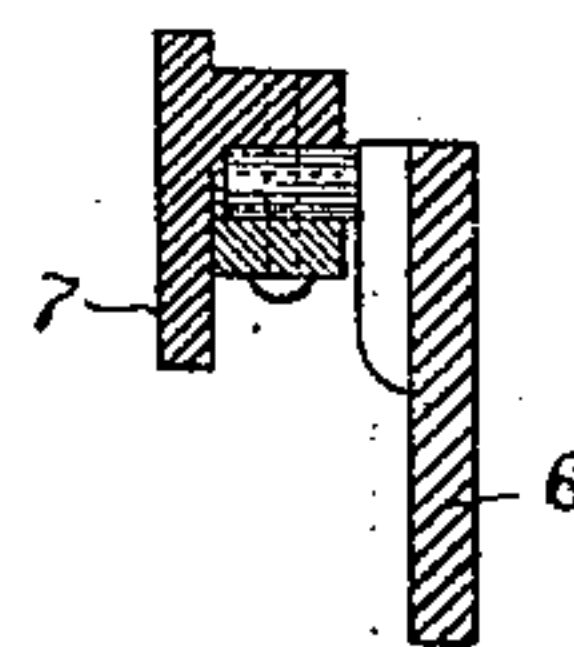


Fig. 8.



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(No Model.)

4 Sheets—Sheet 3.

J. BAXTER.
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Fig. 9.

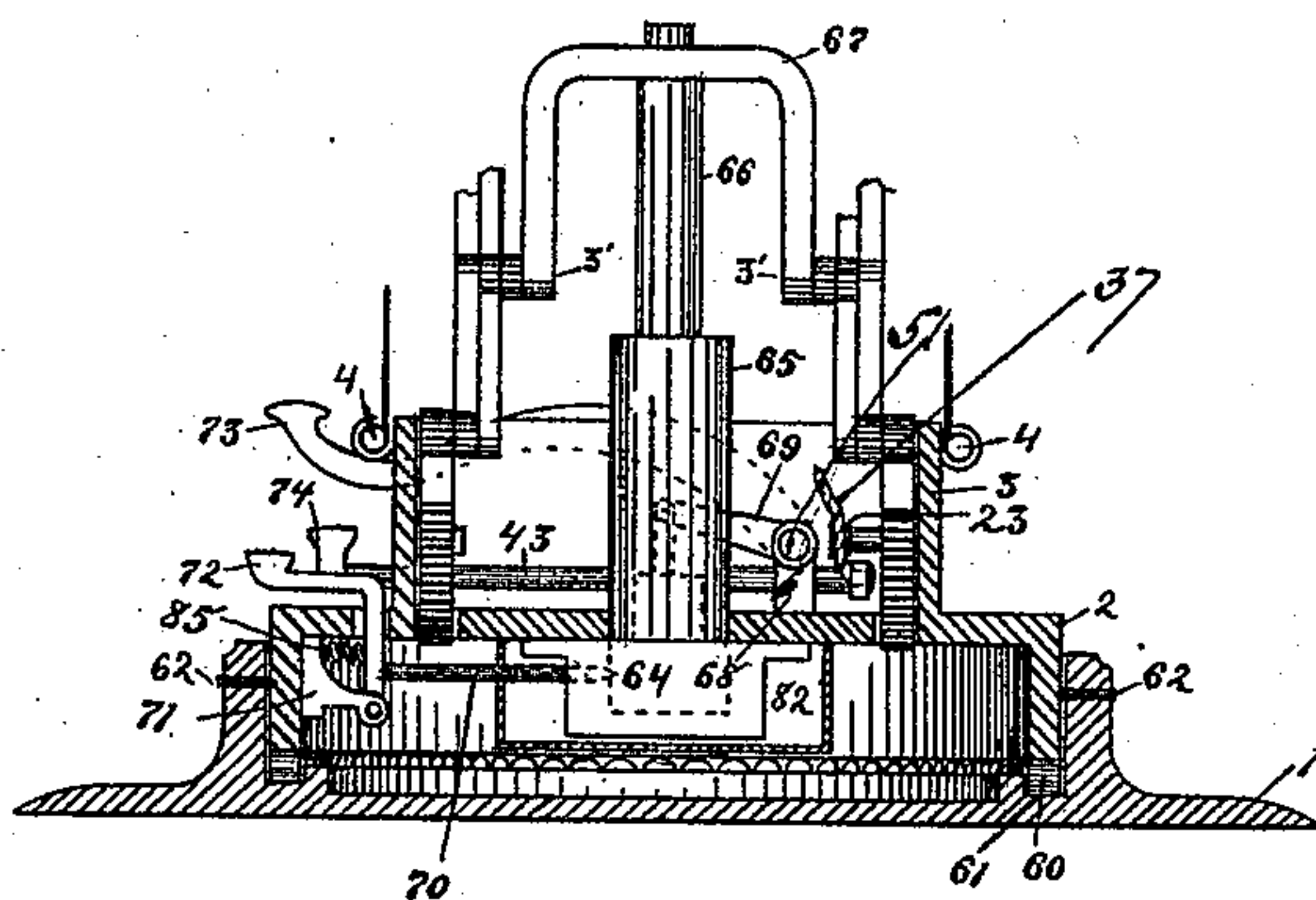


Fig. 14.

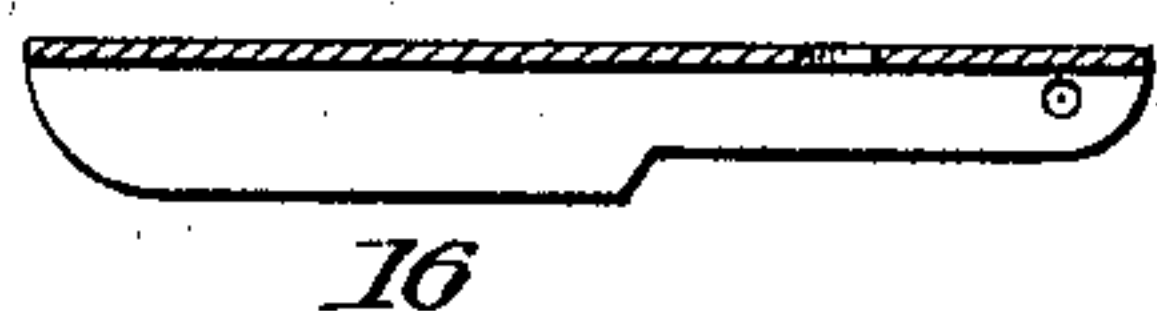


Fig. 10.

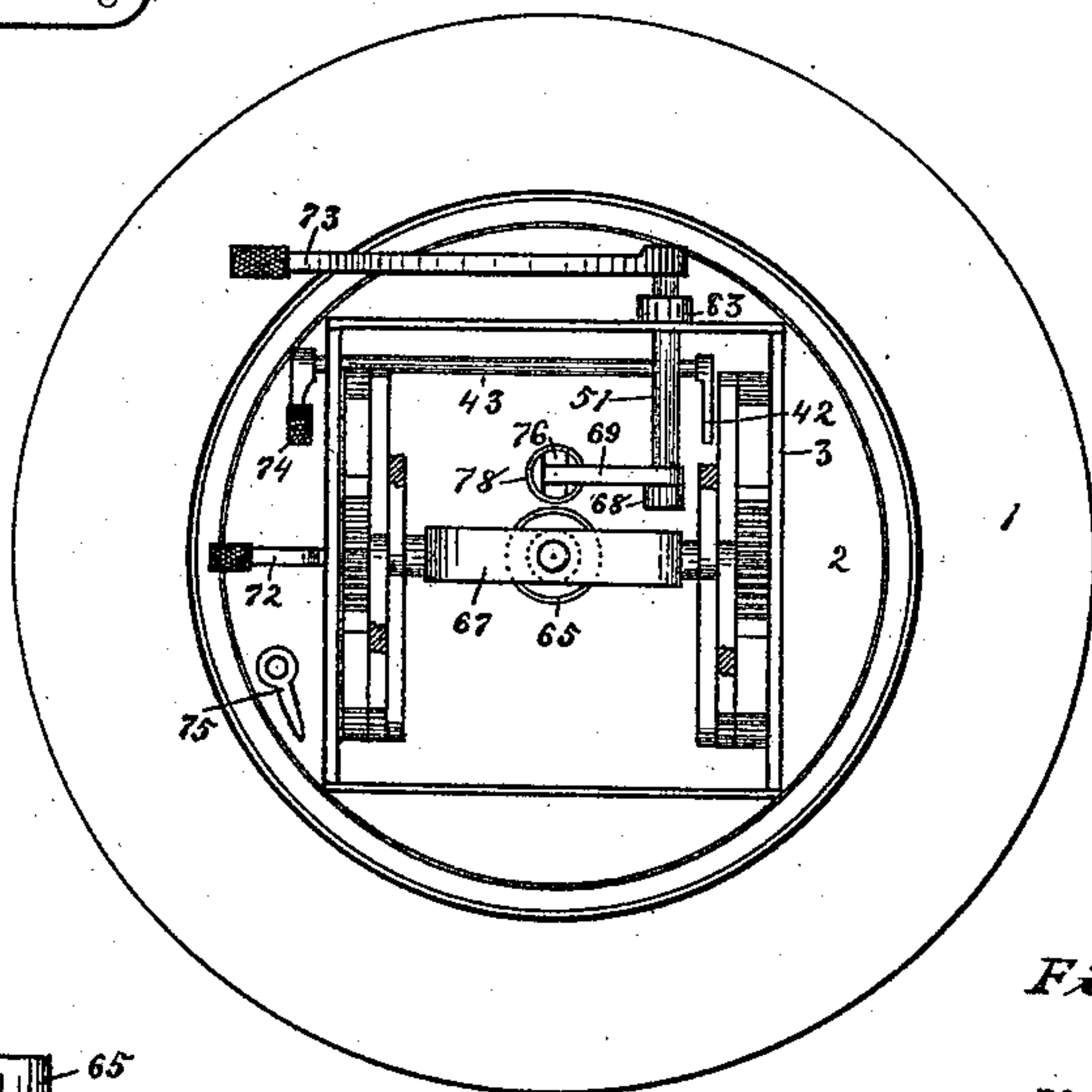


Fig. 15.



Fig. 11.

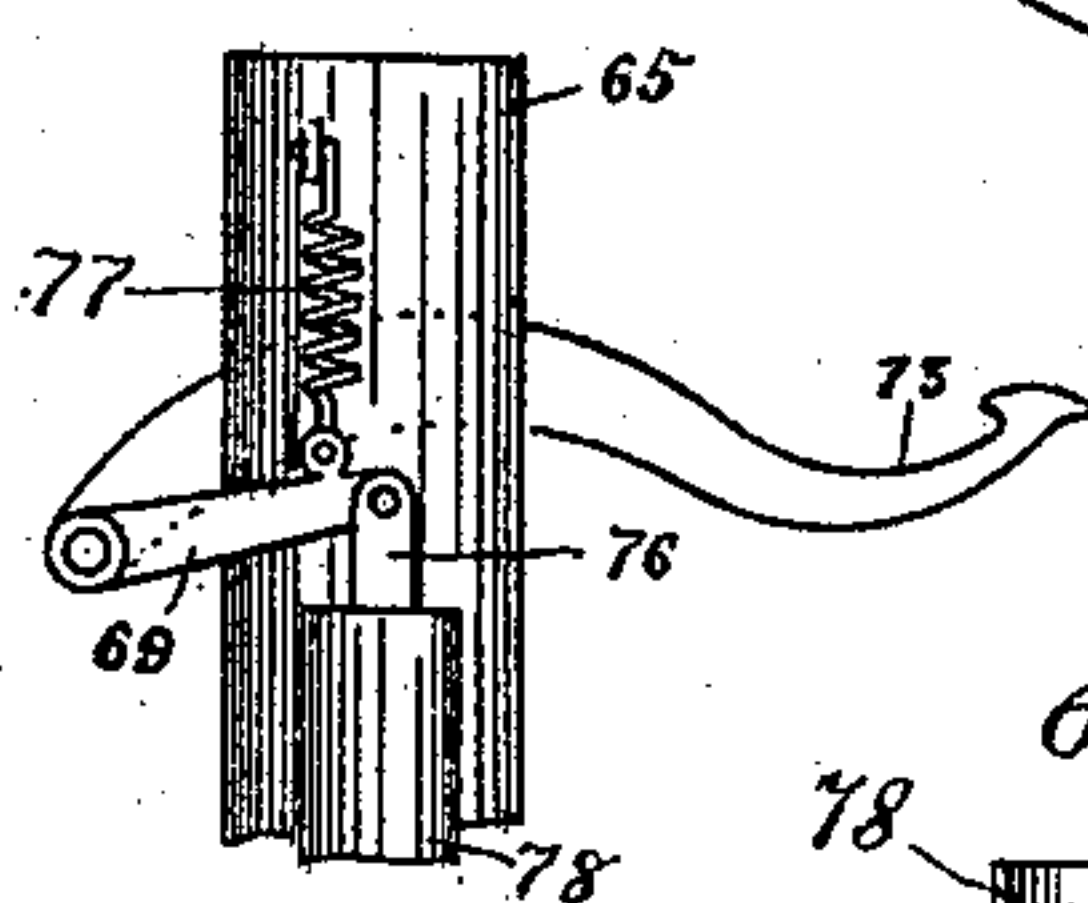


Fig. 12.

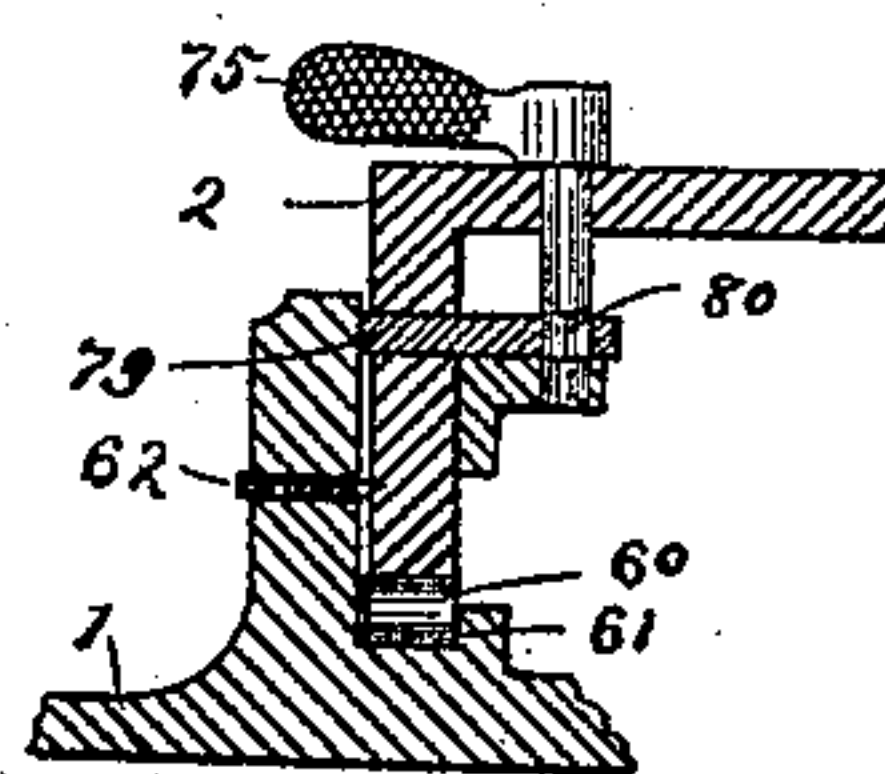
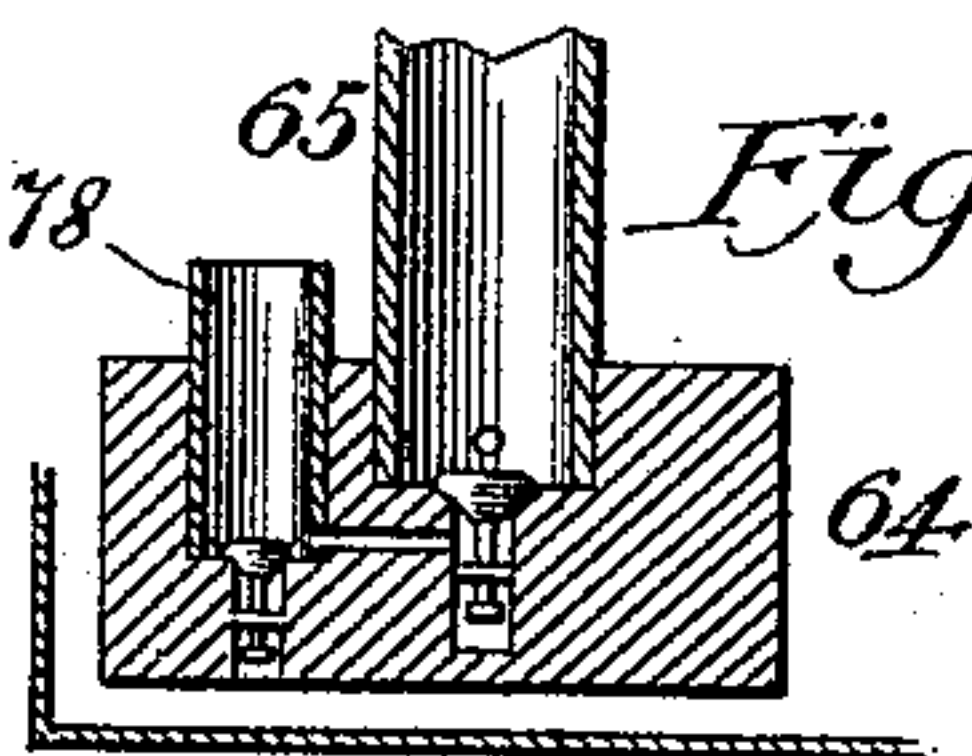


Fig. 16.



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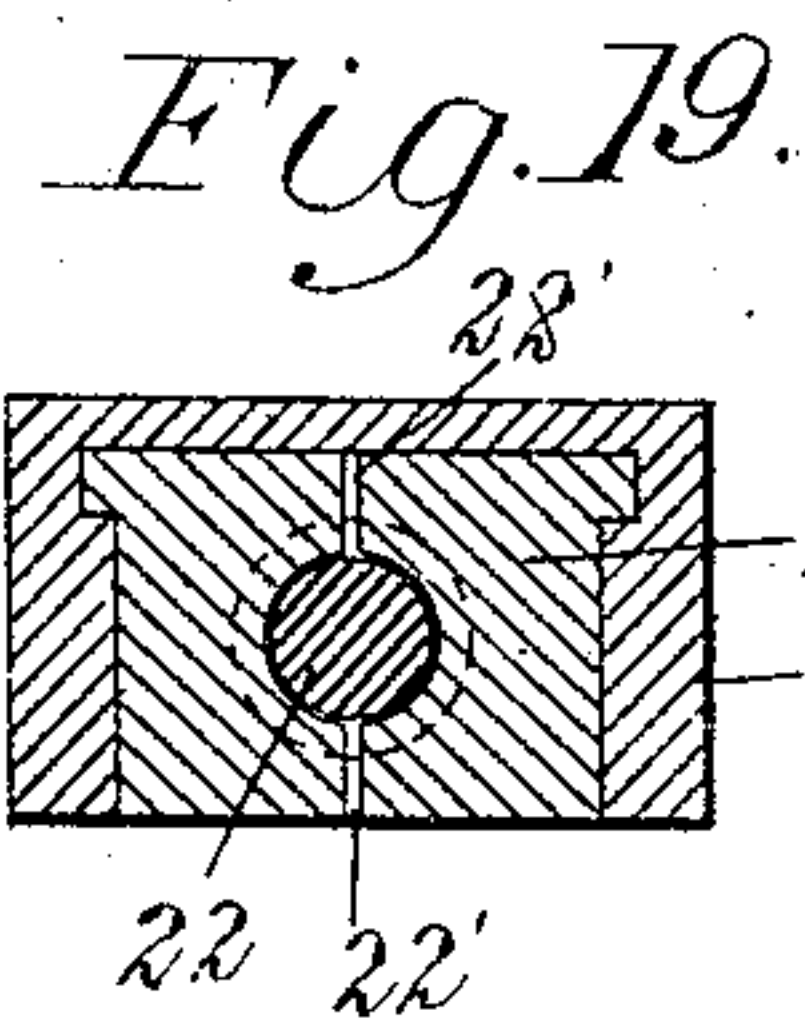
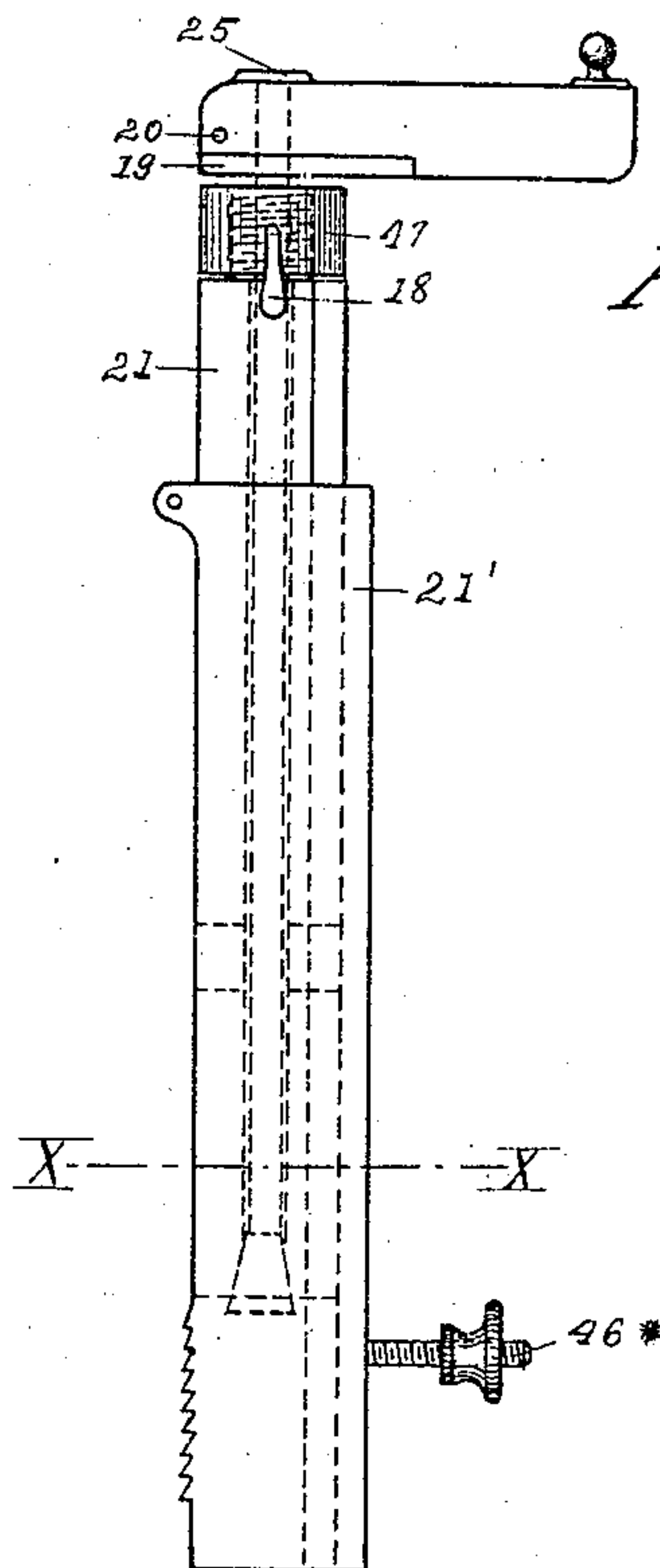
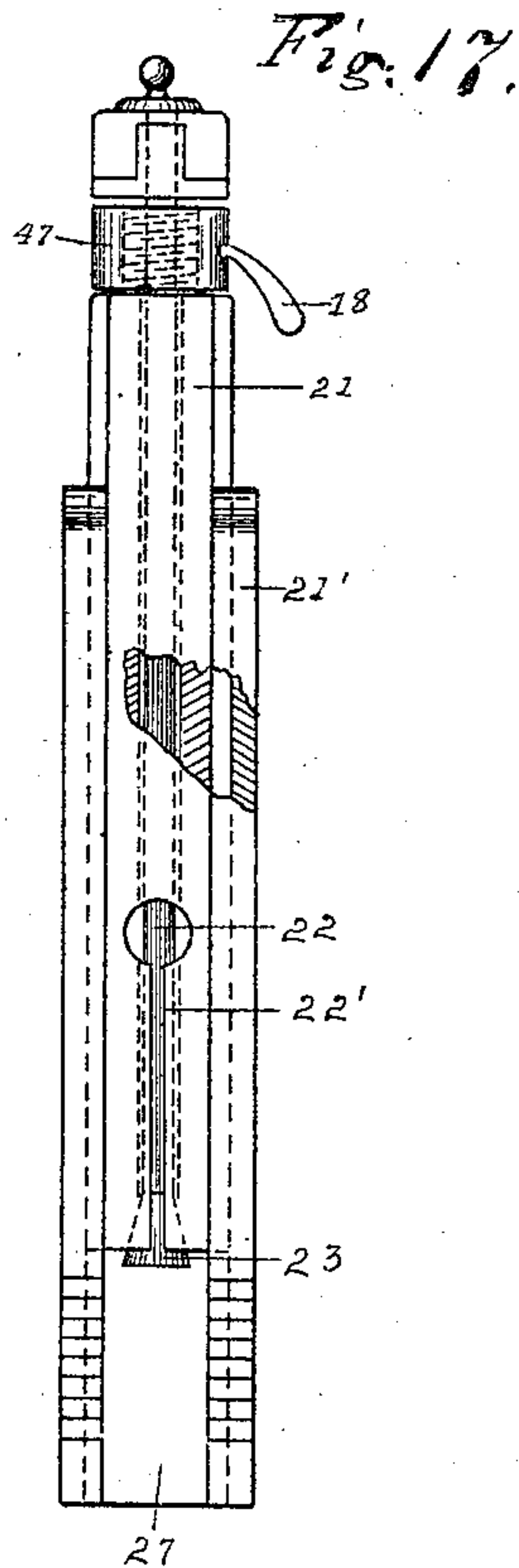
(No Model.)

4 Sheets—Sheet 4.

J. BAXTER.
DENTAL CHAIR.

No. 575,684.

Patented Jan. 26, 1897.



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UNITED STATES PATENT OFFICE.

JAMES BAXTER, OF FORT WAYNE, INDIANA.

DENTAL CHAIR.

SPECIFICATION forming part of Letters Patent No. 575,684, dated January 26, 1897.

Application filed September 28, 1893. Serial No. 486,654. (No model.)

To all whom it may concern:

Be known that I, JAMES BAXTER, a citizen of the United States, residing at Fort Wayne, in the county of Allen, in the State of Indiana, have invented certain new and useful Improvements in Dental Chairs; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in dental chairs of that class in which the principle of hydrostatics or of a fluid supporting or cushioning column is employed in conjunction with suitable mechanism for raising and lowering the chair body or seat relatively to its base, whereby the chair-body is automatically retained in any position to which it may be elevated by the fluid column which follows the plunger in its ascent and whereby the descent of the chair-body is rendered easy, noiseless, and without fatigue to the operator by the gradual displacement of the fluid as the plunger descends.

The leading objects of my invention are, first, to provide a high-low chair so constructed as to admit of a greatly-increased range of vertical adjustment of the chair-body, adapted to assume all the required positions for dental operations, by a more simple and efficient mechanism than at present in use without the necessity of extending the elevating apparatus below the base or pedestal and through the floor, and so arranged that the chair-body can be raised and lowered noiselessly, revolved and adjusted with ease and certainty, automatically locked in any lifted position, and adapted to make an easy and smooth descent by its own weight; second, to provide a means for tilting or adjusting the chair-body in all the usual and desired positions by the use of a pedal-lever in the base or pedestal instead of by the means of a hand-lever at the base of the chair-seat; third, to provide an improved means for locking the swinging chair-back at any desired angle with the seat and adapted to support the patient quickly and readily at full length when desired, as in case of heart failure or the use of anesthetics; fourth, to provide an improved

head-rest having a wide range of vertical and horizontal adjustability without unduly increasing the complexity of its parts, and adapted to place the patient's head in any desired position for the more advantageous and skilful performance of delicate dental operations.

The accompanying drawings represent a chair embodying all my present improvements. It is obvious that the details of construction shown may be modified in various well-known ways without in the least departing from the spirit of my invention.

In the accompanying drawings, forming part of this specification, similar figures of reference indicate corresponding parts through the several views.

Referring now to the drawings, Figure 1 is a side elevation of my invention with the chair-body elevated at nearly its full height, showing a portion of the elevating mechanism, and also showing the pivoted or swinging chair-back in different positions by dotted outline. Fig. 2 is a vertical central section of the swinging chair-back and head-rest, showing the relative arrangement of their adjustable parts. Fig. 3 is a front view of the vertically-adjustable head-rest-supporting bar in position in the adjustable back-supporting bar and showing the head-rest-supporting rod in a central slot in said head-rest-supporting bar. Fig. 4 is a view of the pivoted or swinging back-supporting frame, showing a rear view of the locking device therefor. Fig. 5 is a vertical section of the locking device for the back-supporting frame, taken on the line X X of Fig. 2. Fig. 6 is a side view of the seat-elevating mechanism comprising a series of levers arranged to operate on the principle of the "lazy-tongs," the said series being united at both extremities to a pair of segmental gears adapted for engagement, the portions of the base and chair-body to which they are secured being cut away in section. Fig. 7 is a plan view of one of the said levers, showing the connecting-plates and central perforation. Fig. 8 is a section, taken on the line Y Y of Fig. 6, showing in detail the pivotal support for the chair-body. Fig. 9 is a vertical transverse section of the base or pedestal, showing the relative arrangement of the hydraulic pump, cylinder, plunger, and operating pedal-levers.

Fig. 10 is a plan of the base or pedestal, showing another view of the hydraulic pump, cylinder, plunger, and operating-levers. Fig. 11 is a detail view of the said pump and cylinder with the operating pedal-levers. Fig. 12 is a detail of the turn-table-locking device. Fig. 13 is a vertical central section of the head-rest, showing the mechanism for locking the same. Figs. 14 and 15 are details of the recessed lever-bars 16. Fig. 16 is a vertical section showing the valve connections between the pump, pump-cylinder, and reservoir, illustrating the action upon the elevating mechanism. Fig. 17 is a front view of the head-rest-supporting bar in position in the slidable back-frame, showing the interlocking lateral flanges on said bar and also showing the containing-grooves therefor. Fig. 18 is a side view of the same. Fig. 19 is a horizontal section of Fig. 18 at X X, showing the diametrically opposite slots 22'.

The base or pedestal 1 is preferably a hollow-ring casting of suitable size adapted to contain a proper liquid-reservoir 82 and a proper turn-table 2, through the top of which project a hydraulic pump 78, of any suitable construction, and a cylinder 65, in which is properly arranged a solid seat-elevating plunger 66, provided with proper packing and arranged in a well-known manner. To the lower surface of the said turn-table is rigidly secured a suitable block or base 64, in which the said pump and the said cylinder are rigidly fixed. The said pump and cylinder are each provided with a proper suction or inlet valve, and are connected at their base by a proper channel, (not shown in the drawings,) by which the said liquid is forced by the said pump from the said reservoir into the said cylinder. The said pump is also provided with a vertical channel leading therefrom to the said reservoir 82. The said turn-table is closed at the top, is preferably mounted on antifriction-rollers 60, properly arranged in the annular groove 61, and is provided with an exterior annular groove in which the pins or screws 62 project, and thereby secure the same against all danger of displacement. The said turn-table is surmounted by a rectangular open-topped box 3, two of the opposite sides of which are preferably cast integral therewith, the series of elevating-levers being pivotally mounted upon the inner surface of said integral sides, as seen in Fig. 9, in a manner hereinafter described. The remaining sides of box 3 are preferably detachable to afford convenient access to the upper surface of the said turn-table.

The pedal-lever 73 is rigidly fixed upon the outer end of the rotatable shaft 51, which shaft passes through one side of the box 3, is mounted in any suitable bearings 83 and 68, and is connected at its inner extremity with the lever 69, which in turn operates the plunger 76 in pump 78. The said lever 69 is provided with a spiral spring 77, the upper end

of which is properly secured to the side of the cylinder 65, and so arranged as to automatically return the lever 69 and with it the pedal-lever 73 to their normal position for another downward stroke of the pump-plunger, as seen in Fig. 11.

The rotatable horizontal shaft 43, preferably arranged in the box 3 below and at right angles to the said shaft 51, is mounted in suitable bearings and is provided at its outer extremity with a proper pedal-lever 74, rigidly mounted thereon, and is provided upon its inner extremity with a rigid arm 42, to the free end of which is secured one end of the rope or cable 37, hereinafter described.

The pedal-lever 72 passes through a vertical slot or opening in the top of the said turn-table and is pivotally mounted in any proper bracket 71, secured to the inner side of said turn-table, the said lever 72 being firmly held in normal position and bearing against the free end of the rod 70 by a coil-spring 85. The other end of said rod 70 is loosely mounted in a suitable perforation in the side of the reservoir 82 and also in a lateral channel or perforation in the said block 64, which channel connects the cylinder 65 with the reservoir 82, the inner end of said rod forming a cone-bearing in a suitable perforation in the side of the said cylinder.

Upon the inner surface of the integral sides of the box 3 are pivotally mounted on the pivots 31 and 32, respectively, the segmental gears 28 and 29, adapted for engagement and designed to assist in rigidly supporting the chair-body when elevated and sustained by the elevating-levers, hereinafter described. The said gears are provided with projecting lever-arms which are united by a pivotal connection to the lower end of the elevating-levers 35 and 36, as seen in Fig. 6. Suitable slots in the top of said turn-table are provided to accommodate the said gears when they are in their lowest position, as seen in Fig. 6. Each of the said elevating-levers consists of two parallel bars, united by the cross-plates 36³, as seen in Fig. 7, which are adapted for a pivotal connection at both ends and at their center, the said plates being so arranged as to leave a central opening 35³, through which the yoke 67 passes when the chair-seat is being lowered to its lowest position.

One parallel series of the operating-levers is of course arranged within the other, as, for example, the levers 35, 35', and 35² are arranged between the parallel sides of the bars of the levers 36, 36', and 36², respectively.

To the inner surface of the upper rectangular box 6 are pivotally mounted on the pivots 33 and 34, respectively, the segmental gears 30 and 30', adapted for engagement and having lever-arms pivotally connected with the upper ends of the levers 36² and 35², respectively, the elevating mechanism thus described constituting a well-known lazy-tongs movement. The said gears may be entirely

omitted and equivalent mechanism employed without departing from the spirit of my invention.

On the pivots 33, 38, 39, 40, 41, and 32 of the seat-elevating device are revolubly mounted suitable pulleys on which is properly arranged the rope or cable 37, having its lower end secured to the lever-arm 42 and its upper end secured to the lever-arm 86, which lever-arm is rigidly mounted near one extremity of the horizontal shaft 88. This shaft 88 is loosely mounted in suitable bearings in opposite sides of the box 6. At or near the center of said shaft is rigidly mounted the dog or pawl 89, adapted for engagement with the vertical rack 90, rigidly fixed on the inner surface of the front cross-plate 91 of the chair-frame 7 and at a point equally distant from either end thereof.

By depressing the pedal-lever 74 the pawl 89 is readily disengaged from the rack 90 by means of the cable 37 and the lever-arm 86, and when the pressure on the pedal-lever 74 is released the said pawl is promptly returned to its normal position in engagement with the said rack 90 by the action of the coil-spring 87, one end of said spring being secured to the arm 86 and the other end to the side of box 6, as seen in Fig. 6.

To the sides of box 3, as seen in Figs. 6 and 9, are properly secured spring-rollers 4, on which are mounted suitable curtains 5, having their upper ends secured by hooks 55 on the sides of box 6 or other proper manner. These curtains are not an essential feature of my improvement, but are adapted to protect the elevating mechanism from dust as well as to conceal its somewhat unsightly appearance when the chair-body is in an elevated position.

The chair-seat frame 7 is of any proper or well-known form and construction, having a proper seat 7', detachable and reversible arms 8, the arm-brackets 11 being secured in the lugs 11' or other suitable manner, a foot-rest platform 7², and an extensible foot-rest roll-frame 92. The said chair-seat frame is also provided with a pair of rearwardly-projecting arms or brackets 10, to which a swinging back-frame 9 is pivoted by means of the legs 44 and the pivots 10'. The said swinging back-frame 9, of any approved design, has a longitudinal rectangular groove 94, Fig. 2, in which the sliding back-frame 21' is adapted for longitudinal adjustment. The frame 9 is also provided with a vertical slot 45, in which a clamping-screw 46, firmly secured in frame 21, is adjustable in a well-known manner. The said swinging frame 9 also has a rearwardly-projecting lug 52, Fig. 4, provided with suitable ears in which is loosely mounted the horizontal shaft 54, having an operating-handle 50 and an eccentric 54'.

On the shaft 54 is pivotally mounted my improved chair-back-locking device, comprising the segmental disk 48, pivotally mounted on the pin 59, and also connected to

the chair-seat frame by means of the lug 95 on the pivot 48', a lock-bar 49, adapted for engagement with the perimeter of the said disk when depressed by the eccentric 54', Fig. 5, and the hangers 53 and 53', loosely pivoted at one extremity on the shaft 54 and at the other end on the pin 59 and adapted to support the disk 48.

The sliding back-frame 21' has a longitudinal groove or recess 27, adapted to contain the head-rest-supporting bar, the walls of said groove or recess having parallel grooves in the sides thereof, adapted to accommodate the lateral flanges on the bar 21, as seen in Fig. 3, the construction and operation of which are well understood.

The supporting-bar 21 is provided with a central perforation extending its entire length, and is also provided at its lower extremity with diametrically opposite longitudinal slots 22', adapted to permit the spreading of the lower end of said bar in locking the same. The said bar 21 is also screw-threaded at its upper end and is surmounted and fitted by a screw-threaded nut 47, having an operating-handle 18, as seen in Fig. 13.

The head-rest-supporting rod 22, having upon its upper end a retaining-head 25, and having its lower end fashioned into a cone-shaped termination 23, passes through the recessed bar 16, which forms a shield or cover for the lever 19, and is loosely mounted in the said recess of the bar 21. The said lever 19 is fulcrumed on the pivot 20. The bar 16 is surmounted at its free end by a hemispherical lug 17, having a central vertical perforation therein. The parallel plates or levers 15 and 15' when in their normal position are slightly apart, and the said lever 15 is fulcrumed on the pivot 24.

The plate 15' has a suitable perforation at one end to loosely contain the lug 17 and at the other end a suitable socket for the lower portion of the ball 14. The plate 15 has a suitable perforation for the ball 14 and at the other end a proper socket for the hemispherical bearing 26, which has a pin 25', preferably cast integral therewith and adapted to fit loosely in the central perforation of the lug 17, with its free end bearing against the said lever 19.

The head-rest 12, of any proper form or construction, is rigidly mounted on the curved rod 13, having on its free end the ball 14.

When it is desired to lock the chair-body in any desired horizontal position, the operator locks the turn-table by a slight lateral pressure on the pedal-lever 75, which by means of the eccentric 80, Fig. 12, engages the lock-bar 79 with the adjacent inner face of the base or pedestal.

The operation and manner of using my improved dental chair thus described are briefly stated as follows:

The chair-body is adapted to be elevated to any desired height by means of the repeated downward movement of the free end of the

pedal-lever 73, which by means of the pump 78, having a proper suction-valve in the bottom, forces the liquid into the cylinder 65 through an inlet-valve and the said channel 5 leading thereto from the liquid well or reservoir in a well-known manner, thus forcing the piston upward at each movement of the said pedal-lever.

It is evident that the number of the elevating-levers 35 and 36 can be readily so increased in the construction of my invention as to adapt the chair to any amount of vertical adjustment, though the number shown in the drawings is sufficient for all ordinary purposes. 15 When the ascent of the said plunger ceases in elevating the said chair-seat, the weight of the chair will rest upon the cushioning and sustaining fluid column in the said cylinder, the said valves being automatically closed by 20 the back pressure without any strain on the elevating mechanism. When the chair-seat has reached its upward limit, the motion of the said pedal-lever will be inoperative to raise the seat farther.

To lower the chair-seat, the operator depresses the pedal-lever 72, against which the free end of the rod 70 bears. The pressure of the liquid column then forces the said rod out of its seat in the said perforation in said 30 cylinder, thereby permitting the escape of the fluid therein contained, and the weight of the chair will cause it to descend gradually to its lowest position, being retarded in its descent by the compulsory passage of the said fluid through a small opening, the rate of descent being regulated by the area of the discharge-opening, which may be varied at pleasure.

There is absolutely no settling down of the chair-seat at the end of any of its upward 40 movements.

As the vertical yoke 67, as well as the levers 35 and 36, is pivotally mounted on the pins 3', and as the plunger 66 is surmounted by and firmly secured to said yoke, as seen 45 in Fig. 9, it is evident that elevating the said plunger by the upward pressure of the liquid column will also unfold the whole series of elevating-levers and thereby elevate the chair-seat by a true vertical movement greatly multiplied. 50

It is also evident that the operator can readily stop the chair-seat in its descent at any desired point by simply removing the downward pressure on the pedal-levers 72, thereby 55 closing the discharge-opening by the return of the rod 70 to its normal position.

The somewhat unsightly appearance of the elevating-levers will of course be hidden from view by the automatically-adjustable curtains 5, of any suitable material. 60

When the operator desires to tilt the chair-body in any desired position, he depresses the pedal-lever 74, which in turn disengages the pawl 89 from the rack 90 by means of the 65 cable 37, and as the chair-body is properly balanced and pivoted on the box 6 it can readily be tilted to any desired position when

thus disengaged from the said pawl, and it will be automatically locked in such inclined position by releasing the pressure on the 70 pedal-lever 74.

It is apparent that tilting the chair-body by means of a pedal-lever is far more convenient and desirable than doing so by a hand-lever located at the base of the chair-seat. 75

It is thus seen that all the vertical and horizontal adjustments of the chair-body are secured by operating pedal-levers in the chair base or pedestal.

The swinging back-frame can readily and 80 securely be adjusted to any desired position or inclination by means of the segmental disk 48 and the locking-shaft 54, as before explained. The sliding back-frame 21' is conveniently adjusted vertically by means of 85 the clamping-screw 46 in a well-understood manner.

The operator can readily and conveniently adjust the head-rest in any desired position to suit the occupant of the chair or the nature 90 of the operation to be performed by turning the screw-threaded nut 47 to the left by means of the handle 18, which lowers the head-rest rod 22 in the central slot of the head-rest bar 21, thereby relieving the said bar from the 95 lateral pressure of the cone-shaped termination 23, which of course permits the operator to slide the said bar 21 freely in the grooved back-frame to any desired vertical adjustment. The same movement of the said nut 100 47 also simultaneously relieves the lever 19 from the upward pressure of the said nut 47, thereby relieving the pin 25' from the upward pressure of the other extremity of the said lever 19, which in turn relieves the ball 14 from 105 the clamping or pressure of the forward end of the lever-plate 15', which obviously enables the operator to swing the pivotally-mounted head-rest into any desired horizontal adjustment. It is obvious that turning 110 the said threaded nut 47 in the opposite direction an equal amount will return it to its normal or locked position, thus rigidly securing the head-rest bar 21 in the position desired, and the same rotary movement of the 115 nut 47, before described, also simultaneously locks or releases the other portion of the head-rest-adjusting mechanism, for the elevation of the said nut on the threaded bar 21 brings such a pressure upon the head 25 120 through the lever 19 and the bar 16 as to lock the joint, and as the lever 19 is fulcrumed on the pivot 20 it also brings a corresponding pressure upon the pin 25' in the lug 17 by the free end of the said lever, which thus spreads 125 the corresponding end of the plates 15 and 15', and thereby locks the head-rest.

As the parallel lever-plates 15 and 15' are fulcrumed the former on the pivot 24 and the latter on the lug 17, it is apparent that the 130 spreading of them at one end, as described, will necessarily compress them at the other end, and thus bind and lock the ball 14, loosely mounted therein, as described.

The horizontally-adjustable portions 15 and 16 of the said head-rest, as well as the vertically-adjustable head-rest bar, are all thus readily and simultaneously locked and secured in any desired position by the convenient use of a single operating handle-lever.

I am aware that dental chairs employing a fluid-supporting column and raised and lowered by pedal-levers and having a swinging back-frame adapted to be locked in any desired tilted position and provided with a three-part head-rest adapted to be locked simultaneously by one locking-nut are not new; but no dental chair, so far as I am aware, has ever been invented in which the chair-seat is raised and lowered by employing a lazy-tongs movement and in which all the adjustments of the chair-body are accomplished by pedal-levers in the chair base or pedestal.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a dental chair, a chair-body mounted upon a suitable support, in combination with a pair of lazy-tongs rigidly connected, and having a segmental-gear connection at both ends to steady the chair-body when elevated, the lower end of said lazy-tongs being connected to a supporting-base, and the upper end being connected to the said chair-body, the said lazy-tongs being provided with a pivotally-mounted yoke for the purpose specified, a proper chair-base, a vertically-movable plunger adapted to engage the said yoke for the purpose of vertically expanding and contracting the said lazy-tongs, and means for operating the said plunger to raise and lower the chair-body, and a turn-table rotatably mounted in said chair-base, as described, and having means for locking the same, all substantially as described.

2. In a dental chair, a chair-body pivotally mounted upon a suitable support, in combination with a pair of lazy-tongs having a segmental-gear connection at both ends to steady the chair-body when elevated, the lower end of said lazy-tongs being connected to a supporting-base, and the upper end being connected to the chair-body, the said lazy-tongs being provided with a pivotally-mounted yoke for the purposes specified, a proper chair-base, a vertically-movable plunger adapted to engage the said yoke for the purpose of vertically expanding and contracting the said lazy-tongs, means for operating the said plunger to raise and lower the chair-body, a supporting-pedestal a turn-table rotatably mounted in the pedestal as described, and provided with means for locking the same, and a series of alternately-arranged pulleys pivotally mounted upon the said lazy-tongs as described, having a cord or cable mounted thereon, connected at one end with a pedal-lever in the said turn-table, and at the other end with the lever-arm 86 pivotally mounted in the chair-body support, as shown, adapted to engage the rigid rack 90 on said chair-body, the said cord being adapted by its op-

eration to release the said chair-body from its locked engagement, all substantially as described.

3. In a dental chair, a chair-back-locking device consisting of the described hangers pivotally supported upon a suitable rod loosely mounted in the chair-back frame having a pivotal connection with the said chair, as shown, and having an integral eccentric 54', a segmental disk inclosed by and having a pivotal connection with the said hangers, and also pivotally connected with the chair-body as shown, and a friction-piece 49 pivotally mounted upon the said rod between the said hangers and adapted to bear upon the perimeter of the said disk under the influence of the said eccentric, all as and for the purpose set forth and described.

4. In a dental chair, a head-rest consisting of a supporting-bar 21 having longitudinal flanges upon both sides thereof and a longitudinal central aperture for the head-rest rod, and a longitudinal slit 22' in the lower end thereof, as shown, the said bar being adapted for a vertical adjustment in a longitudinally-grooved back-frame 21' and provided upon its upper end with a screw-threaded nut adapted to lock simultaneously all the adjustable parts of said head-rest, as described, a head-rest-supporting rod 22 vertically adjustable in the said central aperture of said bar, and having a cone-shaped termination on its free end whereby elevating the said rod in the said aperture of the bar 21 by the said nut, will lock the said bar in the back-frame 21' by spreading the slitted end thereof, a longitudinally-recessed bar 16 pivotally mounted on said rod, having the lugs 17 and 26 as shown, and a bar 19 fulcrumed therein adapted for engagement with the said locking-nut, the parallel levers 15 and 15' fulcrumed at their center and mounted upon said lugs as described, and a head-rest-supporting rod 13 having a ball-and-socket connection with said parallel levers and having a proper head-rest pad, all substantially as described.

5. In a dental chair, a turn-table-locking device consisting of a vertical shaft loosely mounted in the turn-table, as described, and provided with the eccentric 80 adapted to actuate a locking-bar, a pedal-lever 75 rigidly mounted upon the upper end of the said shaft, the locking-bar 79 loosely mounted in said turn-table, and adapted to lock the same by engaging the inner surface of the pedestal when actuated by the said eccentric, in combination with the pedestal upon which the said turn-table is rotatably mounted, all substantially as described.

6. In a dental chair, a turn-table rotatably mounted in a proper pedestal, provided with means for locking the same and having a pedal-lever 42 adapted to disengage the tilting chair-body from its locked adjustment by means of a connecting-cable as shown, a pair of lazy-tongs having a segmental-gear connection at both ends to steady the chair-body,

the lower end thereof being connected to a supporting-base, and the upper end being connected to the chair-body the said lazy-tongs being provided with a pivotally-mounted yoke
5 for the purpose specified, a proper chair base or pedestal, a vertically-movable plunger adapted to engage the said yoke for the purpose of vertically expanding and contracting the said lazy-tongs, means for operating the
10 said plunger to raise and lower the chair-body, in combination with a tilting chair-body provided with a suitable rack 90 rigidly mounted thereon as shown, and a horizontal shaft 88
15 and provided with the rigidly-fixed lever-arm

86 adapted to rotate the said shaft, and the pawl 89 also rigidly mounted upon the said shaft and adapted for engagement with the said rack, and the cord or cable 37 connecting the said lever-arm 86 with the said pedal- 20 lever, and adapted to release the said pawl from its engagement with the said rack, all substantially as described.

Signed by me at Fort Wayne, in the county of Allen and State of Indiana, this 23d day 25 of September, 1893.

JAMES BAXTER.

Witnesses:

C. J. McLAIN,

W. C. McCOWAN.