

No. 686,613.

Patented Nov. 12, 1901.

C. HUBERTY.
DENTAL ARTICULATOR.

(Application filed Aug. 26, 1901.)

(No Model.)

2 Sheets—Sheet 2.

Fig. 4.

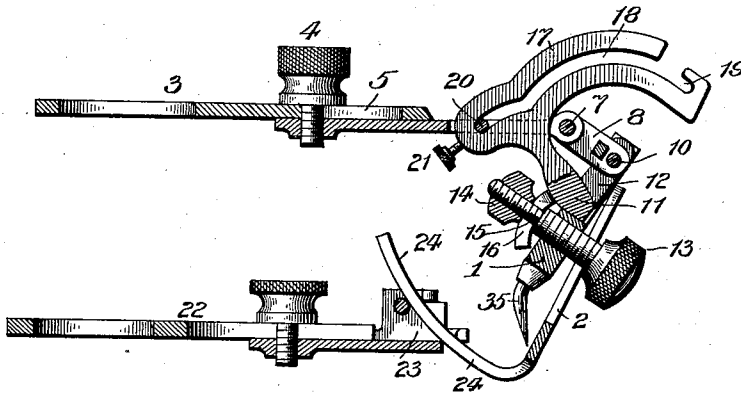


Fig. 5.

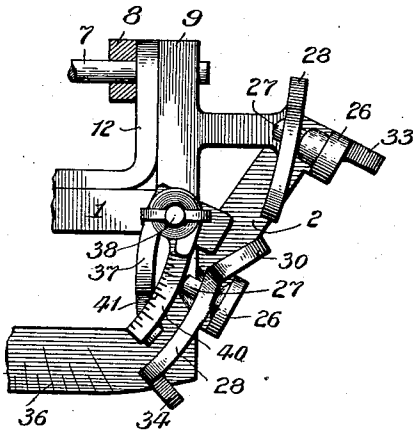


Fig. 6.

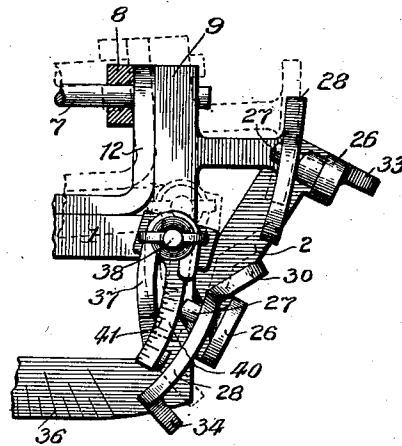


Fig. 7.

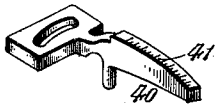
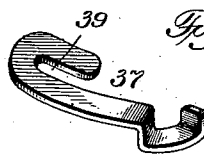


Fig. 8.



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UNITED STATES PATENT OFFICE.

CLEMENS HUBERTY, OF CHICAGO, ILLINOIS.

DENTAL ARTICULATOR.

SPECIFICATION forming part of Letters Patent No. 686,613, dated November 12, 1901.

Application filed August 26, 1901. Serial No. 73,259. (No model.)

To all whom it may concern:

Be it known that I, CLEMENS HUBERTY, a citizen of the United States of America, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Dental Articulators, of which the following is a specification.

The present invention relates to that class of dental articulators in which the jaw members have what is known as the "anatomical" adjustment with relation to each other to facilitate the perfect production of the dentures.

The present improvement has for its object to provide a simple and efficient construction of the parts of a dental articulator whereby independent movements of the respective jaw members of the articulator in different planes are conveniently attained to guide the operator in attaining the proper alinement and surfacing of the artificial teeth in the denture, as well as to afford the operator convenient access to the molds or forms carried by the respective jaw members in effecting the required adjustment of the artificial teeth therein, all as will hereinafter more fully appear and be more particularly pointed out in the claims. I attain such objects by the formation and arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of an anatomical dental articulator embodying the present improvements; Fig. 2, a rear elevation of the same; Fig. 3, a transverse sectional elevation at line *x x*, Fig. 1; Fig. 4, a central longitudinal sectional elevation; Figs. 5 and 6, enlarged fragmentary transverse sectional elevations of the mechanism for imparting a rocking movement to the lower jaw-carrying member of the articulator and illustrating different positions of the same; Figs. 7 and 8, detail perspective views of the guides and stops for governing the rocking movements of the lower jaw member.

Similar numerals of reference indicate like parts in the several views.

Referring to the drawings, 1 and 2 represent a pair of companion bracket members which together constitute a connecting frame or bracket and which are yieldingly connect-

ed together, so as to be capable of movement one upon the other, as hereinafter described, the one frame carrying the upper jaw member and the other frame the lower jaw member of the articulator in the adjustable manner hereinafter described and in proper connected relation.

3 represents the upper jaw member of any usual form and preferably consisting of two sections, one superimposed upon the other and connected together by a clamping-screw 4, and an elongated slot 5, so as to permit of the usual adjustment of the forward mold-carrying section of the upper jaw member in different directions in a horizontal plane.

6 represents rearwardly-extending wings on the rear or attaching section of the upper jaw member, formed with pivot-eyes for the passage of the pivot pin or rod 7, by which the rear portion of the upper jaw member has pivotal connection with one end of an intermediate radius-link 8, the other end of which link has in turn a pivotal connection with the upper ends of the obliquely-arranged wings 9 of the connecting bracket or frame 1 by a pivot rod or pin 10.

11 is a guide-frame pivotally connected by means of side wings 12 and the pivot-pin 10 aforesaid to the wings 9 of the bracket or frame 1 and having pivotal adjustment with relation to said frame 1 by means of an adjusting thumb-screw 13, screwing through such frame, as shown in Fig. 4, with its front end connected by a bearing nut or collar 14 and reduced shank 15 with a curved and slotted finger 16 of the guide-frame 11. In the preferred construction of the present invention, as illustrated in Figs. 1 and 4 of the drawings, such finger 16 will have engagement with the reduced shank 15 between the offset or shoulder forming such reduced shank and the bearing-nut 14, which is preferably screwed in place, so as to permit of ready removal in the operation of dismembering the articulator for cleaning and other usual purposes.

17 is a centrally-arranged cam-plate forming an integral part of the guide-frame 11 and provided with a curved cam-slot 18, the main central portion of which is of a segmental form, open at its rear end and terminating in a hook-shaped recess 19, while the forward

portion of such slot has an oblique slant corresponding to the curve described by the radius-link 8 for purpose hereinafter set forth.

20 is a cross bar or rod on the rear section 5 of the upper jaw member 3, engaging and having movement in the curved slot 18, and in connection with the radius-link 8 forms a means for insuring a limited parallel movement of the upper jaw member to and from 10 the lower jaw member of the articulator, as illustrated in full and dotted lines in Fig. 1. Such cross-bar 20 is also adapted to engage in the hook-shaped recess 19 to support the upper jaw member 3 in a position at substantially right angles to the lower jaw member, 15 as shown in dotted lines in Fig. 1.

21 is a set-screw turning in the forward end of the cam-plate 17, with its point forming an adjustable abutment in the forward end of 20 the cam-slot 18 for the cross-bar 20 to limit the movement of the upper jaw member toward the lower jaw member of the articulator.

22 is the lower jaw member of any usual construction and preferably of a counterpart 25 form to that described in connection with the upper jaw member. The rear end of such lower jaw member is formed with an angular slide or head 23, which engages a curved prong or guide 24, forming a part of the connecting bracket or frame 2, and preferably 30 formed on a radius the center of which is the axis of pivot-pin 10, hereinbefore described.

25 is a clamping-screw by which the lower jaw member is clamped in its required adjustment upon the curved prong or guide 24. 35

With the construction described the lower jaw member is capable of a tangential adjustment with relation to the curved prong 24 and the other portions of the articulator, 40 which is found in practice to afford a very extended and perfect adjustment of the articulator to suit any angle that may be required in the contact-surface between the pair of dentures.

In the present invention the adjustable connection between the companion brackets or frames 1 and 2 is such as to permit of a rocking movement of the one with relation to the other and will comprise a construction as follows: 50

26 represents forwardly-projecting flanges on the respective sides of the bracket or frame 2, usually two in number at each side and carrying guide studs or projections 27. 55

28 represents forwardly-projecting flanges on the respective sides of the bracket or frame 1, companions to the flanges 26 of the frame 2, and provided with elongated slots 29, engaging the guide studs or projections 27 of the aforesaid frame 2 and adapted to permit of a limited rocking motion of the one frame with relation to the other. 60

The different sets of flanges 26 and 28 above described are arranged in a circular path corresponding with the path of the movement required, and in order that a greater range or diversity of movement may be attained to

compensate for the widely-different movement of the human jaws upon their condyles in different subjects requiring artificial dentures it is within the scope of the present invention to turn the upper portions 30 of the lower pair of flanges 28 outwardly, as more particularly shown in Figs. 3, 5, and 6, so as to give a more extended rocking movement 75 to the parts in the movement of the guide studs or projections 27 in the portion of the guide-slot in such outwardly-bent portion of the flanges 28. In like manner the upper portions of the guide-slots 29 of flanges 28 80 are preferably formed with a rearwardly-extending oblique portion 31 to afford a like increased movement of the lower jaw member of the articulator when the guide-studs 27 have movement in said oblique portion of the 85 guide-slots.

The described studs and elongated slots constitute the entire guiding connection between the respective frames 1 and 2, and said frames are held to their normal position with 90 the respective studs 27 resting midway in the respective elongated slots 29 by means of the pair of springs 32, attached to the respective frames and tending by their resiliency to draw the frames into the required normal 95 position.

33 and 34 are thumb or finger rests at opposite sides of the articulator, the rests 33 being on the frame 1 and the rests 34 upon the frame 2. With such construction by pressing 100 the pair of thumb or finger rests 33 and 34 at one side of the articulator to move the frames in a direct manner against the tension of the spring 32 at such particular side of the articulator the other side will at the same 105 time have an indirect movement in a reverse direction, due to the tension of the other spring 32 and the curved arrangement of the flanges 26 and 28, so while the guide-studs 27 are moving down the guide-slots 29 at one 110 side of the articulator the corresponding guide-studs 27 at the other side of the articulator will be moving up in the corresponding guide-slots therefor, and in consequence a very extended universal motion of the lower 115 jaw member is attained and which closely approximates the motions of the human jaw in its various movements in mastication.

35 is a pointer on the frame 1, and 36 is a scale on the other frame 2 for affording the 120 operator an accurate indication of the degree of rocking movement of the parts.

37 represents hook-shaped stops secured in an adjustable manner to the frame or bracket 2 by means of clamping-screws 38 and elongated slots 39, with their points or hooks arranged in the path of the guide-studs 27 of the frame or bracket 1 to form abutments or stops therefor and control the range of movement of the parts with relation to each other. 130

40 represents bearing tracks or frogs secured at one end in an adjustable manner to the frame or bracket 2, preferably by means of the clamping-screw 38, hereinbefore de-

scribed. Such tracks or frogs are adapted to be adjusted and secured in the path of the lower set of guide-studs 27 and to form a bearing for the inner ends of said studs to impart any required degree of lateral motion to the intermediate frames or brackets 1 and 2 as the normal rocking motion hereinbefore described is imparted to the parts by the operator.

41 represents scales, preferably formed on the surface bearing-tracks 40 and adapted to afford a ready indication of the degree of adjustment of the hook-shaped stops 37, hereinbefore described.

With the present improved construction a great range of adjustment of the jaw members and of the model or form carried thereby in different planes can be attained in an easy and convenient manner, and in consequence the operator is enabled to attain perfect articulation in a like ready, rapid, and convenient manner.

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

1. In a dental articulator, the combination of an upper member, a lower member, an intermediate connecting-bracket, a radius-link connecting the upper member to the bracket, and means carried by the bracket for guiding the upper member in its movements to and from the lower member, substantially as set forth.

2. In a dental articulator, the combination of an upper member, a lower member, an intermediate connecting-bracket, a radius-link connecting the upper member to the bracket, and a guide-frame carried by the bracket and provided with a cam-groove for guiding the upper member in its movements to and from the lower member, substantially as set forth.

3. In a dental articulator, the combination of an upper member, a lower member, an intermediate connecting-bracket, a radius-link connecting the upper member to the bracket, and a guide-frame carried by the bracket and provided with a cam-groove having an oblique forward portion and an open rear end and adapted to guide the upper member in its movements to and from the lower member, substantially as set forth.

4. In a dental articulator, the combination of an upper member, a lower member, an intermediate connecting-bracket, a radius-link connecting the upper member to the bracket, and a guide-frame carried by the bracket and provided with a cam-groove having an oblique forward portion, and an open rear end formed with a hook-shaped recess, and adapted to guide the upper member in its movements and support the same in an opened position, substantially as set forth.

5. In a dental articulator, the combination of an upper member, a lower member, an intermediate connecting-bracket, a radius-link connecting the upper member to the bracket, a guide-frame pivoted to the bracket and pro-

vided with means for guiding the upper member, and means for imparting a pivotal adjustment to said guide-frame, substantially as set forth.

6. In a dental articulator, the combination of an upper member, a lower member, an intermediate connecting-bracket, a radius-link connecting the upper member to the bracket, a guide-frame pivoted to the bracket and provided with means for guiding the upper member, and means for imparting a pivotal adjustment to said guide-frame, the same comprising a screw turning in the bracket and having operative engagement with said guide-frame, substantially as set forth.

7. In a dental articulator, the combination of an upper member, a lower member, an intermediate connecting-bracket, a radius-link connecting the upper member to the bracket, a guide-frame carried by the bracket and provided with a cam-groove for guiding the upper member in its movements to and from the lower member, and an adjustable abutment at the forward end of said cam-groove, substantially as set forth.

8. In a dental articulator, the combination of an upper member, a lower member, an intermediate connecting-bracket, a radius-link connecting the upper member to the bracket, a guide-frame carried by the bracket and provided with a cam-groove for guiding the upper member in its movements to and from the lower member, and an adjustable abutment at the forward end of said cam-groove, the same comprising a set-screw arranged in the forward end of said guide-frame, substantially as set forth.

9. In a dental articulator, the combination of the upper and lower members, an intermediate connecting-bracket forming a pivotal connection for the upper member, a segmental prong or guide on said bracket, a slide on the lower member engaging said prong or guide and means for securing the slide adjustably on said prong, substantially as set forth.

10. In a dental articulator, the combination of the upper and lower members, an intermediate connecting-bracket forming a pivotal connection for the upper member, a segmental prong or guide on said bracket, a slide on the lower member engaging said prong in an adjustable manner, and a set-screw for securing the parts in their adjustment, substantially as set forth.

11. In a dental articulator, the combination of the upper and lower members, an intermediate connecting-bracket forming a pivotal connection for the upper member, the said connecting-bracket comprising a pair of companion members, and slotted marginal flanges and guide-studs on the respective members connecting the same together in a manner to permit of a rocking movement of the one upon the other, substantially as set forth.

12. In a dental articulator, the combination of the upper and lower members, an intermediate connecting-bracket forming a pivotal

- connection for the upper member, the said connecting-bracket comprising a pair of companion members, and slotted marginal flanges and guide-studs on the respective members 5 connecting the same together in a manner to permit of a rocking movement of the one upon the other, and a pair of springs adapted to maintain said members in a normal position, substantially as set forth.
- 10 13. In a dental articulator, the combination of the upper and lower members, an intermediate connecting-bracket forming a pivotal connection for the upper member, the said connecting-bracket comprising a pair of companion members, and slotted marginal flanges 15 and guide-studs on the respective members connecting the same together in a manner to permit of a rocking movement of the one upon the other, a pair of springs adapted to maintain the said members in a normal position, and a pair of adjustable stops adapted to regulate the degree of movement, substantially as set forth.
- 20 14. In a dental articulator, the combination of the upper and lower members, an intermediate connecting-bracket forming a pivotal connection for the upper member, the said connecting-bracket comprising a pair of companion members, slotted marginal flanges and 30 guide-studs on the respective members, connecting the same together in a manner to permit of a rocking movement of the one upon the other, a pair of springs adapted to maintain said members in a normal position, and 35 a pair of adjustable tracks or frogs adapted to afford bearings for the guide-studs aforesaid to impart varied lateral movement to the parts in a rocking movement of the same, substantially as set forth.
- 40 15. In a dental articulator, the combination of the upper and lower members, an intermediate connecting-bracket forming a pivotal connection for the upper member, the said connecting-bracket comprising a pair of companion members, slotted marginal flanges and 45 guide-studs on the respective members, connecting the same together in a manner to permit of a rocking movement of the one upon the other, a pair of springs adapted to maintain said members in a normal position, a pair 50 of adjustable stops adapted to regulate the degree of rocking movement, and a pair of adjustable tracks or frogs adapted to afford bearings for the guide-studs aforesaid to impart varied lateral movement to the parts in a rocking movement of the same substantially as set forth. 55
16. In a dental articulator, the combination of the upper and lower members, an intermediate connecting-bracket forming a pivotal 60 connection for the upper member the said connecting-bracket comprising a pair of companion members, and slotted flanges and guide-studs arranged in a curved path on the margins of the said companion members and 65 adapted to connect the same together in a manner to permit of a rocking movement of one member with relation to the other, the slotted flanges aforesaid having outwardly-turned upper ends, substantially as set forth. 70
17. In a dental articulator, the combination of the upper and lower members, an intermediate connecting-bracket forming a pivotal 75 connection for the upper member, the said connecting-bracket comprising a pair of companion members, and slotted flanges and guide-studs arranged in a curved path on the margins of the said companion members and adapted to connect the same together in a 80 manner to permit of a rocking movement of one member with relation to the other, the guide-slots in said flanges having rearwardly-inclined upper portions, substantially as set forth.
18. In a dental articulator, the combination 85 of the upper and lower members, an intermediate connecting-bracket forming a pivotal connection for the upper member, the said connecting-bracket comprising a pair of companion members, a connection imposing a 90 universal movement between the said companion members, and means capable of adjustment by the operator for governing the movement of one member with relation to the other, substantially as set forth. 95
- Signed at Chicago, Illinois, this 17th day of August, 1901.
- CLEMENS HUBERTY.
- Witnesses:
ROBERT BURNS,
M. H. HOLMES.