2 Sheets—Sheet 1.

G. W. ARCHER.

DENTAL AND BARBERS' CHAIRS.

No. 188,329. Patented March 13, 1877.

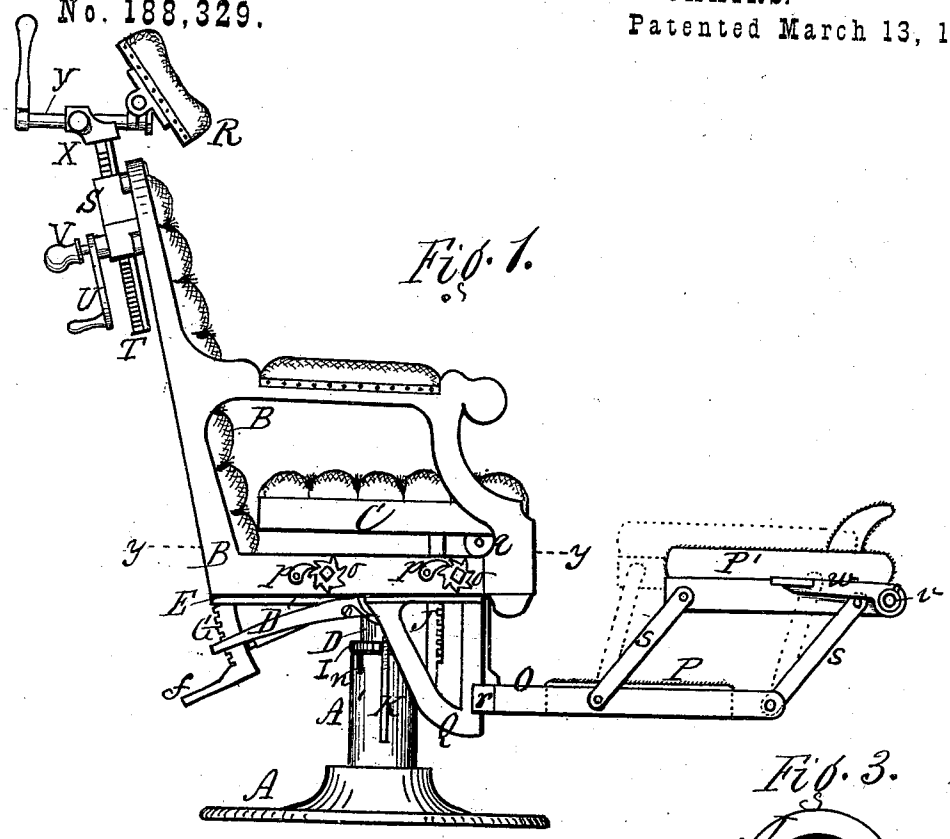


Fig. 1.

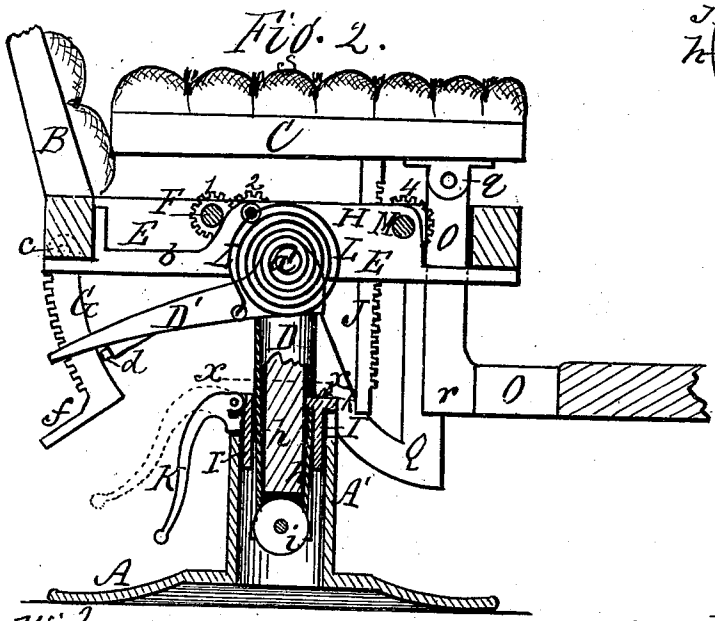


Fig. 2.

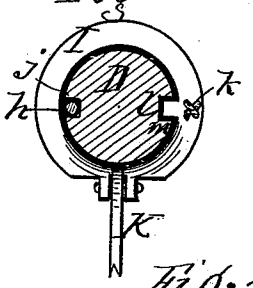


Fig. 3.

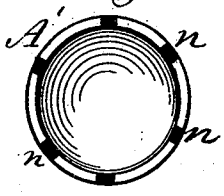


Fig. 4.

Witnesses.

Jacob Spahr
Edwin Scott

Inventor.

Geo. W. Archer,
per R. F. Osgood,
Atty.

2 Sheets—Sheet 2.

G. W. ARCHER.

DENTAL AND BARBERS' CHAIRS.

No. 188,329. Patented March 13, 1877.

Fig. 5.

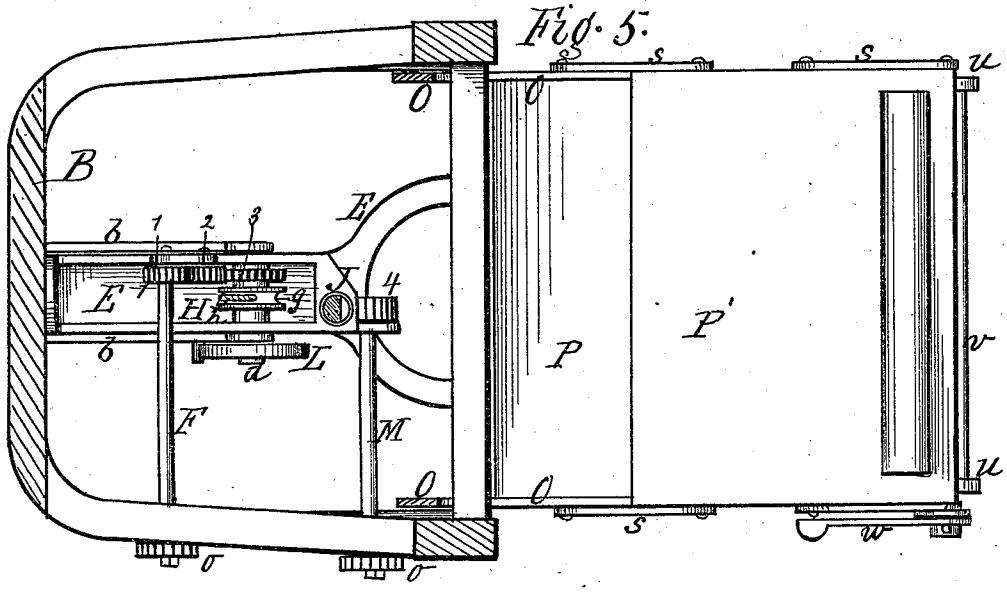


Fig. 6.

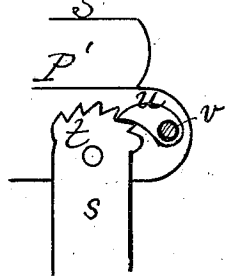


Fig. 7.

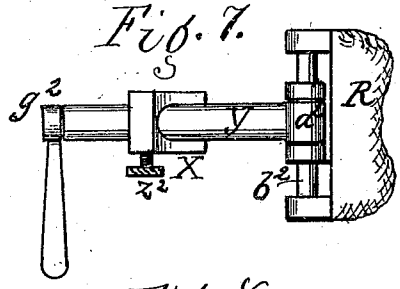


Fig. 8.

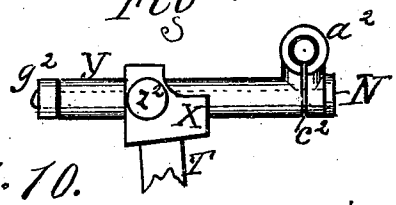


Fig. 9.

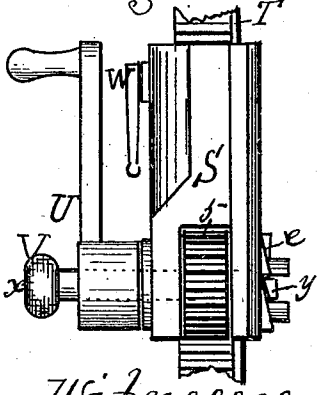


Fig. 10.

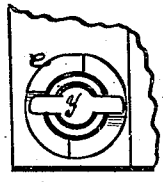
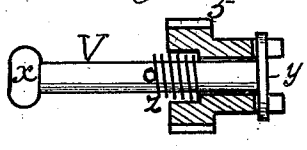


Fig. 11.



Witnesses.

Jacob Spuhr
Edwin Scott

Inventor.

Geo. W. Archer.
Per R. H. Osgood
Atty.

UNITED STATES PATENT OFFICE.

GEORGE W. ARCHER, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN DENTAL AND BARBERS' CHAIRS.

Specification forming part of Letters Patent No. **188,329**, dated March 13, 1877; application filed October 17, 1876.

To all whom it may concern:

Be it known that I, GEORGE W. ARCHER, of the city of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Dental and Barber Chairs; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of my improvement. Fig. 2 is a similar view of the lower portion of the chair on an enlarged scale, but showing the supporting-standard in section. Fig. 3 is a section in line *x x* of Fig. 2. Fig. 4 is a plan of the supporting standard or base. Fig. 5 is a section in line *y y* of Fig. 1. Fig. 6 is a view of the device for adjusting the height of the foot-rest. Figs. 7, 8, 9, 10, and 11 are detail views of the devices for adjusting the head-rest.

My invention relates to the means for adjusting the chair, the seat, and the head-rest; and consists in the construction and arrangement of parts, hereinafter described and specifically claimed.

A represents the base or support on which the chair rests. B is the chair, and C is the seat. The base A has a cylindrical hollow standard, A′, in which rests and slides the cylindrical stem D, attached to the bottom of the chair. This attachment is made by a pivot, *a*, which connects the stem with a spider, E, bolted fast to the bottom of the chair. This allows the chair to be adjusted backward or forward at any incline. D′ is a stiff arm, forming a part of the stem D. It extends backward and stands at such an angle as to form a rest for the chair when thrown fully back. Side flanges *b b* are formed on the arm D′, which receive the spider E between them when thrown back, thereby preventing strain upon the pivot in turning the chair upon its axis. G is a toothed segment, pivoted at *c* to the spider, and extending down through a slot in the arm D′, and engaging with a tooth of the latter, by which it is kept in position at any adjustment. It is pressed outward into engagement with the tooth by a spring-bolt, *d*, of the arm, and is operated by a treadle, *f*, on which the foot is pressed.

H is an opening formed in the center of the spider E. In it is located a grooved pulley, *g*, on which winds a cord or cable, *h*. This pulley is driven by a shaft, F, extending out through the side of the chair, and operated by a crank or wrench, which is removable from its place. The motion is transferred through spur-gears 1 2 3, Figs. 2 and 5. The cord *h* extends down through a groove, *j*, in one side of the stem D, and passes around a pulley, *i*, pivoted to the bottom of said stem, and thence passes up through a groove on the opposite side of the stem, and is attached at *k* to a cylindrical flanged collar, I, which rests loosely in the top of the standard A, so as to turn freely therein. The collar is connected with the stem D by a tongue, *l*, Fig. 3, which slides up and down in a vertical slot, *m*, of the stem. Therefore, in turning the chair upon its axis, the stem D and the collar I will turn together in the hollow standard A′, carrying the cord *h* around with them, and preventing the latter from twisting or kinking as it is turned to different positions. The collar serves the additional purpose of a fulcrum to the cord. By turning the shaft F the cord will be wound up, and consequently the chair raised—the cord drawing up on the pulley *i*, and raising the stem D as fast as it is wound upon its pulley.

K is a lever pivoted to the top of the collar I. *n n n* are a series of slots or notches in the top of the standard A′. When the lever is raised it runs free of the notches, allowing the chair to turn; but when dropped it engages with the notches and holds the chair fast. This enables the chair to be adjusted to any desired position axially. I design to make the end of the lever in the form of a cam, which will strike through the collar and bear against the stem D, so as to tighten the parts when the lever is down, preventing any loose motion. L is a coiled spring, one end attached to the projecting end *a* of the shaft of the winding-pulley *g*, and the other attached to a stud of the arm D′, as clearly shown in Figs. 2 and 5. When the chair is lowered in the standard A′ the action winds up the spring L. When the chair is raised again the wound-up spring expends its uncoiling force in assisting to raise the chair by

turning the pulley *g*. It also has the effect of keeping the parts tight and taut, and preventing looseness and rattling. A weight and cord might be used with a similar effect. It also has the effect, to a certain extent, of counterbalancing the weight of the chair, thereby easing the lowering of the same under the weight of the occupant. J is a stiff rack-bar attached to the under side of the seat C. With this engages a spur-gear, 4, on a shaft, M, which also extends out through the side of the chair, and is turned by a movable wrench. By turning the shaft the seat will be raised. The shafts F and M have ratchets *o o* at their outer ends, with which engage detents *p p*. O O are elbows on opposite sides, forming the frame of the foot-rest, on which are mounted the two platforms P P′. The elbows O O are attached at the top to the bottom of the seat by pivots *q q*, Fig. 2, and at the bottom they have bearings *r r*, which run up and down on vertical ways Q Q, attached fast to opposite sides of the chair. These bearings have, preferably, small friction-rollers to relieve the friction on the ways.

It will be seen that the foot-rest forms an attachment to the seat, and that as the seat is adjusted higher or lower, the foot-rest will be carried up or down with it, the two parts thereby retaining the same relative position and saving a separate adjustment of the foot-rest. The pivots *q q* prevent any binding of the parts, and allow the foot-rest to bear its weight against the ways Q Q, whereby it not only runs easier, but removes leverage from the seat that would tilt or tip it, and prevents the binding of the pinion and rack which raise the seat. The raised platform P′ of the foot-rest is attached to the elbows O O by links *s s*, pivoted at top and bottom, so as to turn to any angle, as indicated by dotted lines, Fig. 1, thereby raising or lowering said platform. On the upper ends of the outer links are fixed ratchets *t t*, Fig. 6, with which engage detents *u u*, attached fast to the opposite ends of a shaft, *v*. On one end of the shaft *v* is a lever, *w*, by which the shaft is turned to operate the detents. By means of these ratchets, detents, and shaft, the platform P′ is held at any desired adjustment. R is the head-rest. S is a case attached on the back of the chair near its top. T is a rack-bar running up through the case and carrying the head-rest. This rack-bar is driven by a pinion, 5, which engages with it, and is operated by a crank, U. V is a shaft running loosely through the pinion and case, having a knob, *x*, on its outer end, and a cross-head, *y*, on its inner end, which rests in a fork of the pinion-shaft, so as to turn with it. The shaft V is thrown outward by a spring, *z*, Fig. 11, and when so thrown out the cross-head engages with a ratchet, *e*, on the inner face of the case. This ratchet allows the cross-head to pass over its teeth in elevating the rack-bar, but catches with the teeth and prevents the rack-bar from running down. By pressing upon the knob *x* the cross-head is removed from the teeth, and the rack-bar can then run down. This arrangement allows ready vertical adjustment of the head-rest. W is a set-screw, which clamps the rack-bar at any height. Its stem preferably enters a vertical slot or groove on the back of the rack-bar, which prevents the rack-bar from turning in its socket.

X is a socket at the upper end of the rack-bar. Y is a shaft, which runs through the socket, and is secured at any adjustment by a set-screw, z^2. This allows forward and backward adjustment of the head-rest.

The shaft Y is hollow. At its inner end it has a socket, a^2, in which runs the transverse shaft b^2 of the head-rest, Fig. 7. The shaft b^2 is long enough to allow considerable movement in the socket a^2. By this means the proper lateral or side adjustment of the head-rest is attained. It also allows the axial turning movement of the head-rest up and down sufficient to adjust it to different positions.

The socket a^2 of the shaft V is split or divided from its bottom down across the shaft, as shown at c^2, Fig. 8. This constitutes a spring or clamp of the socket. N is a screw-bolt, which passes through the hollow shaft Y. At its inner end it has a head, which rests against the cleft end of the shaft, and at its outer end it has a handled nut, g^2, for tightening it up. By tightening up this screw the socket a^2 will be clamped upon the cross-shaft b^2 of the head-rest, thereby retaining the latter in any position to which it may be adjusted. By loosening the screw the socket releases, and allows any adjustment of the head-rest therein. A universal adjustment of the head-rest is attained by the above-described means.

Having thus described my invention, I do not claim, broadly, a collar fitting within the hollow standard to support the chair and allow it to turn axially; but

What I claim as new is—

1. In a dental or barber chair, the combination, with the hollow standard A′ and stem D resting therein, of the cord *h*, made fast at one end at the top of the standard, the other end passing under the stem, and thence extending to a winding-pulley on the chair, as shown and described, and for the purpose specified.

2. In a dental or barber chair, the combination, with the standard A′, stem D, and cord *h*, of the flanged collar I, provided with the lever K, said collar serving as the attachment for the end of the cord, and arranged to turn with the stem in the standard, thereby preventing twisting of the cord, as shown and described, and for the purpose specified.

3. In a dental or barber chair, the combination, with the winding-pulley *g*, of the coiled spring L, attached at one end to the shaft of the pulley, and at the other to the arm D′, as shown and described, and for the purpose specified.

4. In a dental or barber chair, the stem D, provided with the stiff arm D′, serving as a rest to the chair when thrown back, and to receive the adjusting-segment, and constructed with the side flanges *b b*, to receive the spider between them, thereby preventing strain upon the pivot in turning the chair, as shown and described, and for the purpose specified.

5. The elbows O O, constructed with the joints *q q*, connecting with the seat and the bearings *r r*, resting upon the ways Q Q of the chair, as shown and described, and for the purpose specified.

6. The combination, with the platform P′, adjusted by the links *s s*, of the ratchets *t t*, formed on the ends of said links, the detents *u u*, engaging with the ratchets, and the shaft *v* and lever *w*, for operating the detents, as herein shown and described.

7. The combination, with the rack-bar T and its operating-pinion 5, of the sliding shaft V, passing loosely through the pinion, and provided with the cross-head *y*, engaging with the ratchet *e*, as shown and described, and for the purpose specified.

8. The combination of the hollow shaft Y, provided with the cleft socket a^2, and the tightening-screw N, for securing the head-rest at any adjustment, as herein shown and described.

9. The head-rest attachment, consisting of the rack-bar T, pinion 5, sliding shaft V, hollow shaft Y, screw N, and cross-shaft b^2, the whole combined to operate as and for the purpose specified.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

GEO. W. ARCHER.

Witnesses:

R. F. OSGOOD,

EDWIN SCOTT.