

(No Model.)

2 Sheets—Sheet 1.

W. E. WALKER.
DENTAL ARTICULATOR.

No. 566,950.

Patented Sept. 1, 1896.

Fig. 1.

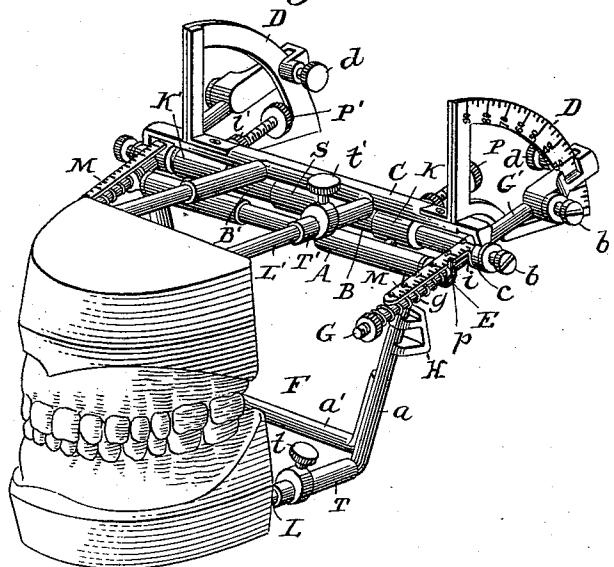
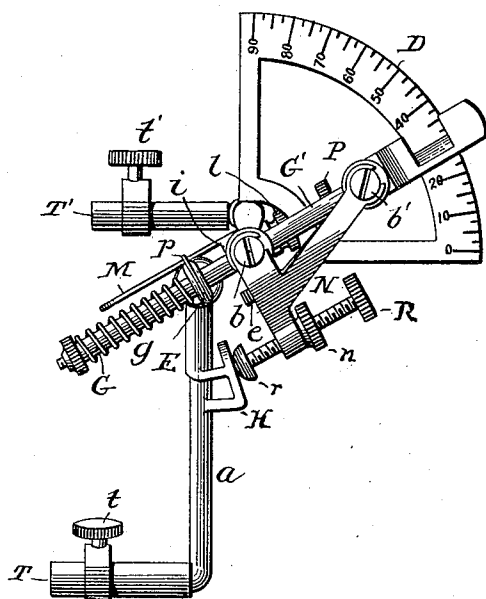


Fig. 2.



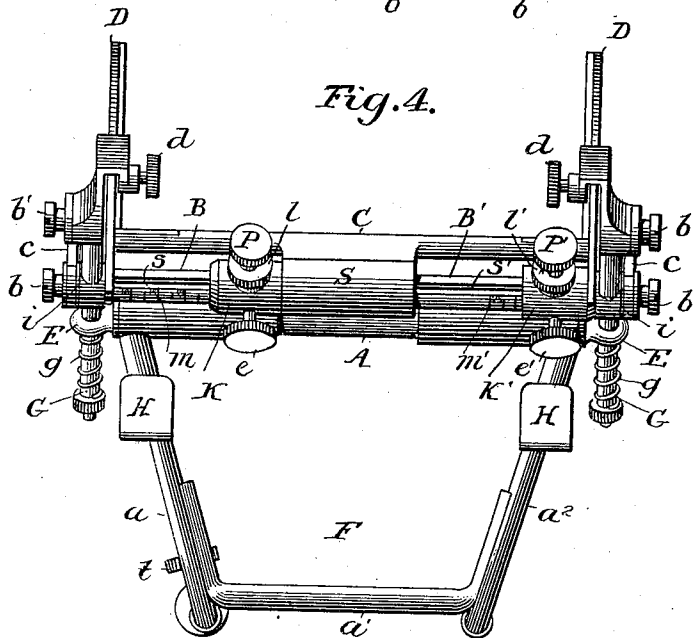
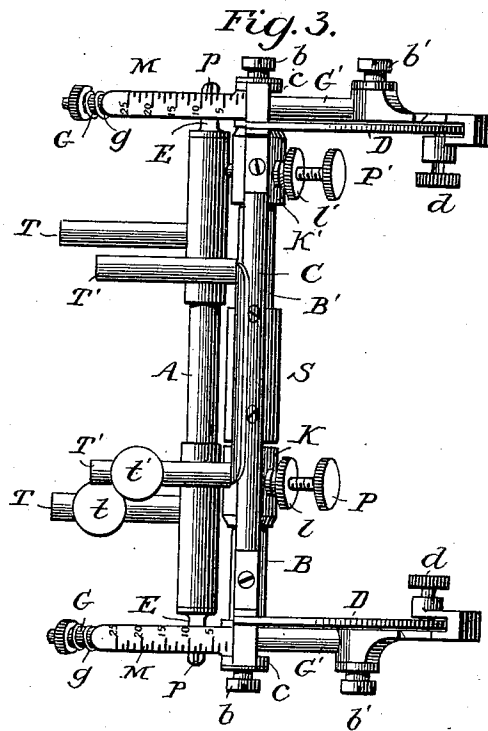
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UNITED STATES PATENT OFFICE.

WILLIAM ERNEST WALKER, OF PASS CHRISTIAN, MISSISSIPPI.

DENTAL ARTICULATOR.

SPECIFICATION forming part of Letters Patent No. 566,950, dated September 1, 1896.

Application filed June 10, 1896. Serial No. 595,050. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ERNEST WALKER, a citizen of the United States, residing at Pass Christian, in the county of Harrison and State of Mississippi, have invented certain new and useful Improvements in Dental Articulators; 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 letters of reference marked thereon, which form a part of this specification.

My invention relates to dental articulators; and it consists in the hereinafter-described improvements upon the articulator shown, described, and claimed in my application for Letters Patent of the United States, Serial No. 568,146.

In the drawings, Figure 1 is a perspective view, Fig. 2 a side elevation, Fig. 3 a plan view, and Fig. 4 a rear view, of my articulator.

F is the frame of the lower model-holder, composed of the cross-bar A and the depending rods *a*, *a'*, and *a''*, rigidly joined together. At its lower end frame F carries two forwardly-extending tubes T, into which slide the ends of loop L, which supports the plaster model of the lower jaw and which is held in place by set-screw *t*. Cross-bar A has a socket at each end adapted to receive the shanks of eyepins E, upon which frame F turns pivotally. Eyepins E represent the condyles of the lower jaw, and since in opening the mouth the human condyles move in a straight line downward and forward in the glenoid fossæ at an angle with the mean line of occlusion of the teeth, as more fully referred to in my aforesaid application, the forwardly-extending arms G, passing through the eyes of pins E, are provided as guides upon which pins E, held in their normal position by spiral spring *g*, may slide in accurate imitation of the natural movement of the lower human jaw. Arms G have the rearward extensions G', the two being made integral and rigidly attached to the outer ends of two slotted bars B and B', the inner ends of which rest loosely in sleeve S as a bearing. To the upper part of sleeve S is rigidly at-

tached cross-bar C, which is fastened at each end to lugs *c*, through openings in which pass jam-screws *b*. Mounted on jam-screws *b* by lugs *i* are the millimeter-scale plates M, on which the pointers *p* indicate the extent of the condylar movement of eyepins E. Forwardly extending from cross-bar C are the tubes T', into which slide the ends of loop L', which supports the plaster model of the upper jaw, and which is held in place by set-screw *t'*. Rigidly fastened to the ends of cross-bar C are two degree-plates D, marked from "0" to "90" degrees, and so situated that suitable indicators on rear extensions G' may move over and in proximity to its face. On degree-plate D the zero-line lies in a plane which is parallel to other planes passing horizontally through tubes T and T', which are supposed to be parallel to each other and to another plane passing through the mean line of occlusion of the plaster models, as the custom is to mount them; and, therefore, as extensions G' move over the degree-plates they accurately indicate the angle which their respective guide-arms G make with the mean line of occlusion of the plaster models. When the angle of the downward and forward condylar motion is known, the indicators on extensions G' are moved to the proper degree and there fastened by set-screws *d*. Owing to the construction thus described, when arms G are raised or lowered they turn in eyepin E, and bars B and B' and C are raised or lowered with them. As stated in my said former application, the angle of condylar motion is often different in the two sides of the same jaw, and these differences are provided for in my articulator by the independent movements of the two arms made possible by the independent rotation of bars B and B' in sleeve S.

By my dental clinometer, described in my pending application for Letters Patent of the United States, Serial No. 570,112, I find that the vertical axes upon which the jaw moves laterally in mastication pass inside of and not through the condyles; and, further, that these axes are differently located in different jaws, and often in opposite sides of the same jaw. To simulate in my articulator the natural lateral motions, when known, I provide collars K and K', adapted to slide on bars B

and B', and to be set by millimeter-scales *m* and *m'*, and fixed in position by set-screws *e* and *e'*. Passing through collars K and K' and through slots *s* and *s'* in bars B and B' are adjusting-pins P and P', adapted to be locked in place by lock-nuts *l* and *l'*. The ends of pins P and P' rest on cross-bar A and are the fulcrums or axes upon which the lateral motions of the articulator-jaw are made. Pins P and P' have another function, namely, to regulate by their respective lengths the bite of the plaster models in conformity to that of the human jaw.

In my articulator, as hereinbefore described, when articulating the plaster models the forward-and-downward motion of the lower jaw on arms G must be caused by manual pressure, and ordinarily this method of producing it is satisfactory; but to simulate this motion as made in nature, namely, by the mere opening of the jaws, I provide the following mechanism, shown only in Fig. 2 of the accompanying drawings: On either side of the articulator a hanger N has its upper arms so constructed as to slip over the necks of jam-screws *b* and *b'*, fixed on the extensions of arms G, and at its lower extremity has passing through it an internally-screw-threaded hole for the reception of fulcrum-screw R, which is set by lock-nut *n*, and which carries at its lower end button *r*, which rests against plate H, attached to rod *a* of frame A. As arm G is raised or lowered, screw R is adjusted in length accordingly, and the device is applied or removed in an instant, without changing any part of the articulator. With this attachment in place, when the articulator-jaws are opened frame F is compelled to rock on the ends of the fulcrum-screws and eyepin E to slide forward and downward on arms G.

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

1. The pivotally-connected model-holders, the lower model-holder being adapted to slide on an arm or arms of the upper model-holder extending forwardly of the pivot-joint, in combination with means for varying the angles made by the arms with the mean line of occlusion of the models, substantially as and for the purposes described.

2. The pivotally-connected model-holders, the upper model-holder carrying one or more forwardly-extending arms, adjustably in-

clined at an angle with the mean line of occlusion of the models, upon which the lower model-holder is adapted to slide under pressure, and a degree-plate and indicator adapted to determine the angles made by the arms, substantially as and for the purposes described.

3. The frame for the upper model-holder consisting of a cross-bar carrying opposite its center the upper model-holder and at its ends the degree-plates, of a depending sleeve attached centrally to the cross-bar and acting as a bearing for the ends of two rotating bars one on either side thereof, and of two forwardly-projecting arms rigidly attached to the outer ends of the rotating bars and carrying a spiral spring and a millimeter-scale and provided with a rearwardly-extending indicator adapted to register the angles which the arms make with the mean line of occlusion of the models, in combination with a frame for the lower model-holder consisting of a cross-bar socketed at both ends for the reception of the shanks of two rotating eyepins, which encircle the arms and are held in place by the spiral springs, and of a frame depending from the cross-bar and carrying the lower model-holder, substantially as and for the purposes described.

4. The pivotally-connected model-holders, the lower model-holder being adapted to slide on an arm or arms projecting from the upper model-holder, in combination with adjusting-pins (for regulating the bite carried by the upper model-holder) resting against the lower model-holder and adapted to vary laterally the position of the vertical axes on which the lower model-holder laterally turns, substantially as and for the purposes described.

5. The pivotally-connected model-holders, the one adapted to slide forward and backward upon the other under pressure at an angle with the mean of the line of occlusion of the models, in combination with means for varying laterally the position of the vertical axes on which the models turn in moving laterally, substantially as and for the purposes described.

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

WILLIAM ERNEST WALKER.

Witnesses:

A. J. GRACIES,
K. L. THORNTON.