W. H. LUTZ.

ADJUSTING DEVICE FOR BOX COVERS.

APPLICATION FILED JAN. 15, 1913.

1,197,644. Patented Sept. 12, 1916.

Fig. 1.

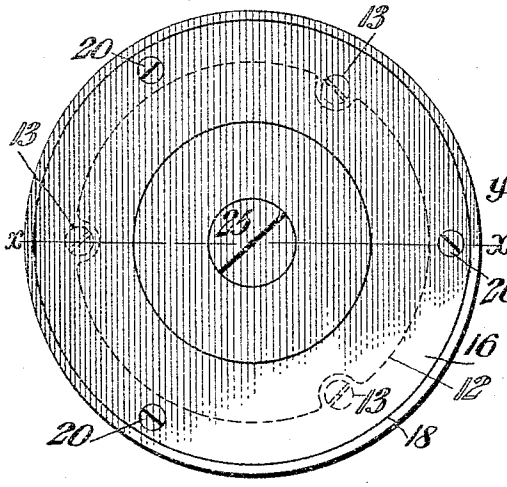


Fig. 3.

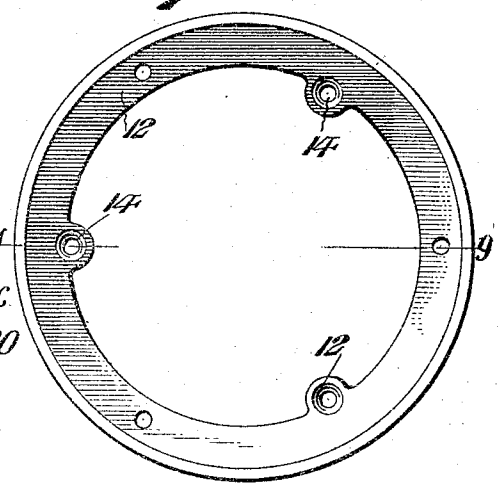


Fig. 4.

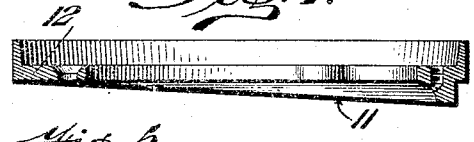


Fig. 2.

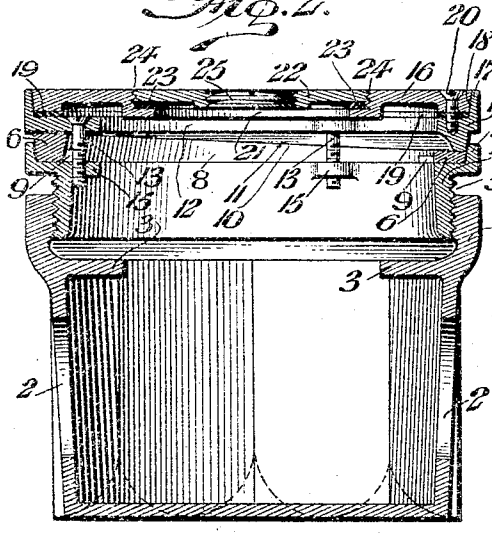


Fig. 5.

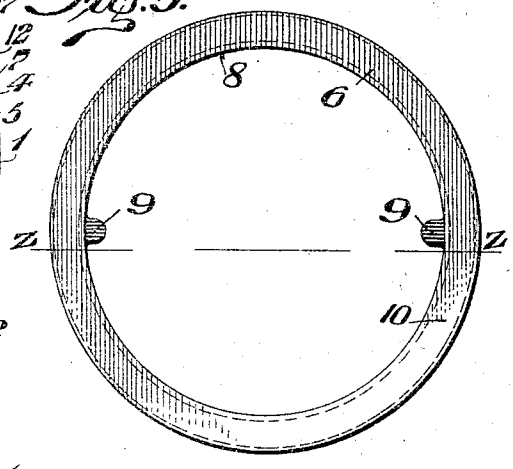
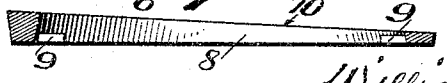


Fig. 6.



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ADJUSTING DEVICE FOR BOX-COVERS.

1,197,644. Specification of Letters Patent. Patented Sept. 12, 1916.

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To all whom it may concern:

Be it known that I, WILLIAM H. LUTZ, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Adjusting Device for Box-Covers, of which the following is a specification.

This invention relates generally to boxes provided with covers which are adapted to be either adjusted axially or angularly with respect to the body of the box in order to aline with an external surface in close proximity to said box, and the invention relates more particularly to conduit boxes for electric wiring systems wherein the terminals of a circuit are joined, or wherein the terminals are conducted to form a place of attachment for a local or auxiliary circuit. Such conduit boxes are generally classed in the trade as outlet boxes, junction boxes, receptacle boxes, or floor boxes and are adapted to be used in any desired location, though generally for interior work they are positioned in the floor, the walls or the ceiling of a room and serve the purpose of bringing the current to the place where the connection for the fixture is to be made.

In boxes of the character above referred to, it has been found in practice that it is practically impossible to secure the body of the box in the wall, ceiling or floor or in whatever desired location, in such a manner that when the cover is fastened in place, it will aline or lie in the same plane as an external surface in close proximity to the box. It is extremely desirable in this class of work that the cover of the box should be normally seated flush with the surface of the material adjacent the box, not only to present a neat and sightly appearance, but also to insure the fixture being held normal to the surface instead of at an angle.

It has heretofore been proposed to utilize for the present purpose a cover which may be adjusted axially of the box and also angularly with respect thereto but the mechanical means for attaining this end have been of such a complicated and unsatisfactory nature, that it has been found in practice, the mechanisms so employed are not commercially of such a nature as to carry out the functions either satisfactorily or economically.

By my present invention, I have overcome the defects inherent in boxes of this character and have provided a simple and effective construction consisting of but few parts and adapted to permit independent adjustment of the cover as regards axial or angular movement, the said adjustments being readily made when the box and cover are assembled in operative position.

It further consists of other novel features of construction, all as will be hereinafter fully set forth.

For the purpose of illustrating my invention, I have shown in the accompanying drawings a preferred embodiment which is at present preferred by me, since the same has been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of these instrumentalities as herein shown and described.

Figure 1 represents a plan of a box embodying my invention showing the cover secured thereto. Fig. 2 represents a vertical section on line *x*—*x* of Fig. 1. Fig. 3 represents a plan of a ring forming a part of the box cover. Fig. 4 represents a section on line *y*—*y* of Fig. 3. Fig. 5 represents a plan of an adjusting ring used in connection with the device. Fig. 6 represents a section on line *z*—*z* of Fig. 5.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings, 1 designates the body of a box which is preferably closed at the sides and bottom and open at its top, though it will be noted in some instances of use, an aperture or apertures 2 are provided at suitable points in the sides in order to conduct conduit wires or pipes to the interior of the box. In the present instance, the body 1 is disclosed of octagonal shape, though of course it will be understood that the same may be of any suitable contour for the purpose intended, and 3 designates lugs preferably formed integral with the body 1 and projecting laterally and interiorly thereof to form supports for any desired fittings, which may be used with the said box.

4 designates an annulus preferably having screw-threaded engagement as shown at 5 with the body 1 and in the preferred construction, the box is internally threaded to receive the said annulus 4, though I do not wish to be limited to this exact construction

as it is obvious an equivalent therefor can readily be arranged by any skilled mechanic.

By means of the foregoing construction, it will readily be seen that the annulus 4 may be moved axially with respect to the body 1, and thus vary the distance between the cover and the said body to bring the cover into the plane of an adjacent surface, since as will presently appear, the cover is here shown as supported by the annulus 4.

6 designates a ring carried by the annulus 4 and maintained in the present instance, from lateral displacement through the medium of a flange 7 formed circumferentially on the annulus 4 and substantially encircling the ring 6, which is thus maintained in proper alinement, the opening 8 therein allowing free access to the interior of the body 1. This ring 6 is preferably provided at suitable intervals with inwardly projecting lugs 9 which serve as a means for causing the ring 6 to be turned or partially rotated as desired after the parts are in assembled condition, it being noted that the axis of rotation of said ring is substantially coincident with or parallel to the longitudinal axis of the body 1. As here shown, one surface of the ring 6 is beveled, or laterally tapered uniformly, as shown at 10, to form a cam surface which extends preferably transversely of the ring 6 and is adapted to form a seat for a similar beveled or cam surface 11 of the cover supporting annular member 12, this latter being detachably secured to the annulus 4 by means of screws 13, or like fastening devices, which pass through suitable apertured lugs 14 of the member 12 and into threaded lugs 15 of the annulus 4. When these screws 13 are properly tightened with all the parts in adjusted position, the ring 6 will be fixedly clamped between the annulus 4 and the member 12.

16 designates a box cover, which in the present instance, seats within a circumferential flange 17 of the member 12 and is thereby not only prevented from lateral movement, but forms a joint 18 which may easily be protected from dampness and water by utilizing a packing washer 19 between the parts, which are secured together by suitable fastening screws 20. In the present embodiment of the cover 16, I have provided a central opening 21 adapted to be closed by a supplemental cover 22, having screw threaded engagement with the main cover and clamping a packing ring 23 against the flange 24 of the main cover 16. The supplemental cover 22 is also centrally apertured and normally closed by a screw threaded plug 25 as will be apparent, this latter being readily removed to permit the passage of conductors while the supplemental cover 22 may be removed, if desired, for the insertion of connecting plugs or the like.

In practice, the body 1 of the box is suitably placed and fixed in position in any suitable location such as the wall, ceiling or floor of a building and the terminals or conductors led to the interior thereof, the body then being closed by the cover mechanism until such time as the surface of the support is completed. At that time it is necessary in order to make a neat and finished appearance, to adjust the cover so that it is flush with the aforesaid surface. This is done by first adjusting the cover axially with respect to the body 1 until it is substantially in the same plane with the surface relative to which the cover is to be adjusted. Having attained this adjustment, it is now a simple matter to bring the cover to the proper angle with respect to the body in order that it will lie flush with the surface. This is accomplished by inserting a suitable implement through the annular member 12 into engagement with the lugs 9 and thus cause the ring 6 to be partially rotated or turned so as to change the position of the beveled or cam surface 10, which, of course, varies the inclination of the cover so that the latter may be accurately adjusted flush with the surface. This adjustment having been attained, the screws 13 are tightened to fix the parts relative to each other and the cover may then be secured in position, as already explained.

I am aware that it has heretofore been proposed in the patents Stahley, #689,139, Dec. 17, 1901, to Krantz, #856,165, June 4, 1907, to Fullman, #699,381, May 6th, 1902, and to Fountain, #974,370, Nov. 1st, 1910, to employ a box body the cover of which may be adjusted both axially and angularly with respect to the body but these devices comprise many parts dependent upon complicated details of construction to effect proper operation. It is desirable in the commercial manufacture and practical use of devices of this character, that the parts be made simple and strong and constructed in such a manner that they may be readily operated by unskilled labor without undue manipulation of a multiplicity of parts. My present invention is clearly differentiated from the foregoing patented devices, as will be apparent to those skilled in the art, since the angular adjustment of the cover is effected through the medium of two coacting beveled or cam surfaces which are supported between the body and the cover and give a wide range of angular movement and effect the same in a positive and direct manner.

It will now be apparent that I have devised a complete unitary structure, simple in construction, effective in operation and by means of which a cover may readily and

easily be brought into the plane of a particular surface while its operative relation to the box body is not disturbed.

It will now be apparent that I have devised a novel and useful construction of adjusting devices for box covers which embodies the features of advantage enumerated as desirable in the statement of the invention and the above description, and while I have, in the present instance, shown and described a preferred embodiment thereof which has been found in practice to give satisfactory and reliable results, it is to be understood that the same is susceptible of modification in various particulars without departing from the spirit or scope of the invention or sacrificing any of its advantages.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a device of the character stated, the combination of a box body, an annulus mounted thereon for adjustment axially of said body, a ring carried by said annulus having a cam face at one side, a cover, a support for said cover having a cam face seating on said ring cam face, one of said cam face carrying members being adapted for rotary movement with respect to the other to effect angular adjustment of said cover with respect to said body, and means connecting said support and annulus for clamping said movable member in adjusted position.

2. In a device of the character stated, the combination of a box body, an annulus mounted thereon for adjustment axially of said body, a ring carried by said annulus having a cam face at one side, a cover, a support for said cover having a cam face seating on said ring cam face, one of said cam face carrying members being adapted for rotary movement with respect to the other to effect angular adjustment of said cover with respect to said body, means connecting said support and annulus for clamping said movable member in adjusted position, and means to prevent lateral movement of said ring with respect to said annulus.

WILLIAM H. LUTZ.

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