Feb. 17, 1925. 1,526,368

H. PETERSEN

OPERATING MECHANISM FOR ELECTRIC CONTROLLERS

Filed Nov. 20, 1922

Fig. 1.

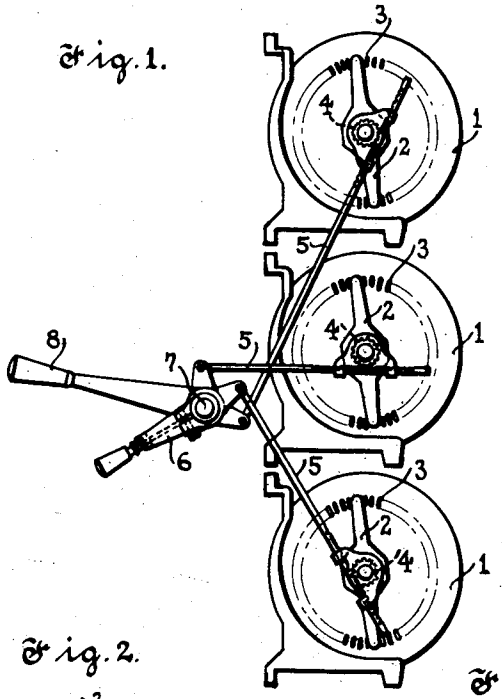


Fig. 2.

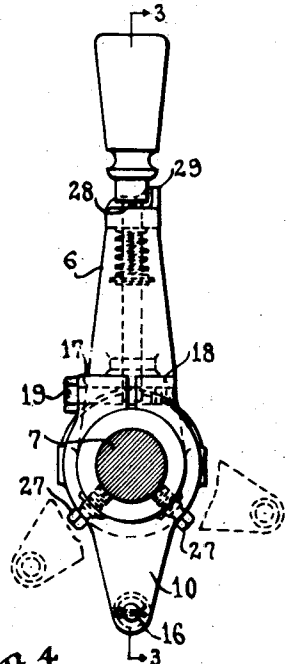


Fig. 3.

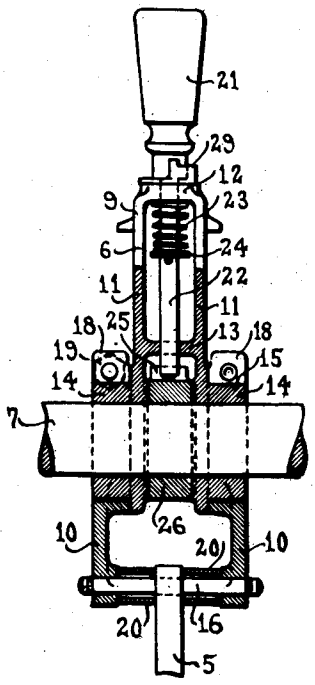
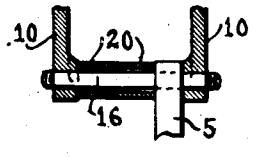


Fig. 4.



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Patented Feb. 17, 1925. 1,526,368

UNITED STATES PATENT OFFICE.

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OPERATING MECHANISM FOR ELECTRIC CONTROLLERS.

Application filed November 20, 1922. Serial No. 602,255.

To all whom it may concern:

Be it known that I, HANS PETERSEN, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Operating Mechanisms for Electric Controllers, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

This invention relates to improvements in operating mechanisms for electric controllers and while not limited thereto is particularly applicable to theatre dimmers.

In dimmer installations the space conditions sometimes render it necessary to arrange the dimmer plates in different angular positions with respect to their operating levers. Heretofore it has been customary to design the individual operating levers to suit the arrangement of the dimmer plates but this is objectionable from a manufacturing standpoint due to the large number of different types of levers usually required.

The present invention has among its objects to provide an operating lever consisting of standard parts which can be relatively adjusted to suit the particular arrangement of the dimmer plates.

Another object is to provide an operating lever of the aforesaid character consisting of simple and rugged parts which can be readily manufactured and installed.

Various other objects and advantages of the invention will hereinafter appear.

In the drawing—

Figure 1 is a side elevational view of a typical dimmer installation having operating levers embodying the invention associated therewith.

Figure 2 is a detail side elevational view of one of the operating levers;

Fig. 3 is a sectional view taken on line 3—3 of Fig. 2; and

Fig. 4 is a fragmentary sectional view of certain of the parts shown in Fig. 3 illustrating assembly thereof in a different relation.

Referring to Fig. 1 the same illustrates a dimmer installation wherein three rows of dimmer plates are mounted one above the other or in other words what is commonly known as a 3-high dimmer installation. The dimmer plates illustrated are of a well known type comprising a rheostat plate 1 having a pivoted arm 2 arranged to sweep over a series of contacts 3 connected to the resistance carried by plate 1. Arms 2 of the various dimmer plates each have a central pinion 4 fixed thereto meshing with a rack 5, the several racks being connected to individual operating levers 6 mounted upon a shaft 7 which is usually rotatably mounted in suitable bearings. In such installations the shaft 7 usually has a master operating lever 8 fixed thereto and each of the operating levers 6 is usually provided with means for releasably locking the same to said shaft. When the operating levers 6 are locked to the shaft 7 the same are usually arranged in like angular positions with respect thereto and it is thus apparent that in installations of the aforesaid character it is necessary, in order to obtain the proper throw of the various racks, that the pivot points of the latter be arranged in different angular positions with respect to the operating levers.

To provide for such variations in the angular relation of the pivot points of the racks with respect to their various operating levers each of said operating levers is made up of relatively adjustable arms, the construction of which is illustrated in Figs. 2 and 3. As shown in these figures each of the operating levers 6 includes an arm 9 to be rotatably mounted on shaft 7 and a pair of spaced arms 10 arranged on opposite sides thereof and adjustable with respect thereto. As shown in Fig. 3 arm 9 is provided with spaced side arms 11—11, said arms being connected at their upper ends by a portion 12 and intermediate their ends by a portion 13. The lower ends of arms 11—11 are each provided with an outwardly extending hub portion 14, said hub portions being bored to receive shaft 7 and each having a turned surface 15 on the exterior thereof. The arms 10 are of like construction each of the same being provided with a hub portion which is bored to receive the turned surface 15 and having its lower end drilled to receive a pivot pin 16. The hub portion of each of the arms 10 is split on the upper side thereof and a pair of lugs 17 and 18 is provided for receiving a clamping screw 19 the latter being threaded into lug 18.

Arms 10 are arranged in opposed relation

on the hub portion 14 and the pivot pin 16 is supported between the free ends thereof. As shown in Fig. 3 rack 5 is held in a central position with respect to arms 10 by collars 20—20 located on opposite sides thereof but it should be noted that rack 5 can be mounted adjacent either of the arms 10 by mounting the same so that both of the collars 20—20 are located on one side thereof as shown in Fig. 4.

From the foregoing it is apparent that provision is made for clamping the arms 10 in different angular positions with respect to arm 9 and for adjusting the rack 5 axially with respect to arm 9. Thus in installations such as shown in Fig. 1 the individual operating levers 6 can be adjusted to suit the angular position of the rheostats with respect to their individual operating levers while the position of the racks can also be adjusted axially to prevent interference thereof.

If desired an operating handle 21 can be bolted or otherwise secured to the free end of arm 9 but as before stated it is usually necessary to provide means for releasably locking the various arms to the shaft 7. In such installations the operating handle 21 has a bolt 22 fixed thereto which is slidably mounted in openings in the connecting portions 12 and 13 and is biased downwardly by a spring 23 located between the connecting portion 12 and a collar 24 fixed to said bolt. The lower end of bolt 22 is adapted to engage a recess 25 in a collar 26 said collar being arranged between the hub portions 14 and being provided with set screws 27 for securing the same against rotation on shaft 7. Collar 26 thus serves to prevent axial movement of lever 9 on shaft 7 and when the bolt 22 is in engagement with recess 25 said lever is locked in a given angular position with respect to said shaft. Bolt 22 is movable outwardly against the action of spring 23 to provide for release of lever 9 from said shaft and to maintain said bolt out of locking engagement with recess 25 the same is provided with a projecting pin 28 adapted upon rotation of operating lever 21 to ride upwardly over a cam surface 29 formed on the upper end of lever 9.

While the above described operating lever has been shown in connection with a dimmer installation it is apparent that use of the same is not limited thereto. Further it should be noted that other types of operating connections can be used between the lever and the device to be controlled.

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

1. A rheostat operating element including a plurality of arms one of said arms having a hub portion located at one end thereof and having an operating handle associated with the opposite end thereof and another of said arms being rotatably mounted on said hub portion and means for fixing said arms in different angular positions with respect to each other.

2. A rheostat operating element including a plurality of relatively adjustable arms one of said arms having a hub portion at one end thereof and having an operating handle associated with the opposite end thereof and another of said arms being bored to receive the hub portion of said former arm and means for clamping said latter arm in different angular positions with respect to said former arm.

3. In a rheostat operating element in combination an operating arm having a handle associated with one end thereof and projecting hub portions on opposite sides thereof, arms located on opposite sides of said former arm, said latter arms being of like construction and being bored to receive the hub portion of said former arm and means associated with said latter arms for clamping the same to said hub portions in different angular positions with respect to said former arm.

4. The combination with a rheostat of an operating element therefor located to one side thereof a supporting shaft for said element, said element including an arm having spaced hub portions bored to receive said shaft and another arm adapted to be fixed to said former arm in different angular positions with respect thereto and a collar fixed to said shaft and arranged between said hub portions to prevent axial movement of said former arm on said shaft.

5. The combination with a rheostat of an operating element therefor located to one side thereof, a supporting shaft for said element, said element including relatively adjustable arms one of said arms having an operating handle associated therewith and being rotatably mounted on said shaft and another of said arms being connected to said rheostat and being adapted to be fixed to said former arm in a position to suit the angular position of said rheostat with respect to said shaft.

6. In a dimmer installation in combination a plurality of rheostats having their axes arranged in a parallel relation, a supporting shaft located to one side of said rheostats and individual operating elements for said rheostats mounted on said shaft, said operating elements being of like construction and each including an operating arm rotatably mounted on said shaft and another arm operatively connected to its respective rheostat and adjustable with respect to said former arm.

7. The combination with a plurality of rheostats having their axes in parallel planes, a supporting shaft arranged to one side of said rheostats and individual oper-

ating elements for said rheostats rotatably mounted on said shaft, said operating elements being of like construction and each being provided with an operating arm having means associated therewith for locking the same to said shaft in a given angular position and a second arm adapted to be locked to said former arm in a position to suit the angular relation of its respective rheostat with respect to said shaft.

8. In a dimmer installation in combination a plurality of rheostats, a supporting shaft located to one side thereof individual operating elements for said rheostats mounted on said shaft, a single rigid member connecting each of said operating elements to its respective rheostat, said operating elements being of like construction and each having an arm pivotally secured to said rigid operating member and a second arm rotatably mounted on said shaft and adapted to be fixed to said former arm in different angular positions with respect thereto.

9. The combination with a rheostat, of an operating element therefor located to one side thereof a supporting shaft for said element, said element including an arm having spaced hub portions bored to receive said shaft and another arm adapted to be fixed to said former arm in any one of a plurality of angular positions with respect thereto, a collar fixed to said shaft and arranged between the hub portions of said former arm to prevent axial movement thereof on said shaft, said collar having a recess in the periphery thereof and locking means associated with said former arm including a releasable part adapted to engage the recess in said collar to lock said former arm against rotation with respect to said shaft.

10. The combination with a rheostat of an operating element therefor located to one side thereof a supporting shaft for said element, said element including an arm mounted on said shaft and a pair of arms located on opposite sides of said former arm and adapted to be fixed thereto in different angular positions to suit the angular position of said rheostat with respect to said shaft, a pivot pin supported at opposite ends between said latter arms, and a rigid operating connection between said pivot pin and said rheostat, said operating connection being adjustable axially of said pin.

11. The combination with a rheostat of an operating element therefor located to one side thereof a supporting shaft for said element, said element including an arm rotatably mounted on said shaft and a pair of arms located on opposite sides of said former arm and adapted to be fixed thereto in different angular positions to suit the angular position of said rheostat with respect to said shaft, a pivot pin supported at opposite ends between said latter arms, a rigid operating connection between said pivot pin and said rheostat, said operating connection being adjustable axially on said pin and means for retaining said operating connection in different axial positions on said pin.

In witness whereof, I have hereunto subscribed my name.

HANS PETERSEN.