J. GANGLOFF.

ADJUSTABLE SUPPORT.

APPLICATION FILED SEPT. 3, 1912.

1,071,307.

Patented Aug. 26, 1913.

2 SHEETS—SHEET 1.

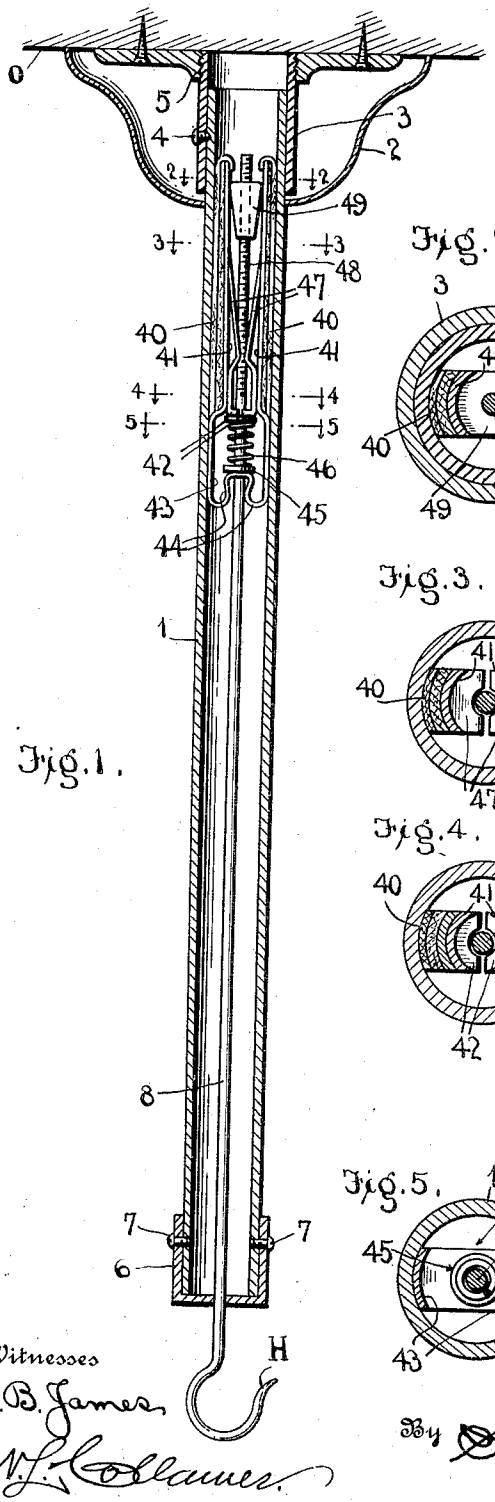


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

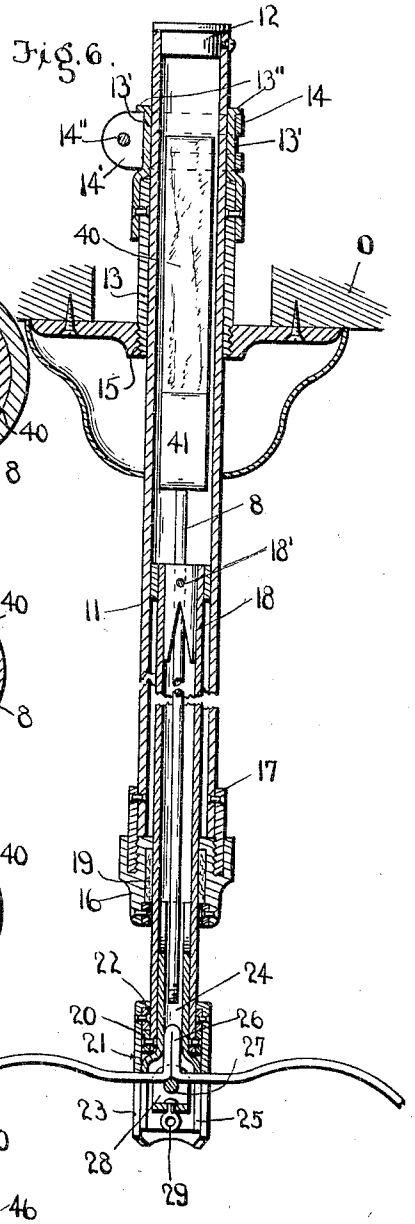


Fig. 6.

Witnesses

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2 SHEETS—SHEET 2.

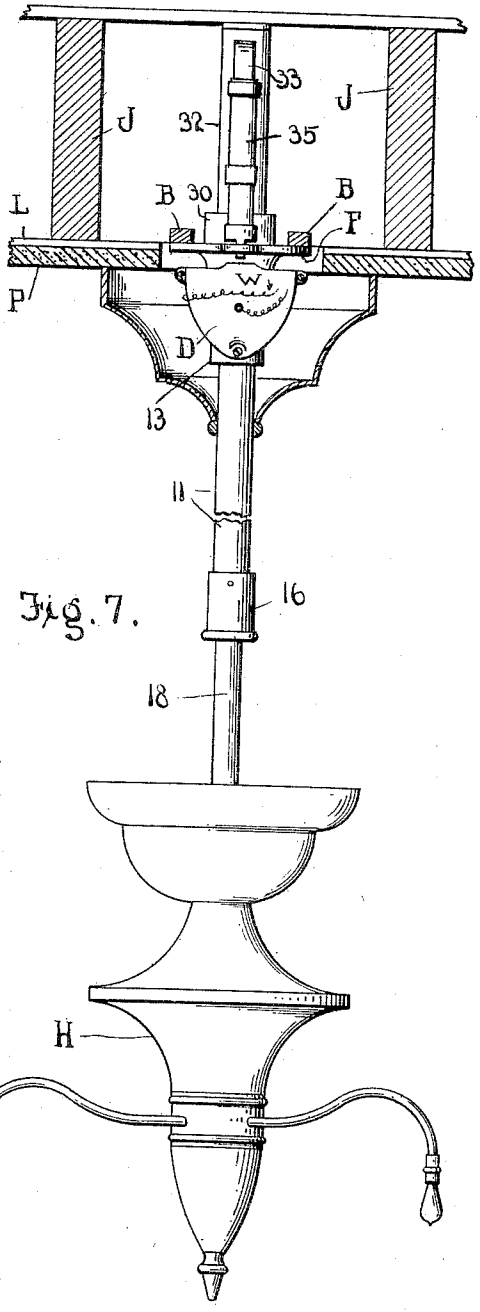


Fig. 7.

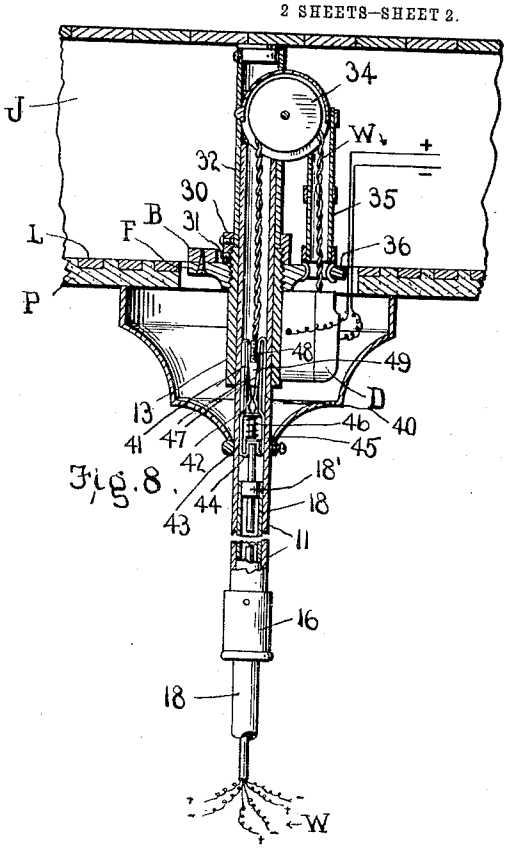


Fig. 8.

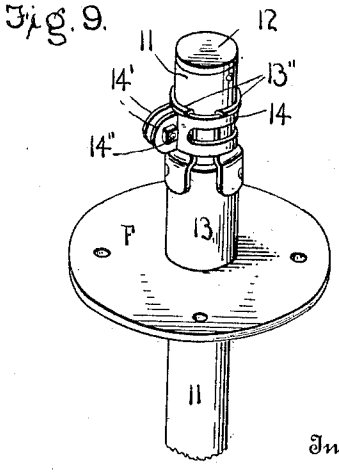


Fig. 9.

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ADJUSTABLE SUPPORT.

1,071,307. Specification of Letters Patent. Patented Aug. 26, 1913.

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To all whom it may concern:

Be it known that I, JOHN GANGLOFF, a citizen of the United States, residing at Crawfordsville, in the county of Montgomery and State of Indiana, have invented certain new and useful Improvements in Adjustable Supports; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to the class of illumination, and more especially it is a vertically adjustable light support adapted for sustaining an overhead lamp or lantern or an electrolier.

The objects of the invention are to improve the construction of the clutch between the outer and inner telescopic members, and to improve the means for supporting the outer member overhead; and these objects are carried out by the construction hereinafter more fully described and claimed and as shown in the drawings wherein—

Figure 1 is a central vertical sectional view through the outer member and its support, and a side elevation of the inner member showing one form of my invention; Figs. 2, 3, 4 and 5 are enlarged cross sections on the lines 2—2, 3—3, 4—4, and 5—5 respectively of Fig. 1; Fig. 6 is a view similar to Fig. 1 showing the outer member in section and its support therefor carried upward above the ceiling or overhead member, and the inner member in side elevation at right angles to the showing in Fig. 1 and in section at its lower extremity to show how the hanger for the article being supported is swivelly mounted on said inner member; Fig. 7 is a side elevation of my invention when applied to an electrolier, the support at the upper end thereof being amplified accordingly and carried upward above the ceiling; Fig. 8 is a vertical sectional view on a line at right angles to the section through the joists in Fig. 7, showing the winding drum in elevation; and Fig. 9 is a perspective detail of the parts at the upper end of Fig. 6.

In the drawings I have used the letter O to designate an overhead support such as a wooden ceiling, and J are joists supporting the lath and plaster L and P. The ceiling flange F is screwed direct to the former, or may be screwed to bridging B connecting the joists as indicated in Figs. 7 and 8; and it is the object of this invention to produce an extensible device connected at its upper end with said flange and its lower end carrying any suitable form of hanger such as the hook shown in Fig. 1, the hanging member H illustrated in Fig. 6, or the head of the electrolier as shown in Fig. 7. The hook might carry the bail of the lamp or lantern, the hanger H in Fig. 6 might itself be the bail of a lamp of any suitable construction or a member supporting something else foreign to the idea of illumination, and the specific construction of the head of the electrolier is obviously immaterial to the present invention. I might here say that the drum D on which are wound the wires W from the electrolier, also forms no part of the present invention and may be of any specific type.

Coming now to the details, in the form of my invention best illustrated in Fig. 1 the outer tubular member 1 has its upper end passed through a rosette or shield 2 and into a tubular support 3 wherein it is held by any suitable means such as a set screw 4, and the support itself is screwed as at 5 into the flange F; and the lower end of the outer member carries a ferrule 6 which may be removably mounted thereon in any suitable means as by the set screws 7. The inner member 8 in this instance is a rod whose lower end projects through the center of the ferrule and carries the hook H, whose body moves freely throughout the bore of the outer member 1, and whose upper end carries the clutch yet to be described.

In Fig. 6 the construction is much the same in its essential particulars, but differs as to details. Here the outer member 11 extends completely upward through the tubular support 13 and its upper end may be closed by a plug 12, the tubular support is screwed as at 15 at its lower end to the flange F and rises through the overhead support O into the space above the ceiling, it carries resilient extensions 13′ at its upper end whose upper extremities in turn are bent outward into lips 13″, and 14 is a band passed around said extensions below their lips and having outturned ears 14′ which are drawn together by means of a bolt 14″ as best seen in Fig. 9. On the whole, this is but another means of permitting adjustment—though to a greater degree than in Fig. 1—of the outer member within the tubular support, and as the latter runs up-

ward through the overhead supporting member O, it is clear that the outer member and hence the whole hanger can be adjusted to a much greater degree. The inner members or rod 8 in this case which carries the clutch yet to be described also carries a supplemental inner member 18 which is a tube whose exterior circumference rather closely fits the bore of the outer member 11, the upper end of the tube being secured to the rod 8 by any suitable form of connection 18′, and the body of the supplemental member 18 passing downward through packing 19 carried within a gland nut 16 which is screwed into the lower end of a ferrule or collar 17 that is fast on the outer member 11, whereby the surface of the supplemental inner member 18 will not be scratched when it is telescoped upward and downward within the outer member.

As will be seen from what follows with respect to the clutch, it is necessary that the inner member rotate in order to effect certain adjustments. To this end the rod is connected with the inner member 18 as at 18′, so that the rotation by hand of the member 18 rotates the rod 8, but as it may not be desirable that the article supported by the hanger H should rotate also, I provide means whereby this member is swiveled on the member 18. The lower end of the member 18 is externally shouldered as at 20, and this shoulder is surrounded by a collar 21 internally shouldered at its upper end as at 22 so that the collar is swivelly mounted around the member and hangs for some distance below the same, being transversely slotted or forked as shown at 23. Within the lower end of the member 18 fits a tubular plug 24 whose lower extremity extends downward within the lower end of the collar 21 and is also forked as shown at 25; and across and through the forks of both members 21 and 24 passes the hanger H, here shown as a piece of wire (which might be the bail of a large lamp or lantern) bent upward as at 26 into the tubular body of the plug 24, and held within said plug by a transverse screw 27 passing through all four fork-arms. On this screw (especially if the member H be the bail of a lamp) may be mounted a clip 28 of inverted U-shape, carrying a ring 29 from which can be suspended the bell of the lamp not necessary to show in Fig. 6; and the swiveled connection between the collar 21 and the supplemental inner member 18 permits the latter to be rotated without turning the hanger H or anything carried thereby.

In the amplified construction illustrated in Figs. 7 and 8 needs no such hanger because the member H carried thereby is the head of an electrolier; but it is obvious that in this case the inner member 18 must be tubular so that the wires W can pass upward therethrough as best seen in Fig. 8. The outer member 11 in this case passes upward through the tubular support 13, and is held adjustably therein by means of a collar 30 and set screws 31, and the collar carries an insulation tube 32 surrounding and rising above the member 11 and having a housing 33 wherein is journaled a pulley 34 over which the wires pass. From the other side of the housing 33 a second insulation tube 35 leads downward through a collar 36 in the flange F to the drum D whereon the wires are wound when the electrolier is raised or unwound when it is lowered in a manner well understood and needing no further description. The inner stretch of these wires passes downward through the tubular inner member 18 which in turn projects through a gland nut 16 like that shown in Fig. 6 and out of the lower end of the outer member 11, and carries the head 4 of the electrolier as indicated in Fig. 7. Thus it will be seen that the head may be raised or lowered to wind the wires onto or unwind them from the drum, or the head may be rotated when it is necessary to turn the inner member 18 to adjust the clutch to a manner described below.

What might be called the principal feature of my invention consists in the clutch or connector between the outer and inner members which has telescopic and rotary connection. Referring now to Figs. 1 to 6 inclusive, the numeral 40 designates the facing (preferably of asbestos wire cloth) of two jaws 41 which are formed by the upper extremities of a substantially U-shaped spring, such extremities being curved as seen in Fig. 3 to conform with the curvature within the tubular outer member 1, just below the facings the jaws 41 have inturned prongs 42, beneath which in turn they are expanded outward and lie within the outer member 1 as seen at 43, then they are curved upward as at 44 and pierced with a hole through which the rod 8 slides. Above the point 44 this rod carries a fixed collar 45, and coiled on the rod above this collar and below the prongs 42 is an expansive spring 46 tending to raise the spring member which carries the two jaws. On the inner faces of the latter are formed cams 47 converging downward as seen. The upper end of the rod is threaded as at 48, and moving thereon is a wedge-shaped nut 49 of such size and shape that when the rod is turned to the left to unscrew it out of the nut the latter moves upward between the jaws and the cams and these parts are not pressed outward, but when the rod is turned in the opposite direction the nut 49 is drawn downward between the cams 47 and the jaws are distended so that the facing thereon grips tightly within the tubular outer member 1. The tendency of the spring 46 is to

raise the prongs 42 and with them the two jaws so that the latter and their cams 47 are pressed upward relatively to the nut 49 and the jaws are forced outward into gripping contact with opposite inner faces of the outer member 1; and the parts retain this position and tendency if a weight be hung on the hook H. If now the operator should lift the weight and push upward on the rod 8, the raised portion or rest 44 at the lower end of the spring elevates the collar 45 and compresses the spring 46 so that the nut 49 is pushed upward between the cams 47 and the jaws may swing toward each other; and as a result this improved clutch may then be pushed rapidly upward or moved slowly downward within the outer member 1, but as soon as the downward movement is rapid enough to move the rod faster than the jaws are sliding downward, the wedge-shaped nut 47 again travels down between the cams 47 and the jaws are distended. Even then, if the operator desires to lower the inner member 8 to a greater degree, he can unscrew it so as to cause the nut 49 to travel upward positively. After having adjusted the parts, he can turn the rod 8 to again screw it into the nut and draw the latter downward between the cams 47—even far enough to spread the jaws to such an extent that they will reliably and firmly grip the interior of the tubular member under all conditions.

Applying the principle involved in the clutch to the other constructions of my invention, it will be clear that it makes no difference whether the inner member is solid as shown in Fig. 1 or tubular as shown in Figs. 7 and 8. In the latter views, however, the entire electrolier head H must be rotated with the inner member 18, as the stretch of wire W between the head and the pulley 34 will permit. With the construction illustrated in Fig. 6, the parts carried by the hanger H may be held against rotation while the supplemental inner member 18 is rotated by hand, but as this member is connected at 18′ with the rod 8 the latter is turned and the adjustment of the wedge-shaped nut is effected as above described.

Thus it will be seen that I have produced an improved adjustable support whereof the inner member may be turned to adjust the nut into such relation with the cams that the jaws of the clutch may be rather easily moved upward and downward within the outer member, as when the article supported thereby is not heavy; or the inner member may be turned so that the jaws will more firmly grip the outer member, or in fact may grip it so reliably as to render the parts hardly adjustable at all.

I do not wish to be confined to the use of this device in connection with a lamp, lantern, an electrolier or other means of illumination; for it is obvious that other articles than lights might be carried by the lower end of the support and attached to the ceiling or other overhead support without departing from the principle of this invention. This is the intended and customary use of my device, however, and therefore I have illustrated the same herein.

While I consider the feature of carrying the upper end of the outer member upward through the lath and plaster of the ceiling, permitting its adjustment above the overhead support and perhaps beneath the floor of the room upstairs, and mounting the insulation tubings and pulley in this space, all to be important; perhaps the most useful and advantageous feature of my invention lies in the specific construction of the clutch between the two members. I do not, however, wish to be limited to the precise details of its construction, nor to the joint use of the features of this invention.

What is claimed as new is:—

1. In a device of the character described, the combination with a tubular outer member hung from overhead, and an inner member longitudinally adjustable and rotatably mounted therein; of a bent spring having a hole through which said inner member passes and its arms formed into jaws shaped to conform with the bore of the outer member, cams on the inner faces of the jaws, a wedge between said cams, a screw connection between said wedge and inner member whereby the former is moved when the latter is rotated, and a collar on the inner member whereby the spring and its jaws are moved when the member is adjusted longitudinally.

2. In a device of the character described, the combination with a flange adapted to be carried by bridging between the joist, a tubular support extending through said flange into the space above the ceiling, a tubular member extending upward through said support, means for mounting it adjustably therein, an insulation tube mounted on the upper end of said tubular member and having a housing, a pulley journaled therein, a second insulation tube extending from the other side of the pulley downward through the flange, and a winding drum; of a tubular inner member within the outer member and through which the wires may extend upward over said pulley and downward to said drum, and clutch mechanism between said members, substantially as described.

3. In a device of the class described, the combination with a tubular member having a shoulder around its lower end, and means for supporting it from overhead; of a collar loosely surrounding said shoulder and itself having an internal shoulder at its upper end resting on the shoulder of said member,

a plug fixed within the collar, both these members being transversely slotted for the reception of a hanger, a screw passing through the fork-arms of both members and under the hanger, and a clip of inverted U-shape whose arms stand astride said hanger and through which this screw passes, the clip carrying a ring for the purpose set forth.

4. In an adjustable support, the combination with a tubular outer member hung from overhead, and an inner member longitudinally adjustable within the outer member; of a clutch comprising a substantially U-shaped spring whose center is bent upward into a rest and pierced with a hole through which passes the inner member and whose arms constitute jaws shaped to conform with the bore of the outer member, facings on said jaws, downwardly converging cams on the inner faces of said jaws, the inner member being threaded where it stands between such cams, and a wedge-shaped nut engaging the threads between said cams.

5. In an adjustable support, the combination with a tubular outer member hung from overhead, and an inner member longitudinally adjustable within the outer member; of a clutch comprising a substantially U-shaped spring whose center is bent upward into a rest and pierced with a hole through which passes the inner member and whose arms constitute jaws shaped to conform with the bore of the outer member, facings on said jaws, downwardly converging cams on the inner faces of said jaws, the inner member being threaded where it stands between such cams, a wedge-shaped nut engaging the threads between said cams, prongs projecting inward at the lower ends of said cams, a collar fast on the rod above said rest, and an expansive spring coiled on the rod between said collar and prongs, for the purpose set forth.

6. In an adjustable support, the combination with a tubular outer member hung from overhead, and an inner member longitudinally adjustable within the outer member; of a clutch comprising a spring whose center is pierced with a hole through which passes the inner member and whose arms constitute jaws shaped to conform with the bore of the outer member, downwardly converging cams on the inner faces of said jaws, the inner member being threaded where it stands between such cams, a nut engaging the threads between said cams, prongs projecting inward from said cams, a collar fast on the rod, and an expansive spring coiled on the rod between said collar and prongs, for the purpose set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN GANGLOFF.

Witnesses:
LETHA SMITH,
E. R. WARBRITTON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."