Feb. 9, 1926. 1,572,215

A. J. MAY

SUPPORTING FIXTURE

Filed May 28, 1924 2 Sheets-Sheet 1

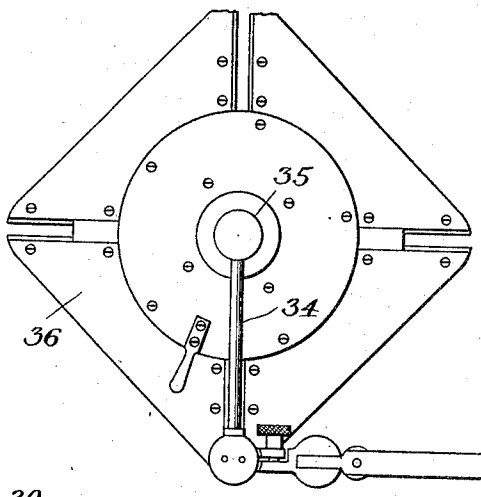


Fig. 2

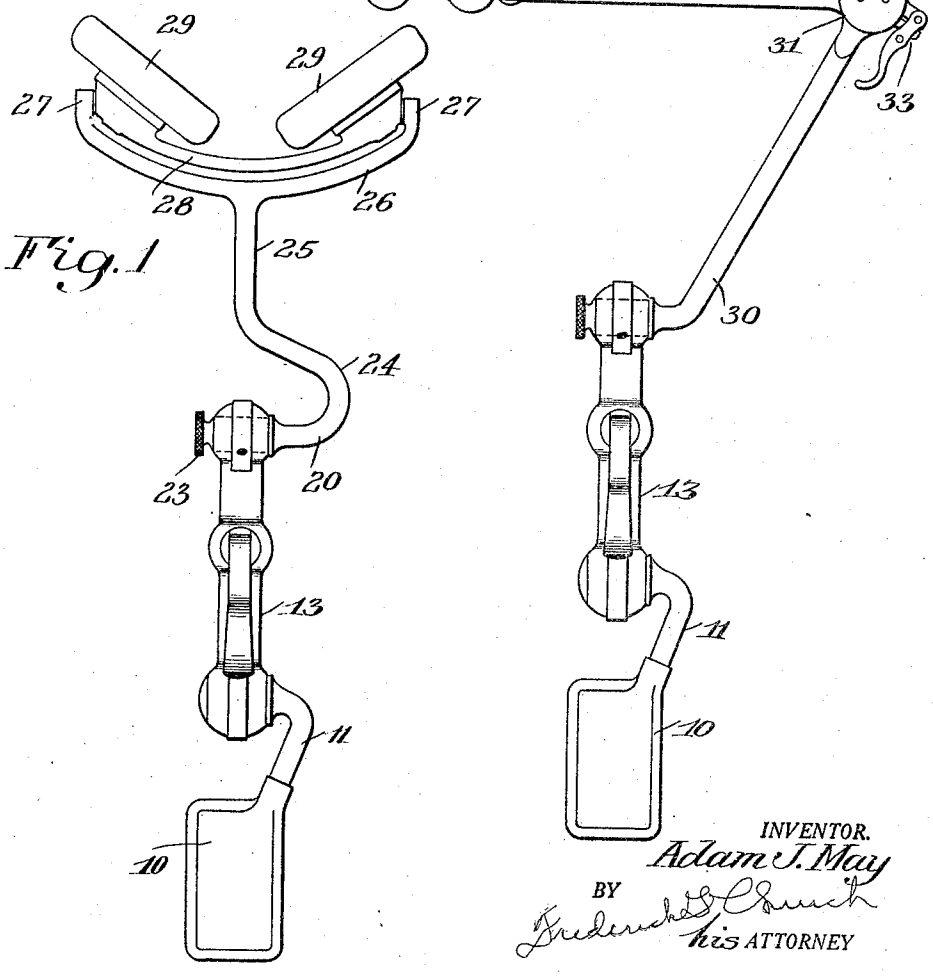


Fig. 1

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Fig. 3

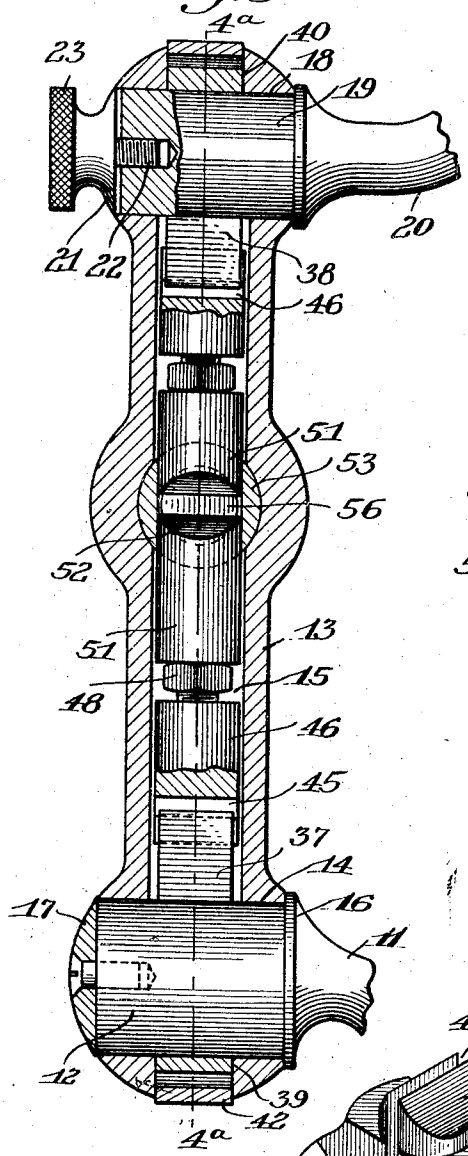


Fig. 4

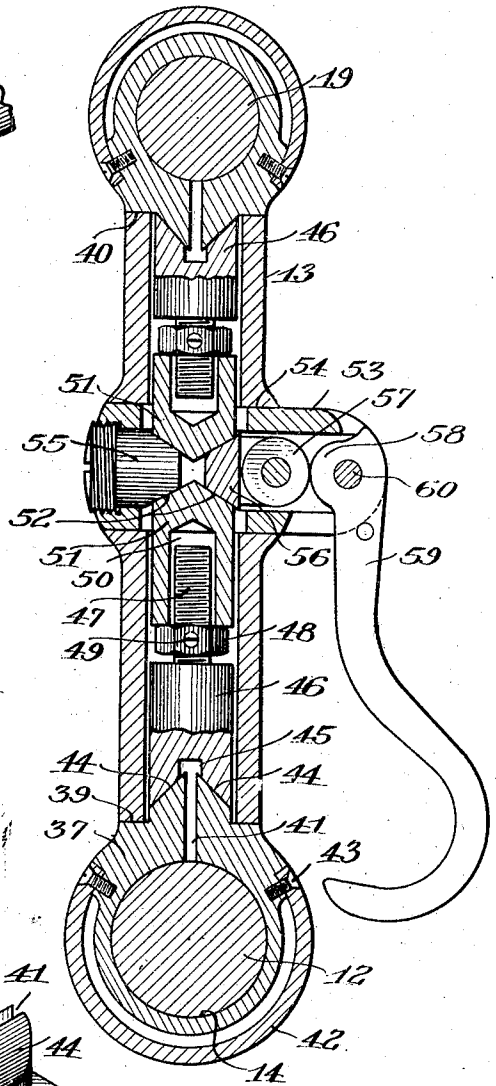
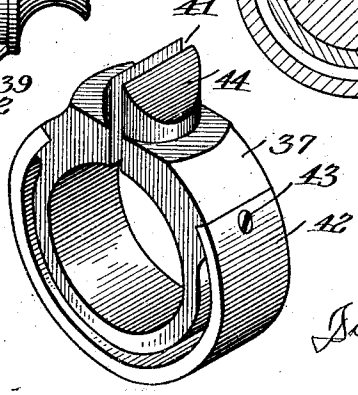


Fig. 5



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UNITED STATES PATENT OFFICE.

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SUPPORTING FIXTURE.

Application filed May 28, 1924. Serial No. 716,505.

To all whom it may concern:

Be it known that I, ADAM J. MAY, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented new and useful Improvements in Supporting Fixtures; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference numerals marked thereon.

This invention relates to supporting fixtures of the variety, for example, adapted for use with surgical or dental chairs, such as a head rest, one object of the invention being to provide a simple, effective and convenient apparatus of this nature adapted to interchangeably carry a head rest proper, or a film holder against which the head of the patient is rested during photographic exposures, or other parts, with means for readily adjusting such parts to various different positions. A further object is to provide such a fixture comprising adjustably connected sections with efficient and convenient means for manually clamping the sections in adjusted relation.

To these and other ends the invention resides in certain improvements and combinations of parts, all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings:

Figure 1 is an elevation of an apparatus comprising the present invention with a head rest proper mounted thereon;

Figure 2 is a similar view but showing the head rest replaced by a film holder;

Figure 3 is an enlarged sectional view of portions of the supporting sections, illustrating clamping means employed therewith;

Figure 4 is a sectional view on the line 4^a—4^a in Figure 3, and

Figure 5 is an enlarged perspective view of a clamping collar employed in the fixture.

Similar reference numerals throughout the several views indicate the same parts.

The invention is embodied in the present instance in an apparatus for attachment to the back or other portion of a dental chair by means well known in the art, such as a plate 10, Figure 1, adapted to be slidably received in guideways on the chair (not shown) for elevational adjustment, as well understood in the art. Plate 10 carries a bracket arm 11 extending upwardly and terminating in a horizontal connecting part or journal 12, Figure 5. The latter carries an adjustable tubular section 13 provided with clamping means for securing the same thereon in various positions of adjustment.

The tubular section 13 is preferably of the generally cylindrical shape shown in Figure 3, with transversely extending bearings at its ends in the lower of which 14 the bracket or journal 12 is rotarily received. This bearing opening communicates with the end of the bore 15 of the section 13. A shoulder 16 and a washer 17 on the journal secure the latter against endwise movement in the bearing.

The opposite end of section 13 is formed with a similar transverse bearing 18 in which is rotarily carried the part or journal 19 of a supporting arm 20. The construction of the bearing and the journal at this end of section 13 is the same as already described in connection with the lower end of the latter except that the journal is detachably held in the bearing by a manually removable part 21 having a stud 22 threadedly engaged in the end of the journal, the part having a shoulder overlapping the end of the bearing to hold the journal in place and being provided with a knurled knob 23 by means of which it may be quickly unscrewed to permit the journal to be withdrawn from the bearing.

Arm 20 in the present instance forms part of a head rest attachment, being curved as at 24, Figure 1, to bring its upper end 25 vertical. This end has lateral branches 26 the spaced ends 27 of which are pivotally mounted on an inner yoke 28 provided with head rest pads 29.

The head rest arm 20 may be readily replaced by an arm 30, Figure 2, having a similar journal for cooperation with the upper bearing of the section 13. Arm 30 is pivotally connected at 31 with an arm 32 for adjustment to various positions in which it may be clamped by manual clamping means indicated generally at 33. Arm 32 has adjustably connected therewith an arm 34 on the upper end of which is carried a head 35 of a frame 36 for carrying a film

holder against which the head of the patient may be rested during photographic exposure, as well understood in the art. The particular construction of this film holding attachment however forms no part of the present invention but constitutes the subject matter of a separate application. It is to be noted however that the construction provides for conveniently detaching the head rest arm 20 from section 13 by unscrewing knob 23 and for quickly substituting the arm 30 of the film holder or other supports having suitable journals, as may be desired, to thereby increase the field of usefulness of the fixture.

The provision of the section 13 with its pivotal connection with the bracket arm 11 and arm 20 of the head rest proper, for example, affords a wide range of adjustment of the head rest and a single manually operable means is provided for simultaneously clamping and releasing both journals in their respective bearings in the ends of section 13. Such means comprises preferably collars 37 and 38 fitted in slots 39 and 40 in the ends of the bearings for the bracket arm and support arm respectively. Each collar is split as at 41 and normally constrained to loosely fit its journal by a strap of spring steel 42 having its ends secured to opposite sides of the collar as by screws 43. The ends of each collar are oppositely inclined as at 44 for cooperation with the V-shaped end 45 of a thrust element comprising a plug 46 sliding in the bore of section 13. Each plug has fixed in its inner end a threaded stud 47 carrying a stop nut 48 adapted to be fixed in adjusted position on the stud by means of screw 49. Each stud projects into a bore 50 of a plug 51 against the end of which nut 48 abuts, the inner end of plug 51 having oppositely inclined surfaces 52 for cooperation with wedge means interposed between the opposing plugs 51. Each pair of plugs 46 and 51 thus constitute together a sectional thrust element adjustable in length by means of nut 48.

The wedge means comprises preferably a barrel 53 sliding in a transverse opening 54 in an intermediate portion of section 13. Adjustably fixed in one end of the barrel, preferably by threaded engagement therewith, is a wedge 55 having oppositely inclined surfaces at its inner end cooperating with the inclined surfaces of the plugs 51. Sliding longitudinally in the other end of the barrel is a second wedge 56 also provided with oppositely inclined surfaces cooperating with those of the plugs 51. Wedge 56 preferably carries at its outer end a roller 57 with which cooperates an eccentric or cam portion 58 on a hand lever 59 pivotally mounted as at 60 in the outer end of the barrel. It is apparent from this construction that movement of handle 59 downwardly to the position shown, forces or cams the wedges 55 and 56 together. As barrel 53 slides freely in its bearing in section 13, both wedges are forced inwardly between the plugs 51 to force the latter outwardly. Such movement of the plugs forces plugs 46 outwardly so that the inclned surfaces of their V-shaped ends, cooperating with the inclined surfaces of the ends of the split collars contract and bind the latter on their respective journals. By this means the journals may be tightly clamped against movement in their bearings with a force which may be adjusted by longitudinal extension of the thrust elements formed by the plugs 46 and 51 obtained as described by adjusting the nuts 48, and the substantial force which may thus be conveniently produced by the simple operation of lever 59 is effectively applied through the cam and wedge actions described on the ends of the slip collars and about the full periphery of the journals. The latter are thus clamped by a force which is ample for hoding them rigid in their bearings under any stress applicable to the fixture in use. The construction for accomplishing this result furthermore comprises but few parts which are of a practical nature from a manufacturing point of view and easy to assemble and adjust and the construction as a whole is compact and of a pleasing simple nature.

I claim as my invention:

1. The combination of a bracket arm, a support, an intermediate section formed with transverse bearings adjacent its ends, journals on said arm and support adjustably carried in said bearings, clamping collars encircling said journals, thrust elements extending longitudinally of said section with their inner ends contiguous and their outer ends arranged for actuating said collars, and manually operable means interposed between said contiguous element ends for simultaneously thrusting said elements outwardly and actuating said collars to clamp said journals in adjusted position.

2. The combination of a bracket arm, a support, an intermediate section formed with bearings adjacent its ends, parts on said arm and support adjustably carried in said bearings, split clamping collars engaging said parts and provided with inclined end portions, thrust elements extending longitudinally of said section with their inner ends contiguous and their outer ends provided with inclined portions disposed for actuating engagement with said collar portions, respectively, and manually operable means interposed between said contiguous element ends for simultaneously thrusting said elements outwardly and actuating said collars to clamp said parts in adjusted position.

3. The combination of a bracket arm, a

support, a hollow intermediate section formed with transverse bearings adjacent its ends, journals on said arm and support carried in said bearings, split clamping collars encircling said journals and provided with inclined end portions, thrust elements sliding longitudinally in said section with their inner ends contiguous and their outer ends provided with inclined portions disposed for actuating engagement with said collar portions, respectively, and manually operable wedge means interposed between said contiguous element ends for simultaneously thrusting said elements outwardly and actuating said collars to clamp said journals in adjusted position.

4. The combination of a bracket arm, a support, a tubular intermediate section formed with transverse bearings adjacent its ends, journals on said arm and support carried in said bearings, split clamping collars carried in slots in said bearings to encircle said journals and provided with inclined end portions located in the ends of said section, thrust elements sliding longitudinally in said section with their inner ends contiguous and inclined and their outer ends provided with inclined portions disposed for actuating engagement with said collar portions, respectively, each of said elements comprising adjustable parts for varying the length thereof, opposed wedge members supported for movement transversely of said section between and in engagement with the contiguous inclined ends of said elements for thrusting the latter outwardly to actuate said collars, and manually operable cam means for operating said wedge members.

5. In a head rest, the combination of a tubular section formed with transverse bearings adjacent its ends, a bracket arm adapted for attachment to a chair and having a journal carried in one of said bearings, a plurality of head rests provided with journals adapted to be interchangeably secured in the other of said bearings by manually operable means, clamping collars encircling said arm and head rest journals, thrust elements extending longitudinally of said section with their inner ends contiguous and their outer ends arranged for actuating said collars, and manually operable wedge means interposed between said contiguous element ends for thrusting said elements longitudinally outward to actuate said collars and clamp said journals in adjusted position.

ADAM J. MAY.