J. B. Morrison,

Dentists' Chair,

No. 82,542. Patented Sep. 29, 1868.

Fig. 3.

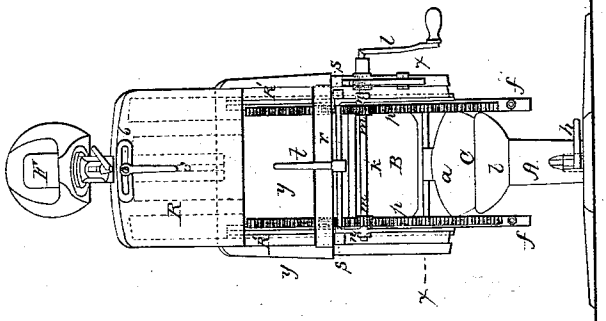


Fig. 7.

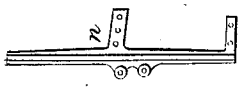


Fig. 6.

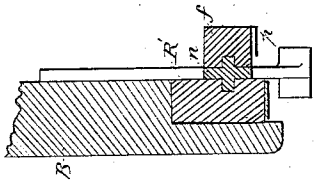


Fig. 2.

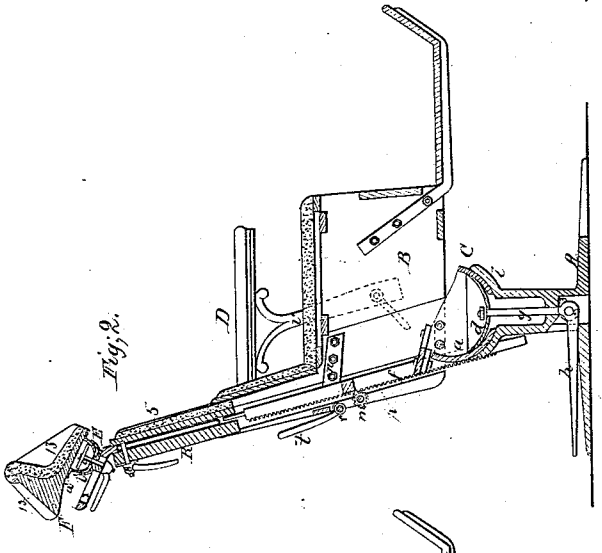


Fig. 5.

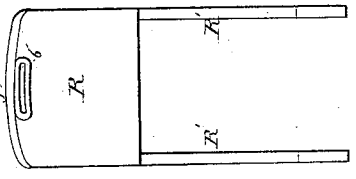


Fig. 1.

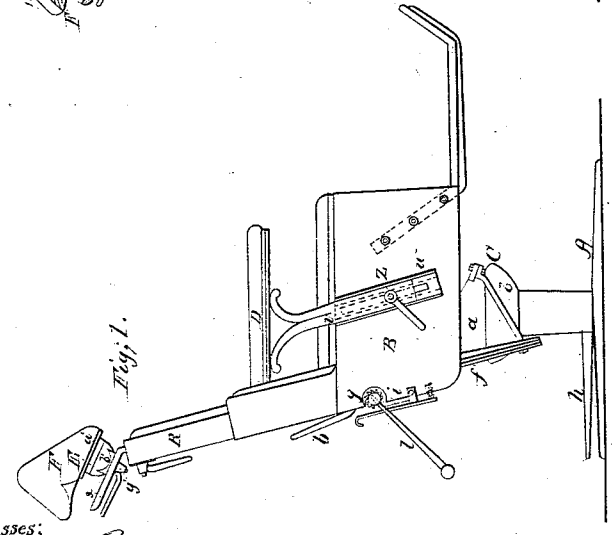
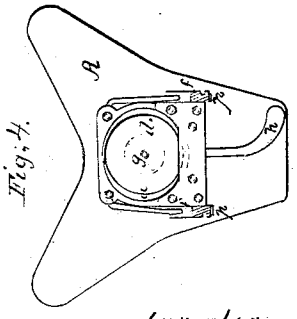


Fig. 4.



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UNITED STATES PATENT OFFICE.

JAMES BEALL MORRISON, OF ST. LOUIS, MISSOURI.

IMPROVED OPERATING-CHAIR.

Specification forming part of Letters Patent No. **82,542**, dated September 29, 1868; patented in England, December 7, 1867.

To all whom it may concern:

Be it known that I, JAMES BEALL MORRISON, of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in the Construction of Operating-Chairs, more especially designed for dentists, part of such improvements being applicable to other purposes; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and the letters of reference marked thereon.

The nature of my invention consists in a novel mode of raising and lowering the body of a chair, and in the novel means employed for adjusting and securing the same at any required angle; further, in constructing an operating-chair with arms adjustable in reference to the seat of the same, and in the arrangement for adjusting and securing the back; and, further, in the manner of adjusting the head-rest of an operating-chair, and in so constructing and combining the various parts in an operating-chair as to enable it to be adjusted to adapt it to adults or children.

In the accompanying drawings, Figure I, Sheet I, represents a side elevation of a dentist's operating-chair, constructed according to my invention. Fig. II is a vertical section of the same, and Fig. III is a back view of said chair. Fig. IV, Sheet II, is a horizontal section on the line *x x*, Fig. III. Fig. V shows the movable back of the chair-body detached. Fig. VI is a section at line *y y*, Fig. III; and Fig. VII shows another detached portion of the said chair.

Similar letters represent similar parts in all the figures.

The stand or foot A is formed of cast-iron, or other suitable material, and is made of the proper size and weight to give a firm and solid support to the body B of the chair while being used in whatever position the same may be adjusted. This body of the chair, B, is connected with the foot or stand A by means of a universal joint, C, which consists of a hollow hemispherical piece, *a*, a cup or socket, *b*, and a convex piece, *d*. The part *b* of the said universal joint is attached to the stand or foot A, while the hollow hemispherical piece *a* of the said joint is attached to slides *f*, which extend upward and downward from the said joint at the back of the chair.

To the convex piece *d*, a bolt *g*, is attached, which, when tightened, connects the socket *b* with the hemispherical piece *a*, and thus locks the two parts of the joint securely together. The bolt *g* is jointed to the foot-lever *h*, which is formed with the cam or projection 3. When this lever *h* is depressed, as shown in Fig. II, this cam 3 presses against the stand A, and thereby tightens the bolt *g*. By slackening the said bolt, the hemispherical piece *a* will be allowed to move freely in the socket *b*, and will thus allow the body B of the chair to be adjusted in any desired position. The bolt *g* can then be tightened, the cup *b* and convex piece *d* being thereby made to bind closely upon the hemispherical piece *a*, and thus hold the parts of the joint securely and immovably together. The aperture in the stand or foot A, through which the bolt *g* passes, is much larger than the said bolt, to allow the required adjustment of the hemispherical piece *a* within its cup.

To the body B of the chair pieces *n* are securely fastened, (shown in Fig. VII separate,) capable of moving in suitable grooves or guides in the slides *f*, and allow the body of the chair B to be moved upward or downward. An elevating screw or screws may be arranged between these slides *f;* but I prefer that the chair should be provided with pinions *m*, geared into toothed racks *p*, attached to the slides *f*.

The pinions *m* are fixed on an axle, *k*, arranged in suitable bearings in the frames *n*, and are provided with a handle, *l*, arranged at the side of the chair. By turning the handle, the entire body B can be conveniently raised or lowered, as desired. The shaft or axle *k* also carries a ratchet-wheel, *q*, which is arranged, in connection with a pawl, *i*, in such a manner as to prevent the lowering of the chair by its own weight when the handle *l* is released.

The pawl *i* is attached to a lever pivoted to the side of the chair, and arranged with a suitable spring to keep the pawl in gear with the ratchet-wheel until it is desired to raise or lower the chair, when the ratchet-wheel is released by pulling back the lever, which ex-

tends upward for convenience of manipulation.

The back R of the chair is constructed to slide independently up and down at the rear of the seat, and may be jointed to the arms D; but I prefer to connect the arms to the sides of the body B of the chair.

Fig. VI, which is an enlarged section on the line *y y*, Fig. III, illustrates the arrangement of the slides *f* and sliding back R. Cruciform pieces or frames *n* (a side elevation of which is shown in Fig. VII) are attached to the body B of the chair by suitable lugs, and are fitted to move up and down in the slides *f*, and also form guides for the legs R′ of the adjustable back R. These pieces *n* also carry the bearings for the shafts *k* and *r*. The latter is provided with a cam, *s*, at each end, to secure the back R in any desired position. The shaft *r* is operated by the handle *t*, and the cams *s* act against the back of the legs R′ of the movable back R.

I prefer to adopt the method of construction illustrated in Figs. I, II, and III, in which the arms D are arranged to move up and down independently of the back R in the following manner: Each arm is formed with a flat piece, *r*, extending downward, which piece fits between guide-pieces *w* on the side of the seat or body B of the chair. A pinching-screw, *z*, passes through the piece *v* and through a suitable slot, which screw serves to lock the arms in any position into which they may be adjusted.

Instead of a screw, an eccentric or other suitable pinching device may be fitted in any convenient position of the guides *w*, which are made of sufficient length and are so arranged that the arms are supported firmly therein, but will slide freely up and down when released from the pinching-screw or other device.

The head-rest F for my improved chair is supported upon a universal joint, E, of similar construction to that employed below the seat or body of the chair. The cup or socket *b′* of the said joint is arranged upon the top of a flat bar, 2, extending from the back R of the chair. The upper part of this bar is formed with a long aperture or slot, through which the pinching-screw *g′* of the joint extends, the nut being placed below the bar 2. The head-rest F is attached to the hemispherical piece *a′* of the joint.

The said rest is preferably formed with two cushions, 12 and 13, to support the head. One of these cushions, 13, is just over the joint E, while the other, 12, projects beyond the same.

By turning the rest around upon the joint, either cushion may be used, each one being especially adapted to support the head during certain particular operations. If preferred, however, a rest of ordinary construction may be employed.

When the screw *g′* is slackened, the rest F can be adjusted into any required angular position, can be turned round upon the screw *g′*, and can also be moved on the slotted bar 2 nearer to or farther from the back R of the chair. The screw *g′* is then tightened, locking the two parts *a′* and *b′* of the joint E together, and also securing the rest upon the bar 2 at one operation.

The part 5 of the bar 2, which is secured to the back R of the chair, is formed with a long aperture or slot, and the back of the chair has a transverse slot, 6. A screw, 8, passes through the two slots to hold the bar 2, which, by means of the said slots, can be elevated and depressed, or moved laterally, and adjusted to any desired position. The pin 7 serves to steady the lower end of the said bar.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of a universal joint, C, with slides *f*, extending upward and downward from said joint, and provided with suitable grooves, in which suitable pieces *n*, fast to the body of an operating-chair, are made to slide, constructed substantially in the manner and for the purpose described.

2. The application of a universal joint, E, constructed in the manner hereinbefore described, to the head-rest of an operating-chair, in combination with the slotted bar 2, constructed and arranged and operating together in the manner substantially as specified.

3. A head-rest, F, made with two cushions or head-supporters, 12 and 13, in combination with a universal joint, E, and slotted bar 2, arranged and operating in the manner substantially as set forth and specified.

4. The arrangement of the cruciformed frames *n*, attached to the body of the chair B, the slides *f*, attached to the universal joint C, in combination with the racks *p* and pinions *m*, for elevating and depressing the body of the chair, when constructed and combined in the manner and for the purpose substantially as described.

5. Arms D, provided with suitable pieces *r*, extending downward, and fitting between guide-pieces *w*, fast on the sides of the chair, and provided with a pinching-screw or other device to fix the arms in any desired position, substantially in the manner and for the purpose described.

JAMES BEALL MORRISON.

Witnesses:

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