

F. C. JOUTRAS.
 MEDICAL EXPLORATION ILLUMINATOR.
 APPLICATION FILED FEB. 10, 1913.

1,122,399.

Patented Dec. 29, 1914.

Fig. 1.

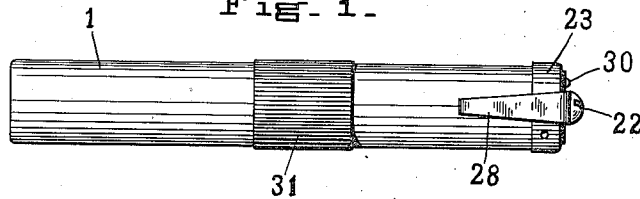


Fig. 2.

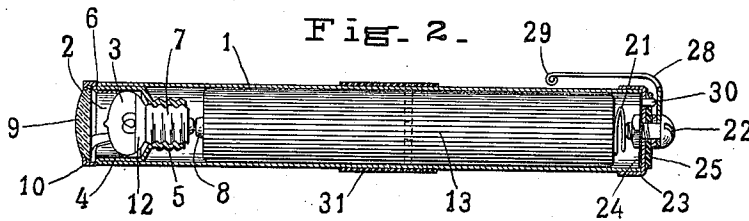


Fig. 3.

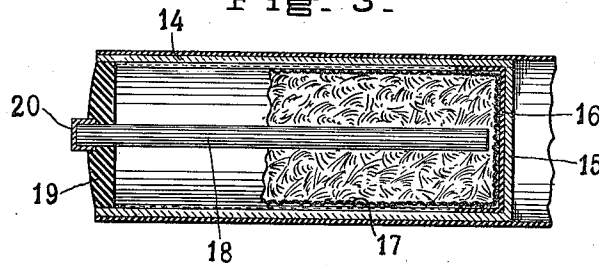


Fig. 4.

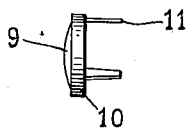


Fig. 5.

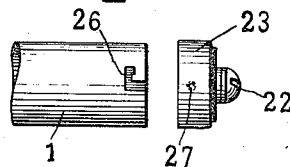


Fig. 6.



Fig. 7.



WITNESSES
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MEDICAL EXPLORATION-ILLUMINATOR.

1,122,399.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANKLIN COOPER JOUTRAS, a citizen of the United States, and a resident of Union Hill, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Medical Exploration-Illuminators, of which the following is a full, clear, and exact description, whereby any one skilled in the art may make and use the same.

The device relates to an illuminator and as indicated by the title more particularly to a device of this character, especially arranged and adapted for medical or surgical use.

The object of the invention is to produce a very small though high-powered illuminating device substantially of pencil form which may be readily applied in conjunction with other surgical instruments for exploration purposes such as examining the nose, throat, ear, eye and other cavities of the human body.

A further object is to provide an illuminator of very simple form though efficient capacity which may be readily assembled or taken apart for the purpose of complete sterilization and a further object is to provide an illuminator with a removable source of energy in most compact form, said source being made up of a plurality of units combined with a removable casing of pencil form with simple means for intermittently or continuously closing the circuits.

Referring to the drawings: Figure 1 is a side view of the device. Fig. 2 is a longitudinal sectional view through the casing with parts broken away to illustrate the construction. Fig. 3 is a very much enlarged view of one of the elements of the power units in partial longitudinal section. Fig. 4 is a detail view of the closing lens. Fig. 5 is a detail view of the end of the casing illustrating the connection of the cap with the casing. Fig. 6 is a detail side view of the carrying case for the battery. Fig. 7 is an end view of the same.

Search-lights comprising a casing with a battery and small lamp have been in common use for many purposes and these have been arranged in many forms. Such devices, so far as known to applicant, have been of a more or less cumbersome character,

hardly fitted for uses of medical and surgical research, where often it is important to secure a brilliant beam of light directly within some cavity.

The device hereinafter described is of a size, form and efficiency which makes it practicable for use in cavities of the human body for exploration purposes. It is so arranged that it may be made completely sterile and is of a size which may be introduced into the cavities to a greater or less extent without restricting the view of the operator. It is practically a pencil and may be used with great facility even where the hand is occupied in holding another instrument.

In the accompanying drawings, the numeral 1 denotes a metallic casing preferably of a non-corrosive character, and one which will withstand the action of sterilizing solutions. This casing has at its forward end a socket piece 2 of a suitable form to receive a lamp bulb 3. As illustrated herein, the socket has side walls 4 terminating in a screw-threaded section 5. The side walls 4 are closely joined at 6 with the cylindrical casing 1, thus making the socket piece to all purposes and intents integral with the casing. The base 7 of the small lamp is screwed into the socket 5 with the end of the bulb 3 resting slightly within the end of the socket and casing. The base 7 is in this manner connected with the casing 1 and one end of the filament, as in the common practice employed in lamps, is connected to said base and casing. The other end of the filament is connected to an insulated central stud 8 arranged to contact with one element of the battery shown herein as the carbon element.

A lens 9 illustrated herein as provided with a holding ring 10 and spring fingers 11 is arranged to be inserted within the socket and tube to close the end over the lamp 3. This lens may, of course, be of any desired form for concentrating or amplifying the lighting effect; the lamp itself being provided at the rear of the bulb with a reflecting surface 12. The lens is made readily removable so that it may be thoroughly sterilized and cleansed with the other parts of the device.

The source of electrical energy, as illus-

trated herein, consists of two units of the so-called dry battery type, one of said units being shown in Fig. 3 in very much exaggerated and enlarged scale. The two units, as illustrated in Figs. 2 and 3, are arranged within an insulating capsule or casing 13 so that the complete battery may be readily removed or inserted within the illuminator casing 1. A carrying case, as illustrated in Figs. 6 and 7, is also provided for carrying an extra battery, this being also of pencil form and substantially of the same dimensions as the illuminator casing 1. It is provided with a removable cap bearing an insulator to prevent short-circuiting of the battery while being carried and the ends of the casing are perforated to prevent an accumulation of moisture when the casing is closed.

As illustrated in Fig. 3, each of the cells making up the complete battery consists of an outer metallic casing 14, which is closed at one end as at 15 and open at the opposite end. This constitutes the zinc or metallic element of the battery. Adjacent to the lower end 15 is a cap of insulating material as, for instance, fiber-board 16, which is suitably secured to a casing of fabric 17 which contains the active material or electrolyte. This fabric is of substantially cylindrical form fitting within the zinc casing 14 and has centrally arranged therein, the carbon element 18 which projects through an insulating seal 19 and terminates in a metallic cap 20, which projects slightly beyond the end of the zinc casing 14. Two of these elements are arranged in series within the insulating casing or capsule 13, the carbon element 18 through its terminal contact 20, bearing against the zinc base 15 of the preceding battery. The carbon contact 20 when the capsule is in place within the illuminator casing 1 bears against the central contact of the lamp and is forced into intimate contact therewith by a spring 21 which is suitably secured to the metallic or zinc end of one of the batteries and through a suitable make and break switch, completes the circuit of the battery and lamp through the metallic illuminator casing 1. This spring 21 serves a double purpose. When under compression it forces the battery contact 20 against the lamp contact and insures a firm contact with a metallic member 22 illustrated herein as a screw passing through the cap 23 of the casing 1, though insulated therefrom by washers 24, 25 placed on either side of the cap. The cap 23 is secured to the casing 1 through a bayonet lock consisting of grooves 26 at the end of the casing 1 cooperating with pins 27 projecting from the inner walls of the cap. The spring 21 thus serves not only to make a firm electrical contact between the member 22 and the battery, but exerts a

tension against the cap when in place to prevent its accidental dislodgement.

The contact member 28 is arranged upon the member 22 exteriorly of the casing and projects over the end thereof and overlies the side of the casing 1. Normally its end 29 is out of contact with the casing 1 but when depressed by the finger completes the circuit of the batteries and lamp. This contact device may also be rotated upon the stud 22 and brought into a position of contact with a pin 30 which is in electrical contact with the cap 23 and projects through the insulating washer 25. When it is desired to use the instrument merely for a moment, the contact device 28 may be depressed against the casing, closing the circuit. If it is desired to use the light for a considerable period, said contact device is rotated until it makes electrical contact with the pin 30.

To insure an open circuit condition when the device is carried in the pocket, a sliding insulating member 31 closely encircling the casing 1 may be slid under the end 29 of the contact finger. This will prevent the closing of the circuit whenever the finger is turned out of contact with the contact pin 30 as the finger will then be completely insulated from the casing 1 and will not be inadvertently pressed against it. It will be noted from the above that the device is in a most compact form and may be readily carried in the pocket or in a suitable case adaptable for the pocket. It is substantially of pencil form and if desired, the clamp 28 may be passed over the side of the pocket while carrying the device, thus insuring the off-circuit position of the contact.

The device is capable of complete sterilization and thus is effective for physicians' and surgeons' use.

Obviously, the exact details and arrangement of parts may be varied to suit the exigencies of any particular case and it may be applied to surgical instruments of various forms if desired. It is light and compact enough to be so used and although very small in construction is of comparatively great capacity, the lamp burning for an hour or more continuously before depleting the battery to any great extent.

What I claim as my invention and desire to secure by Letters Patent is:

1. An exploration illuminator comprising a casing, a lamp operatively arranged in one end of said casing, a battery having one terminal engaging the terminal of the lamp and normally insulated from the casing, a contact device and an insulating band movable upon the casing and adapted to be interposed between the casing and contact device.

2. An exploration illuminator comprising a casing, a lamp operatively arranged

at one end of said casing, a battery having
one element in engagement with the lamp
and normally insulated from the casing and
a contact device normally insulated from the
5 casing though electrically connected with the
battery, said contact device adapted to close
the circuit through the casing, and an in-

sulating band encircling the casing and
adapted to be interposed between the casing
and contact device.

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Witnesses:

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