LAMP HOLDER ATTACHMENT FOR DENTAL HANDPIECES

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This invention relates to attachments for dental handpieces, and more particularly has for its object to provide a lamp holder adapted to be attached to a dental handpiece for supporting the lamp in proper position with respect to the drill, burr, abrasive stone or other instrumentality upon the operative end of the handpiece.

An important object of our invention is to provide a lamp holder of the above character which is simple in construction and effective in operation, and which at the same time affords means for conveniently adjusting the lamp into proper position with respect to the handpiece.

A further object of our invention is to provide a lamp holder of the above character which is so constructed and arranged as to permit universal adjustment of the lamp with respect to the handpiece and for retaining the lamp in its adjusted position.

Other objects and advantages will be apparent from the following detailed description of a preferred embodiment of the invention, reference being had to the annexed drawing in which:

Figure 1 is a side view of a dental handpiece having a lamp holder attached thereto;

Figure 2 is a perspective view of a clamp forming part of the lamp holder by which the latter is attached to the dental handpiece;

Figure 3 is a perspective view of the lamp retainer adapted to be supported upon the clamp; and

Figure 4 is a detail cross-sectional view on the line 4—4 of Fig. 2 showing the means for pivotally connecting the block which directly supports the lamp retainer to the clamp.

In Fig. 1 of the drawing is illustrated a dental handpiece 1 of conventional construction having at its forward operative end an abrasive stone 2 rotatably mounted thereon. Detachably mounted upon the handpiece is a lamp holder attachment 3 comprising as its principal parts a clamp 4, a rotatable base 5 mounted upon the clamp and a lamp retainer 6 adapted to receive and support a dental instrument lamp 7 of the elongated tubular type in a position generally parallel to the handpiece and with its beam directed in the vicinity of the abrasive stone 2. Thus, when the handpiece is operating within the mouth, the lamp illuminates the area being worked upon.

The clamp 4 is of the split collar type comprising a flat top 8 and a pair of oppositely bowed legs 8a adapted to encircle the handpiece 1 and be clamped thereon by means of a nut 9 engaging the end of a stud 10 secured to and extending outwardly from the inner face of one of the pair of legs through an opening 11 in the other of the pair of legs. By screwing the nut 9 onto the projecting end of the stud 10, the legs 8a of the clamp which normally are sprung apart, may be tightened into engagement with the handpiece to securely retain the lamp holder in association therewith.

Supported upon the flat top 8 is a block 12 of generally rectangular shape having provided in its upper face an arcuate recess 13 extending crosswise of the clamp and adapted to form a seat for the cylindrical lamp retainer 6. One end of the recess is closed by an upstanding ear 14, and intermediate the length of the recess there is formed a slot 15 extending across the recess. The block 12 is pivotally supported upon the top 8 by means of a rivet 16 extending between the block and clamp as indicated in Fig. 4. By virtue of this construction, the block 12 may be rotated about the rivet 16, and a spring-pressed ball 17 housed within the lower face of the block is arranged to engage any one of a plurality of depressions 18 in the opposed flat face of the top 8 so as to yieldingly retain the block in any desired position of adjustment.

The lamp retainer 6 is of cylindrical form and of such diameter as to snugly seat within the arcuate recess 13. A fin 19 is provided upon the circumference of the retainer, this fin being adapted to fit within the slot 15 and prevent lengthwise displacement of the holder. The cylindrical lamp retainer has a bore opening through one end and this end of the retainer is longitudinally cleft by a slot 20 which terminates in a circular expanded opening 20a constituting a socket for receiving the cylindrical dental lamp 7. The slot 20 is sufficiently wide to allow the dental lamp to be introduced laterally into the socket 20a, the two sections 6a and 6b of the retainer lying upon opposite sides of the slot 20 yielding slightly to allow the passage of the lamp into the socket. A pin 21 having a threaded lower end passes through the upper section 6a of the retainer and is adapted to screw into a threaded opening 22 in the lower section 6b so as to draw the sections together and clamp the lamp within the socket when the thumb nut is tightened. It is necessary, when a dental lamp is to be inserted in or removed from the socket to unscrew the pin and raise it to the position shown in Fig. 3 to allow the passage of the lamp therepast. The arcuate inner circumference of
the section 6b is preferably filled with lead or other metal, as indicated at 23, so as to weight that side of the retainer which rests within the recess 13 on the block 5.

Projecting axially outward from the closed end of the retainer 6 is a screw-threaded stud 24, this stud being designed to pass through an opening 28 through the ear 14 on block 5. A thumb nut 26 is threaded upon the free end of this stud, and is adapted to be tightened against the outer face of the ear. When so tightened, a collar 27 surrounding the base of the stud and formed integral with the closed end of the retainer, is drawn against the inner face of the ear. For locking these parts against turning, the collar 27 is formed with a serrated face, indicated at 28, which interfits with a correspondingly serrated face 29 on the ear 14.

The lamp is formed at its end 1a opposite its illuminated end 1b so as to screw into an electric socket (not shown) for connecting the lamp with a source of current.

When the dental lamp holder is to be attached to the handpiece, the nut 9 is released so as to allow the legs 4a of the clamp 4 to spring apart sufficiently far so that the handpiece 1 may be introduced in a lengthwise direction between the legs. Then the nut 9 is tightened so as to tightly grip the handpiece and the abrasive stone 2, or other operating instrumentality, is connected to the end 25 through the ear 14 in the usual manner. The pin 21 is next unscrewed and the dental lamp is inserted into the socket 29a, following which the pin is screwed into the threaded opening 22 to draw the sections 6a and 6b of the retainer together so as to grip and hold the lamp in its socket.

The lamp ordinarily will extend to a position adjacent the abrasive stone 2 so as to illuminate the area of the mouth surrounding the dental stone. In order to secure the proper adjustment of the lamp in conformity with different sizes and styles of operating instrumentalties, (abrasive stones, drills, etc.) with straight and contra-angled handpieces, and with straight and angled types of dental lamps, the block 5 carrying the lamp retainer may be rotated about the pin 18 to swing the lamp to one side or the other of the operative end of the handpiece, where it will be impositively held by the ball detent 17. Also the lamp may be adjusted about an axis at right-angles to the pin 18 so as to raise or lower the lamp from and toward the operative end of the handpiece by releasing the nut 8, rotating the retainer upon its seat 13 and then again tightening this nut to secure the retainer in its newly adjusted position. Thus, our lamp holder is capable of universal adjustment to adapt it to all normal conditions of use.

Obviously various changes in construction and design may be made in the dental lamp holder described above without departing from the spirit of our invention as defined in the following claims.

We claim:

1. A lamp holding attachment for dental handpieces comprising a clamp adapted to be fixedly attached to the handpiece, a block rotatably mounted upon the top of said clamp so as to swing about an axis substantially perpendicular to the longitudinal axis of said handpiece, means for retaining said block in different positions of rotatable adjustment, an arcuate seat formed upon said block disposed in a direction transversely of the handpiece, a cylindrical retainer resting within said arcuate seat, a slot diametrically dividing said retainer from one end inwardly for a substantial portion of its length and terminating in an enlarged cylindrical opening providing a socket for receiving a dental lamp, the arrangement being such that a dental lamp may be introduced laterally through the slot into said socket, releasable means for drawing together the slotted sections of the retainer for clamping the lamp in the socket, an ear located upon the block adjacent that end of the retainer opposite its slotted end, a stud projecting axially from the retainer through an opening in said ear, and a nut for frictionally holding the end of the retainer in contact, said nut being releasable to permit angular adjustment of the retainer upon its seat.

2. A lamp holding attachment for dental handpieces as set forth in claim 1 and including an interfitting slot and fin connection between the cylindrical retainer and arcuate seat for permitting angular adjustment of the retainer upon its seat but preventing axial displacement of said retainer.

3. A lamp holding attachment for dental handpieces as set forth in claim 1 in which the means for retaining the block in different positions of rotatable adjustment comprises a spring detent intermediate the block and the clamp.

4. A lamp holding attachment for dental handpieces as set forth in claim 1 in which the clamp comprises a pair of oppositely bowed legs adapted to straddle the handpiece, a stud extending between the lower ends of the legs and a nut threaded upon said stud for drawing the legs together into binding engagement with the handpiece.

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