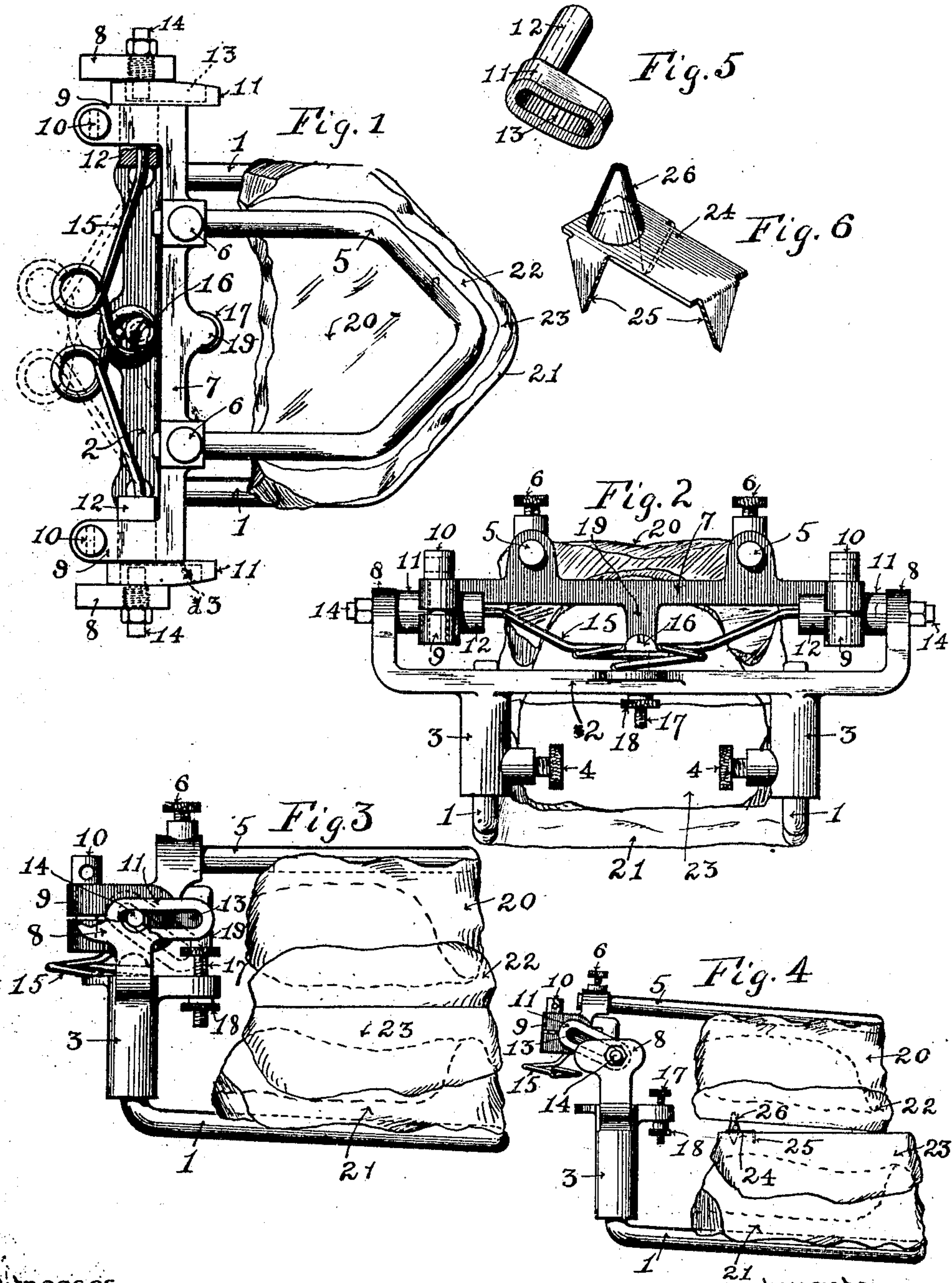


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PATENTED NOV. 12, 1907.

G. B. SNOW.
DENTAL ARTICULATOR.
APPLICATION FILED AUG. 8, 1906.



Witnesses.

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GEORGE B. SNOW, OF BUFFALO, NEW YORK.

DENTAL ARTICULATOR.

No. 870,909.

Specification of Letters Patent.

Patented Nov. 12, 1907.

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To all whom it may concern.

Be it known that I, GEORGE B. SNOW, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and
5 useful Improvement in Dental Articulators, of which the following is a specification.

My invention relates to dental articulators and more particularly to improvements in articulators, which make the operation of the same conform to the recent
10 discoveries in dental science as to the true nature of the bite.

The object of my invention is to provide a simple means whereby the dentist will be able to ascertain the inclination of the bite-paths of the condyles, and an
15 articulator with which these conditions, together with others existing in the mouth of the patient may be conveniently and accurately duplicated.

In the drawings herewith, which show a typical form for carrying out my invention, in which like characters
20 of reference indicate corresponding parts,—Figure 1 is a plan view; Fig. 2 is a rear elevation; Fig. 3 is a side elevation, one of the bearing supports being cut away to show the link; Fig. 4 is a side elevation on a slightly reduced scale showing my method of obtaining the link
25 inclination; Fig. 5 is a perspective of one of the links; Fig. 6 is a perspective of one of my gage pins. In Figs. 1 to 4 I have shown the plaster models and trial plates in place.

The articulator consists of an upper section 7 and a
30 lower section 2. The wire loop 1 which supports the lower plaster model 21 is held in and is adjustable vertically in the sleeves 3 in the section 2, and is fastened by the set screws 4. A similar wire loop 5 supports the upper plaster model 20, and slides horizontally in
35 the lugs upon the upper section 7, and is secured, when correctly placed, by the set screws 6. The lower section 2 has its ends bent upwardly at right angles to form the bearing-supports 8, 8. The upper section 7 is connected to these bearing-supports by means of back-
40 wardly extending ends 9, which are transversely bored and slotted to form clamping-bearings by means of the clamping-screws 10. Pivot pins 14 are threaded through the bearing supports 8 of the lower section 2 and have reduced non-threaded ends to form pivot
45 bearings and at their outer ends are provided as shown with cylindrical bearing surfaces adapted for the attachment of a face bow similar to that shown in U. S. Patent No. 629,531, by means of which the location of the plaster models 20 and 21 are correctly ascertained
50 upon the loops 1 and 5. Interposed between the outer faces of the extensions 9 and the inner faces of the supports 8 are placed the pivot links 11. These links, as clearly shown in Fig. 5, have cylindrical shanks 12 which enter the clamp bearings 9 and which are
55 clamped against rotation by the screws 10. These links have slots 13, and the axes of the shanks 12 are in

center with the centers of the rear ends of the said slots 13. The outer faces of these links are curved, as clearly shown in Figs. 1 and 5 upon a radius equal to the distance between the supports 8.

A spring 15 has its ends inserted in axial drill-holes in the inner ends of the lugs 12 of the links 13, and is formed with a central forward loop and two adjacent rearward loops, lying in substantially the same plane. It normally tends to take the position shown in broken
65 outline in Fig. 1. Secured to the lower section 2 is a stud 16, having a neck which is capable of removably engaging the central loop of the spring 15 when forced forwardly and onwardly. When the spring is held by the stud 16 its ends tend to force the upper section 7 for-
70 wardly until the pivots 14 rest against the rear end-walls of the slots 13 in the links 11, when they are central with the shanks 12.

Threaded to a lug on the lower section 2 is an adjustable screw 17, which has a broad flat head and which is
75 locked by a check-nut, 18. Projecting downwardly and directly over the head of the screw 17 is a lug 19, which is secured to or integral with the upper section 7. The screw 17 and the lug 19 cooperate to limit the bite as established.

20 is the upper plaster model and 21 the lower plaster model secured respectively to the upper and lower loops in the usual manner; and 22 and 23 are respectively the upper and lower trial plates.

By reason of the inclination of the lines of condyle
85 displacement, the movement of the lower jaw, when it is thrust forwards, is not horizontal, but forwards and downwards. And when the trial plates 22 and 23, having flat articulating surfaces, are placed in the mouth, these surfaces will, when the lower jaw is
90 raised normally, coincide as shown in Fig. 3. But when the lower jaw is thrust forwards and raised these surfaces will only touch in front, and will be more or less widely separated at the rear; as shown in Fig. 4. My gage pins, which are intended to be used in pairs,
95 (see Fig. 6), are devised to measure the amount of separation of the articulating surfaces of the trial plates under this condition, and so to enable the dentist to ascertain the angle of inclination of the condyle displacement for the case in hand.

The pin 26, which is designed to penetrate the wax of the upper trial plate, as shown in Fig. 4, is mounted upon a flat plate 24, which has spurs 25, which penetrate the surface of the lower trial plate, and so secure the fixture thereto. This is shown *in situ* in Fig. 4,
105 and of normal size in Fig. 6.

Having thus described the parts of the apparatus, its operation is as follows: The trial plates 22 and 23 having been prepared and fitted in the usual manner, so that their surfaces coincide accurately when they
110 are in place in the mouth, a pair of gage pins are secured to the wax rim preferably of the lower plate 23

as shown in Fig. 4. The plates are then re-inserted into the mouth of the patient, with the gage pins in place. The patient with the plates separated, extends the lower jaw forwardly and then bites the plates together, which establishes two impression prints in the plate 22 by the pins 26. The plates are then put in place and adjusted in the articulator by the use of the face bow and the usual marks on the plates which register the normal or first bite, the gage pins being, for the time being, removed. The spring 15 being then released, the screws 10 loosened and the links 11 turned downwardly and the gage pins replaced, the upper section of the articulator is moved backwards until the points of the gage pins 26 are received into the impressions they have previously made in the surface of the trial plate 22. The links 11 are then turned upwards until the pins 26 have entered the impressions in the trial-plate 22 to their full depth, when the screws 10 are tightened to secure the links 11 and the central loop of the spring 15 is again engaged with the stud 16. The movements of the articulator joints in the slots 13 will then be identical with those of the condyles of the jaw in their bite-paths.

It will be seen that the pins 26 register not only the amount of separation of the trial plates by the forward thrust of the condyle, but also the distance through which the thrust is made, and that the conditions of condyle displacement in the patient are accurately imitated. Since the position of the links 11 governs the movement between the channel plates the articulator rotation established will be as above explained.

As I am not aware that any device has heretofore been produced for registering the amount of forward move-

ment, and the separation of dental trial plates in the manner here shown, I do not wish to confine myself to the precise construction I have described; for it is obvious that any form can be given to the device which would be capable of being impressed into the wax, of which the articulating ridges of the trial plates are composed. It will, of course, be understood that the pivots 14, with relation to the position of the trial plates as adjusted, will lie in the axis of the condyles.

Having thus described my invention and its method of operation, what I claim is:

1. A dental articulator comprising upper and lower sections, joint pins in the lower section, slotted links interposed between the two sections to complete the joints, and gripping sockets in the upper section into which said links are journaled.

2. In a dental articulator, the combination with two sections jointed together by means of slotted connections, of a spring having both ends fixed in sockets axial with the joints of one of said sections and detachably secured at an intermediate point to the other of said sections.

3. A gage pin for ascertaining the inclination of the condyle path, having projections above and below adapted to penetrate the articulating surfaces of the upper and lower trial plates.

4. The combination with a dental articulator comprising upper and lower sections, joint pins in the lower section, slotted links interposed between the two sections to complete the joints, gripping sockets in the upper section into which said links are journaled of a gage pin for measuring the amount of condyle displacement consisting of a thin body to be attached to the wax rim of one trial plate and a spur adapted to penetrate the surface of the opposing trial plate.

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