

June 10, 1924.

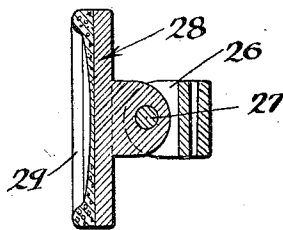
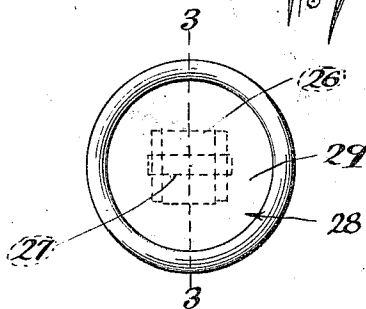
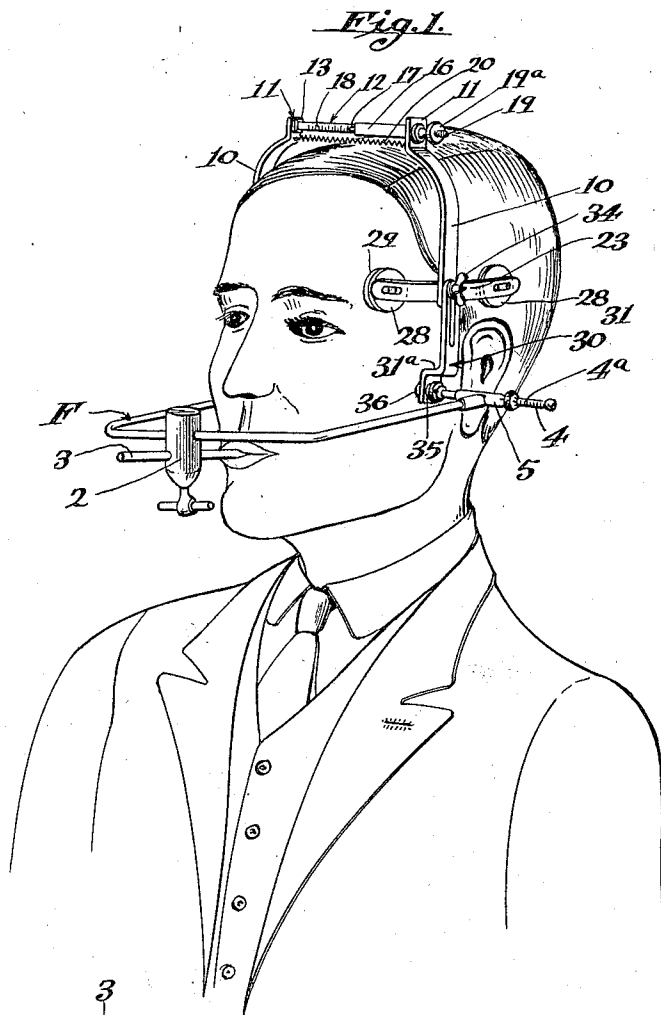
1,497,259

H. A. BONOFF

CONDYLE FORMER

Filed Jan. 25, 1923

2 Sheets-Sheet 1



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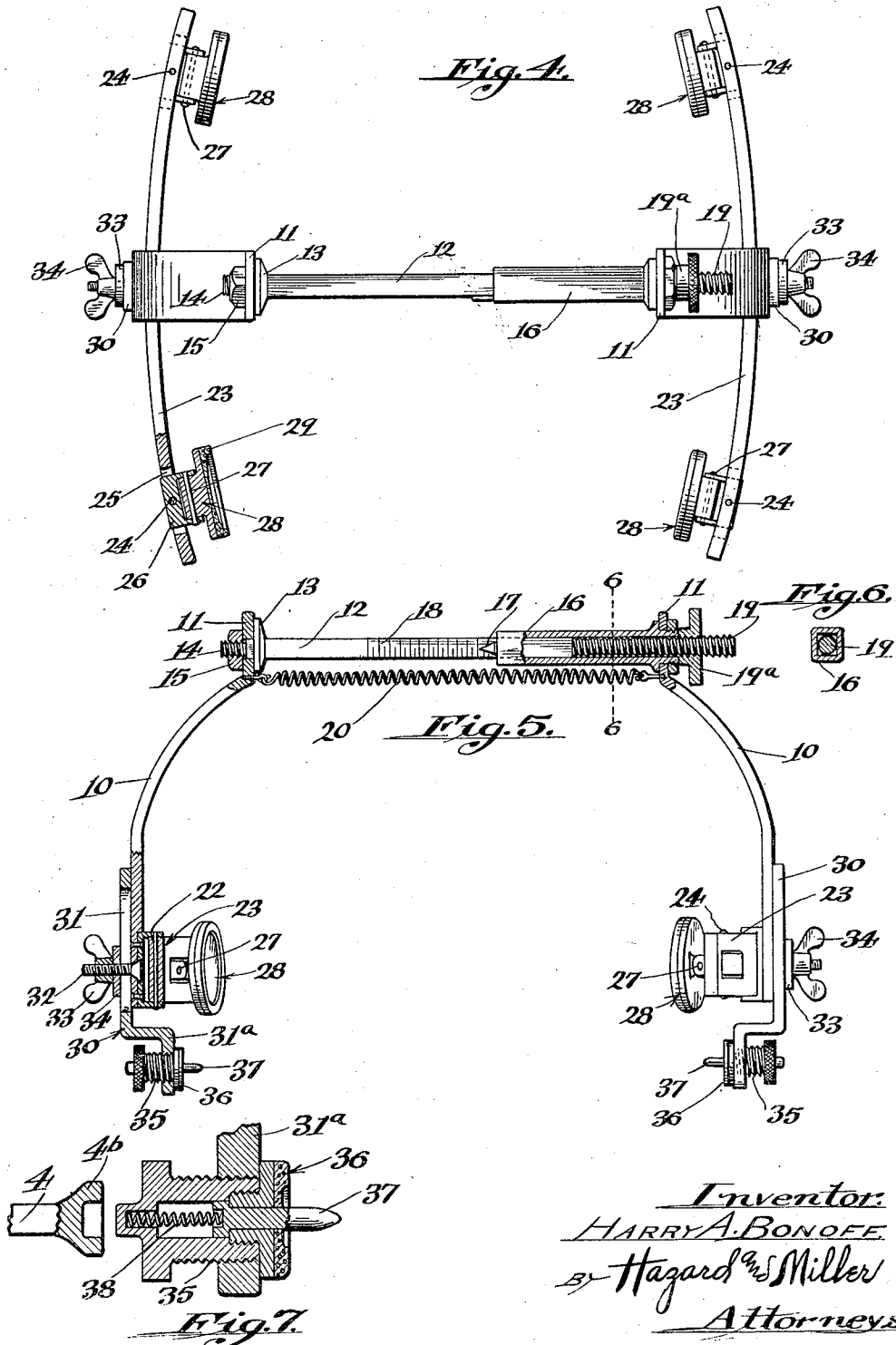
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UNITED STATES PATENT OFFICE.

HARRY A. BONOFF, OF LOS ANGELES, CALIFORNIA.

CONDYLE FORMER.

Application filed January 25, 1923. Serial No. 614,783.

To all whom it may concern:

Be it known that I, HARRY A. BONOFF, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Condyle Formers, of which the following is a specification.

This invention relates to dental apparatus and has for an object to provide a mechanical means for facilitating the location of the condyles of the lower jaw and defining the relationship of the upper and lower jaws. Another object of the invention is to provide a condyle former which has capacity for a large range of adjustment to faces of different shapes and sizes, and which includes means for locating certain pivot pins of face or jaw bow elements and which will insure the accurate readjustment and application of the instrument in dental operations.

A further object is to provide a device consisting of a head frame having parts adapted to be adjusted in precise position over the lower jaw condyles and adapted to receive pivot pins of a jaw or face frame or bow whereby the positive location of the axis of the condyles is readily obtained and maintained by the apparatus to insure proper and accurate adjustment of apparatus employed in certain dental operations.

Other objects and advantages will be made manifest in the following specification of an embodiment of the invention illustrated in the accompanying drawings, wherein—

Figure 1 is a perspective showing the device as applied to the head of a patient.

Fig. 2 is a face view of one of the head frame cushions or pads.

Fig. 3 is a section on line 3—3 thereof.

Fig. 4 is a plan of the detached head frame, parts of which are in section to illustrate a universal joint for one of the pads.

Fig. 5 is a front elevation and sectional view of the device.

Fig. 6 is a cross section on line 6—6 of Fig. 5 omitting the spring in the plane.

Fig. 7 is a detail, sectional view of one of the axis indicating pins and its carrier.

In certain dental operations it is highly essential that the exact axis of oscillation of the lower jaw on the jaw condyles be ascertained, and it is also highly desirable that in the various steps of such operations

it is possible to readily maintain the location of the axis of the condyles so as to secure the most accurate results in the finished work of the operations wherein it is necessary to know accurately the relationship of the upper and lower jaws.

To that end, the present invention consists essentially of a device applicable to the head of a patient and which includes means adapted to be accurately positioned in the axis of the condyles of the jaw, and to which means there may be readily applied any suitable form of jaw or face bow, which is here shown as consisting of a substantially U-shaped frame F having a transverse straight bar portion upon which is adjustably mounted a sliding block 2 carrying a pointer 3 adapted to be adjusted inwardly and have its inner end positioned in the mouth of the patient. The frame F has at the end of its rearwardly extending side arms axially aligned and adjustable pintles or screws 4 which are shown as mounted in transverse bearings 5 provided therefor at the inner ends of the arms of the frame F.

To facilitate the location of the pindle screws 4 precisely in the axis of the condyle joint of the jaw and to obviate the common practice of utilizing an assistant in holding the pivot pins of the frame after the axis has been ascertained, the present invention includes a head frame having substantially duplicate side bars 10 which may have lower straight shank portions and upper, inwardly curved portions having terminal lugs or ears 11 perforated to receive elements of a cross connection consisting of a scale bar 12 having adjacent to one end a flange 13 to be abutted against the contiguous lug 11 and fastened as by means of a nut 15 engaging the threaded end 14 of the bar 12.

The scale bar 12 is slidably adjustable in a sleeve 16 fixed on the upper ear 11 of one of the opposite side members 10. The sleeve 16 is provided with an index pointer 17 adapted to register with scale graduations 18 provided on the scale bar 12, and to facilitate adjustment of the scale bar there is mounted in the sleeve 16 an adjusting screw 19 which is formed on the contiguous end of the scale bar 18 and carries an adjusting nut 19^a preventing outward movement. These members may be con-

tractively connected as by a spring 20 which tends to automatically shift the scale bar 10 into the sleeve telescopically and yet provide for ready separating movement in adjustment of the members 10.

To provide for a substantial support of the side members, each of these is provided on the inner lower portions with pivot pins 22 substantially parallel to the side shanks, and on these pins are mounted horizontally extending levers 23 extending in opposite directions from their pivots 20. The ends of each of the levers is provided with a pivot 24 which may extend from top to bottom of an aperture 25 provided in each end of the lever. In this aperture and swinging on the pivot pin 24 is a bearing 26 which in turn has a transversely extending pivot pin 27, this being arranged at right angles to the respective pivot pin 24 on which the bearing is mounted.

On the pivot pin 27 there is mounted a pad device 28 in the form, preferably, of a disc having a soft or pliant facing or cushion 29 adapted to be applied to the sides of the head of the patient, one of the cushioning pads of each lever 23 reaching forward and being positioned approximately over a temple and the other cushioning pad reaching rearwardly somewhat behind and above the ear. The universal joint connection obviously provides for a comfortable positioning of the pads on the head irrespective of the size and form of the head to which the device is to be applied. The levers 23 thus form clamping means to engage the head and will support the side members in upright position comparatively close to the head.

Adjustably connected to the lower straight shanks of the members 10 are slides 30 consisting of bars having straight upwardly extending portions slotted at 31 and being adapted to be clamped with the outer faces of the side members as by means of clamp screws 32 projecting outwardly from the members and passing through the slots 31 in the slides. The screws 32 have wing or other suitable nuts 33 adapted to be turned in to engage washers 34 abutting against the outer faces of the slides. The slides, therefore, are capable of an ample degree of vertical adjustment, and the lower ends of each of the slides is shown as turned inwardly and thence downwardly as at 31^a. The terminals 31^a are shown as threaded from face to face and receive bushings 35 having on their inner faces cheek engaging cushions or pads 36, which may be of circular form. These pads are adapted to be arranged accurately over the condyle joints, and to facilitate this accurate adjustment, there projects inwardly through the center of each pad 36 a pointer or plunger 37 slidably mounted in its bushing 35 and being

thrust with light yielding pressure inwardly as by an expansion spring 38 compressed within the bushing.

In the application of the device, the head frame is adjusted to a comfortable position about the head of a patient and the finding plungers 37 are then adjusted to the closest possible position, as may be marked on the cheeks of the condyle joints after which the side members of the head frame may be shifted inwardly so as to bring the cheek pads 36 into snug bearing with the cheeks at the joints of the lower jaw, during which action the finding plungers 37 will automatically recede into their bushings 35 against the light pressure of their springs 38. After the centering pads 36 have been set in place, then the face or jaw frame F can be set in position and the spindles 4 adjusted upon the bushings 35 with the result that the frame F will have an axis of movement concentric with the condyle joints of the jaw.

In the use of the apparatus, the head side members 10—10 are adjusted to the head of the patient and, according to the width of the head, the index pointer 17 will be positioned contiguous to one or another of the graduation marks of the scale 18. The pivot spindles 4 of the face bow are also provided with graduations 4^a and these graduations have a predetermined relationship to the graduations 18 of the scale bar so that before the bow F is applied to the face, the axis or pivot pintles 4 are adjusted inwardly or outwardly according to the graduations indicated by the pointer 17 so that in the application of the face bow, the pintles are properly adjusted and require only to be applied to the outwardly projecting ends of the bushings 35. The inner ends of the pintles 4 are provided with sockets 4^b, Fig. 6, to readily engage over an outwardly projecting lug provided at the outer end of each bushing 35.

Further embodiments, modifications and variations may be resorted to within the spirit of the invention as here claimed.

What is claimed is:

1. An apparatus for positioning pintles of a dental face bow at the condyles of the jaw of a patient, comprising a head frame applicable to the head and having yieldable plungers to be alined with the condyles.

2. An apparatus for positioning pintles of a dental face bow at the condyles of the jaw of a patient, comprising a head frame to fit over the head and having plunger devices to be alined with the condyles, and transverse clamp means to grip the sides of the head.

3. An apparatus for positioning pintles of a dental face bow at the condyles of the jaw of a patient, comprising a head frame applicable to the head and having devices to be alined with the condyles,

clamp levers to grip the sides of the head, said clamp levers being flexibly jointed between their ends to said frame, and having flexibly jointed gripping pads at their ends.

5 4. An apparatus for positioning pintles of a dental face bow at the condyles of the jaw of a patient, comprising a head frame to fit over the head and having devices to be alined with the condyles, and means adjustably connecting said devices to the
10 frame, said frame including an adjustable calibrated cross structure to provide for opening or closing side parts of the frame.

5 5. An apparatus for positioning pintles of a dental face bow at the condyles of the jaw of a patient, comprising a head frame applicable to the head and having devices to be aligned with the condyles, said frame including a cross structure having separable
15 side bar portions provided with relatively slidable cross members, and means for automatically contracting the members and side bars to fit the frame to the head.

25 6. An apparatus for positioning pintles of a dental face bow at the condyles of the jaw of a patient, comprising a head frame applicable to the head and having plunger pintles to be aligned with the condyles, said pintles being graduated, said frame including a graduated member and an index
30 member and which are relatively movable, whereby when the frame is adjusted upon the head, the indication provided by the graduated and index members will show the index setting of the pintles.
35

7. In a condyle former, a head frame having separable side bar portions provided with relatively slidable cross members, said
40 frame having centering pads at its lower ends to be located upon the condyles and having outwardly extending means to receive a Snow face bow.

8. A condyle former comprising duplicate side bars having lower straight shank
45 portions and upward inwardly curved portions having perforated terminal ears, a cross connection consisting of a scale bar having adjacent to one end a flange to fit one of the ears and having a threaded end
50 extending through the ear, a nut upon the threaded end to tighten against the ear,

a sleeve in which the scale bar slides and fixed to the other ear, an index pointer at the inner end of the sleeve, a scale upon the scale bar in conjunction with the pointer,
55 an adjusting screw in the sleeve and formed upon the scale bar, a spring connecting the upper ends of the side bars for pulling the scale bar into the sleeve, bushings adjustably connected to the lower ends of the side
60 bars, means for locating the bushings opposite the condyles, and means for mounting a Snow face bow upon the bushings.

9. An apparatus for positioning pintles of a dental face bow at the condyles of
65 the jaw of a patient, comprising a head frame applicable to the head and having devices to be aligned with the condyles, said frame including a structure having separable side bar portions provided with rela-
70 tively slidable cross members, and means for automatically contracting the members and side bars to fit the frame to the head.

10. An apparatus for positioning graduated pintles of a dental face bow at the
75 condyles of the jaw of a patient, comprising a head frame applicable to the head and having plungers to be aligned with the condyles, said frame including a graduated member and an index member and which
80 are cooperative and relatively movable, whereby when the frame is adjusted upon the head, the indication provided by the graduated and index members will auto-
85 matically show the index setting of the pintles of the face bow.

11. In a condyle former, a head frame having two side bars, a cross bar fixed to one side bar and having a screw threaded
90 outer end, a sleeve fixed to the other side bar and through which the cross bar extends, there being graduations on the cross bar and a pointer on the sleeve, a spring connecting the upper ends of the side bars,
95 and condyle pads at the lower ends of the side bars and having seats to receive a Snow face bow, the graduations and pointer of the head frame serving to indicate the setting of the face bow.

In testimony whereof I have signed my
100 name to this specification.

HARRY A. BONOFF.