R. H. WAPPLER.

HANDLE FOR ILLUMINATIVE DIAGNOSTIC AND SURGICAL INSTRUMENTS.

APPLICATION FILED APR. 21, 1915.

**1,158,600.**

Patented Nov. 2, 1915.

Fig. 1.

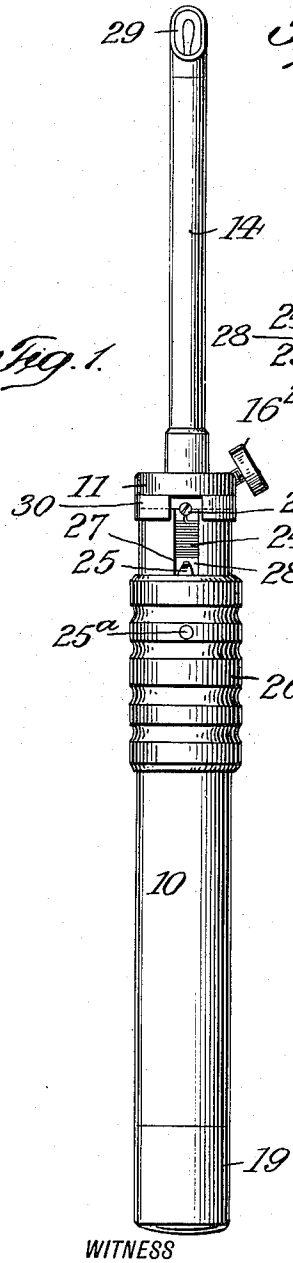



Fig. 2.

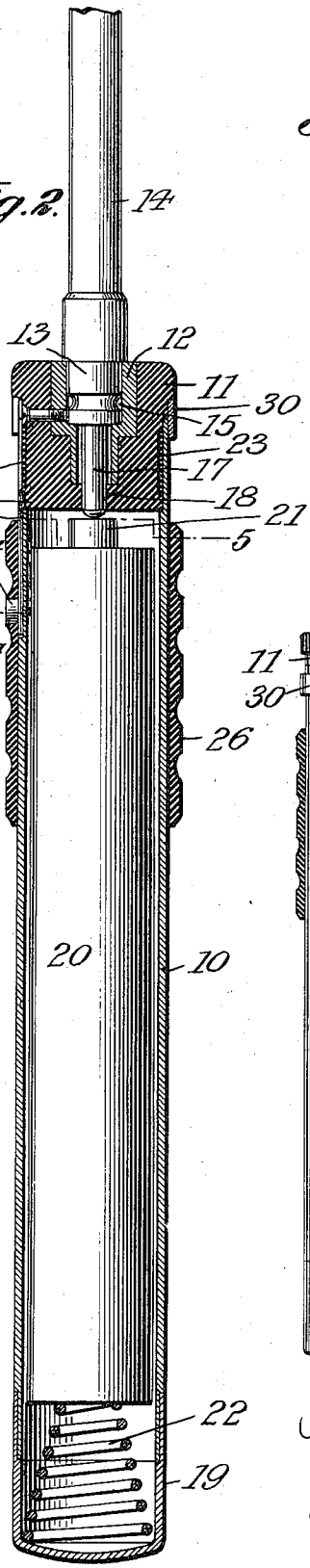



Fig. 3.

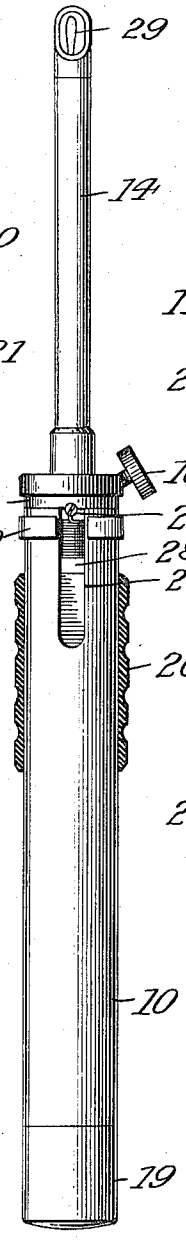



Fig. 4.

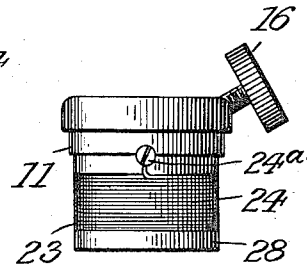
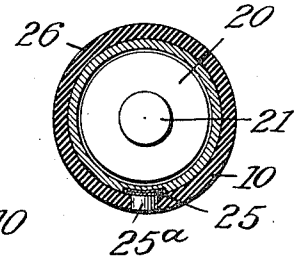



Fig. 5.




WITNESS

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# UNITED STATES PATENT OFFICE.

REINHOLD H. WAPPLER, OF NEW YORK, N. Y., ASSIGNOR TO AMERICAN CYSTOSCOPE MAKERS, INC., OF NEW YORK, N. Y.

## HANDLE FOR ILLUMINATIVE DIAGNOSTIC AND SURGICAL INSTRUMENTS.

1,158,600. Specification of Letters Patent. Patented Nov. 2, 1915.

Application filed April 21, 1915. Serial No. 22,789.

*To all whom it may concern:*

Be it known that I, REINHOLD H. WAPPLER, a citizen of the United States, and a resident of New York city, county and State of New York, have invented certain new and useful Improvements in Handles for Illuminative Diagnostic and Surgical Instruments, of which the following is a specification.

This invention relates to a novel handle more particularly adapted for supporting instruments for diagnostic and surgical illumination of inner organs of a patient.

The handle includes novel means for regulating the current applied to the electric bulb and for preventing a premature burning out of the lamp, owing to the application of a current of excessive voltage.

The invention also contains other novel features of construction as more fully brought out in the appended specification and claims.

In the accompanying drawing, Figure 1 is a side view of a handle embodying my invention, showing a light tube attached thereto; Fig. 2 an enlarged longitudinal section through the handle with the light tube partly broken away; Fig. 3 a view similar to Fig. 1 showing the slide in section; Fig. 4 an outer view of the plug, and Fig. 5 a cross section on line 5—5, Fig. 2.

Into the upper end of a preferably metallic cylindrical barrel 10 is tightly fitted a head or plug 11 made of insulating material and provided with a metallic socket 12. The latter has a stepped central bore adapted for the reception of the correspondingly shaped foot 13 of a diagnostic light tube 14. Foot 13 is provided with a circumferential groove 15 adapted to be engaged by a clamp screw 16 and with an axially extending contact pin 17 that passes through a bore 18 of plug 11 into the interior of barrel 10. This barrel is normally closed by a friction cap 19 and serves for the reception of a battery or dry cell 20 the central upper pole 21 of which is held in engagement with the contact pin 17 by a spring 22 interposed between said cell and cap. This spring serves at the same time for conductively connecting the bottom of cell 20 that constitutes the other pole thereof, to cap 19 and consequently to handle 10.

Plug 11 is provided with a peripheral recess 23 adapted for the reception of a resistance coil or rheostat 24 the outer end of which is, by screw 24ª, connected to socket 12. The several windings of rheostat 24 are adapted to be engaged by a contact spring 25 having a stud 25ª that projects into a corresponding bore of a slide 26, preferably made of insulating material. In this way the spring participates in the movement of slide 26, said spring being accommodated within a longitudinal slot 27 of barrel 10.

It will be seen that when the parts occupy the position illustrated in Figs. 1 and 2, *i. e.* when slide 26 is completely retracted, spring 25 engages the lower flange 28 of the insulating plug 11, so that the lamp circuit is interrupted. If the slide is moved outward, spring 25 will engage coil 24 thereby closing the lamp circuit, the current flowing from the pole 21 of cell 20 through pin 17, bulb 29 of tube 14, foot 13, screw 24ª, coil 24, spring 25, barrel 10, cap 19 and spring 22 back to the cell. It is evident that the farther slide 26 is moved outward the less resistance will be interpolated into the lamp circuit, so that the light intensity of the lamp is correspondingly increased. As the voltage of fresh batteries is of course higher than that of batteries used for a length of time, it is obvious that the current supplied by a fresh battery will tend to overload the lamp filament and thereby cause a premature burning out of the bulb. In order to overcome this difficulty, an adjustable stop is provided that checks the outward movement of slide 26. This stop is shown to be made in the form of a springy split ring 30 that frictionally engages barrel 10. Whenever the voltage of the full current applied to bulb 29 is too high, stop 30 is set back as illustrated in Fig. 3 so that slide 26 may only be advanced up to said stop. In this way a certain predetermined portion of resistance 24 will remain interpolated in the lamp circuit even when slide 26 is moved outward to the limit set by stop 30. Thus the operator need not pay any attention to the particular position to which he advances his slide for lighting the lamp, but he may pay full attention to his work and may nevertheless feel assured that he will not apply a current of excessive voltage to the lamp that might effect a quick destruction thereof. Slide 26 is so arranged that it may be readily adjusted with the thumb of the same hand that holds barrel 10 so that in

this way my invention provides a readily manipulative handle for diagnostic and surgical illuminative instruments that permit at the same time a full control of the lamp circuit.

I claim:—

1. A handle of the character described comprising a barrel adapted to support an instrument provided with an electric lamp, a battery contained within the barrel, a resistance coil carried by said barrel and adapted to be placed in circuit with said lamp and battery, a slide on the barrel, a contact carried by the slide and adapted to engage the resistance coil, and adjustable means for limiting the play of said slide whereby an undue cutting out of the resistance coil and a consequent premature burning out of the lamp is prevented.

2. A handle of the character described comprising a barrel adapted to support an instrument provided with an electric lamp, a battery contained within the barrel, a resistance coil carried by said barrel and adapted to be placed in circuit with said lamp and battery, a slide on the barrel, a contact carried by the slide and adapted to engage the resistance coil, and an adjustable stop on the barrel that is adapted to be engaged by the slide whereby an undue cutting out of the resistance coil and a consequent premature burning out of the lamp is prevented.

3. A handle of the character described comprising a barrel adapted to support an instrument provided with an electric lamp, a battery contained within the barrel, a resistance coil carried by said barrel and adapted to be placed in circuit with said lamp and battery, a slide on the barrel, a contact carried by the slide and adapted to engage the resistance coil, and an adjustable stop frictionally engaging the barrel and adapted to be engaged by the slide whereby an undue cutting out of the resistance coil and a consequent premature burning out of the lamp is prevented.

4. A handle of the character described, comprising a barrel, an insulating plug fitted to one end of said barrel, a conductive socket carried by said plug and adapted to support an instrument provided with an electric lamp, a battery contained within said barrel, a resistance coil wound on the plug and adapted to be placed in circuit with said lamp and battery, a slide on the barrel, a contact on the slide and adapted to engage the resistance coil, and an adjustable stop for said slide.

5. A handle of the character described, comprising a barrel having a slot, an insulating plug fitted to one end of said barrel, a conductive socket carried by said plug and adapted to support an instrument provided with an electric lamp, a battery contained within said barrel, a resistance coil wound on the plug and adapted to be placed in circuit with said lamp and battery, a slide on the barrel, a contact on the slide and adapted to engage the resistance coil through the barrel-slot, and an adjustable stop for said slide.

REINHOLD H. WAPPLER.