R. B. DONALDSON.

Support for Dental Mouth-Glasses.

No. 224,663. Patented Feb. 17, 1880.

Fig. 1.

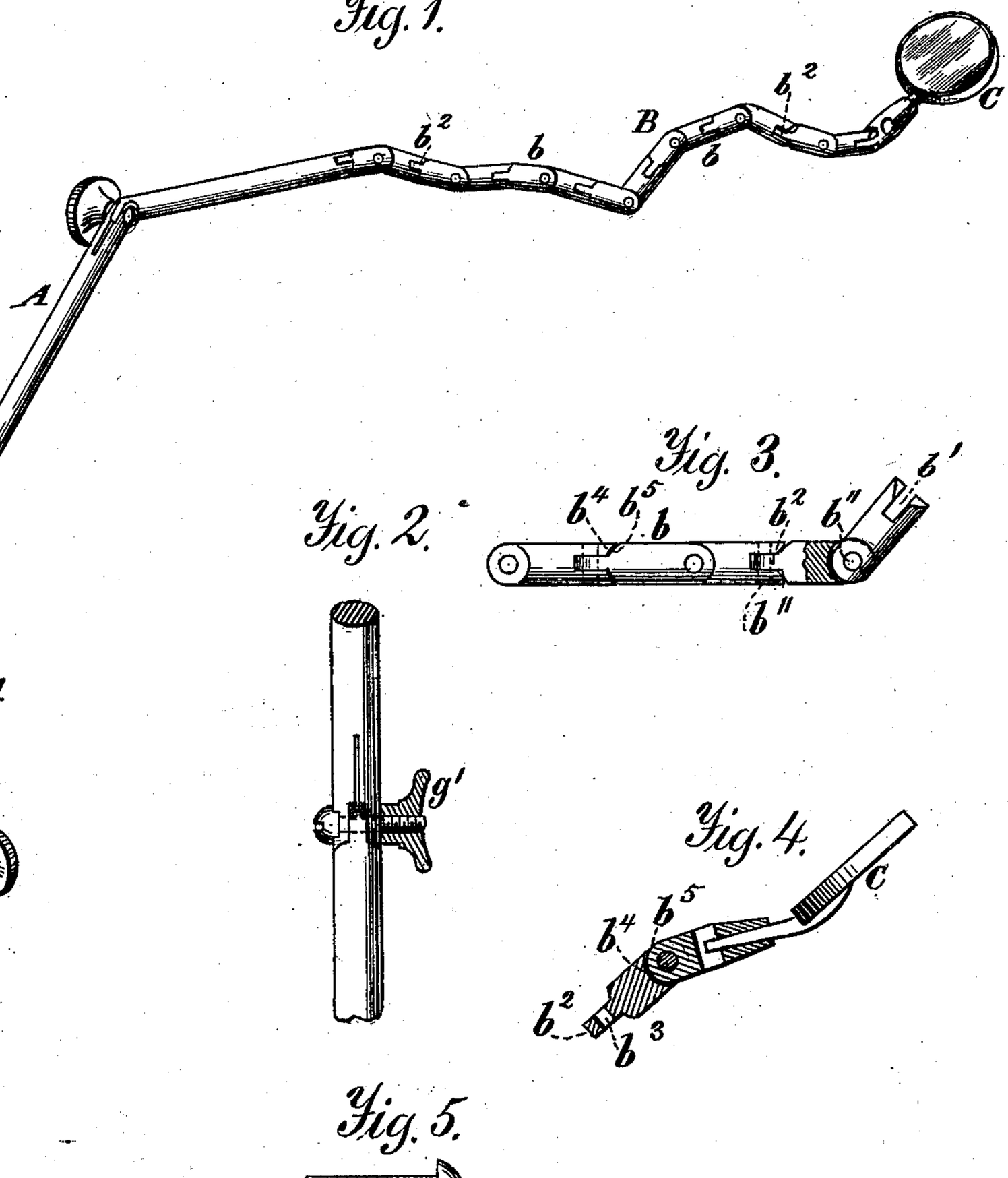

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

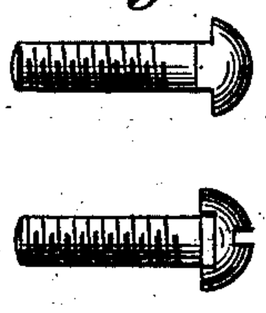

Fig. 6.

Witnesses.

A. Ruppert A.

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UNITED STATES PATENT OFFICE.

ROBERT B. DONALDSON, OF WASHINGTON, DISTRICT OF COLUMBIA.

SUPPORT FOR DENTAL MOUTH-GLASSES.

SPECIFICATION forming part of Letters Patent No. 224,663, dated February 17, 1880.

Application filed January 21, 1880.

To all whom it may concern:

Be it known that I, ROBERT B. DONALDSON, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Supports for Dental Mirror-Glasses; 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 appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to an arm or support of peculiar construction combined with and adapted to serve in relation to a mouth-mirror of the kind usually employed in dental surgery.

In this art it has heretofore been customary for the operator to hold the mouth-mirror in one hand, and to thus change the position of the same as occasion required, to throw the gathered rays of light against the portions or cavities of the teeth being treated, or expose to the operator, by reflection, such parts. This practice, as is obvious, not only greatly reduced the dentist's capacity for useful and efficient service, in consequence of the fatigue and nervousness caused by either a constrained or cramped position or the length of time necessarily consumed in the operation, one hand being wholly or partially employed in holding the glass.

My invention is designed to overcome these difficulties; and to this end I provide a device adapted to be secured to the dental chair or other convenient place, the object of which is to provide for expeditious, ready, and rapid adjustment of the mirror to any and the precise angle required to expose the tooth or teeth being operated upon.

This invention also, in addition to its easy and rapid adjustment, provides for its equally easy and rapid withdrawal and its retention within easy reach of the operator when required for further use, avoiding all danger of its being mislaid, lost, or out of convenient reach.

My invention consists, chiefly, in a standard, preferably adjustable, a flexible or differentially-jointed arm pivoted thereto, said arm carrying a mirror or other reflecting or magnifying device, swiveled or otherwise secured thereto upon its free end, as will be more fully hereinafter set forth.

The standard is adapted to be secured to the dental chair, preferably to the head-rest thereof, or other convenient fixed or movable object, and the portion carrying the arm is preferably adapted for adjustment.

In what I consider the best manner of carrying out my invention, I employ an arm formed of several short links or joints, each provided at one end with a transverse slot or mortise, the sides of which are perforated to receive a pivotal pin, and at the other end with a corresponding tenon. The mortise of one joint receives the tenon of the adjacent joint, and in this manner the arm may be made of any desirable length, according to the number of joints or sections employed. These tenons and mortises are arranged differentially, so as to have a plane of action in many directions, and allowing the arm or support to be bent or curved at will. The mortises in the longer sections are slitted to permit of spring at those points in connection with set-screws.

In the accompanying drawings, Figure 1 is a perspective view of my invention; and Figs. 2, 3, 4, 5, and 6 are details.

Referring to the drawings, A represents the standard, B the flexible arm, and C the mirror.

The arm, as shown, is formed of sections or joints pivoted differentially together by tenon-and-mortise joint. For convenience I will describe one of these joints, *b*, it being understood that the arm B is formed by the articulation of several. The sections *b* may be of the same or different lengths, each being provided with a mortise or open slot upon one end, as shown at b', and transverse perforations b'', and at the opposite end with a tenon, b^2, perforated at b^3. These perforations receive the pivotal pins. As these joints must have a plane of action in different directions, and a proper amount of friction must be provided at each articulation to allow the joints to retain the various shapes of which it is capable under the manipulation of the operator,

I form the shoulder at one end of each section with a concave surface, b^4, and provide a convex surface, b^5, at the opposite end, to correspond and operate therewith, or vice versa.

The mirror C is preferably swiveled at the free end in any convenient or desirable manner. The mirror C is shown swiveled in the end section by an arm inserted into a socket in said end section, which socket is slitted to give a spring-pressure upon the arm, thus affording the requisite friction in the movements of the glass. If desired, a set-screw can be employed to bear on the arm, by means of which the joint could be tightened at pleasure.

From the foregoing description the operation of the device is obvious.

Various modifications may be made without departing from the principle of my invention, the essential features of which are a flexible or differentially-jointed adjustable arm or support and a mirror combined and adapted to operate together as and for the purposes set forth.

I am aware that jointed cables have been made for other purposes of a construction somewhat similar to mine, except that they have no frictional bearings to hold the parts in any required position.

I am also aware that jointed arms have been in use for holding dressing-mirrors in position; but these have required set-screws, which have to be tightened in order to retain the arm in the required position, and are not so constructed as to be held by the friction of the joints, as mine is.

I am also aware that a plain copper wire has been used as a flexible support for lamps and for microscopic rests; but it is evident that a wire, when used as a flexible support, will soon weaken and break if often bent and rebent, as would have to be the case if used in connection with a dental mirror or for analogous purposes; besides which a wire of sufficient size to give the requisite rigidity and prevent the vibration of the glass would be much too stiff to admit of ready adjustment.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The differentially-jointed and flexible arm with opposite concave and convex shoulders at the joints to produce friction and rigidity for holding automatically the arm at any point to which it may be adjusted, all arranged as described, and adapted for use with a mouth-mirror or other analogous device.

2. The flexible cable, as described, capable of automatic adjustment and frictional retention at any desired point, in combination with a mouth-mirror swiveled by its shank in the spring-jaws which form a part of or are attached to the nearest joint of the cable, all as and for the purposes set forth.

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

ROBERT B. DONALDSON.

Witnesses:
JAS. H. LANGE,
H. M. SCHOOLEY.