2 Sheets—Sheet 1.

J. B. NEWBROUGH.

DENTISTS' CHAIR.

No. 170,012.

Patented Nov. 16, 1875.

Fig 1.

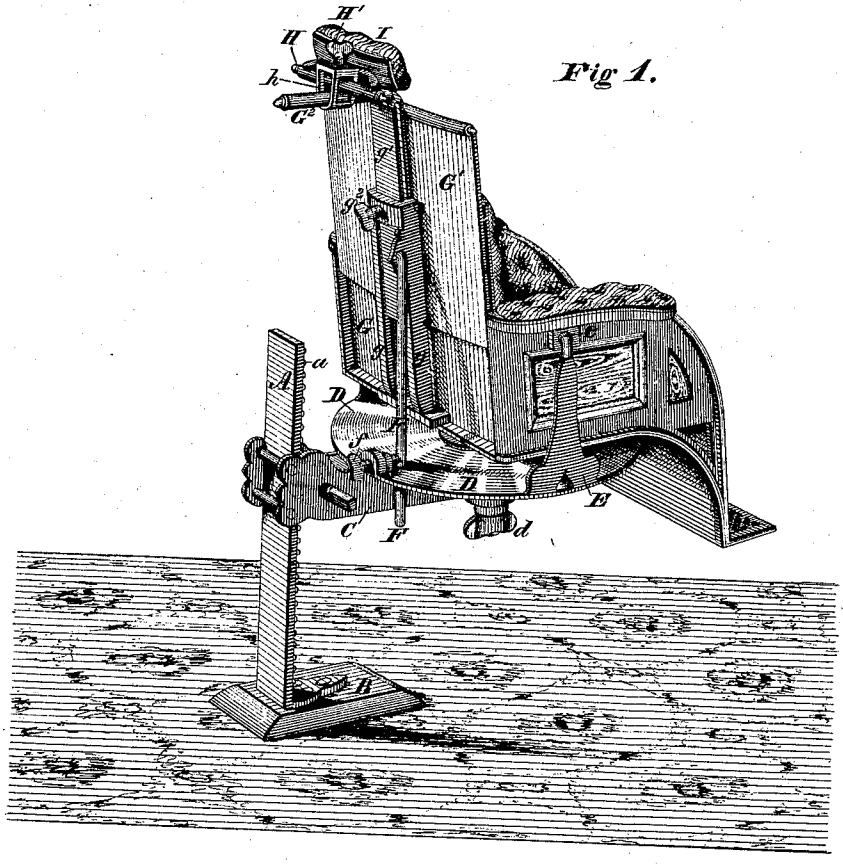
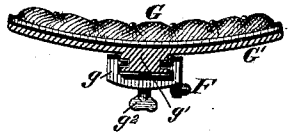


Fig 3.



WITNESSES

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2 Sheets—Sheet 2.

J. B. NEWBROUGH.

DENTISTS' CHAIR.

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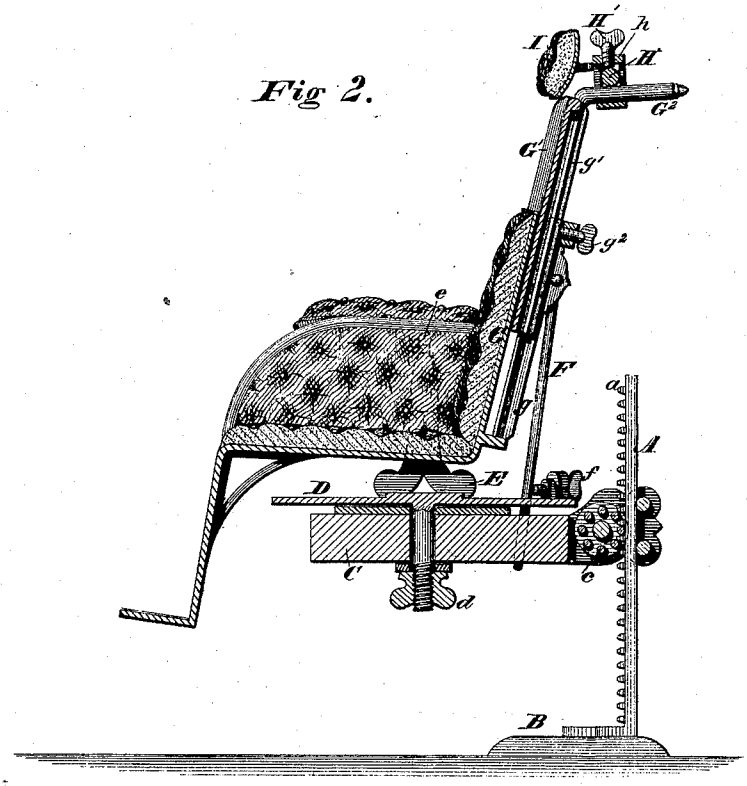
Fig 2.



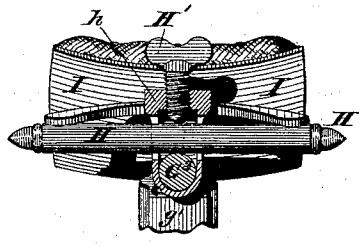


Fig 4.

WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN B. NEWBROUGH, OF NEW YORK, N. Y., ASSIGNOR TO SAMUEL S. WHITE, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN DENTISTS' CHAIRS.

Specification forming part of Letters Patent No. **170,012**, dated November 16, 1875; application filed April 23, 1875.

To all whom it may concern:

Be it known that I, JOHN B. NEWBROUGH, of the city, county, and State of New York, have invented certain new and useful Improvements in Dentists' Chairs, of which the following is a specification:

My invention relates to a dentist's chair having its seat, back, and head-rest capable of adjustment, to adapt it to the varying circumstances under which it is required to operate.

The objects of the first part of my invention are to mount the chair on a firm support, while rendering it capable of free vertical adjustment, of being readily raised and lowered, and of being automatically locked at any desired height. These objects are attained by mounting the chair frame or support upon a rack-bar, and providing it with gearing to raise and lower the chair, the parts being so organized that the weight of the chair itself causes the gearing to bind in the rack, and thus prevent the descent of the chair.

The object of the next part of my invention is to regulate the horizontal adjustment or oscillation of the chair, which end I attain in the manner hereinafter specifically set forth.

The object of the next part of my invention is to regulate the rocking or tipping of the chair backward or forward, which end I attain in the manner hereinafter specifically set forth.

The object of the next part of my invention is to vary the height of the back of the chair relatively to the seat, which end I attain in the manner hereinafter specifically set forth.

The object of the next part of my invention is to give the head-rest a backward and forward and lateral adjustment, which end I attain by mounting the head-rest on a bar sliding endwise through a loop-bracket clamped by a set-screw upon a supporting-bar mounted on the adjustable portion of the back of the chair, whereby the mechanism for moving the head-rest backward and forward and sidewise, or of varying its inclination, is controlled by a single set-screw.

The accompanying drawings represent all my improvements as embodied in a single chair in the best way now known to me; obviously, however, some of these improvements may be used without the others, and in chairs differing in construction from the one shown in the drawings.

Figure 1 is a perspective view. Fig. 2 is a central vertical longitudinal section. Fig. 3 is a transverse horizontal section through the chair-back. Fig. 4 is a vertical longitudinal section through the head-rest, enlarged.

A strong upright or rack-bar, A, is mounted upon a suitable base, B, or it may, if preferred, be secured firmly to the floor. A rack, *a*, is secured to or forms part of the upright or supporting-post A. A frame, C, consisting in this instance of a horizontal arm projecting laterally from the rack-bar, and provided with a transverse slot, through which the rack-bar passes, has mounted upon it a pinion, *c*, which gears into the rack *a* on the upright. This frame C can be raised to any desired height upon the rack-bar or upright by applying a crank-arm directly upon the shaft of the pinion *c*, or by a train of gearing of well-known construction. The weight and leverage of the supporting-frame, which it will be seen projects wholly in front of or sidewise from the rack-bar, is such as to lock or bind the pinion in the rack, and thus prevent the descent of the supporting-frame without other fastenings; but a ratchet, stop, or pawl may be employed as an additional precaution, although not deemed necessary.

By the mechanism above described, the chair-supporting frame C may readily be adjusted to and held at any desired height.

In order to turn the chair proper horizontally, and to hold it at any desired angle, I mount it in a frame, D, pivoted to the supporting-frame C by means of a set-screw, *d*, which, when loosened, permits the chair and frame D to turn on its pivot, and, when tightened, clamp them securely in their adjusted position.

By this construction, it will be seen that the chair may freely be adjusted horizontally, while supported in any position, from just clear of the floor to the uppermost limit of its vertical adjustment, without interfering with its adjustment on the rack-bar support, as the

turning-frame is located in front or to the side of the rack-bar and clear of it, instead of being above it or its support, as usual.

The chair proper might be rendered adjustable backward or forward by causing this set-screw *d* to slide in a longitudinal slot in the supporting-frame, or providing a similar slot in the frame D.

In order to regulate the rocking or tipping of the chair, I suspend it from the turning-frame D by means of uprights or arms E, on which the arms of the chair are pivoted, so as to allow the chair to rock on its pivots *e*, which are at or above the center of gravity of the person occupying the chair, thus preventing any tendency to tip over.

To hold the chair at any desired inclination, a link or rack-bar, F, pivoted to the back of the chair, passes down through a hole in the rearwardly-projecting portion of the frame D, and is held at the desired point by a set-screw, *f*, or its equivalent fastening.

In order to vary the height of the back of the chair, it is made in sections G G^1. The fixed bottom section G is provided with a guide, *g*, in which a bar, g^1, on which the movable section G^1 is secured, slides freely endwise, and is held at any desired point by a set-screw, g^2.

By this mode of construction the back of the chair is strongly braced, and its adjustment controlled by a single set-screw, instead of the double slides which have heretofore been used. An arm, G^2, projecting from the back of the movable section G^1 of the back of the chair, carries a loop-bracket, *h*, capable of moving both endwise thereon, and of swinging around it. A cross-bar, H, capable of sliding freely endwise and of turning in this bracket, carries a head-rest, I. A single set-screw, H′, serves to hold these parts together.

By this mode of construction, it will be seen that the head-rest can be moved backward or forward, as well as laterally; that one end can be tipped up higher than the other, and that it can be set at any desired angle relatively to the back of the chair, and that all these adjustments can be effected by releasing a single screw, H′.

The frame of the chair, as well as the foot-rest, may be made jointed, or adjustable, if desired, in well-known ways.

I claim as my invention—

1. The combination of the rack, the chair-supporting frame projecting laterally therefrom, and the pinion mounted on the frame, and meshing with and binding in the rack, these members being constructed and operating substantially as set forth, whereby the weight of the frame automatically locks it at any height to which it may be adjusted.

2. The combination of the rack, the supporting-frame projecting laterally therefrom, the adjustable horizontally-turning frame, mounted on the supporting-frame, and the chair pivoted to uprights on said turning-frame, these members being constructed and operating substantially as set forth.

3. The combination of the supporting-frame, the horizontally-turning frame, the chair pivoted near the line of its arms to uprights on said turning-frame, and the adjustable link connecting the chair-back with the turning-frame, these members being constructed and operating substantially as set forth.

4. The combination, in a dentist's chair, of the fixed bottom section of the back, the central guide thereon, the movable back section, its central bar sliding in the guide, and the set-screw for clamping the sliding bar and movable section at any desired elevation, these members being constructed and arranged for joint operation as set forth.

5. The combination, in a dentist's chair, substantially as hereinbefore set forth, of a head-rest mounted on a cross-bar, a loop-bracket, in which said cross-bar turns and moves endwise, which bracket also turns and moves endwise on its supporting-arm, and a set-screw, which clamps the loop-bracket and head-rest firmly upon the supporting-arm in any desired position.

In testimony whereof I have hereunto subscribed my name.

JOHN B. NEWBROUGH.

Witnesses:

THOMAS PRUDEN,

FRANK KUHN.