

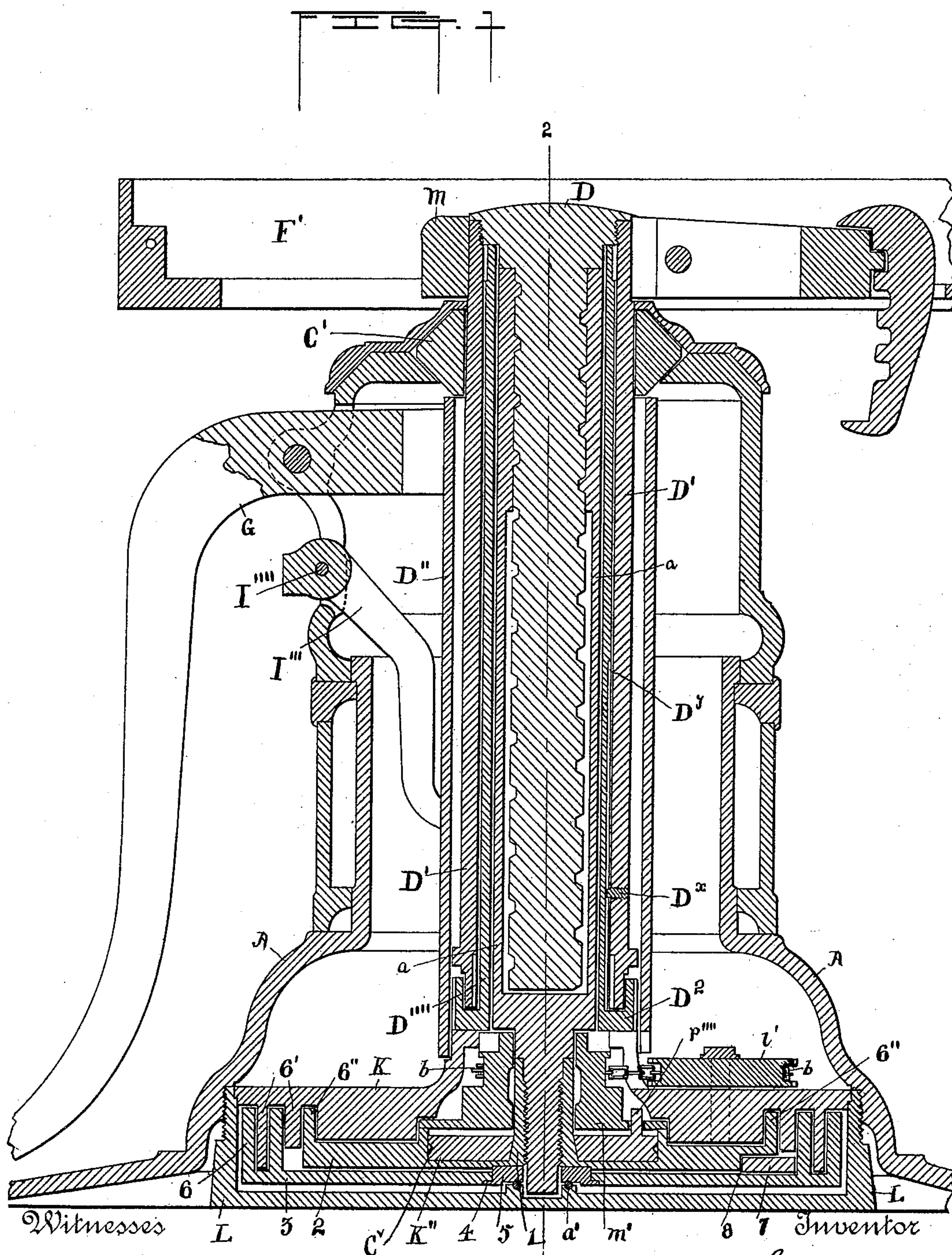
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4 Sheets—Sheet 1.

D. STUCK.
DENTAL CHAIR.

No. 465,953.

Patented Dec. 29, 1891.



Witnesses
Arch. M. Collins.
M. B. Snyder.

Inventor
Dewell Stuck
by

Benj. R. Gathie Attorney

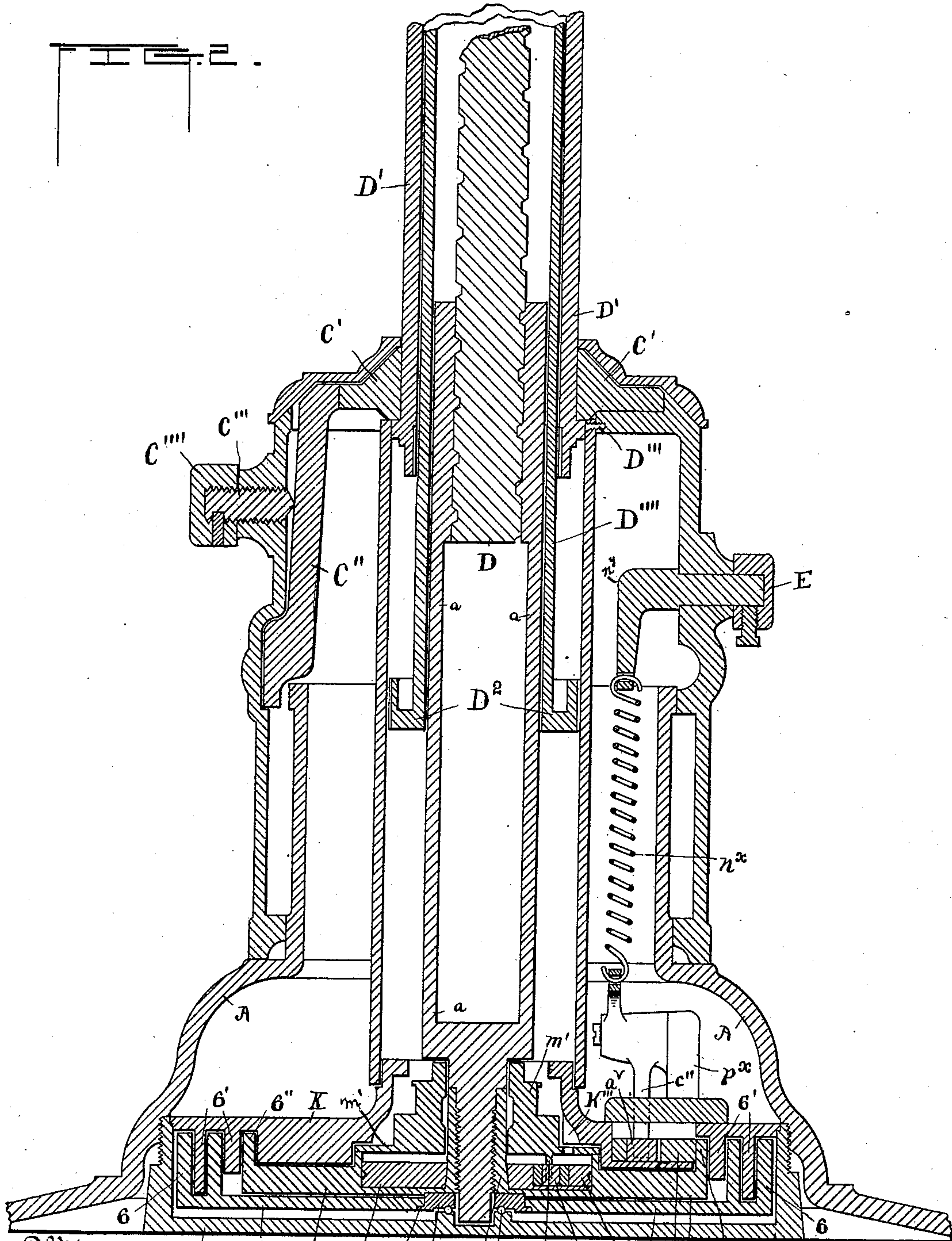
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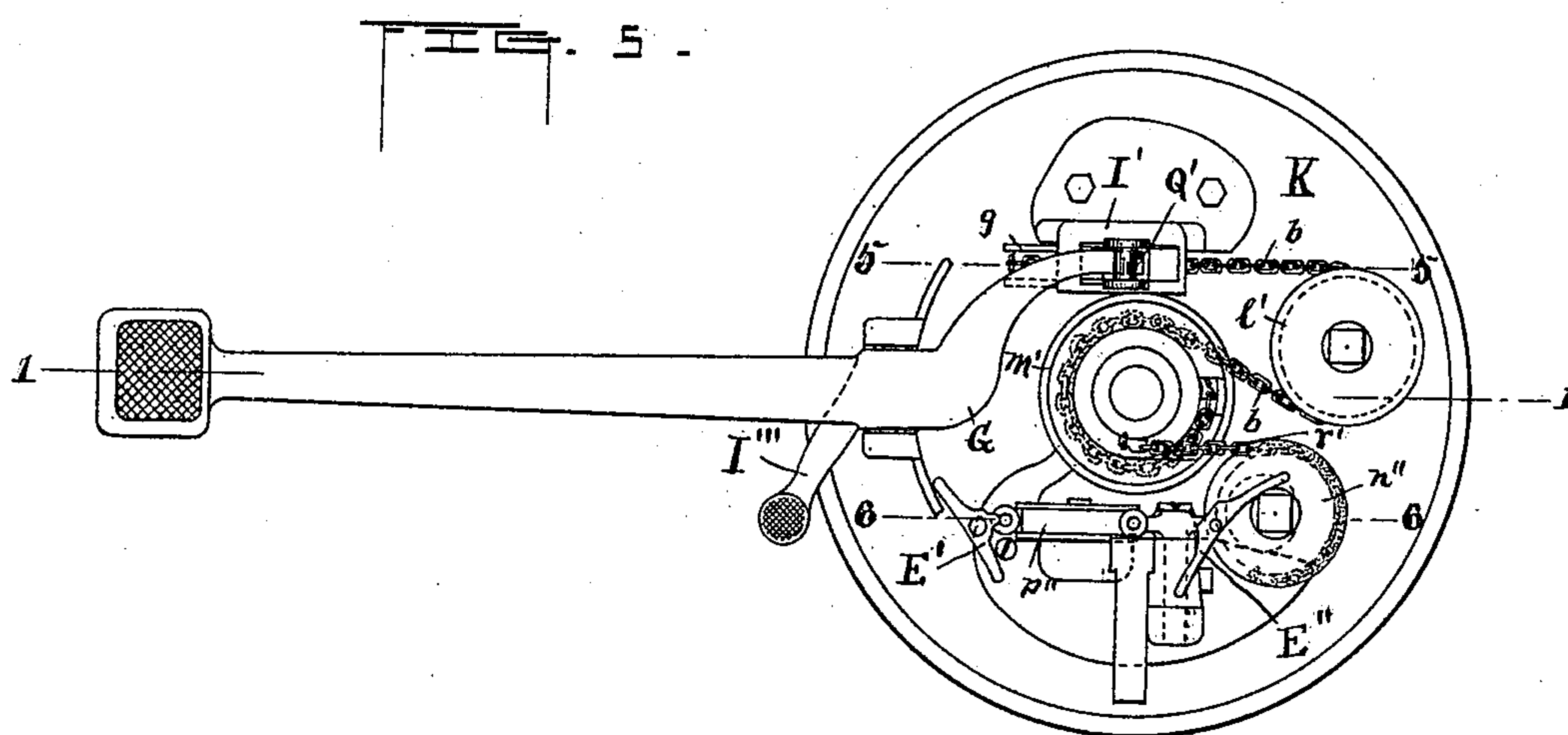
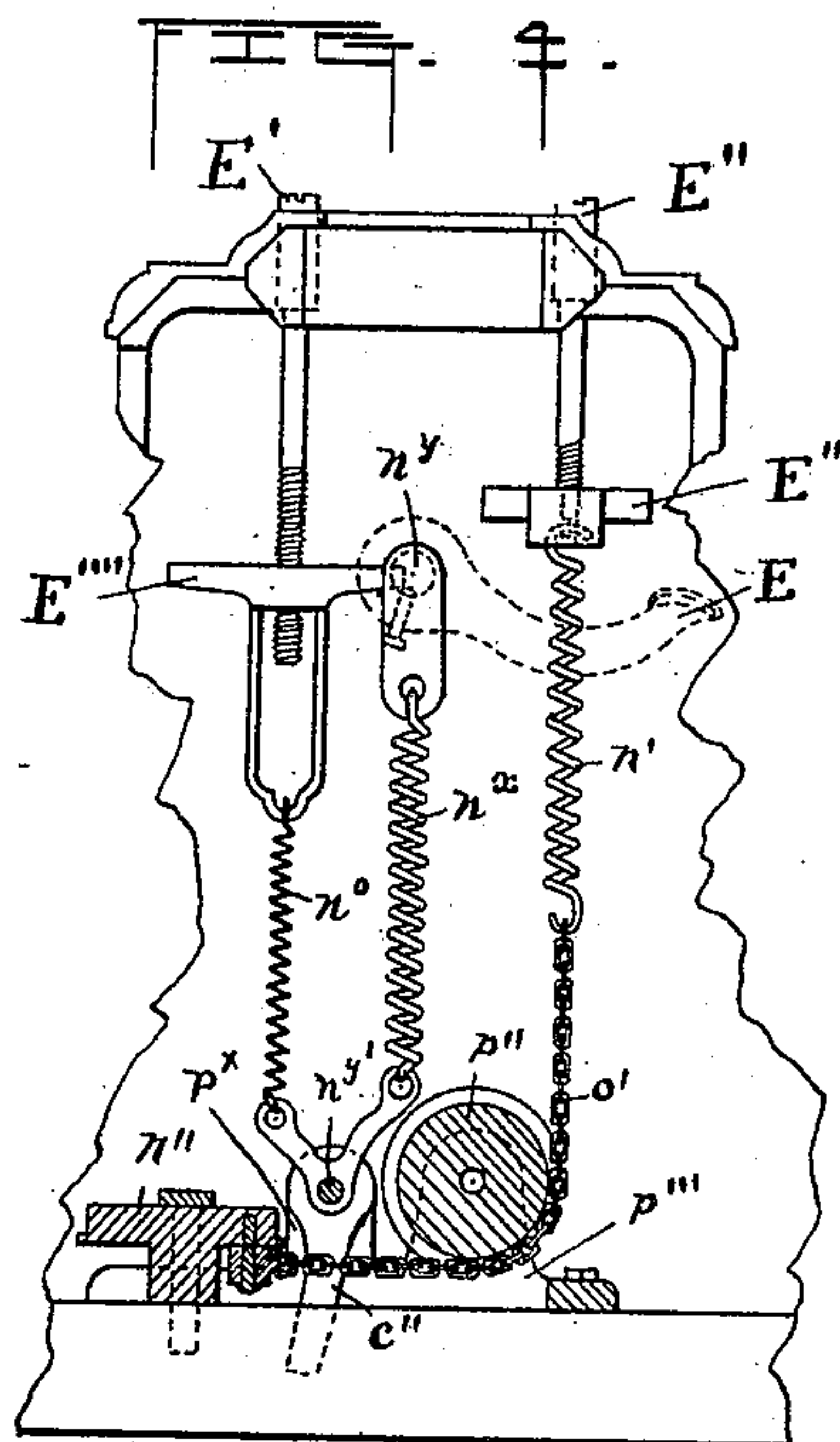
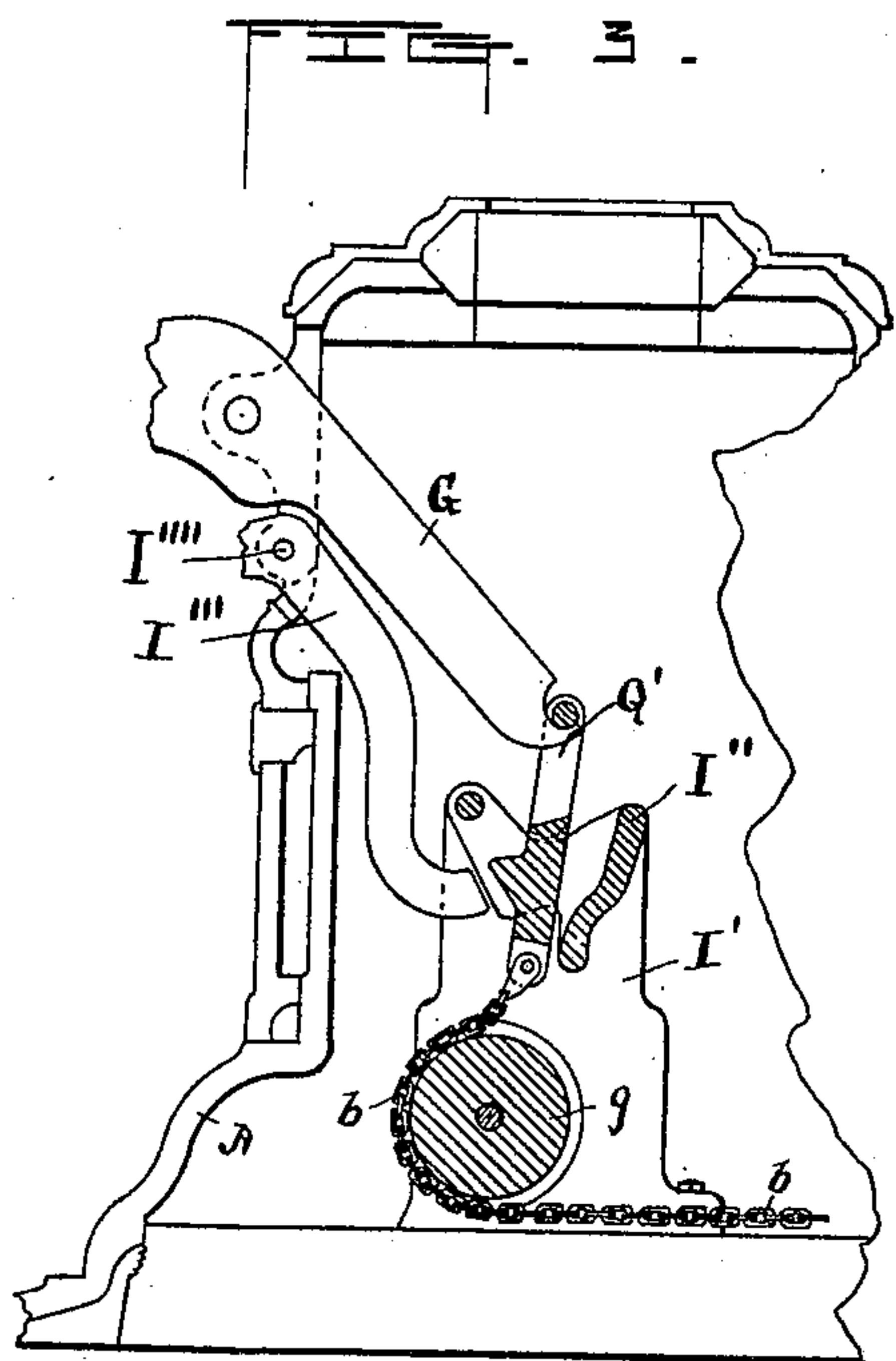
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by
Benj. R. Catlin Attorney

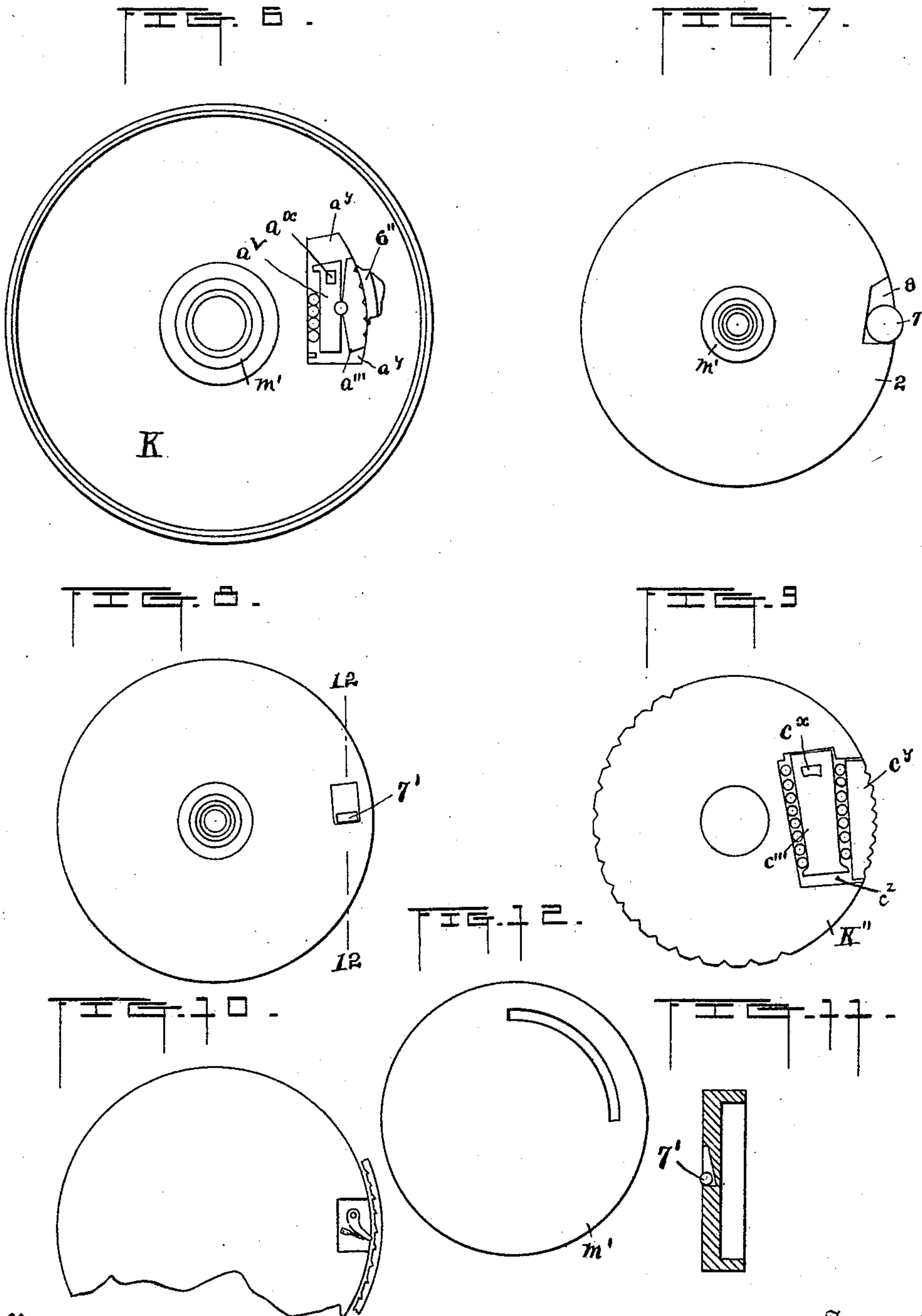
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M. R. Snyder.

Inventor
Dewell Stuck
by
Benj. R. Catlin Attorney

UNITED STATES PATENT OFFICE.

DEWELL STUCK, OF ROCHESTER, NEW YORK.

DENTAL CHAIR.

SPECIFICATION forming part of Letters Patent No. 465,953, dated December 29, 1891.

Application filed March 26, 1891. Serial No. 386,427. (No model.)

To all whom it may concern:

Be it known that I, DEWELL STUCK, a resident of Rochester, in the county of Monroe 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 pertains to make and use the same.

The invention relates to means for retarding the descent of the seat of a dental chair; and it consists in the devices hereinafter described, and particularly pointed out.

In the accompanying drawings, Figure 1 is a sectional view on line 1 1 of Fig. 5. Fig. 2 is a partial section on line 2 2 of Fig. 1. Fig. 3 is a partial section on line 5 5 of Fig. 5. Fig. 4 is a similar view on line 6 6 of the same figure. Fig. 5 is a partial plan of the seat-raising mechanism, the elevating-screw and surrounding tubes being omitted. Fig. 6 is a plan, partially broken, of the cover of the pan in the base. Fig. 7 is a bottom plan of a wheel immediately below the cover, showing a clamping-disk. Fig. 8 is a similar view of a modification of the clamp. Fig. 9 is a plan of another clamping-disk situated in a recess in the aforesaid wheel. Fig. 10 is a partial view of a modification of the device shown in Fig. 7. Fig. 11 is a section on line 12 12 of Fig. 8, and Fig. 12 is a bottom view of a pulley shown in section in Figs. 1 and 2.

The improvement is applicable to a chair in which the seat is elevated by turning a sleeve *a*, having an internally-threaded portion adapted to engage a screw *D*, secured to the seat.

D' is a tube or plunger connected to screw *D* and movable with it.

D'' is a tube surrounding plunger *D'*, and is fixed at *D'''* to the chair-pedestal.

D'''' is a tube within the plunger, and is moved upwardly by it when the pin *D^x*, fast on the plunger, engages the upper end of the groove *D^y*, formed in tube *D''''*. This tube has at its foot a cup *D^z*, adapted to receive and support the foot of the plunger. These tubes *D''* and *D''''* guide and support the plunger laterally, and indirectly steady the

movement of the screw *D*, to which the plunger is attached.

C' is a two-part clamping-ring supported in the top of the pedestal and adapted to be clamped upon the plunger by means of a lever *C''*, operated through the medium of a screw *C'''*, having a handle *C''''*.

The sleeve *a* has at its foot a solid portion connected to a sleeved portion 1 of a wheel-section 2, which rests upon balls *a'*, which in turn are supported upon a ring formed on the bottom of a shallow pan *L*, around its center. *m'* is a pulley made fast on said sleeve and adapted to be rotated by chains or like connections. Such devices are illustrated in the drawings.

G indicates a lever having a fulcrum in the chair-standard and provided with a hook adapted to engage a link *Q'*, which is normally supported in the fork of the post *I'*, which is bolted to cover *K*. This forked post has a stop *I''* to arrest the lateral movement of the foot of the link when its top is pushed off the hook by the lever *I'''*, having its fulcrum at *I''''* in the chair-standard. To this link is connected a chain *b*, which, passing about guide-pulleys *g* on the post *I'* and *l'* on cover *K*, is attached to the main pulley *m'*, which latter is mediately connected to the internally-threaded sleeve *a*, which engages the seat-raising screw *D*, upon which is supported the seat-frame. A second chain *r'* connects said main seat-elevating pulley *m'* and the guide-pulley *n''* on the cover *K*, said pulley *n''* being attached to the spring *n'*, which is fastened to *E'''* by a chain *o'*, passing about pulley *p''* on post *p'''*. The chair-seat is raised by depressing the outer end of the lever *G*, thus through the medium of the aforesaid chains and pulleys revolving the internally-threaded sleeve *a* and raising the screw *D*. This operation puts the spring *n'* under tension, and the function of the latter is to return the lever and intermediate parts to their initial position, the sleeve, screw, and chair-seat being held up or against return by the automatic action of a spring-controlled pivoted arm *c''*, fixed to post *P^x*, which arm engages a clamping-block *a^y*, situated in the recess *a^y* in cover *K*, (see Fig. 6.) said arm en-

tering a hole a^x , made in the same for the purpose, by which block the wedge a''' is forced against the flange $6''$ of the disk 2, the side of the recess in cover K being cut away for the purpose, as indicated in Fig. 2. The edge of said wedge is serrated or roughened to increase its friction. This wedge or clamp is released when it is desired to lower the seat by means of the lever E, which can be operated to move the block a^x through the medium of the rock-shaft n^x , journaled in the chair-standard, and spring n^x , connecting the same to the rock-shaft n^z , supported in post p^x , and to withdraw the serrated edge of clamping-wedge from contact with the wall $6''$ of the wheel-section 2, fixed on sleeve a by relaxing the tension of spring n^x and permitting spring n^o to suitably move the rock-shaft n^y .

E' and E'' are screws adjustably supporting the blocks E''' and E''', to which are connected the retracting-springs n' and n^o .

The pulley m' is clamped to the wheel-section 2, that is fast on the elevating-sleeve a , by the action of the clamping-wedge c''' , located in a recess c^z in the disk K'', situated in a recess c^v in section 2 of the resistance-wheel and controlled by the pin c'''' , (see Fig. 2,) fast on the bottom of said pulley, which pin enters the hole c^x (see Fig. 9) in said wedge c''' .

c^v is a wedge located in recess c^z , having a serrated edge adapted to produce friction on wall of the recess c^v in the central section 2 of the resistance-wheel. A reverse movement of the pulley, such as occurs when the spring n' is allowed to retract to raise lever G to its initial position, is not opposed by said clamp. The pin p'''' , fast on disk K'' and working in a slot in the bottom of pulley m' , is adapted to limit the relative movements of said pulley and disk by engaging a shoulder K''' on the cover K. The rotation of the pulley and sleeve upon the balls a' , which hold these parts from descending, raises the screw D and the seat affixed thereto. Said seat when not held up by a locking device or equivalent descends by gravity, the tube a being turned by the weight of the chair and its occupant. To retard this effect and prevent too rapid revolution of the aforesaid sleeve and too sudden a drop of the seat, a resistance device is provided, which consists of a wheel made in annular sections 2 and 3, one of which is secured to the revolving tube a and arranged to revolve in a liquid or-retarding medium, such as glycerine or oil, held in a suitable pan L, which may be screwed into the chair-base A, as shown. The central section 2 of the resistance-wheel is made integral with the sleeve 1, which is secured to and is in effect a part of sleeve a and revolves with it. The outer wheel-section 3 extends under the smaller one, and at its center rests loosely upon the rim 4 of an inverted cap 5. It is also provided with vertical annular flanges 6. The

pan-cover K may have similar flanges $6'$ alternating with those of the wheel.

$6''$ is a flange on the inner or upper wheel-section. These flanges add to the retarding effect of the liquid contained in the pan, and as they may be concentric and in close proximity to each other they produce a large amount of friction without dashing the liquid about in a noisy and objectionable manner.

The outer section of the wheel is adapted to remain at rest when tube a is being revolved to raise the seat, but becomes connected therewith and with the inner section when said tube is revolved in the opposite direction to lower the seat by means of an automatically-acting locking device 7. This consists of a wheel or disk lying loosely in a recess 8, formed between the two sections. Said recess has one end wider than the other, as shown. In the form shown in Fig. 1 the wheel is adapted to bear on opposite vertical faces on the two sections whenever the tube is revolved to lower the seat, the wheel being thereby moved into the narrower end of its recess and pressing against both walls. A slight movement of the sections in the opposite direction releases the wheel and moves it toward the larger end of the recess, thereby allowing the outer and lower wheel-sections 3 to rest, while the other section 2 may continue to revolve. By this means the resistance of the liquid in the pan upon both sections is utilized to retard the descent of the chair-seat, while upon raising said seat only the resistance of the smaller section needs to be overcome. Other devices acting in substantially the same manner as disks 7 may readily be supplied. Thus a pawl and ratchet such as indicated in Fig. 10 might be used instead of the wheel; or a roller 7', (see Figs. 8 and 11,) adapted to act between horizontal faces, could be substituted. The gist of the invention does not consist in these particular forms of a locking device, nor in the number or size of the wheel-sections, nor in the number or size of the retarding-flanges, and these may be varied by mechanical skill so long as substantially the same mode of operation is maintained.

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

1. In a dental chair and fixed to a revolving part thereof to retard its motion, a resistance-wheel having sections, a locking device between the sections adapted to lock the said sections together when they are revolved in one direction and to be automatically disengaged when they are revolved in the other, in combination with a liquid-holding pan, substantially as set forth.

2. In a dental chair and fixed to a revolving part thereof to retard its motion, a resistance-wheel having sections provided with adjacent annular flanges, a locking device between the sections adapted to lock said sec-

tions together when they are revolved in one direction and to be automatically disengaged when they are revolved in the other, in combination with a liquid-holding pan, substantially as set forth.

5 3. In a dental chair and fixed to a revolving part thereof to retard its motion, a resistance-wheel having sections provided with adjacent annular flanges, a pan-covering having a similar flange adjacent to a wheel-flange, a locking device between the sections adapted to lock the said sections together when

they are revolved in one direction and to be automatically disengaged when they are revolved in the other, in combination with a liquid-holding pan, substantially as set forth. 15

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

DEWELL STUCK.

Witnesses:

JOHN E. BAKER,
W. MARTIN JONES.