

No. 698,964.

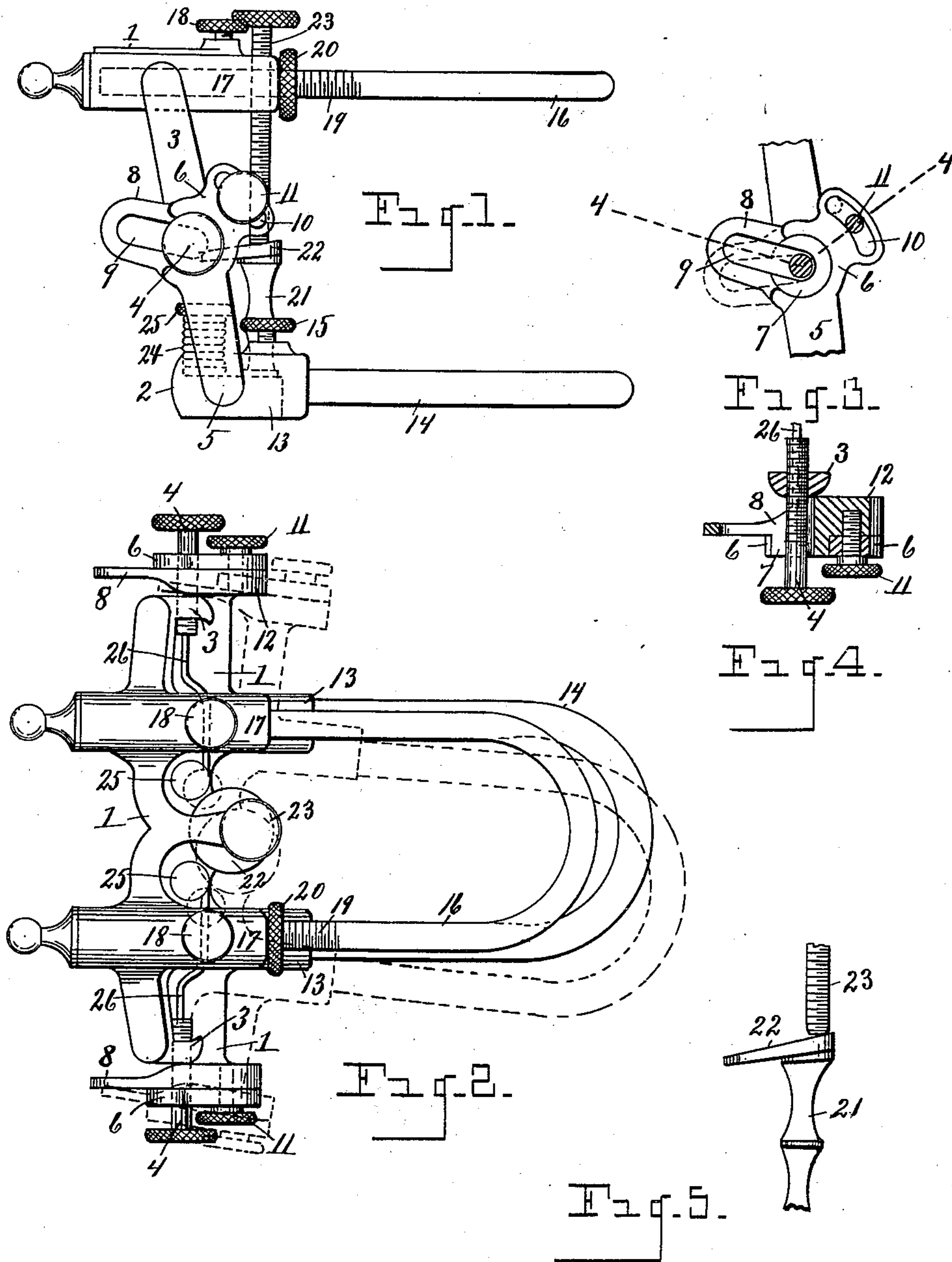
Patented Apr. 29, 1902.

M. M. KERR.
DENTAL ARTICULATOR.

(Application filed Nov. 18, 1901.)

(No Model.)

2 Sheets—Sheet I.



WITNESSES.

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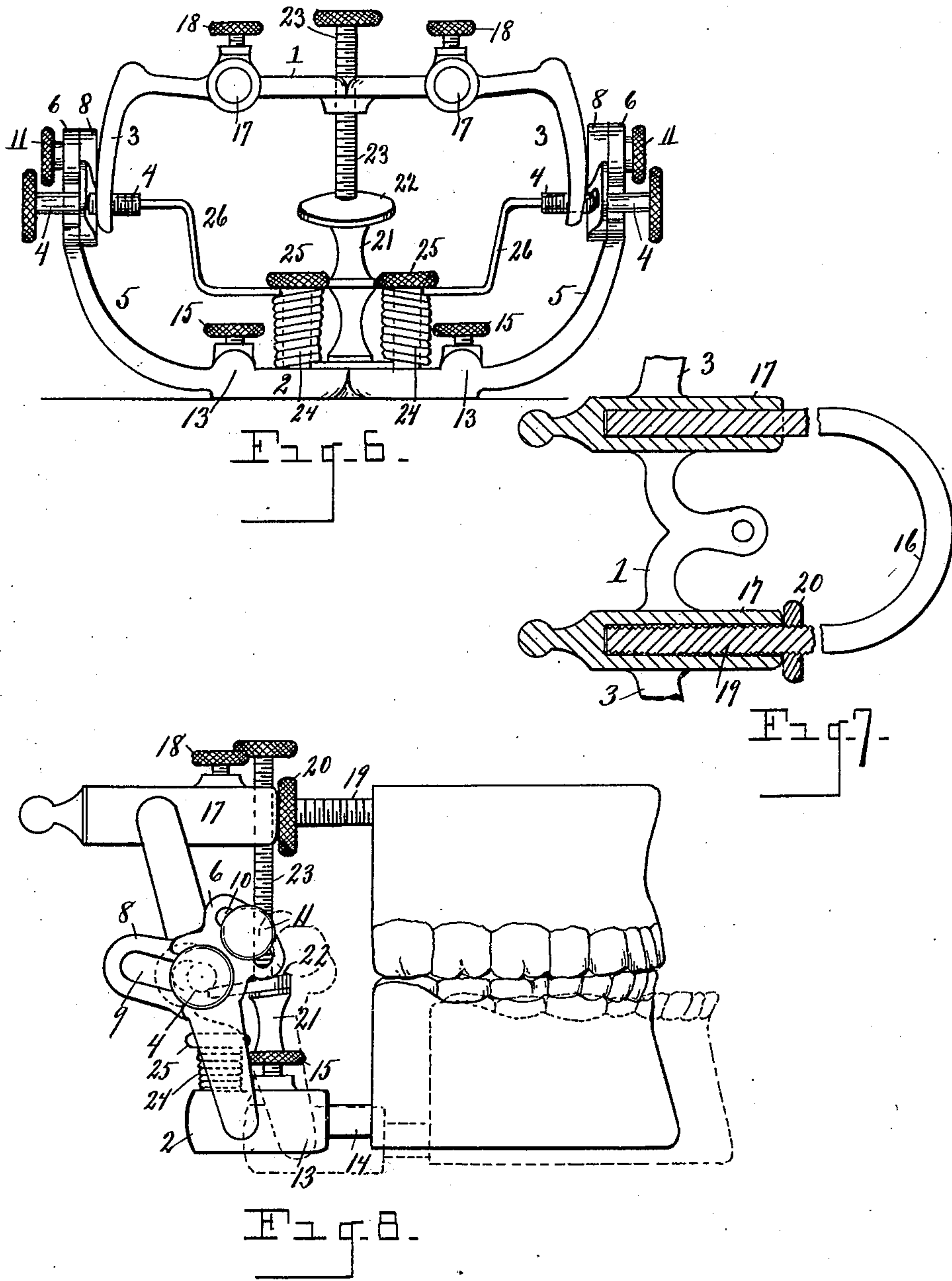
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UNITED STATES PATENT OFFICE.

MATHEW M. KERR, OF DETROIT, MICHIGAN, ASSIGNOR TO THE KERR DENTAL MANUFACTURING COMPANY.

DENTAL ARTICULATOR.

SPECIFICATION forming part of Letters Patent No. 698,964, dated April 29, 1902.

Application filed November 18, 1901. Serial No. 82,661. (Model.)

To all whom it may concern:

Be it known that I, MATHEW M. KERR, a citizen of the Dominion of Canada, residing at Detroit, in the county of Wayne, State of Michigan, have invented certain new and useful Improvements in Articulators for Dental Use; and I do 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 the figures of reference marked thereon, which form a part of this specification.

15 This invention relates to articulators for dental use; and it consists in the construction and arrangement of parts hereinafter fully set forth, and pointed out particularly in the claims.

20 The objects of the invention are to provide a device of the character described in which the arrangement is such as to render the articulator anatomical, enabling the exact movement of the jaw to be duplicated, so that a dentist can articulate the teeth for a bridge or a plate in a manner to bring the cusps of the teeth in proper relation to one another when they are placed in the mouth of the patient.

30 A further object is to provide for an adjustment at the hinge, whereby all required angles may be obtained to conform to the different curves of the lower jaw, enabling the articulator to be adjusted to accommodate any and all cases that come to a dentist.

35 The above objects are obtained by the apparatus illustrated in the accompanying drawings, in which—

40 Figure 1 is a side elevation of my improved articulator. Fig. 2 is a plan view thereof showing by dotted lines the lateral movement of the lower jaw. Fig. 3 is an enlarged detail of the adjustable hinge uniting the bodies of the articulator. Fig. 4 is a sectional view, as on line 4 4 of Fig. 3. Fig. 5 is an enlarged detail of the inclined plane upon which the adjusting-screw rests that supports the jaws in proper relation. Fig. 6 is a rear elevation of the articulator. Fig. 7 is a horizontal section through the upper bow-sockets,

showing the adjustable nut thereon for regulating the distance which the bow projects from the sockets. Fig. 8 is a side elevation of the articulator with a set of teeth thereon in position for articulating.

Referring to the characters of reference, 1 and 2 designate the upper and lower body portions, respectively, of the articulator. The upper body portion has the depending side members 3, whose lower ends are threaded to receive the screws 4, which pass there-through. The lower body portion 2 has the upwardly-curved side members 5, which at their upper end are provided with a head 6, having an annular aperture therein, in which is journaled the hub 7 of the bearing-plates 8, having a slot 9 therein. The bearing-plates 8 are interposed between the members 3 of the upper body portion and the members 5 of the lower body portion, and the set-screws 4 pass through said slotted plates before entering the members 3. Said set-screws form the pintles of the hinge between said upper and lower body portions and are adapted to slide in said slots of said plates to accommodate a lateral movement of the lower jaw. The heads 6 are provided with slots 10, describing the arc of a vertical circle, through which the set-screws 11 pass and screw into the projecting lugs 12 on the slotted plates 8, whereby when said plates have been adjusted within the heads 6 to cause the slots 10 to stand at the proper angle to effect a proper articulation of the teeth under all movements of the jaw they may be securely locked by tightening the set-screws 11. By means of these pivoted slotted plates within the heads of the members of the lower body portion an adjustment can be obtained to accommodate any curve of the jaw by simply changing the angle of the slots by rotating the plates 8 upon their hubs 7, and this adjustment is obtained without in any sense changing the articulation, for the hinge upon which the members articulate is formed by the screws 4, which do not change their position by any movement of the slotted plates 8, as they are concentric to the hubs thereof.

It will be observed that the screws 4, which form the hinge of the articulator, project

some distance beyond the heads 6, so that a free lateral movement is afforded the lower jaw, as well as a hinged movement upon said screws, enabling a perfect anatomical movement of the lower jaw to be effected.

The lower jaw or body portion is provided with bow-sockets 13, into which the ends of the lower bow 14 are inserted and which are secured in said sockets by the set-screws 15. The upper bow 16 has its ends seated in the sockets 17 of the upper jaw or body portion and which are adapted to be secured in said sockets by the set-screws 18. One end of the bow 16 is threaded, as shown at 19 in Fig. 7, said threaded portion being adapted to fit loosely in the socket which receives it. Mounted upon the threaded portion of the bow is a nut 20, adapted to screw against the end of the socket 17 and regulate the distance which said bow shall enter its socket when the teeth upon the bows have been made to properly register, thereby enabling the upper bow to be removed and again replaced in the articulator without the necessity of again adjusting the teeth.

On referring to Fig. 8 it will be seen that the hinge upon which the members of the articulator swing is located upon a line with the grinding surfaces of the molars and bicuspids, whereby a perfect occlusion of the teeth is allowed and their relative position is maintained during the grinding movement of the jaw, whereas were the hinge located at the condyles, as is common, an anatomical articulation of the teeth would be impossible, as the hinge would then be above the line upon which the teeth meet. It will also be observed that by means of the slotted plates 8, through which the hinge-screws 4 pass, the lower jaw may be projected, as shown by dotted lines in Fig. 8, said movement of the jaw being obtainable without altering the articulation after it is once secured.

Upon the lower jaw member is a post 21, carrying an inclined plane 22, upon which is adapted to rest an adjusting-screw 23, which passes through the upper body portion and serves to prevent the teeth from being crowded together after the bite or occlusion has been properly adjusted. In the lateral movement of the lower jaw the teeth overlap and allow the jaws to come more closely together. Therefore were said plane not made inclined, as shown, the lateral movement of the jaw would cause said screw to strike upon said plate and interfere with the articulation.

To restore the lower jaw to its normal position after a lateral movement thereof, there are employed the coiled springs 24, mounted upon the screws 25 and having laterally-projecting angled portions 26, which enter sockets in the inner ends of the screws 4. The office of said springs is to normally hold the members of the articulator so that they will register vertically. When the lower jaw is moved laterally, said spring will yield to ac-

commodate said movement, but will return said parts to their normal position when the pressure is removed.

Having thus fully set forth my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an articulator the combination of the jaw members, a hinge uniting the jaw members, means forming a part of the hinge structure for allowing a direct lateral movement of one or both of the jaw members independently of the hinge movement whereby a jaw member may be moved laterally coincident with the articulatory movement thereof.

2. In an articulator, the combination of the jaw members hinged together to articulate and means for allowing a direct lateral movement of either of said members in a plane parallel with its companion member.

3. In an articulator, the combination of the jaw members, a hinge uniting said jaw members, a slotted plate rotatably seated in the members of one of the jaws the pintles of the hinge uniting said jaws passing through the slots in said plates and means for adjusting said plates to change the angles of said slots.

4. In an articulator, the combination of the jaw members, a hinge uniting said jaw members, said hinge affording a lateral movement of the jaw member as well as an articulation thereof, slotted plates rotatably seated in the members of one of the jaws, the pintle of the hinge passing through the axis of said slotted plates and entering the opposite jaw members, said pintles lying in said slots, means for adjusting said slotted plates and for locking them when adjusted.

5. In an articulator, the combination of the jaw members hinged together, said jaw members having detachable bows adapted to carry the teeth, the upper bow having a thread upon one end thereof and an adjustable nut screwed onto said threaded portion adapted to engage the jaw member for the purpose of adjusting the bow and maintaining said adjustment when the bow is removed.

6. In an articulator, the combination of the jaw members hinged together, an inclined plane supported from the lower jaw member, an adjusting-screw carried by the upper jaw member adapted to engage the surface of said inclined plane.

7. In an articulator the combination of the jaw members, a hinge uniting the jaw members, means for allowing a direct lateral movement of a jaw member in a plane parallel with its companion member independently of the hinge movement whereby a combined lateral and articulatory movement is obtained, and means for automatically returning the movable parts to their normal position.

8. In an articulator the combination of the movable members adapted to carry the teeth, a hinge uniting said members constructed to afford a lateral and an articulatory movement, means for adjusting said hinge to al-

low the teeth to articulate and occlude in the lateral movement to accommodate any curve of the jaw.

9. In an articulator the combination of the
5 movable members adapted to carry the teeth,
a hinge uniting said members, said hinge being constructed to allow a lateral and a longitudinal reciprocation of a hinge member as well as an articulatory movement thereof,
10 and means for automatically restoring the parts to their normal position after a longitudinal or lateral movement.

10. In an articulator the combination of the
15 jaw members united by a hinge having a normal axis of oscillation, means for allowing a movement of the pintle of the hinge away from said normal axis in a plane diametrical

thereto, and means for changing the plane of travel of said pintle in a direction concentric with said normal axis.

11. In an articulator the combination of the
20 jaw members, a hinge uniting said members, said hinge affording a lateral and an articulatory movement of a jaw member, the pintles of the hinge having sockets in their ends
25 and the springs fixed to one of the members of the jaw and entering freely the sockets of said pintles.

In testimony whereof I sign this specification in the presence of two witnesses.

MATHEW M. KERR.

Witnesses:

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C. E. JOSLIN.