Dec. 21, 1948. C. J. RINGLE ET AL 2,457,090

ATTACHMENT FOR DENTAL SURVEYING INSTRUMENTS

Filed Nov. 2, 1945

Fig. 1.

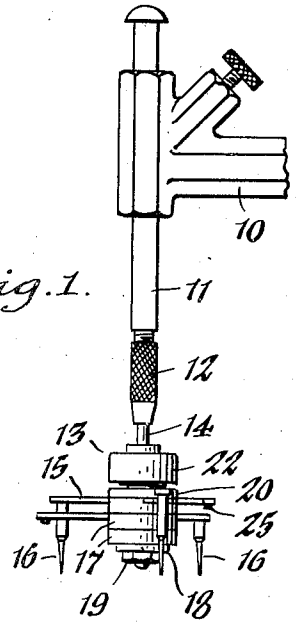


Fig. 2.

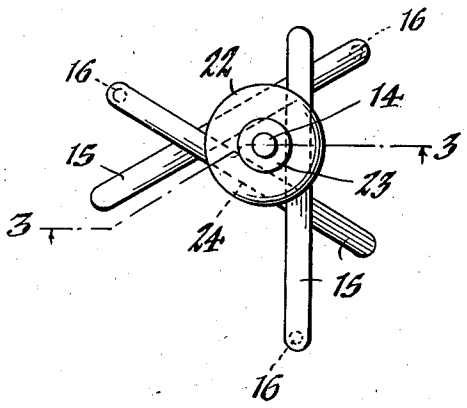


Fig. 3.

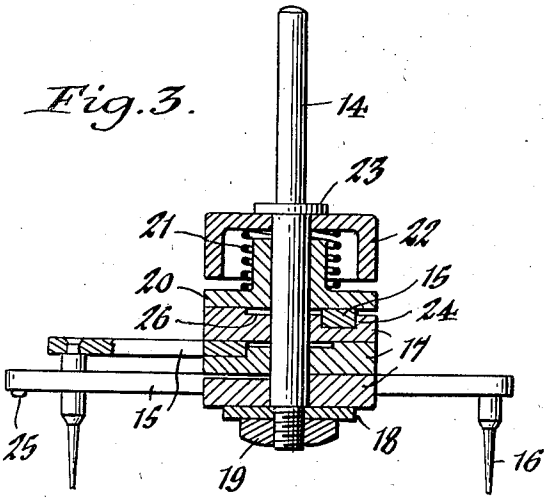
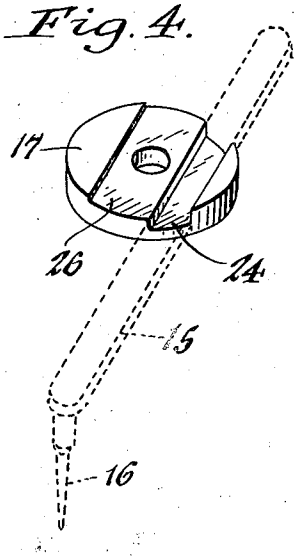


Fig. 4.



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ATTACHMENT FOR DENTAL SURVEYING INSTRUMENTS

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2 Claims. (Cl. 32—67)

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This invention relates generally to certain new and useful improvements in attachments for dental surveying instruments but more particularly to a parallelometer therefor.

It has for one of its objects to provide an attachment of this character which is simple, compact and inexpensive in construction, and which is so designed and constructed as to be readily adjustable for the making of accurate dental surveys.

Another object of the invention is to provide effective and reliable means for mounting the contact point bearing arms for ready adjustment about the spindle-axis and also in planes at right angles thereto.

Other features of the invention reside in the construction and arrangement of parts hereinafter described and particularly pointed out in the appended claims.

In the accompanying drawings:

Figure 1 is a side elevation of the parallelometer mounted on the adjustable arm of a dental surveying instrument. Figure 2 is a top plan view of the same. Figure 3 is an enlarged vertical section taken substantially in the plane of line 3—3, Figure 2. Figure 4 is a detached perspective view of one of the spindle-engaging, arm-supporting disks.

Similar characters of reference indicate corresponding parts throughout the several views.

Our improved dental tool or parallelometer has been designed for operative use in connection with a dental surveying instrument of the type shown in United States Patent No. 2,376,384, dated May 22, 1945, and in Figure 1 the numeral 10 indicates the flexible or adjustable arm of such instrument in which is mounted a vertically-slidable arbor 11 having a chuck 12 or like fitting at its lower end for detachably supporting the one or another of different forms and types of surveying tools. The parallelometer of our invention is indicated generally at 13 and has a supporting shank or spindle 14 rising therefrom for detachable connection to the chuck 12, so that the tool while thus suspended may be manipulated by the technician in making such dental surveys as may be desired; and particularly for determining the accuracy of parallel faces in the same plane.

In its preferred construction shown in the drawings, this tool consists of a plurality of individually adjustable arms 15 disposed in different horizontal planes about the spindle 14 and having depending contact points 16 thereon which vary in length so that the lower ends of

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such points terminate in a common horizontal plane. These contact point bearing arms are supported for adjustment in their respective horizontal planes both about the spindle-axis and slidingly at right angles thereto and for this purpose are frictionally held between superposed hub-forming members or disks 17 applied to the spindle 14 in the manner shown in Figure 3, with the lowermost disk abutting against a washer 18 which in turn abuts against a retaining nut 19 applied to the lower end of the spindle. Abutting the top side of the uppermost disk 17 is a sleeve-bearing plate 20 slidably fitted on the spindle and having a spring 21 bearing on the top side of such plate for urging it and the disks in snug facial engagement to effectually retain or clamp the arms 15 in set positions of adjustment and at the same time permit the independent rotary movement of the disks and the independent sliding movement of the arms for angular and horizontal plane adjustments, respectively. A cap 22 of inverted cup-like form is also mounted on the spindle to enclose and bear against the top of the spring which latter normally urges the cap against a stop shoulder or abutment 23 on the spindle.

Each of the arm-supporting disks 17 is provided in its top face with a substantially chordal groove 24 in which the companion contact point bearing arm 15 is seated and retained against lateral displacement and guided for longitudinal displacement to bring its contact point 16 to the position desired for a given survey. Longitudinal movement of each arm is limited in one direction by the shank of its contact point and in the opposite direction by a stop 25 applied to the other end of the arm for abutting against the periphery of the companion disk. If desired, a portion of the top face of each disk in the vicinity of its arm-groove may be recessed in step-like fashion, as shown at 26 in Figures 3 and 4, to provide for a proper facial bearing contact between adjoining disks and the arm.

While manifestly simple, compact, durable and inexpensive in construction, this tool for facilitating the accurate survey of parallel faces in a common plane is readily and selectively adjustable about the spindle-axis to vary the angular disposition of the contact point bearing arms and likewise in planes at right angles thereto to bring such points in close proximity to or at independent variable distances from the spindle-axis.

We claim as our invention:

1. In a dental instrument of the character de-

scribed, a spindle, upper and lower abutments mounted in spaced relation on said spindle, a plurality of disks rotatably supported in juxtaposed relation on the spindle between said upper and lower abutments, a spring in bearing relation against one of said abutments and the opposing disk to maintain said several disks in frictional facial relation, and contact point bearing arms disposed between said disks for frictional longitudinal adjustment therebetween.

2. In a dental instrument of the character described, a spindle, upper and lower abutments mounted in spaced relation on said spindle, a plurality of disks rotatably supported in juxtaposed relation on the spindle between said upper and lower abutments, the upper abutment being in the form of an inverted, cup-like member and each disk having a chordal groove in a face

thereof, a spring applied to the spindle and housed within said cup-like member for urging said disks in surface frictional relation, and contact point bearing arms seated in said disk-grooves for adjustment lengthwise thereof.

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