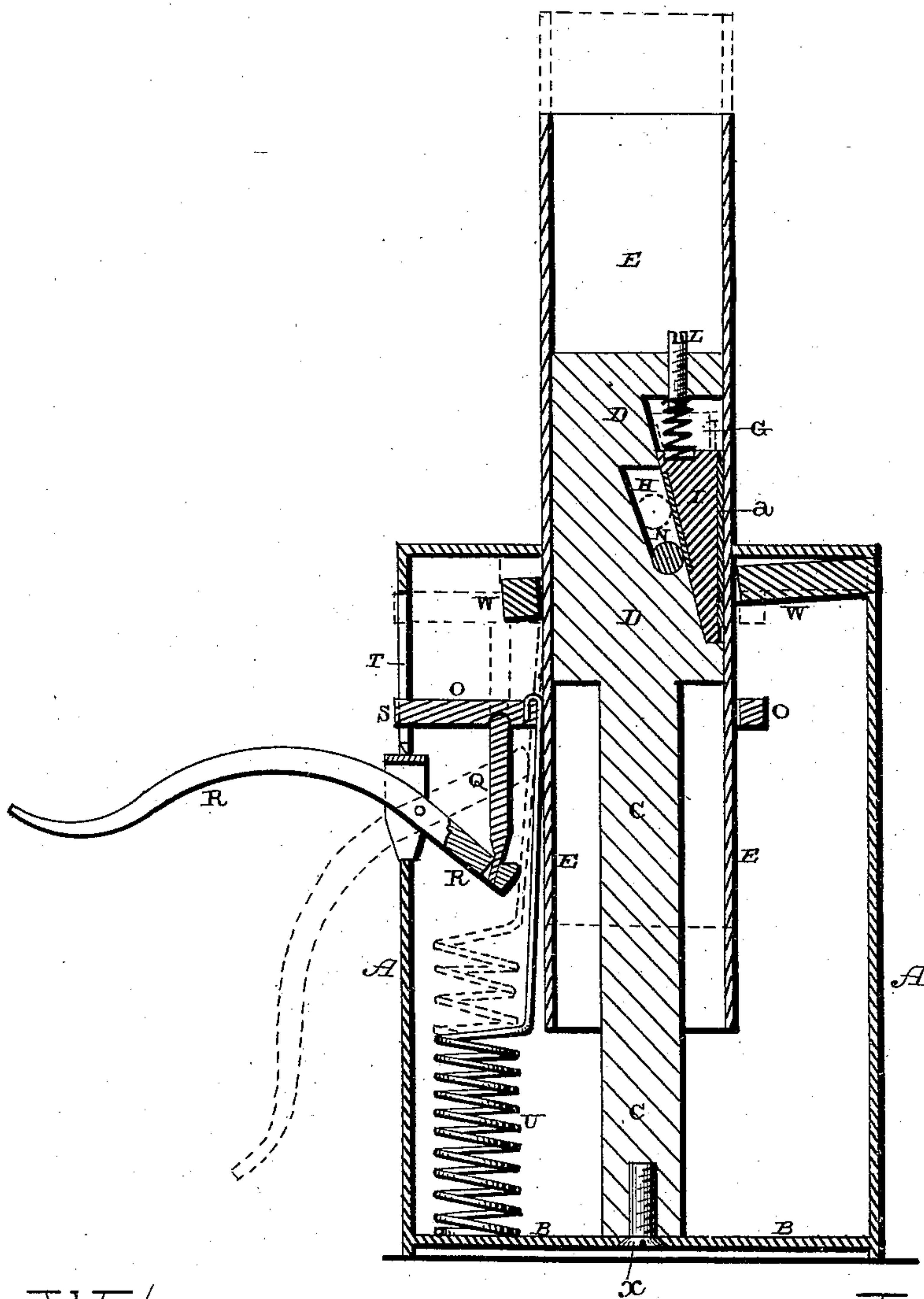


(No Model.)

D. STUCK.
DENTAL CHAIR.

No. 376,016.

Patented Jan. 3, 1888.



Witnesses.
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UNITED STATES PATENT OFFICE.

DEWELL STUCK, OF BIG RAPIDS, MICHIGAN.

DENTAL CHAIR.

SPECIFICATION forming part of Letters Patent No. 376,016, dated January 3, 1888.

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To all whom it may concern:

Be it known that I, DEWELL STUCK, of Big Rapids, in the county of Mecosta and State of Michigan, 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 it, reference being had to the accompanying drawing, which forms part of this specification.

My invention relates to an improvement in dental chairs; and it consists in the combination of a suitable frame-work, a rod, which is mounted thereon and has a free turning movement, the tube, which is connected to the bottom of the chair and passes down over the head, which is secured to the upper end of the rod, a roller and a friction device, which are placed in recesses in the head, and which regulate the descent of the chair, and the two independent clutches which operate upon the tube, all of which will be more fully described hereinafter.

The object of my invention is to produce a raising and lowering mechanism for a dental chair by means of which the chair can be raised and then made to slowly descend from the weight of the person sitting upon it when the frictional clamps are operated for that purpose.

The accompanying drawing represents a vertical section of a chair embodying my invention.

A represents a suitable frame-work, which is here shown as circular in shape, and across the bottom of which extends the supporting cross-piece B. Rising from the center of the cross-piece B is the rod or post C, which has an enlarged head, D, secured to its upper end, and which head D fits inside the tube E, secured to the under side of the chair, and acts as a guide for the tube in all of its movements. This post C has a free turning movement upon the piece B, so that the chair can be freely turned in any desired direction. The screw x merely passes through the cross-piece B and serves to secure the post in a vertical position, but allows it to be freely turned around with the chair. By this construction the post and tube turn together, so as to avoid any un-

necessary friction of the tube upon the other parts. The length of this head is sufficiently great to prevent the slightest lateral movement of the tube, and hence as the chair rises and falls the tube always maintains a vertical position. This head extends a suitable distance above the top of the frame, and in one side are made the two inclined recesses G H, of which the outer one, G, is longest. In this recess G is placed the wedge-shaped frictional device I, which has its thickest end uppermost, and is provided with a leather, a, or other suitable covering upon its outer side where it comes in contact with the inner side of the tube, for the purpose of exerting a greater frictional contact upon the tube as the chair descends. This frictional device is shorter than the recess in which it is placed, so as to allow the device an endwise sliding movement.

When the chair is being raised upward, there is no need for any frictional contact of the device I with the inner side of the tube, and then the device I rises with the tube and is forced into the upper and deepest part of the recess G, and is thus moved out of forcible contact with the side of the tube. As soon as the upward motion of the tube ceases the frictional device I drops in the recess G from its own gravity sufficiently far to again engage with the inner side of the tube. The higher the frictional device is moved in the recess G the more it is brought out of contact with the tube, and hence the less it interferes with its movement in either direction. In direct proportion as the frictional device drops in the recess G so is the movement of the chair retarded. In order to regulate the distance that this device I shall move upward in the slot, the set-screw L is passed down through the top of the head into the upper end of the recess G, so as to act as a stop to the upward movement of the device I by resting against a spiral spring inserted in its upper end.

In the recess H, which is also made tapering and inclined in the same direction as the one G, is placed a roller, N, which bears against the upper side of the device I for the purpose of forcing it outward against the inner side of the tube when the chair is descending. The roller N has a suitable amount of movement in the recess H, and when it is moved upward

into the deepest end of the recess by the upward movement of the device I in the recess G it forces the device I outward to a very slight extent. In proportion as the roller drops downward in the recess H, so it forces the device I outward in its recess, and thus causes it to exert a frictional contact against the inner side of the tube. This roller rises with the device I as the device is carried upward by the tube, and as the tube descends and carries the device I downward, so the roller sinks down in its recess.

Placed around the tube, inside of the frame A, is the frictional clutch O, which is supported both by frictional contact with the tube and by the connecting rod Q, which acts as a support for one side, and transmits the motion of the lever R to the clutch. Formed on one side of this clutch is an extension, S, which catches in a slot, T, made in the side of the frame for the purpose of preventing the clutch from turning upon the tube. Connected to the clutch is the upper end of the spring U, which is secured at its lower end to the cross-piece B, which spring draws the clutch downward as soon as it is left free to move after having been raised upward; also, surrounding the tube to which the chair is connected is a second clutch, W, which has its outer end passed through and held in the opposite side of the frame-work from the end of the clutch O. This clutch sinks downward with the tube, as shown in solid lines, so as to grip the tube and prevent any downward motion while the lower clutch, O, is descending for another hold. The upward movement of this clutch W is regulated by the top of the frame A, against which it strikes. When the lower clutch, O, is raised upward to its full extent, it strikes against the under side of the clutch W and raises it against the top of the frame, as shown in dotted lines. While the two clutches O W are held in this raised position they do not grip the sides of the tube, and hence the tube is left free to descend, being controlled only by the frictional devices placed inside of the tube for that purpose.

It will be seen that the two clutches operate independently of each other until the chair is to be lowered, and then the lower clutch operates upon one, so as to leave the chair free to descend. Were it not for this upper clutch, each time that the clutch O is lowered for another hold the chair would sink downward.

Having thus described my invention, I claim—

1. The combination of the frame, the rod C, placed therein and provided with a guiding-head upon its upper end for the tube, and having two inclined recesses in the side of

this head, and which are placed one inside of the other and communicate together, the frictional roller placed in the inner recess, the wedge-shaped frictional device placed in the outer recess and bearing against the inner side of the tube and the outer side of the roller, and the vertically-moving tube which fits down over the head, substantially as shown.

2. The combination of the frame, the rod C, provided with a head upon its upper end which has two inclined communicating recesses formed in its side, the friction-roller placed in the inner recess, the wedge-shaped frictional device placed in the outer recess and bearing against the roller and the inner side of the tube, the set-screw which passes into the upper end of the outer recess to limit the upward movement of the frictional device, and the vertically-moving tube which fits down over the head, substantially as described.

3. The combination of the frame, the vertical rod provided with a head which has the two inclined communicating recesses formed in one side, the friction roller placed in the inner recess, the wedge shaped frictional device placed in the outer recess and bearing against both the roller and the tube, the clutch O, which engages with the tube, the operating-lever for moving the clutch, the spring connected to the clutch, and the vertically-moving tube, substantially as set forth.

4. The combination of the frame, the vertically-moving tube, the rod C, which extends into the tube and is provided upon its upper end with the guiding-head, which has the two inclined recesses formed in its side, the friction-roller placed in the inner recess, and the wedge shaped frictional device placed in the outer one, the clutch W, supported upon the frame and surrounding the tube, the clutch O, spring-connected thereto, and operating-lever, substantially as specified.

5. In a dental chair, the combination of the headed supporting-rod C, having a frictional device connected thereto, the vertically-moving tube with which the said frictional device engages, a clutch supported by the frame and which automatically engages with the tube to support it in a raised position, a second spring-actuated clutch by which the tube is raised and which also raises the upper clutch to allow the tube to descend, and the operating-lever, substantially as shown.

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

DEWELL STUCK.

Witnesses:

DOUGLAS ROSEN,
ALTON W. BENNETT.