Nov. 18, 1924. 1,516,133

W. N. ALLYN

OPHTHALMOSCOPE CONNECTION FOR DRY BATTERY HANDLES

Filed Aug. 14, 1922

Fig 1

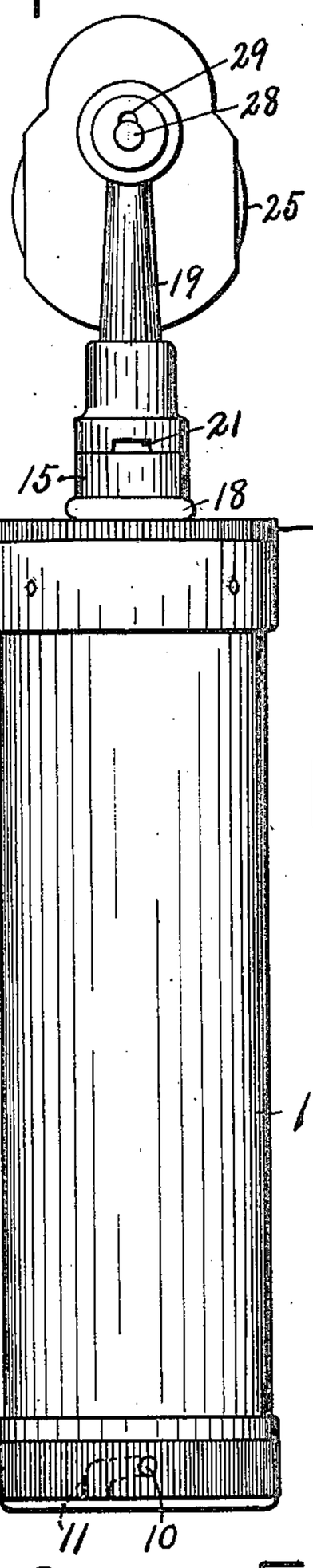


Fig. 2.

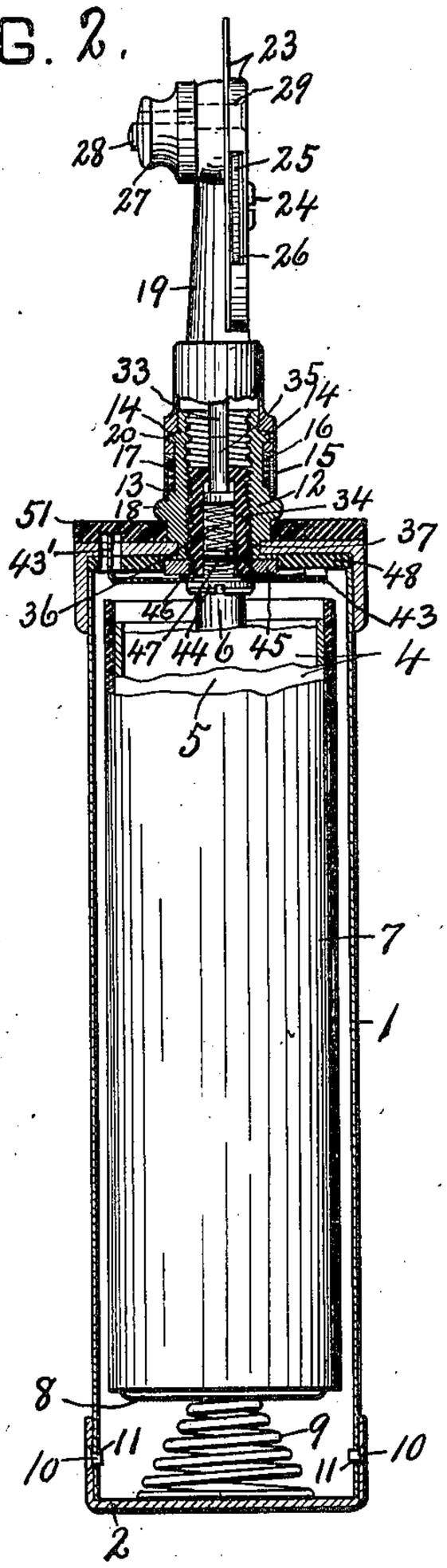


Fig. 3.

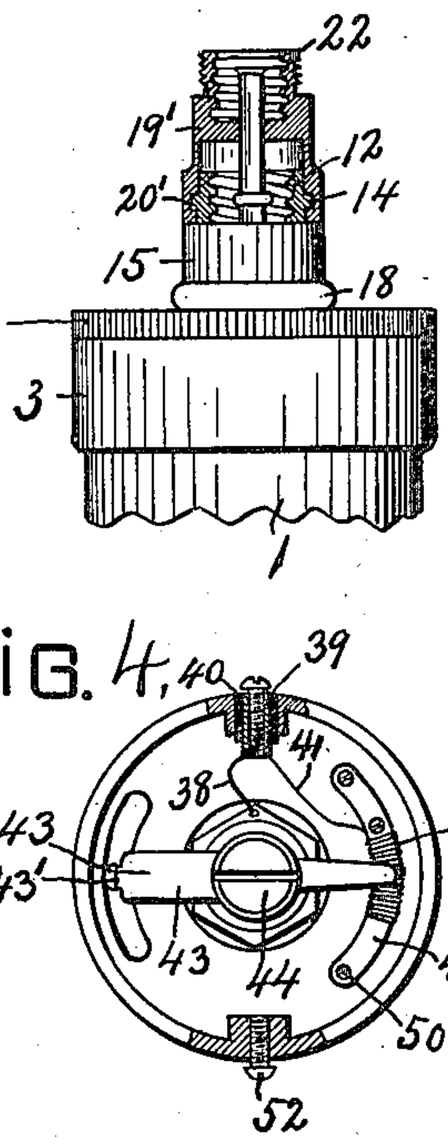


Fig. 4.

Fig. 5.

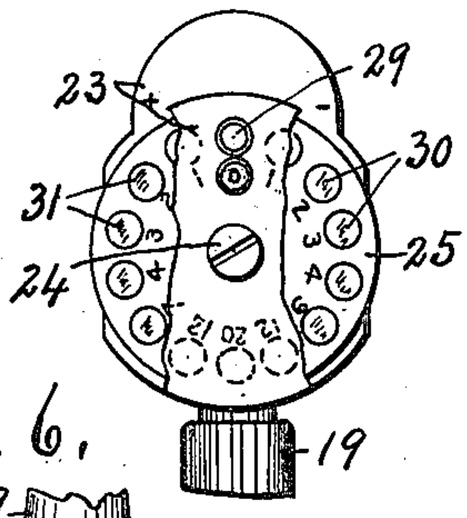


Fig. 6.

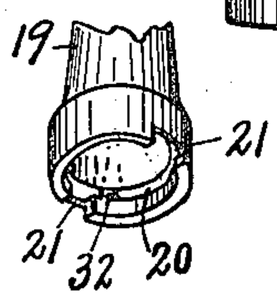


Fig. 7.

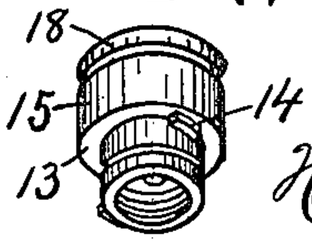
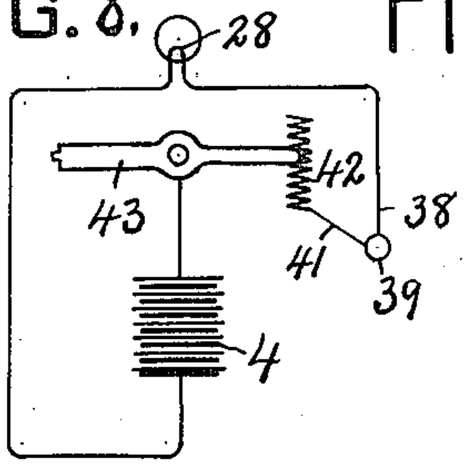


Fig. 8.



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UNITED STATES PATENT OFFICE.

WILLIAM NOAH ALLYN, OF AUBURN, NEW YORK.

OPHTHALMOSCOPE CONNECTION FOR DRY-BATTERY HANDLES.

Application filed August 14, 1922. Serial No. 581,684.

To all whom it may concern:

Be it known that I, WILLIAM N. ALLYN, citizen of United States, of Auburn, in the county of Cayuga, in the State of New York, have invented new and useful Improvements in Ophthalmoscope Connections for Dry-Battery Handles, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to an electric battery handle for ophthalmoscopes and analogous instruments in which a cylindrical case constitutes a handle for enclosing a cylindrical battery for supplying current to the electric lamp of the attached instrument.

In devices of this character it is frequently necessary to attach different instruments to the battery handle, according to the requirements of the examination, and one of the objects of the invention is to provide means whereby these changes of instruments may be made more expeditiously and with less liability of imperfect circuit connections than has heretofore been practiced, and at the same time to enable the operator to use lights of different intensities through the medium of the same lamp.

Other objects and uses relating to specific parts of the device will be brought out in the following description:

In the drawings:

Figure 1 is a front elevation of a battery handle and ophthalmoscope attached thereto.

Figure 2 is a side elevation, partly in section, of the same device.

Figure 3 is a side elevation of the battery handle showing the use of an extension coupling section for the reception of the usual screw attachment for an ophthalmoscope or other instrument.

Figure 4 is an inverted plan of the detached battery handle cap, showing more particularly the rheostat for regulating the intensity of the light in the lamp.

Figure 5 is a rear elevation partly broken away, of the upper portion of the ophthalmoscope, showing the lens supporting disk and sight openings.

Figures 6 and 7 are perspective views respectively of the lower end of the supporting standard for the ophthalmoscope and battery coupling therefor.

Figure 8 is a diagrammatic view of the lamp circuit, including the rheostat.

As illustrated, this device comprises a cylindrical battery handle consisting of a metallic case —1—, having opposite end heads, or caps, —2— and —3—, also of metal, in electrical connection with the metal case —1—, to form a part of the battery circuit, and adapted to receive and enclose a cylindrical battery —4—, which includes a metal cylindrical shell, —5—, as one of the poles, and is provided with an additional central pole —6— at its upper end, the battery shell —5— being enclosed in a cylindrical sheathing —7—, of cardboard or equivalent insulating material to protect the same from contact with the side walls of the metallic casing —1—.

The metal battery shell —5— is provided with a metal bottom —8— in electrical connection therewith, and serving as a bearing for the upper end of a coil spring —9—, which is secured to the bottom cap —2—, and forms an electrical connection between the battery shell —5— and metal case —1—, through the medium of the cap —2—.

This cap —2— is removably secured to the lower end of the case —1—, by means of a bayonet lock connection, consisting of diametrically opposite pins —10—, which enter angular slots —11— in the adjacent portions of the case —1—, and shown by dotted lines in Figure 1. The spring —9—, in addition to its function of forming a part of the battery circuit, also serves to hold the battery —4— in place and to frictionally hold the cap —2— against turning on the case —1—.

The upper metal cap —3— is secured by screws, or equivalent fastening means, to the adjacent end of the case —1—, in electrical connection therewith, and directly over the center terminal —6— of the battery. A metallic coupling member or nipple —12— is rigidly secured at its lower end in a central opening in the cap —3— in electrical connection therewith. The up-

per end being reduced in diameter to form a shoulder —13—, and is provided with diametrically opposite lugs —14— some distance from the shoulder —13—, to form part of the means for attaching an ophthalmoscope or other instrument to the battery handle.

The reduced upper end of the coupling member —12— is surrounded by a metal sleeve —15—, which is slidable axially thereon, and is provided at its upper end with a shoulder —16—. A light coil spring —17— also surrounds the reduced upper end of the coupling —12— within the sleeve —15— and has its lower end resting upon the shoulder —13— and its upper end against the annular shoulder —16— of the sleeve, to exert upward axial pressure upon said sleeve toward the lugs —14—.

That is, the sleeve —15— is movable axially on the reduced outer end of the coupler —12—, between the lugs —14— and an annular shoulder —18— on the coupling member, and constitutes a yielding abutment for the inner end of the standard, as —19—, of an ophthalmoscope or other instrument which it may be desired to attach to the battery handle.

The base of the standard —19— is enlarged and hollow, and is provided with an internal annular groove —20—, and diametrically opposite recesses —21—, extending from the annular groove to the lower end of the standard, for receiving the lugs —14—, and permitting the latter to interlock in the groove —20— by relative turning movement of the standard —19— and battery handle.

That is, in attaching the opthalmoscope or other instrument, the hollow base of the standard —19— is placed over and upon the reduced upper end of the coupling member —12—, with the recesses —21— registered with the lugs —14—, and the lower end of the standard engaged with the upper end of the sleeve —15—, whereupon by downward pressure of the standard against the sleeve, the latter will be depressed against the action of the spring —17— until the lugs —14— are registered with the groove —20—, after which the standard is turned relatively to the battery case, to cause the lugs to enter the groove and thereby lock the ophthalmoscope or other instrument to the coupling member —12—, which is secured to and forms a part of the battery handle.

In some makes of ophthalmoscopes, the bases thereof are threaded internally for screw engagement with an externally threaded nipple on the battery, and in order that an instrument of that character may be used with my battery handle, I have provided a supplemental coupling section —19′—, somewhat similar to the hollow base of the standard —19—, in that it is provided with an inner annular groove —20′—, and diametrically opposite recesses like —21—, for receiving the lugs —14— on the nipple —12—, the upper end of the supplemental coupling section —19′— being provided with a reduced externally threaded extension —22— for receiving the internally threaded base of the ophthalmoscope or similar instrument, and thereby coupling the same to the nipple —12—.

The ophthalmoscope shown includes a relatively thin and flat case, or housing —23—, secured flatwise to one side of the standard —19— by means of a clamping screw —24—, and containing a rotary circular disk —25—, which extends through diametrically opposite openings —26—, in the case —23— to be engaged and operated by the fingers of the user.

An electric lamp socket —27— is secured to the back of the upper end of the standard —19— for receiving a relatively small electric lamp —28—, which may be electrically connected in any suitable manner to the terminals of the battery.

The case —23—, upper end of the standard —19—, and lamp socket —27—, are provided with registering sight-openings —29— along the upper side of the lamp —28— to enable the operator to properly focus the light upon the object under examination.

The disk —25— is also provided with a sight-opening and a circumferential series of ophthalmoscope lenses, —30— and —31—, adapted to be registered with the sight-opening —29—, as the disk is rotated.

The base of the standard —19— is provided with an internal stop shoulder —32—, extending across the groove —20— near one of the recesses —21—, to engage either of the lugs —14— for limiting the relative turning movement of the standard upon the battery handle when the lugs —14— are interlocked with the groove —20—.

One side of the lamp filament is electrically connected to a conducting stem —33—, which is centrally secured within the standard —19—, to extend into the upper end of the nipple —12—, and is insulated from the metallic standard —19— in any suitable manner not necessary to herein illustrate or describe, the other side of the lamp filament being in electrical connection with said standard, the latter being in electrical connection with the nipple —12— when attached thereto and through the medium of the upper cap —3—, casing —1—, lower cap —2— and spring —9—, is in electrical connection with one side of the battery —4—.

A tubular insulating bushing —34— is secured by screw engagement in the lower end of the nipple —12—, and carries a vertically movable yielding contact member

—35—, which is spring pressed into electrical contact with the lower end of the conducting stem —33— by means of a light coil spring —36—, the latter being placed within the bushing —34—, and has its upper end engaged with the lower enlarged end of the stem of the contact member —35— and its lower end engaged with a metallic washer —37—. This metallic washer —37— is connected by an insulated wire —38— to a binding post —39— in one side of the case —1— and upper cap —3—, said bushing being insulated from the case and cap by an insulating sleeve —40— Figure 4.

The binding post —39— is connected by a wire —41— to a coil —42— of a suitable rheostat having a rotary contact member —43—, Figures 2, 4 and 7, which is pivotally mounted on the lower end of the bushing —34—, by means of a screw —44—, the latter being screwed into the lower end of the bushing and forming a seat for a fibre washer —47—.

The battery —4— is spring-pressed upwardly by the spring —9—, and firmly holds its terminal —6— in electrical contact with the head of the screw —44—.

A lock nut —45— is engaged with the lower end of the bushing —34—, and serves to hold the latter in operative position, but is insulated from the contact member —43— by an insulating washer —46—, Figure 2.

An insulating disk —48— is interposed between the rheostat lever —43— and top of the cap —3—, and serves as a support for an insulating bar —49—, which is secured to the underside of said disk —48— by means of screws —50— and around which the rheostat coil —42— is wound.

The rheostat lever —43— is in electrical connection with the screw —44—, and has one end movable along the coil —42— in contact therewith, and its other end provided with an upwardly projecting offset —43′— extended through registering openings in the insulating disk —48—, and cap —3—, and engaged in a recess in the underside of a hand wheel —51—, of insulating material, which in turn is revolubly mounted upon the lower end of the nipple —12— between the top of the cap —3— and the annular shoulder —18—, for shifting the lever —43— around the coil —42—, as the wheel —51— is rotated.

That is, the insulating wheel —51— constitutes the actuating member for the rheostat to vary the intensity of the light of the lamp —28—.

The lighting circuit is as follows: from the center-pole —6— of the battery, to the screw —44—, lever —43—, coil —42—, wire —41—, to the binding-post —39—; thence through the wire —38—, metal washer —37—, spring —36—, contact members —35— and —33—, and thence through a wire not shown, to one side of the lamp, the other side of the lamp being in electrical connection with the standard —19—, and through the nipple —12— with the case —1— and return through the spring —9— to the other pole of the battery.

The object in connecting the metallic washer —37— and rheostat coil —42— to the binding post —39—, by separate wires —38— and —41—, instead of connecting said washer and coil directly to each other, is to permit the binding post to be used as a part of another circuit, in which case the opposite side of the case —1— and cap —3— would be provided with an additional binding screw —52— in electrical contact therewith, so that another translating device might be connected to this binding post and supplied with current from the same battery.

What I claim is:

An ophthalmoscope connection for dry battery handles comprising a hollow coupling member rigidly secured to one end of the battery handle and provided with radial lugs, a sleeve slidable on the coupling member between said lugs and adjacent end of the handle and normally spring pressed against said lugs, and a hollow supporting member for the ophthalmoscope telescoping with the outer end of the first named member and engaging the outer end of the sleeve for pressing the latter inwardly against the action of its spring away from said lugs, the second named member being provided with grooves which engage said lugs by angular movement thereof relatively to the first named member for locking the two members together and holding the sleeve against the action of the spring.

In witness whereof I have hereunto set my hand.

WILLIAM NOAH ALLYN.

Witnesses:
F. E. WORDER,
G. E. SNYDER.