March 22, 1955 L. C. WAY 2,704,466

CONTROL DEVICE

Filed May 19, 1952

Fig. 1

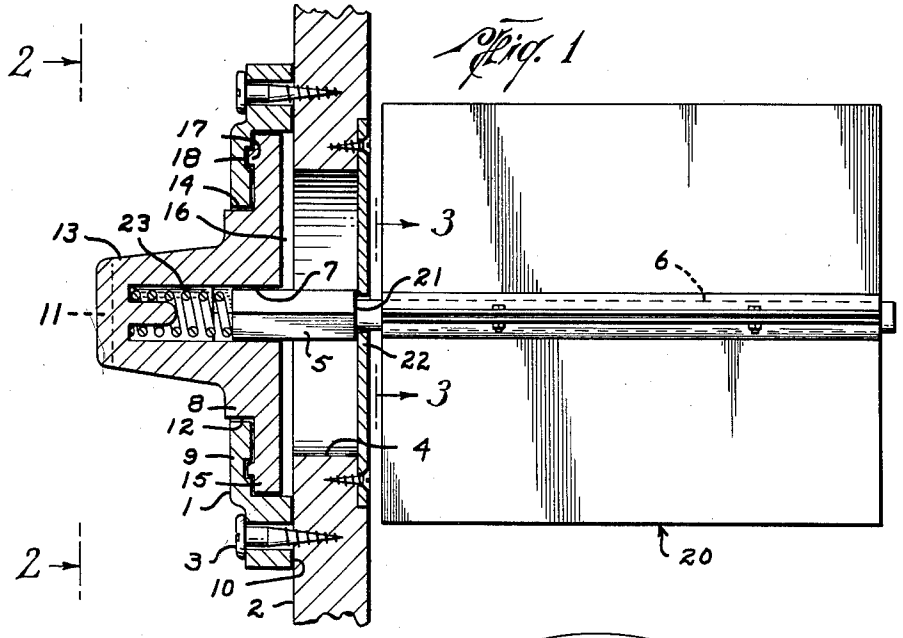


Fig. 2

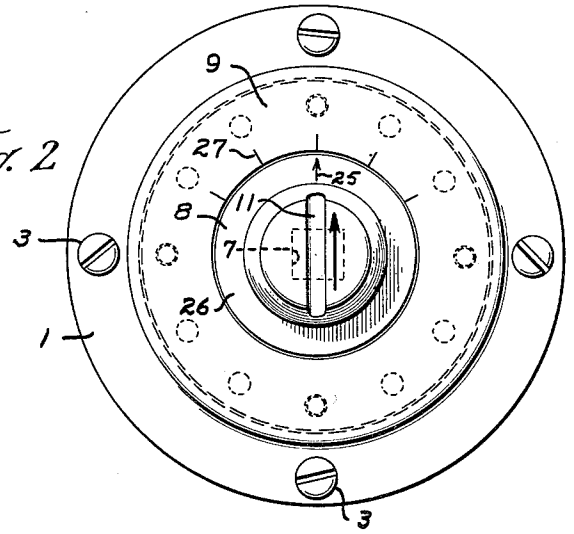


Fig. 3

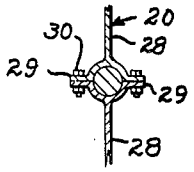
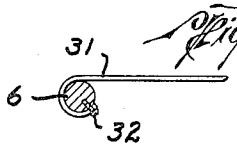


Fig. 4



LEO C. WAY
INVENTOR.

BY Ray L. Smith

ATTORNEY

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CONTROL DEVICE

Leo C. Way, Houston, Tex.

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2 Claims. (Cl. 74—528)

This invention relates to a control device or dial, and is of particular utility for regulating the angular position of a damper in an air duct, and includes means for indicating to the user at all times the position of the damper.

An especial advantage of the invention is that it may be easily operated to effect a desired adjustment without the use of tools.

Another object of the invention is to provide an improved control device which may be easily adjusted to positively fix an element in any desired position.

Still another object is to provide a control device that may be easily applied to a flat surface and will present a neat and attractive appearance.

A further object is to provide a control device which is so constructed that it lends itself to production from a plastic material thereby enabling construction at minimum cost and of any desired color, or color pattern, to harmonize with the color of the surface upon which the device is mounted.

A still further object is to provide a device of the type described comprising an annular base which houses an adjusting dial with an external adjusting knob, detent means being provided to form a manually releasable interlock between the base and dial.

A still further object is to provide a control device comprising a base in which an adjusting dial is mounted for rotational and axial movement, there being a releasable detent to interlock the base and dial and resilient means for normally holding the detent in locked position.

These objects and additional objects and advantages of the invention will be more fully apparent from a consideration of the following description and claims, together with the drawings to which reference is made in the description.

Fig. 1 is a sectional view of an embodiment of the invention installed and used for adjusting the position of a damper element;

Fig. 2 is an elevational view of the device taken on line 2—2 in Fig. 1;

Fig. 3 is a fragmentary view taken on line 3—3 in Fig. 1;

Fig. 4 is a sectional view showing the manner of using the device for adjusting the setting of a push-pull cable control.

The embodiment of my invention shown in the drawings comprises an annular base 1 which may be secured to any flat surface, such as a wall or ceiling, 2 as by means of screws 3. An opening 4 in the member 2 admits the non-circular end 5 of a shaft 6 to the interior of the device where such non-circular end slidably fits within a complementary opening 7 in the operating member or dial 8.

The base 1 has a radially inwardly extending flange 9 spaced from the mounting surface 10 of the base, thus providing within the base a chamber for the dial and an opening 12 through which the knob 13 of the dial extends. The dial has a shoulder 14 which fits closely within the opening 12 in the base. Inwardly from the shoulder 14 the dial has a disc portion 15 which is of an axial dimension less than the depth of the chamber within the base so that there is normally an axial space 16 between the dial and the surface upon which the device is mounted.

A detent is provided between the base 1 and the dial 8. To provide such detent the disc portion 15 of the dial has one or more axially extending projections 17 which are adapted to selectively enter complementary openings

18 in the nether surface of the flange 9. It is apparent that the dial is non-rotatable relative to the base when the projection, or projections, 17 are engaged in one or more of the openings 18 in the base and hence the shaft 6 is held in a predetermined angular position when this condition exists.

The shaft 6 is fixed against axial movement in any suitable manner. If the shaft comprises an element of a damper 20 then the entire damper assembly will be fixed against axial movement within the duct served thereby. Alternately, the end 5 of the shaft 6 may be larger than the adjacent portion of the shaft thereby providing a shoulder 21 to engage the thrust plate 22 secured to the member 2.

A compression spring 23 fits within an extension of the opening 7 in the dial 8 and abuts the end 5 of the shaft 6 whereby the dial is constantly urged outwardly so that the detent holds the base and dial against relative rotation, the projections 17 on the dial being held within complementary openings 18 in the rear face of the flange 9 on the base 1. It is to be understood that any suitable number of projections 17 will be used, the number being sufficient to withstand any torque to which the dial 8 will be subjected. Also, the openings 18 will be of such number, and spacing as to enable desired angular settings of the shaft 6 about its axis.

Suitable indicia may be provided on the base 1 and the dial 8 to indicate the setting of the device. For example an arrow 25 may be provided on the surface 26 of the dial 8 proximate graduations 27 on the flange 9 about the opening 12 in the base. By means of this construction an accurate indication is had of the setting of the device and of the adjacent positions available for an adjusted setting.

The knob 13 of the dial 8 is also provided with a slot 11 which can be engaged by a screwdriver like tool to effect desired adjustment of the control dial when the device cannot readily be reached by the hand.

When in operation the parts of the device will be in the relative positions shown in the drawings. If a different adjustment is desired, knob 13 of the dial 8 is grasped by the hand or a screwdriver type of tool and the entire dial is forced axially against the force exerted by the spring 23. The projections 17 are thus withdrawn from within their respective complementary openings 18 whereupon the dial may be rotated to such new angular setting as may be desired. When the dial is released the spring 15 will move the dial outwardly so that the projections 16 will enter the adjacent openings 18 in the base whereupon the dial is locked in the newly selected position.

When the device of the invention is used for controlling the position of a damper 20 in an air duct as shown, the damper may comprise a pair of blades 28 flanged at 29 to fit about the shaft 6 so that bolts 30, when tightened, will hold the blades and shaft as a unitary structure.

While the control device of the invention is shown as used for adjusting the position of a damper in a flue, it is to be understood that it may be used in other environments. For example as best seen in Fig. 4 the wire of a flexible cable control may be secured, as by means of a fastener 32, to the shaft 6 so that rotational adjustment of the shaft will effect movement of the wire 31 and hence adjustment of the mechanism to which the wire is attached.

The invention claimed is:

1. A control device of the class described comprising, an annular base member adapted to be mounted on a surface and having an inwardly extending flange portion spaced from the mounting surface on the base member, thereby forming a chamber and a central opening in the base member, an operating member within said chamber, said operating member fitting axially slidable and rotatively within said chamber and being of less axial thickness than the depth of the chamber, said operating member having a knob portion extending through said central opening, there being a noncircular axial opening in said operating member to slidably but nonrotatively receive a shaft to be angularly adjusted, a compression spring bottomed in the opening in the operating member and engageable with the end of the shaft to be adjusted so that the operating member is urged axially outward in the

base member, and means forming an interlock between the members when the operating member is moved outwardly by the spring to engage the flange.

2. The structure as recited in claim 1, wherein the knob portion of the operating member is provided with a cylindrical peripheral surface fitting axially slidable and rotatively within the central opening in the base member so that tilting movement of the operating member is limited during rotational movement of the operating

member to selected angular positions thereof relative to the base member.

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