H. ARTMAIER.

DENTAL INSTRUMENT GRINDING DEVICE.

APPLICATION FILED APR. 14, 1919.

1,350,951.

Patented Aug. 24, 1920.

3 SHEETS—SHEET 1.

FIG. 1

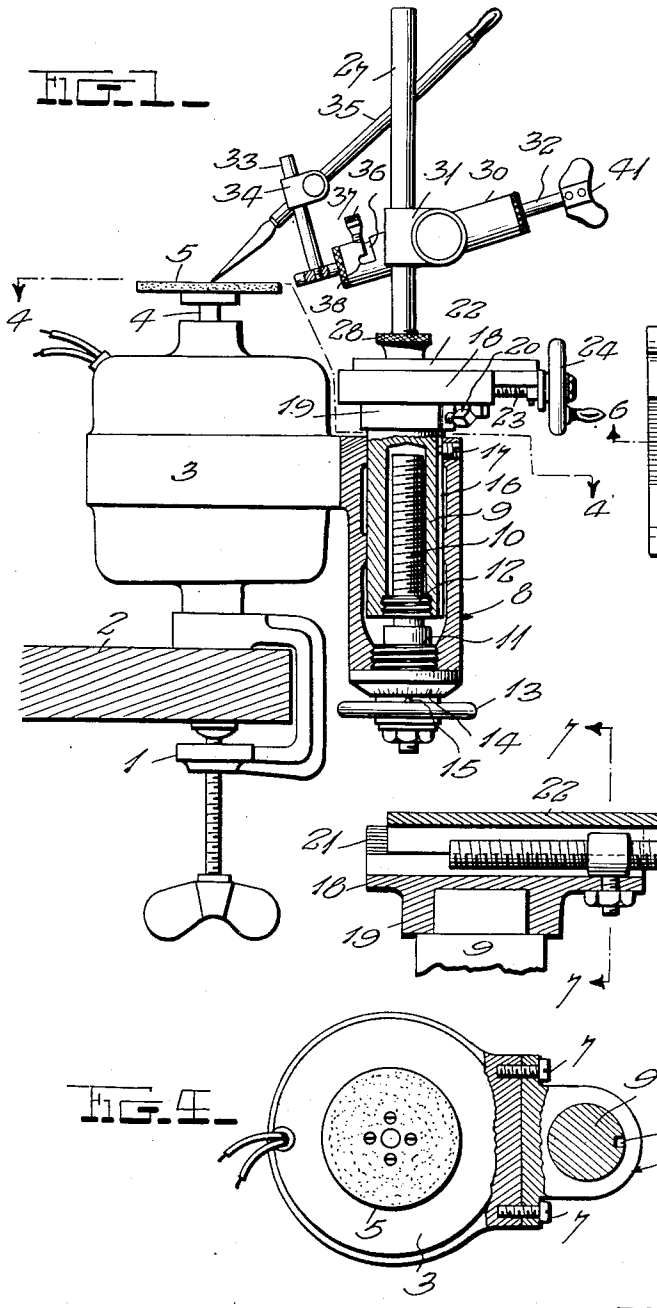


FIG. 5

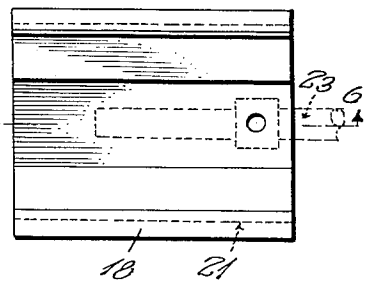


FIG. 6

FIG. 4

Witness
H. Woodard

Inventor
Hans Artmaier,

By H. B. Williamson & Co
Attorneys

H. ARTMAIER.

DENTAL INSTRUMENT GRINDING DEVICE.

APPLICATION FILED APR. 14, 1919.

1,350,951.

Patented Aug. 24, 1920.

3 SHEETS—SHEET 2.

FIG. 2.

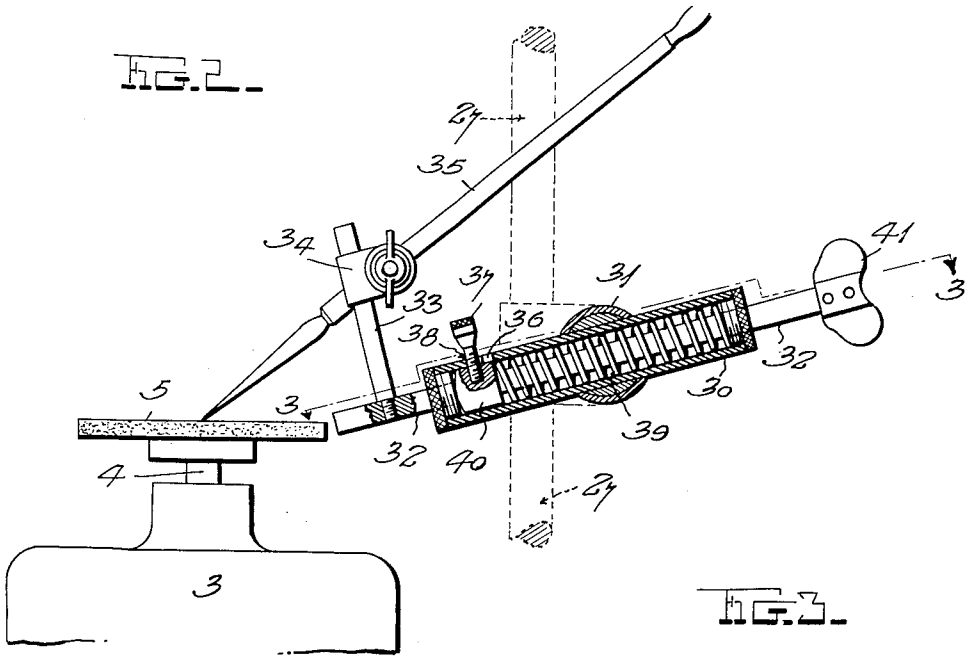
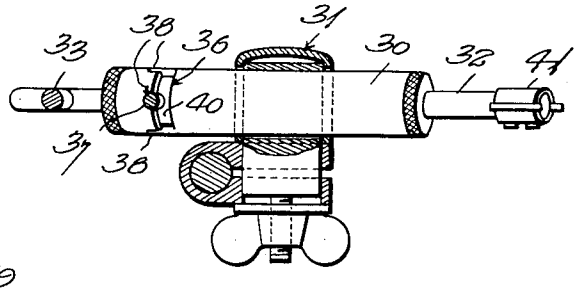


FIG. 3.



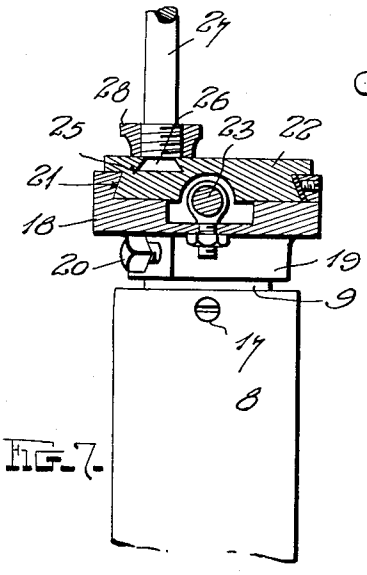


FIG. 7.

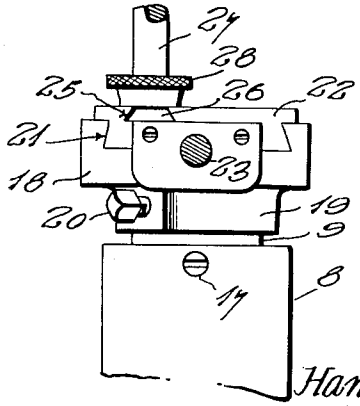


FIG. 8.

Witness
H. Woodard

Inventor
Hans Artmaier,

By H. B. Wilson & Co
Attorneys

H. ARTMAIER.

DENTAL INSTRUMENT GRINDING DEVICE.

APPLICATION FILED APR. 14, 1919.

1,350,951.

Patented Aug. 24, 1920.

3 SHEETS—SHEET 3.

FIG. 9.

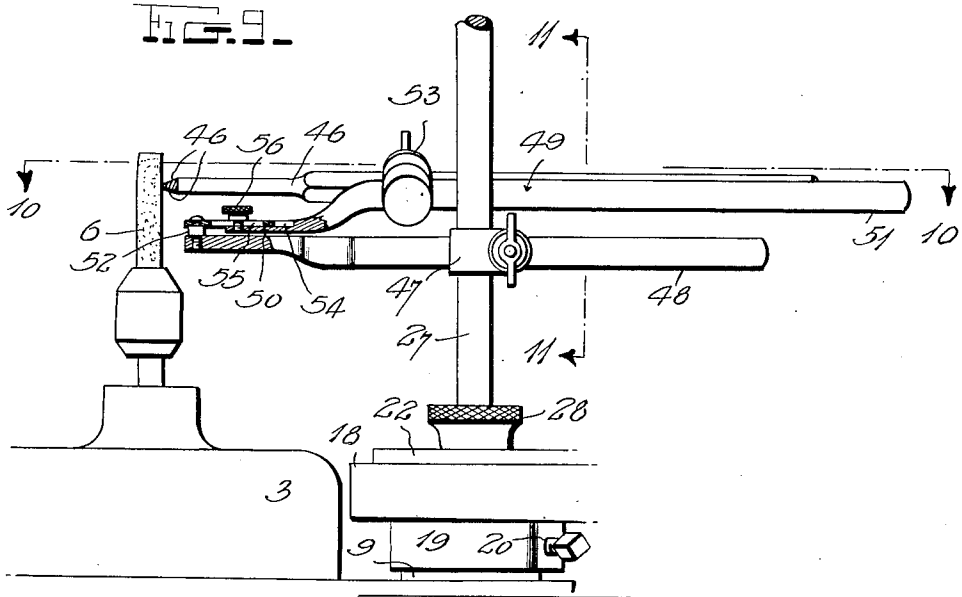


FIG. 10.

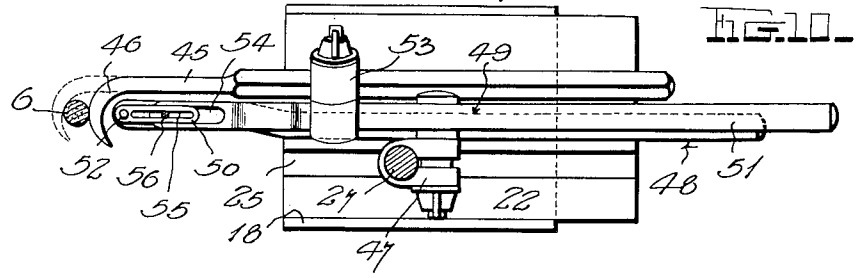
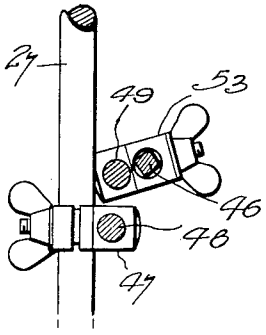


FIG. 11.



Witness
H. Woodard

Inventor
Hans Artmaier,

By H. B. Williamson & Co
Attorneys

UNITED STATES PATENT OFFICE.

HANS ARTMAIER, OF RACINE, WISCONSIN.

DENTAL-INSTRUMENT-GRINDING DEVICE.

1,350,951. Specification of Letters Patent. Patented Aug. 24, 1920.

Application filed April 14, 1919. Serial No. 289,779.

To all whom it may concern:

Be it known that I, HANS ARTMAIER, a citizen of the United States, residing at Racine, in the county of Racine and State of Wisconsin, have invented certain new and useful Improvements in Dental-Instrument-Grinding Devices; 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.

My invention has for its object to provide a comparatively simple and inexpensive, compact, and in every way desirable and efficient device capable of application to an ordinary table or work bench, for grinding dental instruments and the like.

With the foregoing in view, the invention resides in the novel features of construction and unique association of parts hereinafter fully described and claimed, the descriptive matter being supplemented by the accompanying drawings.

Figure 1 is a side elevation partly in section showing the device arranged for grinding opposite flat surfaces on an instrument.

Fig. 2 is more particularly a longitudinal section through the means for holding the instrument and permitting inspection thereof when necessary.

Fig. 3 is a horizontal section with parts in elevation, taken on the plane of the line 3—3 of Fig. 2.

Fig. 4 is a top plan view partly in horizontal section on the plane indicated by the line 4—4 of Fig. 1.

Fig. 5 is a top plan view of the head on the vertical adjustable slide, the horizontal slide being removed.

Fig. 6 is a sectional view on the plane indicated by the line 6—6 of Fig. 5 with the horizontal slide in place.

Figs. 7 and 8 are vertical transverse sections on the planes indicated by the lines 7—7 and 8—8, respectively, of Fig. 6, with the vertical post attached for supporting the instrument to be ground.

Fig. 9 is a side elevation partly in section showing an attachment which is used when grinding crescent shaped instruments.

Fig. 10 is a horizontal section on the plane of the line 10—10 of Fig. 9.

Fig. 11 is a vertical transverse section on the plane indicated by the line 11—11 of Fig. 9.

In the drawings above briefly described, the numeral 1 designates a supporting clamp adapted for attachment to a table or work bench 2, said clamp carrying an electric motor 3 whose shaft 4 is disposed vertically and may carry a grinding wheel 5, as seen in Figs. 1 and 2, or an elongated cylindrical grinding member 6, as illustrated in Figs. 9 and 10, according to the character of the work to be done. Any well known means may be provided for detachably connecting either of the members 5 and 6 to the shaft 4.

Secured by screws 7 or in any other preferred manner to the casing of the motor 3 is a vertically disposed tubular guide member 8 in which a cylindrical slide 9 is received. An adjusting screw 10 is swiveled at 11 in the lower end of the guide 8 and is threaded through a nut 12 carried by the slide 9, so that rotation of said screw by means of a hand-wheel or the like 13, will vertically adjust said slide as required. The amount of adjustment may be determined by a suitable scale 14 and pointer 15, and in order to prevent rotation of the slide while adjustments are being made, said slide is preferably provided with a longitudinal groove 16 receiving a stud 17 carried by the guide 8.

A horizontal rectangular head 18 is swiveled upon the upper end of the slide 9 by means of a collar 19 surrounding said slide end, and by means of a set screw 20, the head may be locked against turning when required. The upper side of the head 18 is provided with a dove-tail guideway 21 in which a horizontal slide 22 is mounted, a suitable adjusting screw 23 having a hand wheel 24, being provided for turning said screw so that the slide 22 may be shifted along the guideway 21 in the required manner. The upper side of the slide 22 is provided with a longitudinal dove-tail guideway 25 slidably receiving a similarly shaped foot 26 on the lower end of a vertical post 27. The post is thus adjustable longitudinally of the slide 22, but may be locked in adjusted position by means of a thumb nut 28 threaded on the lower end of the post and adapted to bear against the slide 22, as will be clear from Fig. 7.

The post 27 may carry any preferred means for holding the instrument to be ground, and in Figs. 1, 2, and 3, I have detailed one attachment for this purpose, such

attachment including a tube 30, a clamp 31 for connecting said tube to the post 27 and for allowing numerous adjustments of said tube, a stem 32 sliding through the tube 30, a second post 33 rising from the front end of the stem 32, and a clamp 34 for adjustably mounting the instrument 35 upon said post 33. The tube 30 is provided with a transverse slot 36 through which a stud 37 on the stem 32 projects, one wall of said slot being provided with a plurality of notches 38 adapted to receive the stud 37, as clearly shown in Fig. 3. A coil spring 39 is located in the tube 30 and bears against a head 40 on the stem 32 to normally force said stem forwardly to seat the stud 37 in one of the notches 38. By means of a suitable handle 41 on the stem 32, however, the stem may be pulled rearwardly against the tension of the spring and then turned in either direction. This construction and arrangement of parts is desirable, since the instrument 35 may be raised from the grinding wheel 5 for inspection whenever required, it being only necessary to pull rearwardly upon the handle 41 and then turn such handle in the proper direction. It may be observed that two of the notches 38 are spaced apart 180 degrees, and this arrangement is used when opposite flat faces are to be ground on the instrument. One face will be ground with the stud 37 in one of the endmost notches 38, and then by turning the same until the stud in question is received in the other endmost notch, the instrument is completely inverted for grinding its other side, it being of course necessary, however, to adjust the several parts properly after inversion of the instrument.

The wheel 5 and the arrangement disclosed in Figs. 1 and 2 may be used for grinding the flat beveled faces 45 of a crescent-shaped instrument 46, such as that seen in Figs. 9 and 10, but for grinding the inner and outer edges of such instrument, I employ the grinding member 6 and a different attachment mounted on the post 27, as detailed in Figs. 9, 10 and 11.

By means of a suitable clamp 47, a horizontal supporting rod 48 is secured to the post 27, and a lever 49, formed of a front section 50 and rear section 51, is fulcrumed at 52 to said rod 48. A clamp 53 is adjustable on the lever 49 for securing the instrument 46 thereto. The front end of the relatively long lever section 51 turns downward at its front end and is provided with a longitudinal groove 54 slidably receiving the comparatively short front section 50, this section being provided with a longitudinal slot 55 through which a set screw 56 is passed so that the two sections may be clamped rigidly together when required or may relatively slide. By this arrangement of parts it is an easy matter to grind either the inner or outer edge of the instrument 46, the lever 49 swinging around the fulcrum 52 as this grinding takes place, and sliding sufficiently to at all times retain the edge of the instrument against the grinding member 6.

The device is of comparatively simple and inexpensive nature, may be easily attached to and detached from a work bench or the like, and will be found highly efficient and desirable for grinding numerous dental and other instruments. The several adjustments described, permit the instrument to be presented to the grinding member with such accuracy as to procure the best results.

On account of the advantages obtained, I prefer to employ the details shown and described, but within the scope of the invention as claimed, numerous minor changes may well be made.

What I claim as my invention is:—

1. In an instrument grinding device, a support for attachment to a bench or table, a motor mounted on said support with its shaft disposed vertically, a grinding member carried by the upper end of said shaft, a vertical guide offset laterally from and carried by the motor casing, a slide carried by said guide, means for adjusting said slide vertically, and means mounted on said slide for holding the instrument and adjusting it to the aforesaid grinding member.

2. In an instrument grinding device, a support for attachment to a bench or table, a motor mounted on said support with its shaft disposed vertically, a grinding member carried by the upper end of said shaft, a vertical guide offset laterally from and carried by the motor casing, a slide carried by said guide, means for adjusting said slide vertically, a horizontally movable slide carried by the upper end of said first named slide, means for adjusting said horizontally movable slide, and means carried by this slide for holding the instrument against the aforesaid grinding member.

3. In an instrument grinding device, a support for attachment to a bench or table, a motor mounted on said support with its shaft disposed vertically, a grinding member carried by the upper end of said shaft, a vertical guide offset laterally from and carried by the motor casing, a slide carried by said guide, means for adjusting said slide vertically, a head swiveled on the upper end of said slide and having a horizontal guideway, means for holding said head against turning, a second slide in said guideway, means for adjusting said second slide, and means mounted on this slide for holding the instrument against the aforesaid grinding member.

4. In an instrument grinding device, a support for attachment to a bench or table, a motor mounted on said support with its

shaft disposed vertically, a grinding member carried by the upper end of said shaft, a vertically disposed tubular guide offset laterally from and carried by the motor casing, a cylindrical slide mounted in and extending above said guide, a screw passing into the lower end of said guide for adjusting said slide vertically, a head swiveled on the upper end of said slide and having a horizontal guideway, a second slide movable in said guideway, and means mounted on said second slide for holding the instrument against the aforesaid grinding member.

5. In an instrument grinding device, a post having on its lower end a foot, a base member having an under-cut groove in which said foot is slidable, means mounted on said post for holding the instrument to be ground, and a nut threaded on said post and bearing against said base member to bind said foot in said groove.

6. In an instrument grinding device, a tube and means for mounting the same adjacent a grinding member, said tube having a transverse slot, a stem passing slidably and rotatably through said tube and having means for holding the instrument to be ground, a lateral stud on said stem received in said slot and movable therein when the stem is turned to turn the work with respect to the grinding member, one wall of said slot having at least one notch to receive said stud to hold said stem against turning, and a spring for shifting said stem to yieldably retain said stud in said notch.

In testimony whereof I have hereunto set my hand.

HANS ARTMAIER.