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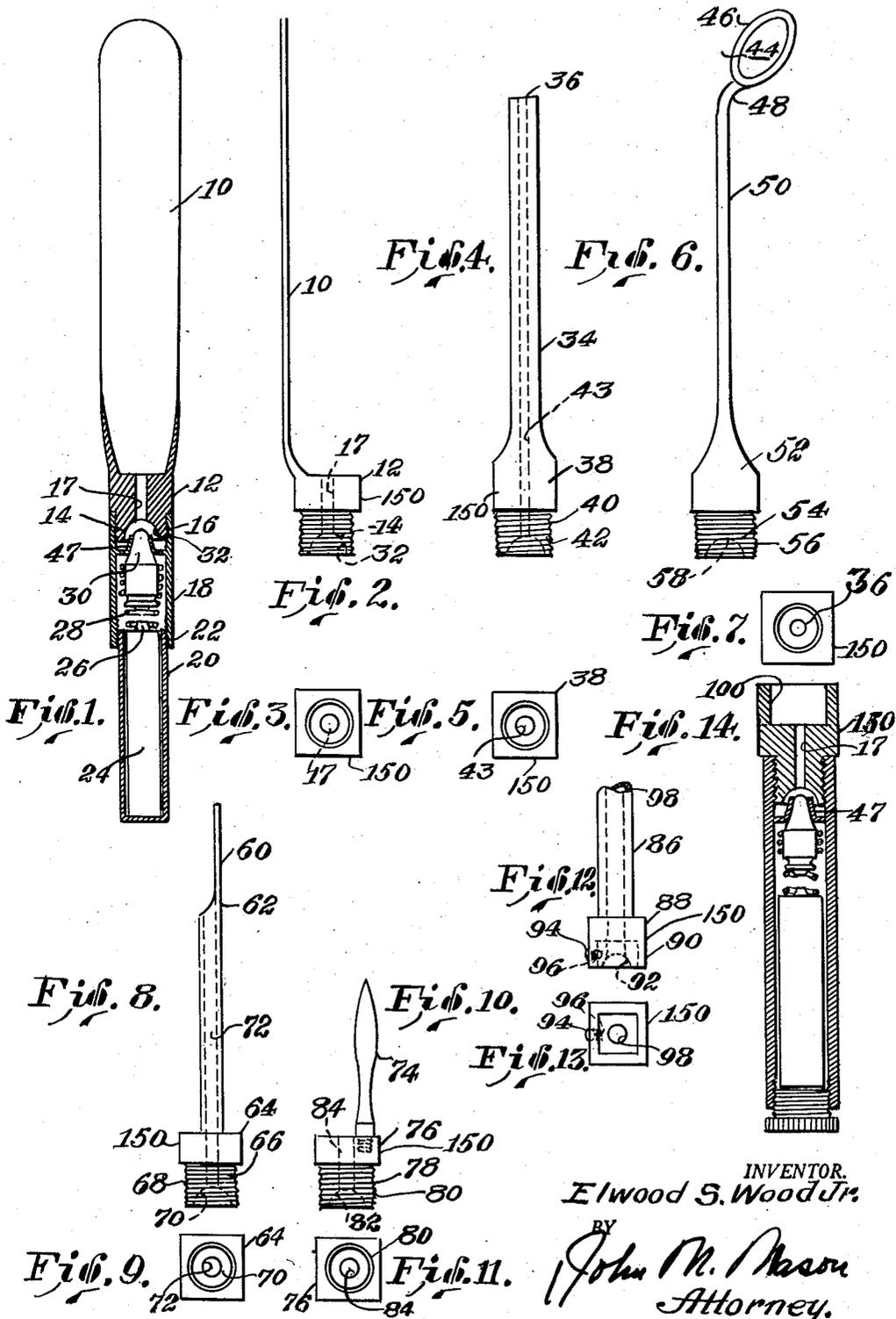
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ILLUMINATED SURGICAL AND DENTAL INSTRUMENTS

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2 Sheets-Sheet 1



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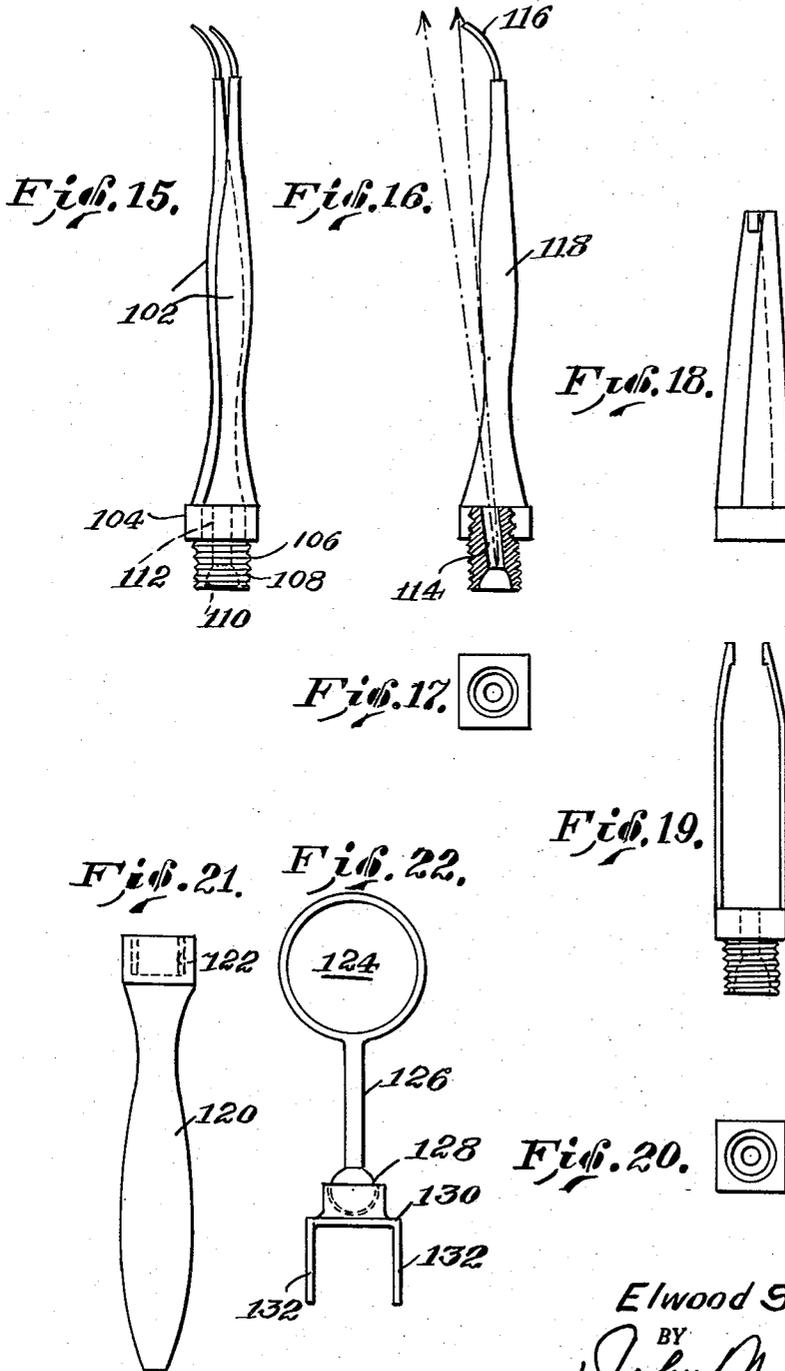
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ILLUMINATED SURGICAL AND DENTAL INSTRUMENTS

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4 Claims. (Cl. 240—6.46)

This invention relates to a novel means for mounting various kinds of surgical and dental instruments, and for illuminating said instruments.

An object of the invention is, therefore, to provide novel surgical and dental instrument illuminating means.

Another object is the provision of a novel mounting means in the handle of a surgical or dental instrument whereby a self-contained flashlight in said handle may direct its rays on the operating surface of the instrument.

An additional object is the provision of a novel instrument base combined with a handle of special construction.

Other objects will appear hereinafter throughout the specification:

Referring to the drawings:

Figure 1 is a front elevation with parts in section of one form of the invention;

Figure 2 is a side elevation of the device shown in Figure 1, with the handle removed;

Figure 3 is a bottom plan view of the device shown in Figure 2;

Figure 4 is a front elevation of a second form of the invention;

Figure 5 is a bottom plan view of the device shown in Figure 4;

Figure 6 is a front elevation of a third form of the invention;

Figure 7 is a bottom plan view of the device shown in Figure 6;

Figure 8 is a side elevation of a fourth form of the invention;

Figure 9 is a bottom plan view of the device shown in Figure 8;

Figure 10 is a front elevation of a fifth form of the invention;

Figure 11 is a bottom view of the device shown in Figure 10;

Figure 12 is a front elevation, partly broken away, of the device shown in Figure 8, but showing a modified type of connecting means;

Figure 13 is a bottom plan view of the device shown in Figure 12;

Figure 14 is a front elevation of a flashlight for the structure of Figure 13;

Figure 15 is a perspective view of another form of the invention;

Figure 16 is a side elevation with the base in section of still another form of the invention;

Figure 17 is a bottom plan view of the structure of Figure 18;

Figure 18 is a perspective view of another form of the invention;

Figure 19 is a side elevation of the device shown in Figure 18;

Figure 20 is a bottom plan view of the device shown in Figures 18 and 19;

Figure 21 is a side elevation of another form of handle for the several devices; and,

Figure 22 is a front elevation of a mirror attachment.

It will be understood that the term "instrument" in this specification and claims includes various hand supported dental and surgical instruments and tools including scalpels, ear knives, tongue depressors, forceps and mirrors. The word "handle" in the specification and claims includes the supporting means for the "instrument," such as the flashlight shown in Figure 1.

Referring to Figures 1 and 2, the instrument shown therein is a tongue depressor having a blade 10 and a base 12, the latter being provided with a boss 14 having screw threads 16.

Both the base 12 and boss 14 have a central aperture or passageway 17 for the passage of light rays from the flashlight now to be described. It will be appreciated, however, that other coupling means may be substituted for those shown in these figures.

The flashlight consists of the upper barrel 18 and lower barrel 20 which are threadedly joined to each other by threads 22. The lower barrel is provided with a battery 24 and a contact 26. A spring 28 in the upper barrel tends to keep the battery in the lower barrel, and the bulb 30 pressed upwardly in the upper barrel. When the barrels are screwed together so that the lower one moves upwardly in the upper one, an electrical contact is made with the bulb, and the barrels are "locked" in this position. The flashlight shown in Figure 1 contains a circular flange 47 that prevents upward movement of the bulb out of the casing. This flange is also shown in Figure 14. The battery has been shown attached to a single instrument, i.e., the depressor shown in Figure 1, in order to avoid repetition in the description and in various figures herein, but it will be understood that it is constructed and adapted for attachment to other instruments hereinafter described, omitting, however, those shown in Figures 12, 13 and 14.

The boss 14 is provided with a recess 32 which is semi-spherical, into which passageway 17 leads, whereby the recess 32 partially incloses bulb 30 as it is pressed upwardly by the spring 28. The light rays are directed towards the working areas of the instrument. The same structure, i.e., the light bulb socket or recess, is shown in each of the instruments illustrated herein.

Referring to Figures 4 and 5, the numeral 34 shows the tube of an ear and throat light. Other uses, of course, may be made of this light. It has an open end 36, a base 38, and a boss 40, the latter having threads for connecting it to the flashlight shown in Figure 1. There is an aperture 43 that extends through the boss 40, base 38 and tube 34 to form the opening in the end 36, whereby rays of light from the flashlight attached to threads 42 will extend out of the said open end for a purpose which will be obvious to those skilled in the dental and medical professions.

The tube 34, when provided with the passageway 43, may be made of any suitable material such as metal or plastic. If it is made of a clear plastic, its outer surface should have an opaque coating or sheath, not shown. Should a plastic construction be used, if the plastic is a clear glass-like material, or made of glass, the passageway 43 could be dispensed with, and a solid tube used, the solid tube having a sheath or coating on its cylindrical sides composed of opaque material, not shown.

In the structure shown in Figures 6 and 7, the mirror shown comprises a piece of reflecting material 44 of glass or metal which is held in place by the circular support 46. The support forms part of the neck 48 and the stem 50. The boss 54 is provided with screw threads 56. All of these parts are part of a single casting of clear transparent plastic material, such as a synthetic resin. An opaque coating or a sheath may be provided for these parts. Any type of resin may be used, provided it is a clear resin, and will pass rays of light from a light source

to the mirror, and particularly the circular support 46. Glass may be used in place of the plastic or metallic materials. No passageway is provided in the structure of Figures 6 and 7. The numeral 58 shows the semi-spherical socket for the light bulb 30.

In Figures 8 and 9, an ear knife is shown at 60, having a shank 62, a base 64, a boss 66 and threads 68. The boss has a semi-spherical recess 70 for the light bulb 30 of the flashlight, whose threads engage threads 68. A passageway 72 extends from the recess through shank 62 to the knife 60.

The structure shown in Figures 10 and 11 is similar to that shown by Figures 8 and 9, but in the former construction the scalpel or knife is offset relative the longitudinal axis of the support or base. As shown, the scalpel 74 is removably mounted in a recess shown in dotted lines in the base 76. The base has a boss 78, screw threads 80, a bulb recess 82, and passageway 84.

The structures of Figures 12 and 13 are similar to those heretofore described, except instead of providing screw threads for joining the base to a flashlight, a squared boss with a friction grip is provided. As shown, the instrument stem is indicated at 86, the base at 88, the multi-sided boss at 90, semi-spherical recess at 92, a ball 94, and a spring for said ball, as shown at 96. The recess 92 communicates with a longitudinal passageway 98 that extends to the end (not shown), of the instrument.

It will be understood that the multi-sided boss 90 fits into a multi-sided socket of a flashlight, as shown in Figure 14 at 100.

Figure 15 shows a pair of forceps 102 mounted on a base 104, a boss 106 having threads 108 for the flashlight shown in Figure 1. The boss has a semi-spherical recess 110, which is in communication with the passageway 112. In this construction, the passageway 112 does not extend beyond the point where the forceps join the base, in order that rays of light will be projected between the arms of the forceps, as shown.

The structure of Figures 16 and 17 is substantially the same as that of Figure 15. However, in Figure 16, the passageway 114 is inclined so as to direct the rays of light from the flashlight of the type shown in Figure 1, to the ends 116 of the forceps 118.

Figure 18 shows forceps with offset sides, and Figures 19 and 20 show forceps having straight sides. The construction of passageways and other details are the same as those shown in Figure 15.

In Figure 21, is illustrated a handle 120 having a multi-sided socket 122 that may be used to take the place of the structure shown in Figure 14.

Figure 22 shows a mirror 124 on a stem 126, having a ball and socket connection 128 to the base 130, the latter having spring legs 132 for engaging the sides of the square-sided base of the aforementioned flashlight.

As each instrument has a square sided base, as shown in Figure 20, a detachable mirror, as shown in Figure 22, can be used with each of them.

The above description and drawings disclose several embodiments of the invention, and specific language has been employed in describing the several figures. It will, nevertheless, be understood that no limitations of the scope of the invention are thereby contemplated, and that various alterations and modifications may be made such as would occur to one skilled in the art to which the invention relates.

I claim:

1. A combined surgical or dental instrument and lighting means therefor comprising a hollow cylindrical base and a tubular instrument-holder, screw-threaded coupling means on each end of said holder, said base being adapted to contain a cylindrical battery, the upper end of said base having screw-threaded means adapted to receive the first of said coupling means of said holder, said base being thereby detachably connected to said first

coupling means of said holder, a circular apertured flange being disposed within said holder, said flange having a tapered collar surrounding said aperture and adapted to receive and retain a spring urged lamp bulb which may be lighted when said base and said instrument holder are screwed together thereby moving the central contact of a battery in said base into engagement with the central contact of said lamp bulb, an instrument having a screw-threaded shank and being detachably connected to said second coupling means of said holder, said shank having a longitudinally extending passageway therethrough and adjacent said lamp, said shank having a semi-spherical recess communicating with said passageway and forming a pocket within which said collar and said lamp project.

2. A combined surgical or dental instrument and lighting means therefor comprising a hollow cylindrical base and a tubular instrument-holder, screw threaded coupling means on each end of said holder, said base being adapted to contain a cylindrical battery, the upper end of said base having screw-threaded means adapted to receive the first of said coupling means of said holder, said base being thereby detachably connected to said first coupling means of said holder, a circular apertured flange being disposed within said holder adjacent said second of said coupling means on said holder, said flange having a tapered collar surrounding said aperture and adapted to receive and retain a spring urged lamp, a battery source for said lamp being encased within said base and arranged to provide electrical current to said bulb responsive to said base being rotatively positioned therewith, an instrument having a screw-threaded shank and being detachably connected to said second coupling means of said holder, said shank having a semi-spherical recess communicating with said passageway and forming a pocket within which said collar and said lamp project.

3. A combined surgical or dental instrument and lighting means therefor comprising a hollow cylindrical base and a tubular instrument-holder, screw-threaded coupling means on each end of said holder, said base being adapted to contain a cylindrical battery, the upper end of said base having screw-threaded means adapted to receive the first of said coupling means of said holder, said base being thereby detachably connected to said first coupling means of said holder, a circular apertured flange being disposed within said holder, said flange having a tapered collar surrounding said aperture and adapted to receive and retain a spring urged lamp, an elongated tubular instrument having a screw-threaded shank and being detachably connected to the second of said coupling means of said holder, said instrument having a longitudinally extending passageway therethrough and adjacent said lamp, said shank having a semi-spherical recess communicating with said passageway and forming a pocket within which said collar and said lamp project.

4. A combined surgical or dental instrument and lighting means therefor comprising a hollow cylindrical base and a tubular instrument-holder, screw threaded coupling means on each end of said holder, said base being adapted to contain a cylindrical battery, the upper end of said base having screw-threaded means adapted to receive the first of said coupling means of said holder, said base being thereby detachably connected to said first coupling means of said holder, a circular apertured flange being disposed within said holder adjacent said second of said coupling means on said holder, said flange having a tapered collar surrounding said aperture and adapted to receive and retain a spring urged lamp, a battery source for said lamp being encased within said base and arranged to provide electrical current to said bulb responsive to said base being rotatively positioned therewith, an elongated tubular instrument having a screw-threaded shank and being detachably connected to said coupling means of said holder, said instrument having a longitudinally extending passageway therethrough and adjacent said lamp, said shank having a semi-spherical recess communicating

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with said passageway and forming a pocket within which said collar and said lamp project.

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