(No Model.) 2 Sheets—Sheet 1.

R. G. WALLACE & C. H. SNYDER.

DENTAL CHAIR.

No. 304,876. Patented Sept. 9, 1884.

Fig. 1.

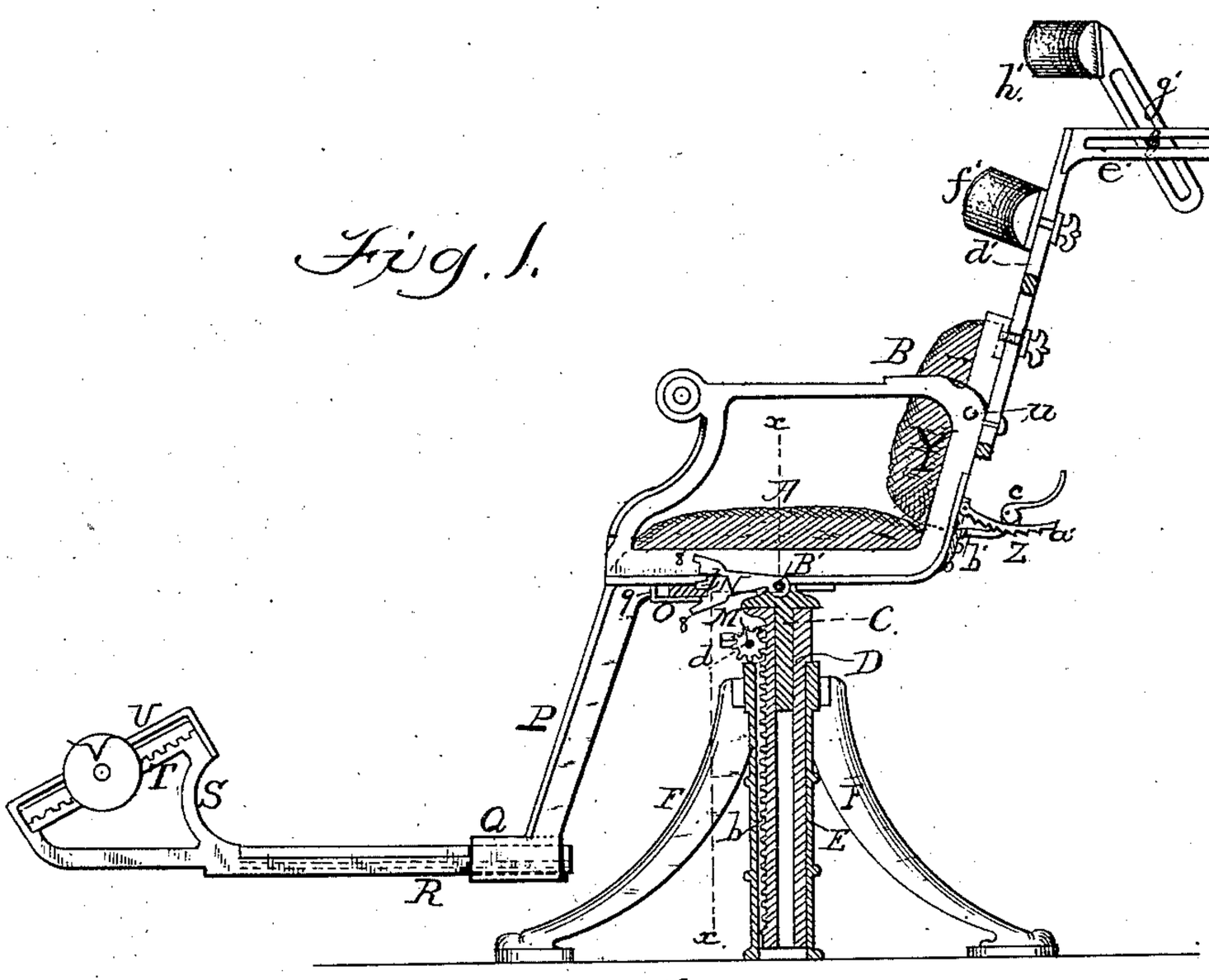


Fig. 2.

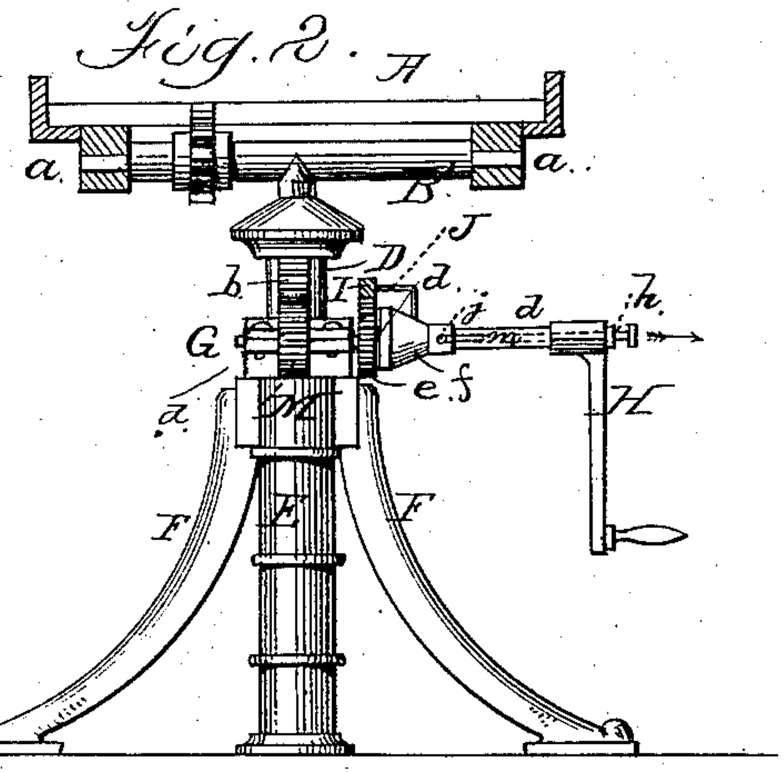


Fig. 3

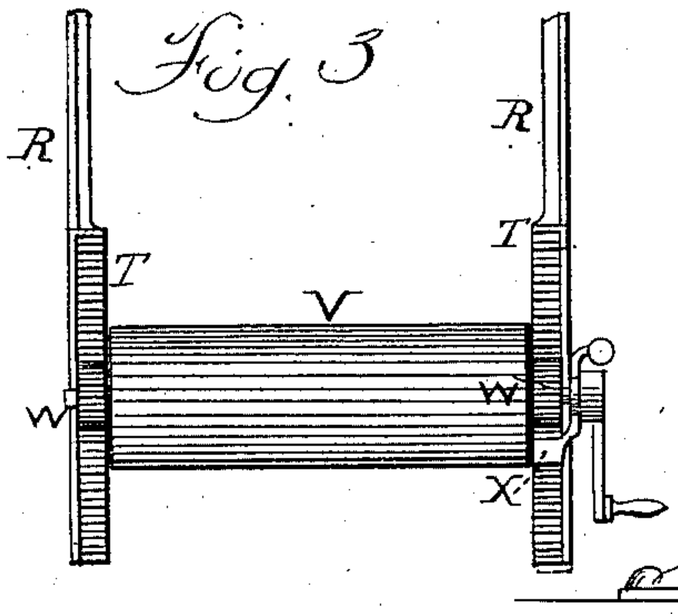
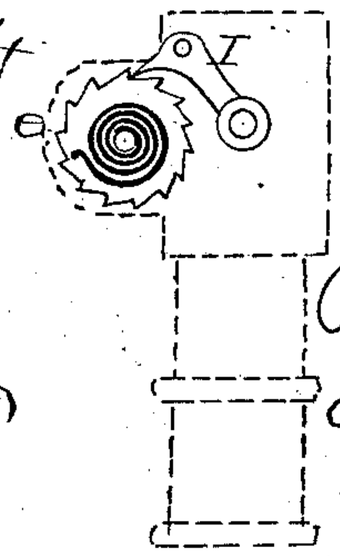


Fig. 4



Attest;

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By Cox & Cox

their Attorneys

(No Model.) 2 Sheets—Sheet 2.

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Fig. 5.

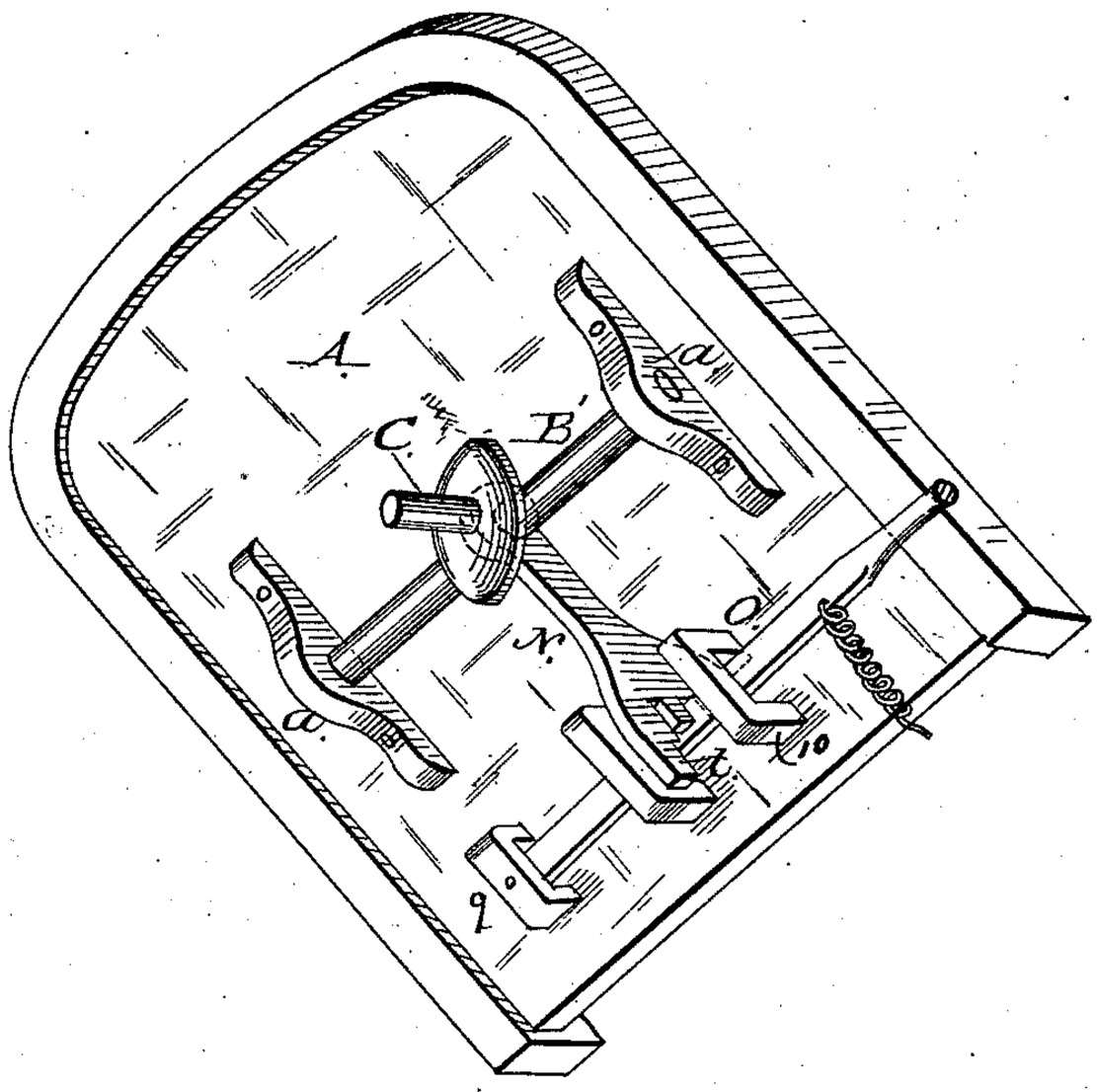
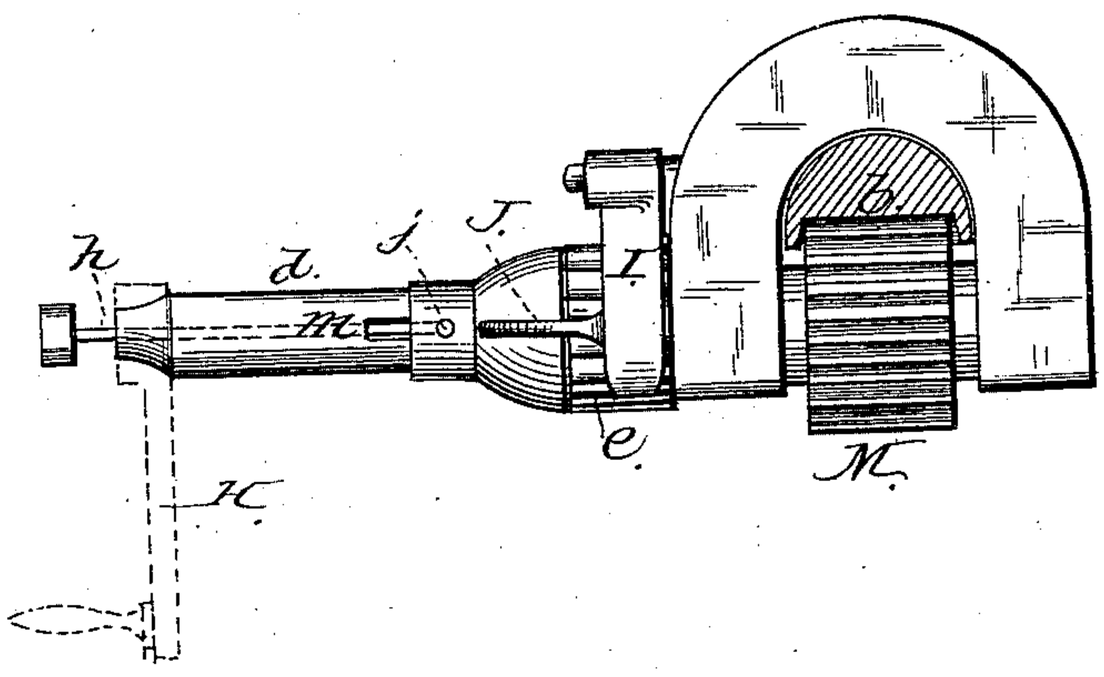


Fig. 6.



Witnesses;
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their attys

UNITED STATES PATENT OFFICE.

ROBERT G. WALLACE AND CHARLES H. SNYDER, OF MANSFIELD, OHIO.

DENTAL CHAIR.

SPECIFICATION forming part of Letters Patent No. 304,876, dated September 9, 1884.

Application filed December 6, 1882. (No model.)

To all whom it may concern:

Be it known that we, ROBERT G. WALLACE and CHARLES H. SNYDER, citizens of the United States, residing at Mansfield, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Dental Chairs; and we 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.

The invention has relation to improvements in dental chairs; and it consists in a chair of novel construction, which is adjustable in all its parts, whereby it may be arranged to suit the convenience of and facilitate the treatment by the operator.

Referring to the accompanying drawings, Figure 1 is a central vertical longitudinal section of the chair. Fig. 2 is a section through the line *x x*. Fig. 3 is a top view partly in section, of the foot-rest. Fig. 4 is a detached view of the pawl-and-ratchet mechanism which suspends the chair in any fixed position. Fig. 5 is a detached bottom perspective view looking from front to rear, and showing the relative arrangement of the parts N O. Fig. 6 is an enlarged detached view illustrating the pinion M, pawl and ratchet I J, and other elements.

In the drawings, A denotes the seat of the chair having a back, B, of the nature and construction hereinafter described, and having also an adjustable means for elevating or depressing it according to circumstances, an adjustable foot-rest being also supplied, as hereinafter set forth.

Beneath the seat A, at opposite sides, are secured the bearing-boxes *a*, in which is mounted a transverse axle, B′, to the central parts of which is cast or otherwise secured the pivot C, having a head at its upper end, its lower portions extending into the sliding standard D, which is arranged to have a vertical movement in the hollow cylinder E. The cylinder E is sustained by means of the legs F, and may be cast with them if desired. The sliding standard D is a plain shaft cast on one side with a series of ratchet-teeth, *b*, and being hollow to receive the contracted portion of the pivot C.

At the upper end of the cylinder B is provided the transverse journal-box G, in which the shaft *d* has its bearings. The shaft *d* projects outward a suitable distance beyond the edge of the cylinder B, and is provided with a crank, H, by which it may be operated.

Upon the outer portions of the shaft *d*, immediately adjacent to the said journal-box G, is secured the ratchet-wheel *e*, beyond which, also secured upon the shaft, is the sliding cam *f*, which receives its movement through the rod *h*, to which it is connected by the pin *j*. The outer portion of the shaft *d* is made hollow, to receive the rod *h*, and at *m* the shaft is slotted, whereby a pin may be made to connect the sliding cam *f* with the rod *h*, and the sliding movement thus permitted.

Upon the upper portion of the hollow cylinder E is pivoted a spring-pawl, I, which engages the ratchet-wheel *e*, and in the upper end of which is secured one end of the bent rod or lever J, the free end of which terminates in near relation to the inclined surface of the sliding cam *f*. A pinion-wheel, M, is secured upon the shaft *d* in suitable relation to the rack *b*, to engage it when the shaft is rotated by the crank H.

We have described above the mechanism whereby the chair may be adjusted vertically, and the operation of this part of the invention is as follows: If it is desired to depress the chair, the attendant draws the rod *h* outward. This has the effect of sliding the cam *f* outward, and the inclined surface of the said cam, coming in contact with the free end of the bent rod or lever J, operates to elevate the pawl I from the ratchet *e*, at which time the chair may be lowered by turning the crank H to the left. The movement of the crank H is communicated to the wheel M through the shaft *d*, the wheel operating to force the sliding standard supporting the chair upward by its engagement with the toothed rack *b*.

The chair may be inclined toward the front or rear upon the axle B′ at will, and may be sustained in any set inclination by the engagement of the notches *t* in the lever N, rigidly

connected with said axle, with the edge of the lever O, as indicated in Figs. 1 and 5. The outer fingers, S, formed on the upper and lower extremities of the notched edge of the lever N, are for the purpose of preventing the entire disengagement of the lever O from the lever N. The said fingers S therefore operate as a safeguard against the chair seat and back ever turning backward sufficiently to unseat the patient, even should the operator fail to give the engaging-levers N O any attention, or be careless in their adjustment when inclining the chair back and seat. The lever O is pivoted in the box 9, and its front end has a limited movement in the box 10, which assists, also, in preventing the lever O from becoming entirely disengaged from the lever N.

From the front edge of the seat of the chair depend downward at opposite corners the bars P, having horizontal sections Q on their lower ends, which sections are grooved on their sides, as indicated by dotted line, to receive the side bars, R, of the foot-rest attachment. These side bars extend forward a proper distance, and are capable of a sliding movement in the grooves of the sections Q, whereby the foot-rest may be adjusted at will toward or from the chair. The front ends of the side bars, R, are provided with a bracket, S, upon which are secured the inclined racks T, which racks are covered with a cap, U, to prevent the foot-rest roller slipping from the machine.

V denotes the foot-rest roller, which is provided with a central axle, upon the outer ends of which are secured the pinion-wheels W, which mesh with the racks T, whereby the foot-rest roller may be moved upward or downward on the said racks, and adjusted to suit the pleasure of the attendant.

Upon one end of the central axle passing through the foot-rest roller is secured, beyond the pinion-wheel W, the pawl X, which is adapted to engage the teeth of the racks T at the proper time, and thus prevent the pinions W from moving after the foot-rest roller has been adjusted.

The portion Y of the back of the chair is properly padded, and is pivoted at *u* between the rear portions of the side arms of the chair, whereby it may be inclined to fit the back of the person sitting in the chair.

In rear of the back portion, Y, and adjacent to the base thereof, is provided the pawl-and-ratchet mechanism Z, for locking the back Y in any position to which it may be adjusted.

The ratchet mechanism Z consists of the pivoted rack *a'*, secured to the back of the chair, the bracket *b'*, secured to the lower rigid portion of the chair-seat and in which the rack moves, and the cam or eccentric *c*, whereby the rack is locked against the bracket and the back of the chair thus prevented from moving.

Upon the back Y is adjustably secured, by thumb-screws, the sliding section *d'*, having at its upper end the horizontal slotted portion *e'*.

In the section *d'* is adjustably secured in the slot by set-screws, the adjustable shoulder-rest *f'*, which may be moved vertically at will, and in the horizontal section *e'* is secured upon the upper ends of the slotted side bars, G', the head-rest *h'*. The side bars, G', are slotted, and through their slots are passed suitable set-screws, which also pass through the slots in the horizontal arm *e'*, whereby the head-rest *h'* may be secured toward or from the chair or swung in the arc of a circle, according to the use to which it is to be applied. The rest *f'* is longer than the rest *h'*, and is adjustable with relation to the shoulders of the person in the chair, while the rest *h'* is for the head alone. The lower part of the back of the patient is supported by the back Y, the shoulders by the rest *f'*, and the head by the rest *h'*.

It will be observed that the chair hereinbefore described is adjustable in all its parts, whereby comfort is secured to the person using it, and the treatment of the attendant is facilitated.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In a chair, the cylinder E, mounted upon legs, and the standard D, sustaining the chair-seat, and having a rack upon its side, in combination with the axle B, pinion M, pawl I, ratchet *e*, and means, substantially as described, for disengaging the pawl from the ratchet when desired.

2. The chair mounted upon the axle B', and having a pivot, C, in combination with the sliding standard D, supplied with a rack on its side, the cylinder E, pinion M, axle B', pawl I, ratchet *e*, rod J, cam *f*, and rod *h*, substantially as set forth.

3. The chair-seat having at its front corners the bars P, provided with horizontal sections Q, containing grooves, in combination with the sides R, fitted in said grooves, the brackets S, formed on the front ends of sides R, the inclined and covered racks T, supported by the brackets, the foot-rest roller V, having an axle upon which are mounted the pinions W, and also the weighted pawl X, substantially as specified.

In testimony whereof we affix our signatures in presence of two witnesses.

ROBERT G. WALLACE.
CHARLES H. SNYDER.

Witnesses:
THOS. E. BARROW,
W. S. BRADFORD.