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C. R. MEITZLER
SURGICAL INSTRUMENT

1,704,397

Filed Jan. 16, 1925

Fig.1

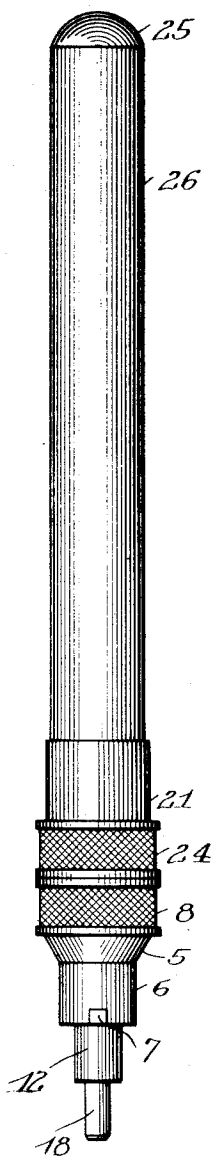


Fig.2

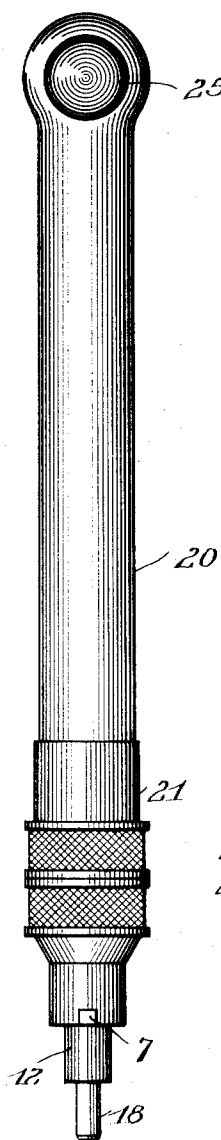


Fig.3

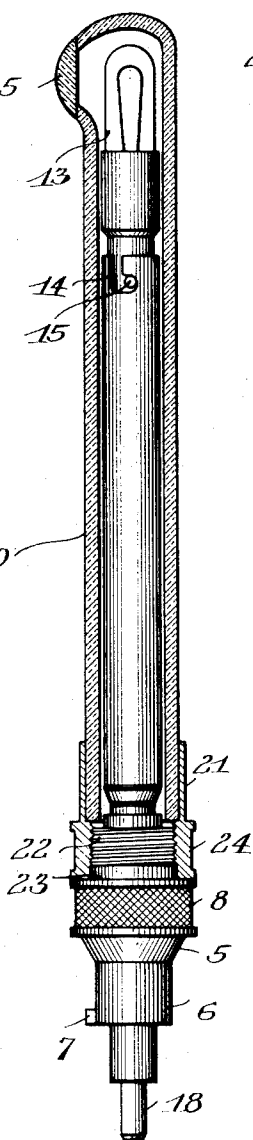
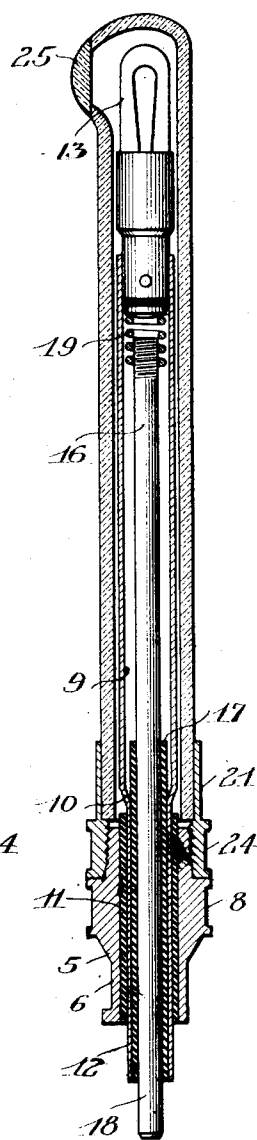


Fig.4



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SURGICAL INSTRUMENT.

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This invention relates to surgical instruments, and more particularly to diagnostic lamps for dental and general surgical use, one object of the invention being to provide a practical and convenient instrument of this type having a readily detachably sanitary jacket or casing so that a plurality of such casings may be provided for use interchangeably with each lamp for equipping it selectively with various light projecting arrangements and also for conveniently affording a supply of sterilized casings. Another object is to provide such an instrument in which both the sanitary casing and lamp are readily detachable for replacement as may be required from time to time in use. A further object is to provide such an instrument having a simple, practical and economical form of construction for the base and the associated parts of the latter supporting the sanitary casing and lamp and supplying the latter with electrical power. To these and other ends the invention resides in certain improvements and combinations of parts, all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings:—

Figure 1 is an external view of a lamp embodying the present invention;

Figure 2 is a similar view but showing a different sanitary casing;

Figure 3 is a side view of the instrument shown in Figure 2 with the sanitary casing in section, and

Figure 4 is a view similar to Figure 3 with additional parts in sections.

Similar reference numerals throughout the several views indicate the same parts.

The present invention comprises, generally speaking, a holder or base on which are mounted elongated, rigid supporting and conducting means for the lamp, with a sanitary casing enclosing the latter and detachably secured to the base. In the present instance the base is in the general form of an irregular metal sleeve 5 having a cylindrical portion 6 provided with a lug or spur 7 for securing the instrument in a suitable holder or handle as well understood in the art. At 8 is a knurled portion by which the base may be securely gripped.

The lamp supporting and circuit means are carried in the bore of the base, comprising a pair of elongated, rigid metal elements

insulated from each other and the base for supporting the lamp and supplying the same with current. One of these elements is preferably an elongated sleeve 9, one end of which is slightly reduced in size as at 10 to a diameter less than that of the bore of the base 5 through which it extends as shown. A sleeve 11 of any suitable insulating material is interposed between the base and the sleeve 9, the end of which projects from the base as at 12 to form a contact for connecting the instrument in circuit. The opposite end of sleeve 9 serves as a socket for receiving and holding the lamp 13, the sleeve being formed with a bayonet slot 14 for cooperation with a pin 15 on the lamp so that the latter is readily detachable, as well understood in the art.

The other conducting or circuit element for the lamp is preferably in the shape of a metal post 16 mounted in a sleeve 17 of any suitable insulating material fixed within the sleeve 9 as shown and projecting beyond the latter as at 18 to form a second contact for connecting the lamp in circuit. The other end of post 16 is equipped with a conducting spring 19 arranged to contact resiliently with the other or end terminal of the lamp. It will thus be seen that the latter is supported by simple and rigid means comprising the sleeve 9 which with the post 16 and their spacing and insulating sleeves are forced into or otherwise fixed in the bore of the base 5 and themselves serve as the conducting means for the lamp circuit and also the contacts by which the latter is connected with the external circuit means.

The lamp and its supporting and circuit means are enclosed in a fluid tight, sanitary casing 20 preferably constructed of opaque glass cemented at one end in one end of a thimble 21, the other end of which is internally threaded for detachable engagement with the externally threaded end 22 of the base 5. The end of thimble 21 is adapted to be turned home against a shoulder 23 on the base and is also formed with a knurled portion 24 by which it and the sanitary casing may be gripped. The sanitary casing is spaced from the lamp and its supporting means as shown to eliminate heating and is provided adjacent the lamp with a transparent glass portion 25, preferably of the lenticular formation shown, for projecting the light from the lamp on to the object to be examined. This lens may be incorporated with

the tubular casing 20 in any suitable manner as by cementing or fusing the periphery of the lens to the periphery of an opening in the casing and preferably in such a manner that the casing and lens surfaces are substantially continuations of each other to afford a smooth casing surface. As hereafter described the lens portion may be arranged in different relations on the casing to suit various conditions of use and it is apparent that the casing can be readily unscrewed and detached from the base at the threaded connection already described.

Figure 1 shows an arrangement of the sanitary casing in which the projecting portion or lens 25 is arranged at the end or on the axis of casing 26 for projecting the light along the axis of the latter. The casing shown in Figures 2 to 4 inclusive is a modified construction in which the lens is arranged at one side of the end of the casing for projecting the light laterally. Casings of various other forms may be supplied to afford a set adapted to meet substantially any requirements in use, all of such casings being conveniently detachable from the base for use interchangeably. Such casings are well adapted for sterilizing treatment when detached and it is convenient also to provide two or more of each form of casing for the purpose of maintaining a supply of one or more sterilized casings on hand.

It is apparent from the above description that the invention provides an exceedingly convenient and practical lamp in which the lamp bulb and casing may be readily replaced by the user when worn out or broken, thus obviating the purchase of an entire new instrument when such parts become defective. The ready detachability of the casing contributes convenience in sterilizing the same and provides for the use of a supply of sterilized casings as well as of different casings especially adapted to different circumstances in use. The base and its lamp supporting and circuit parts are rugged and durable and economically few in number and simple from a manufacturing standpoint.

I claim as my invention:

1. A surgical instrument comprising a lamp, a base, a pair of rigid metal elements mounted on said base and one carrying said lamp, said elements being arranged to form the electric circuit for said lamp and projecting through said base for detachable connection with the socket of a handle and with circuit means carried thereby, and a sanitary casing enclosing said lamp and elements and detachably secured to said base with a transparent portion adjacent said lamp for transmitting the light.

2. A surgical instrument comprising a lamp, a base, a pair of rigid metal elements mounted on said base and one carrying said lamp, said elements being arranged to form

the electric circuit for said lamp, and a fluid tight sanitary opaque tubular casing enclosing said lamp and elements in spaced relation therewith and detachably secured to said base with a lenticular portion adjacent said lamp.

3. A surgical instrument comprising a lamp, a base, a sleeve mounted at one end on said base and providing at its other end a conducting socket carrying said lamp, an element mounted on said base within and insulated from said sleeve and provided with a resilient portion for engagement with a terminal of said lamp to form with the sleeve an electric circuit for said lamp, and a fluid tight sanitary opaque casing enclosing said lamp and elements in spaced relation therewith and detachably secured to said base with a transparent portion adjacent said lamp for transmitting the light.

4. A surgical instrument comprising a lamp, a base, a sleeve mounted at one end on said base and providing at its other end a conducting socket for said lamp, a rigid element mounted on said base within and insulated from said sleeve to form with the latter an electric circuit for said lamp, said sleeve and element projecting rigidly through said base for connection with the socket of a handle and with circuit means carried thereby, and a sanitary tubular casing enclosing said lamp and sleeve in spaced relation therewith and threadedly secured to said base with a lenticular portion adjacent said lamp.

5. A surgical instrument comprising a lamp, a base, an elongated metal sleeve extending at one end through said base and providing at its other end a socket for detachably supporting said lamp, an elongated metal element within said sleeve extending rigidly at one end through said base and provided at its other end with resilient means for contact with said lamp, said sleeve and element being insulated from each other and said base for connection with the socket of a handle and with circuit means carried thereby to serve as a circuit for said lamp, and a sanitary opaque tubular casing enclosing said lamp and sleeve in spaced relation therewith and detachably secured to said base with a lenticular portion adjacent said lamp to project the light.

6. A surgical instrument comprising a lamp, a base, an elongated metal sleeve extending through both ends of said base and forming at one end of said sleeve a socket for carrying said lamp, means on said lamp and socket for detachably securing the lamp in said socket, a metal rod extending through both ends of said sleeve and adapted for contact at one end of said rod with said lamp, said sleeve and rod forming electric circuit means connected with said lamp terminals, and a sanitary tubular casing enclosing said lamp and sleeve in spaced relation therewith

and provided with means for detachably securing the same to said base whereby said sleeve may be readily removed for sterilization.

5 7. A surgical instrument comprising a tubular base, an insulating sleeve extending through said base, a conducting sleeve extending through both ends of said insulating sleeve and forming at one end a socket for
10 carrying a lamp, a second insulating sleeve within said conducting sleeve, a conducting rod extending through both ends of said second insulating sleeve, said conducting sleeve and rod being arranged for contact with the
15 terminals of said lamp to form a circuit therefor, and a sanitary casing for said instrument having a light projecting portion adjacent said lamp and means for detachably securing said casing to said base so that
20 said casing may be readily removed for sterilization.

8. A surgical instrument comprising a lamp, a base provided with means for detachably connecting the same with a handle,
25 a pair of substantially rigid metal elements mounted on said base and one carrying said lamp, said elements being arranged to form the electric circuit for said lamp, and a sanitary

casing enclosing said lamp and elements and detachably secured to said base 30 with a transparent portion adjacent said lamp for transmitting the light.

9. A surgical instrument comprising a lamp, a base provided with means for detachably connecting the same with a handle, 35 a pair of substantially rigid metal elements mounted on said base and one carrying said lamp, said elements being arranged to form the electric circuit for said lamp, and a fluid tight sanitary opaque tubular casing enclosing said lamp and elements in spaced relation therewith and detachably secured to
40 said base with a lenticular portion adjacent said lamp.

10. A surgical instrument comprising a 45 lamp, a base provided with plug means for detachable connection with the socket of the handle, a pair of substantially rigid metal elements mounted on said base and one carrying said lamp, said elements being arranged to form the electric circuit for said
50 lamp, and a fluid tight sanitary tubular casing enclosing said lamp and elements and threadedly secured to said base with a lenticular portion adjacent said lamp.

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