

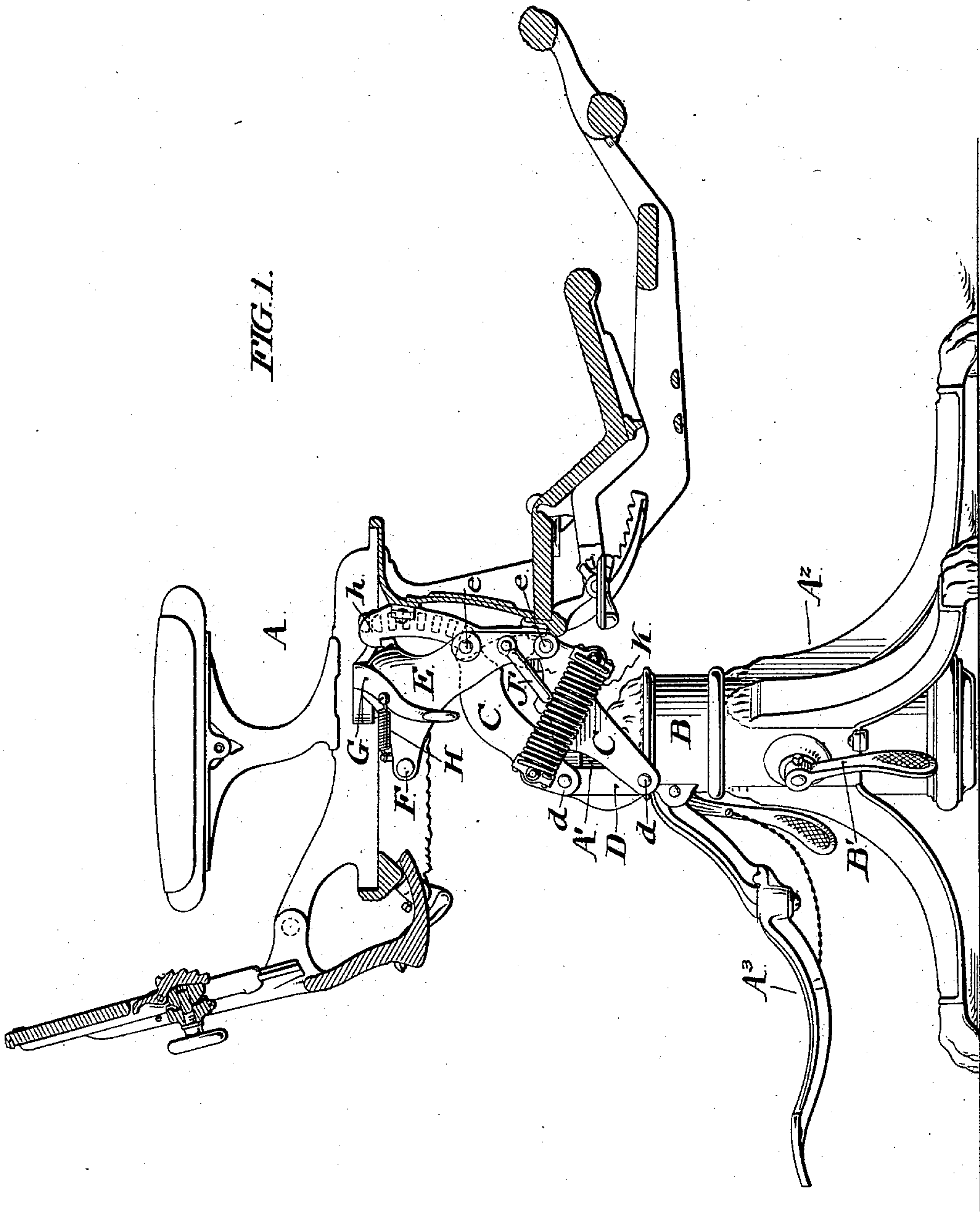
(No Model.)

3 Sheets—Sheet 1.

A. W. BROWNE.
DENTAL CHAIR.

No. 529,641.

Patented Nov. 20, 1894.



(No Model.)

3 Sheets—Sheet 2.

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FIG. 2.

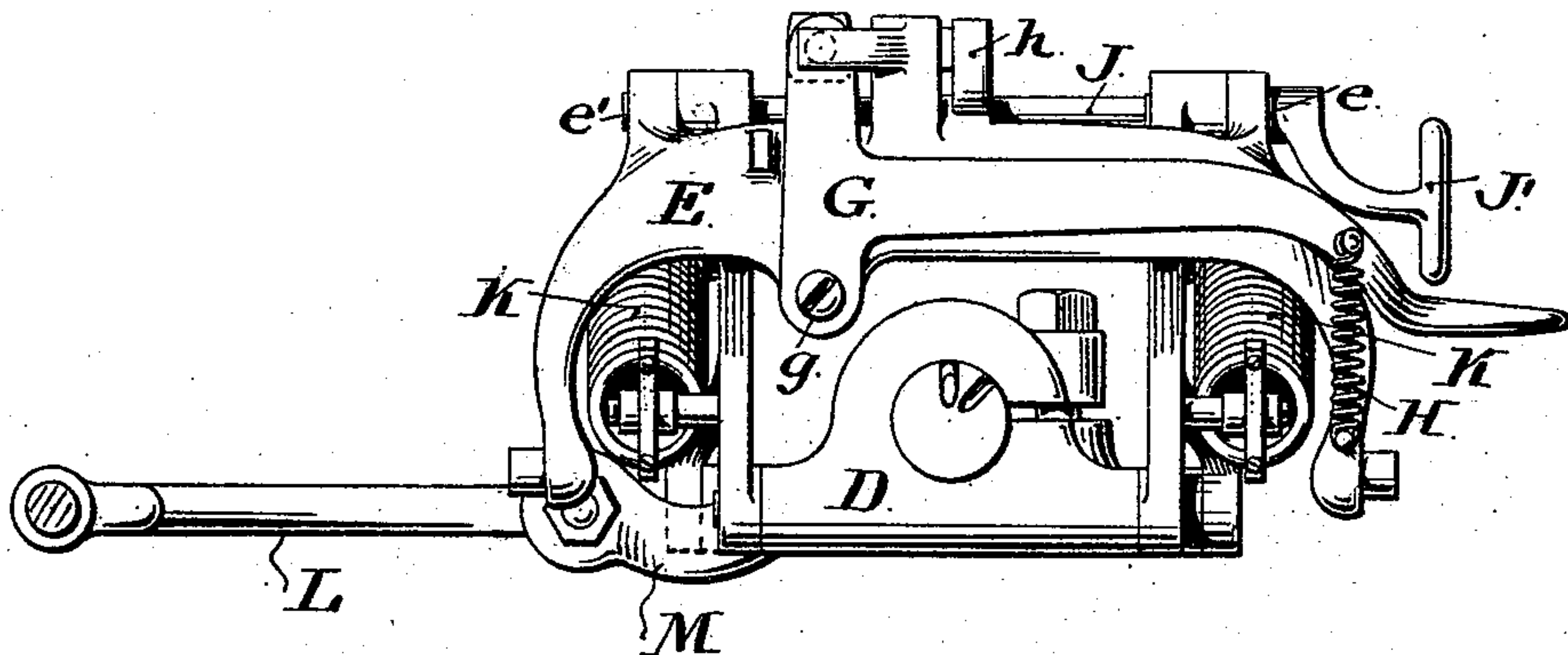
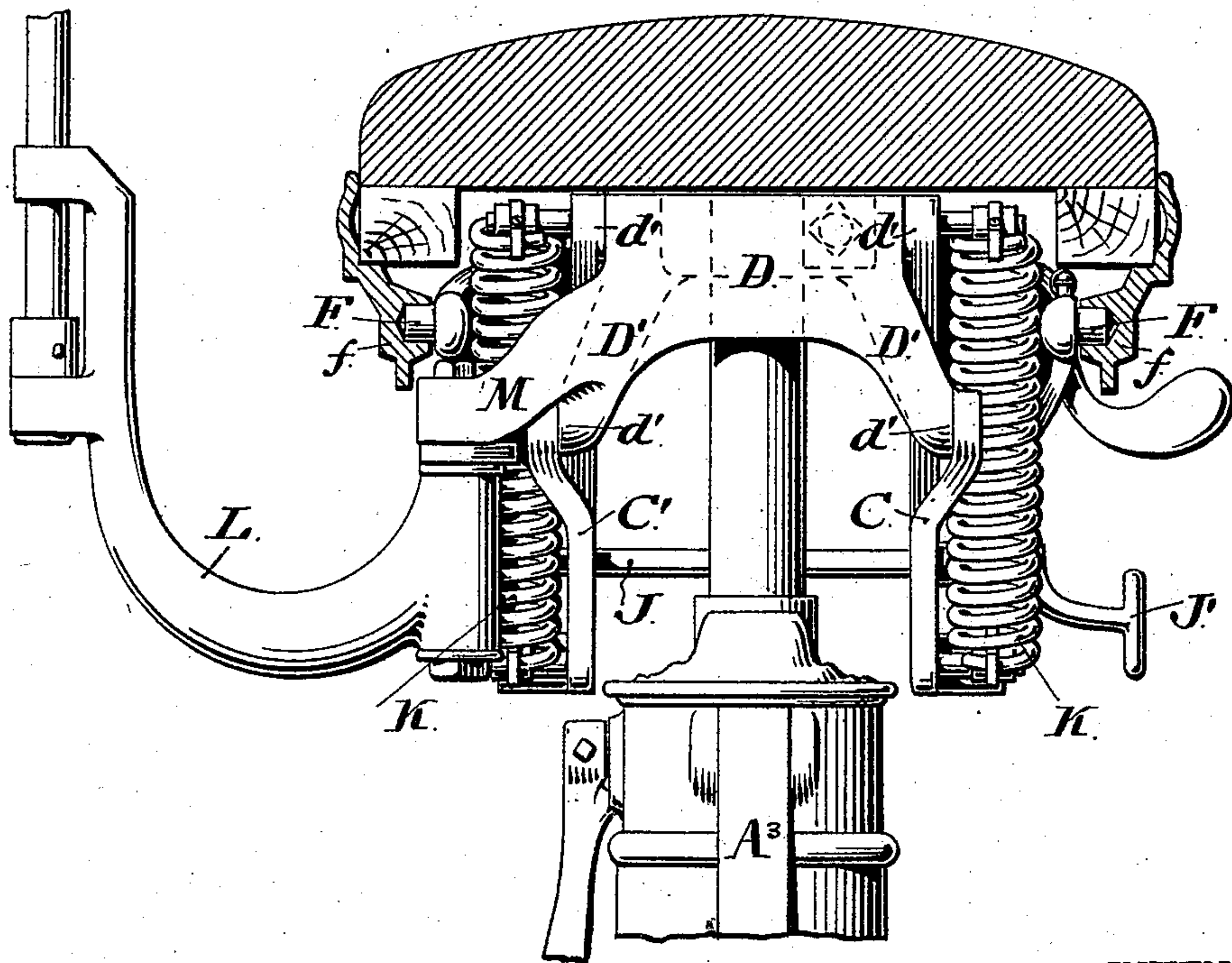


FIG. 3.



WITNESSES:

Robert C. Gordon
Edwin F. Simpson, Jr.

INVENTOR

A. W. Browne
By Atty J. Peyton

(No Model.)

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FIG. 5.

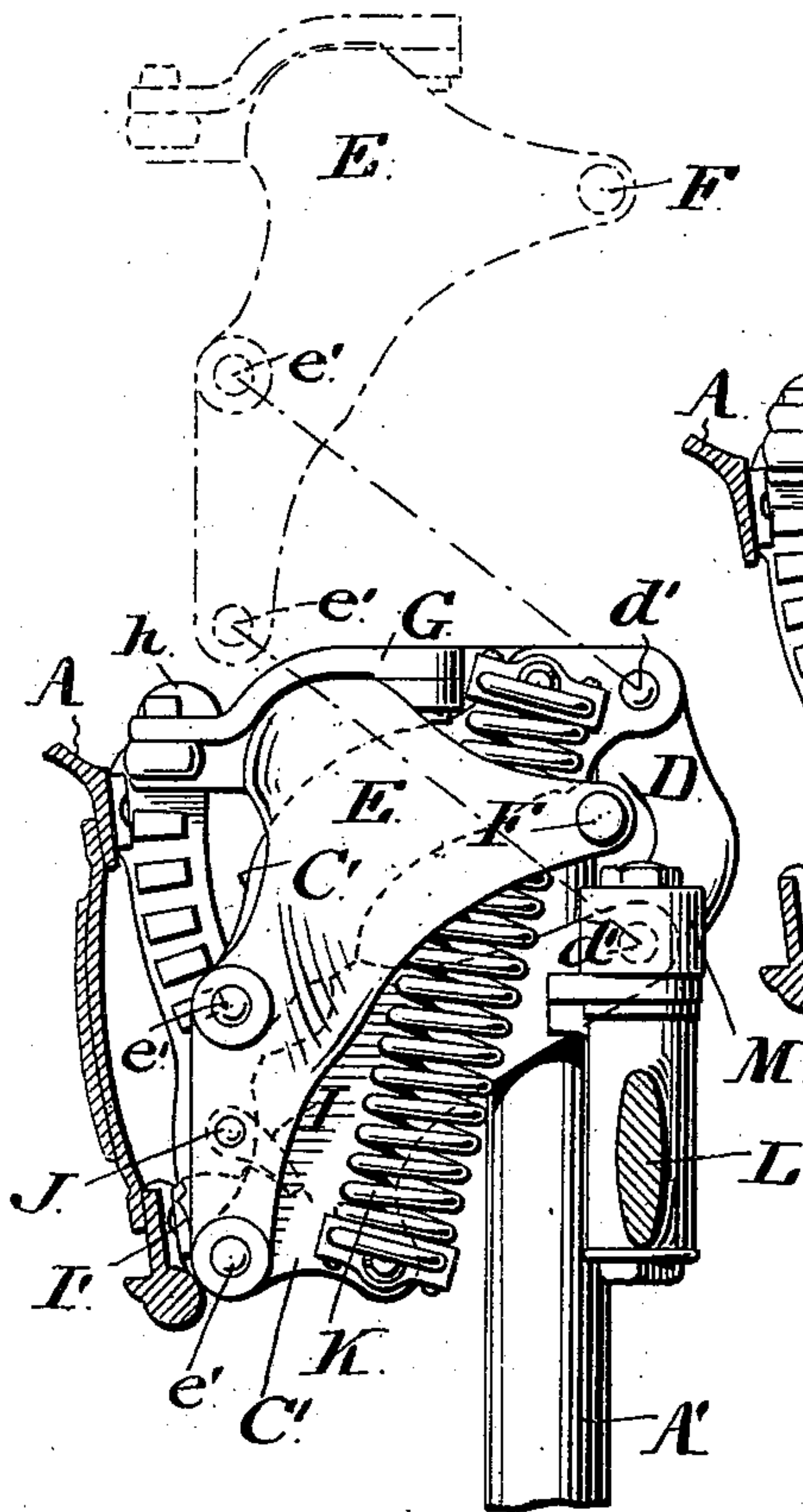
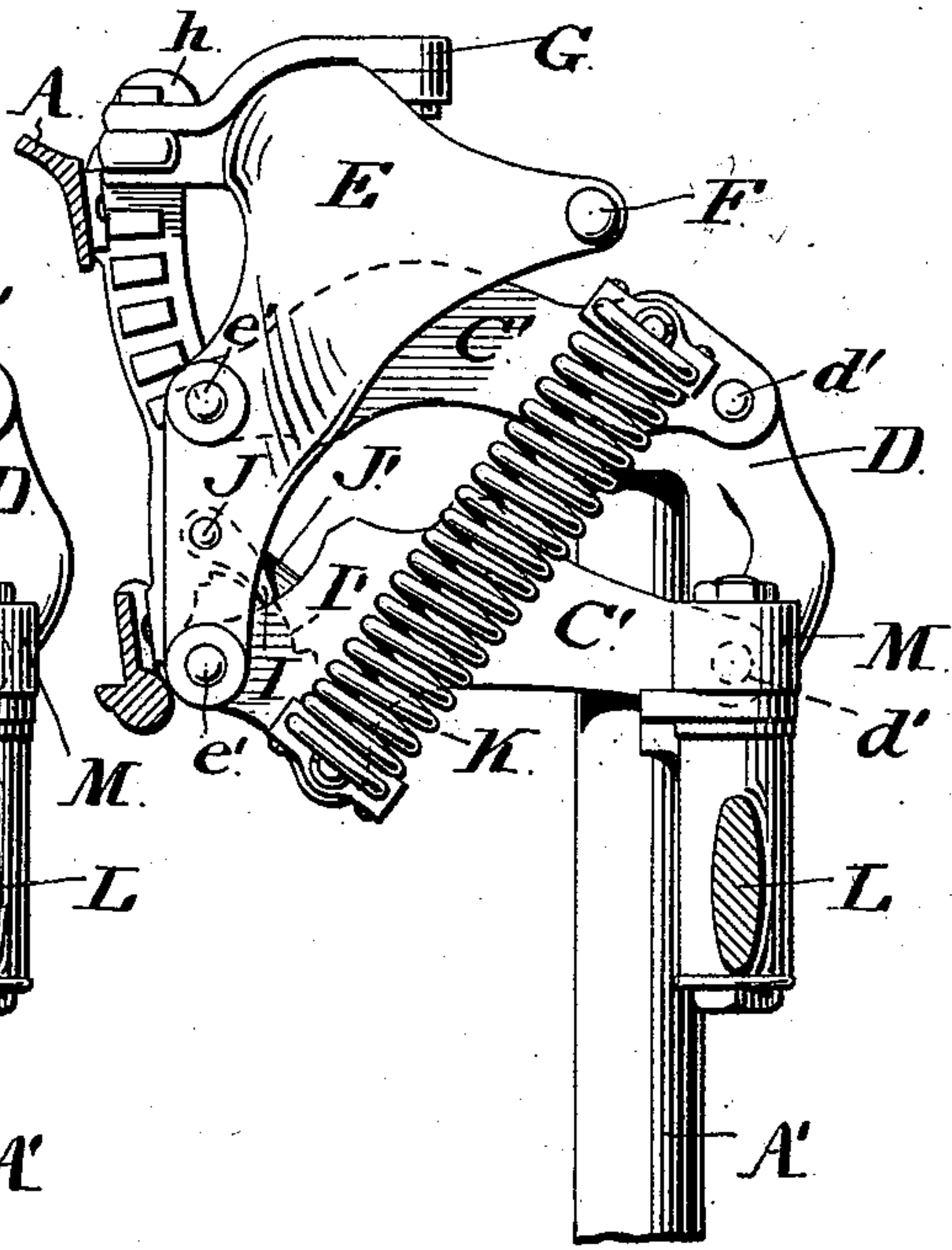


FIG. 4.



WITNESSES:

Robt. L. Gordon
Edu. F. Simpson, Jr.

INVENTOR

A. W. Browne
By atty J. H. Peyton.

UNITED STATES PATENT OFFICE.

ARTHUR W. BROWNE, OF PRINCE'S BAY, NEW YORK, ASSIGNOR TO THE
S. S. WHITE DENTAL MANUFACTURING COMPANY, OF PHILADELPHIA,
PENNSYLVANIA.

DENTAL CHAIR.

SPECIFICATION forming part of Letters Patent No. 529,641, dated November 20, 1894.

Application filed December 26, 1893. Serial No. 494,803. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR W. BROWNE, a citizen of the United States, residing at Prince's Bay, in the county of Richmond and State of New York, have invented certain new and useful Improvements in Dental Chairs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain improvements, as hereinafter claimed, in means for imparting a wide range of vertical adjustment to the bodies of dental chairs which are adapted to be horizontally turned, and vertically tilted or inclined, as well as raised and lowered.

In the accompanying drawings, which show my improvements as suitably applied to a dental chair of well known construction, Figure 1 is a view mainly in side elevation, while showing in section some portions of the chair the particular construction of which is not essential to my invention. Fig. 2 is a plan view showing details of supplementary elevating and lowering mechanism, and connecting parts. Fig. 3 is a rear elevation of the supplementary elevating and lowering mechanism with some other parts in elevation and section. Figs. 4 and 5 are views designed to show in side elevation different positions of adjustment of the supplementary elevating and lowering mechanism.

My improvements are in this instance represented as applied to a chair such as is shown in United States Letters Patent No. 197,441, dated November 20, 1877, and No. 483,807, dated October 4, 1892. As in said patents there is provided a support (hereinafter termed the main elevating and lowering support) for the chair body A, said support consisting of the plunger A' having vertically-adjustable connection with the base or pedestal A² and actuated by means of the jointed elevating lever A³ and co-operating devices, the lever being jointed to the cylinder B

which is adapted to turn horizontally in the pedestal and to be locked therein by the locking lever B'. The vertically adjustable support A' has no horizontal or turning movement in the cylinder B to which the elevating lever is attached, and the manner of upholding and of lowering the support is as fully explained in the above-mentioned Patent No. 197,441.

Supplementary elevating and lowering mechanism is interposed between the chair body, which it carries, and the main elevating and lowering support A', so as to increase the range of vertical adjustment of the chair body. This supplementary elevating and lowering mechanism in its preferred construction is as now to be explained.

At the upper end of the main elevating and lowering support A', and rigid therewith, is a bracket D having a downwardly projecting or pendent portion shown in this instance as forked or composed of diverging arms D' D', and which is removably connected with the main support, as in the before-mentioned Patent No. 483,807. Two pairs or sets of parallel arms C C, C' C', one pair at each side of the main elevating and lowering support, have jointed connection at their inner ends with said support by way of the bracket, the upper arms of each pair being pivoted at *d d* to the upper portion of the bracket at opposite sides thereof, and the lower arms of the respective pairs of arms being pivoted at *d' d'* to the pendent portion of the bracket at opposite sides of the main support. At their outer ends the parallel arms are jointed to a chair body carrier E, the pair of arms C C being pivoted to the carrier at *e e*, and the pair of arms C' C' pivoted thereto at *e' e'*. It will of course be understood that the distance between the pivots of either pair of arms at their outer ends is the same as that between the pivots at their inner ends, so as to prevent tilting of the carrier and maintain it in proper upright position throughout the vertical adjustments imparted to it by rocking the parallel arms about their pivotal connec-

tions with the main support. The chair body has suitable supporting connection with its carrier E, constituting a part of the supplementary elevating and lowering mechanism.

5 To hold this mechanism in its adjusted position detent devices are provided as follows: A pawl I on a rock shaft J carried by the carrier E is adapted to be thrown into and out of engagement with a ratchet rack or detent
10 teeth I' carried by one of the lower arms of one of the pairs of parallel arms. A handle J' serves to actuate the rock shaft to operate the pawl which normally is in engagement with the ratchet rack. But three positions of
15 adjustment of the supplementary elevating and lowering mechanism independently of the main elevating and lowering support are provided in the construction shown, the rack being provided with three teeth. More or less
20 teeth might be provided if desired, and the parallel arms lengthened or shortened as occasion might require.

The chair-body is jointed to its carrier of the supplementary elevating and lowering
25 mechanism, journals or trunnions F F of the carrier entering bearings *ff* of the chair-body, so that the chair-body may be tilted vertically upon the supplementary elevating and lowering mechanism to vary its inclination by being
30 rocked about the trunnions of the carrier portion of this mechanism.

The chair-body tilting and securing mechanism is substantially such as shown in the before-mentioned patents, the lever of the
35 tilting mechanism being, however, mounted upon the supplementary elevating and lowering mechanism instead of being located as in said patents. This tilting mechanism comprises the lever G fulcrumed at *g* upon the
40 chair-body carrier E of the supplementary elevating and lowering mechanism, and acted upon by the spring H, the tendency of which is to hold the lever engaged with a detent rack *h* on the chair-body and thus lock the body in
45 the position to which it may be adjusted.

To facilitate the actuation of the supplementary elevating and lowering mechanism the weight of the chair-body is approximately counterbalanced so that the operator in raising
50 ing and lowering the chair-body will have to exert but slight force. The counterbalancing of the weight to be raised or lowered is effected by means of coiled springs K K, one spring for each pair of the parallel arms. The spring
55 for either pair of arms is connected at its upper end adjacent to the inner end of the upper arm of the pair and at its lower end connects with the lower arm near its outer end. In this way the force of the springs is being always
60 exerted in a direction to aid in raising the supplementary elevating and lowering mechanism.

A bracket support L for a spittoon, tool tray, &c., is secured to an arm M of the bracket
65 D of the main elevating and lowering support.

From the above description it will be seen that a very wide range of vertical adjustment of the chair-body is provided for; and that the spring-counterbalanced supplementary
70 elevating and lowering mechanism may be quickly and easily adjusted by the dentist before a patient enters the chair so that the chair-body may be brought to approximately the height desired, thus requiring, after the
75 patient is seated, only such further vertical adjustment by way of the main elevating and lowering support as may be found necessary to properly locate the patient. As the raising of the chair-body after the patient's
80 weight is added thereto is a work frequently requiring considerable exertion on the part of the operator, it will be seen that it is desirable to lessen as much as possible the work to be done in lifting the chair body after the
85 patient is seated.

By the employment of the bracket having the downwardly projecting or pendent portion, it will be seen that the lower arms of the pairs of parallel arms have jointed sup-
90 porting connection with the main elevating and lowering support below the upper end thereof, while provision is made for jointing the upper parallel arms in position at or near the level of the upper end of the support,
95 thus enabling the chair body to be freely lowered to the extent desired, while providing for the elevation of the chair body to any height required.

I claim as my invention—

1. The combination of the pedestal or base, the main elevating and lowering support, the bracket rigid with the upper end of said support and having the pendent portion, the upper and lower parallel arms jointed respectively to the upper and pendent portions of the bracket at their inner ends, the chair-body carrier to which said arms are jointed at their outer ends, means for maintaining the parallel arms in their position of adjustment, and the chair body supported by said carrier, substantially as set forth.

2. The combination of the pedestal or base, the main elevating and lowering support, the bracket rigid with the upper end of said support and having the pendent portion, the upper and lower spring-counterbalanced parallel arms jointed respectively to the upper and pendent portions of the bracket at their inner ends, the chair-body carrier to which said arms are jointed at their outer ends, means for maintaining the parallel arms in their position of adjustment, and the tilting chair-body supported by said carrier, substantially as set forth.

3. The combination of the pedestal or base, the main elevating and lowering support, the forked bracket rigid with the upper end of the support, the spring-counterbalanced parallel arms having jointed connection at their inner ends with said bracket, the chair-body carrier to which said arms are jointed at their

outer ends, means for maintaining the parallel arms in their position of adjustment, the chair-body having jointed supporting connection with said carrier, and means for tilting
5 the chair body upon its carrier and for securing it in its tilted position, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ARTHUR W. BROWNE.

Witnesses:

GEO. D. HECK,
GRANT CARPENTER.