Nov. 17, 1936. W. K. CRESON 2,061,222

HORN BUTTON

Filed May 4, 1936

Fig. 1.

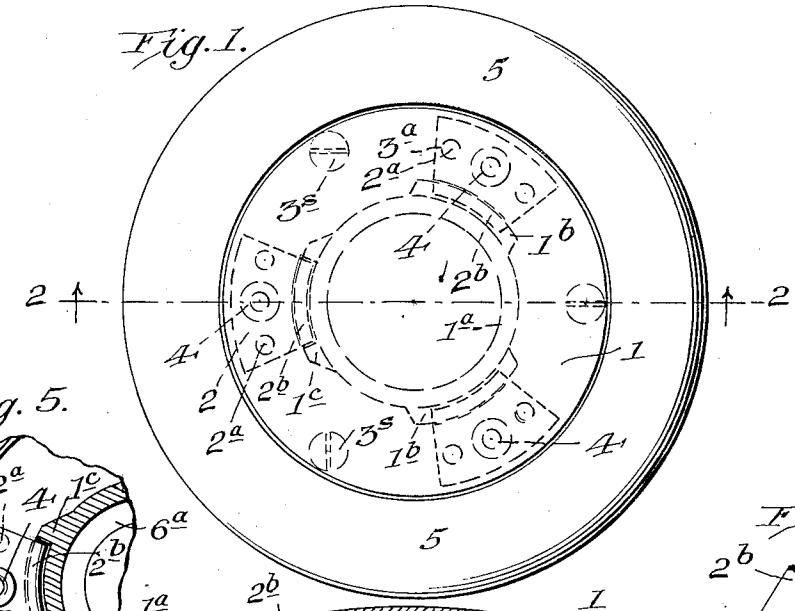


Fig. 5.

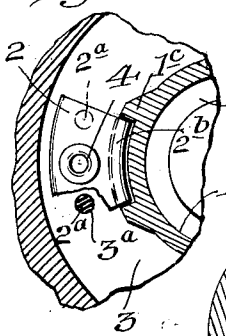


Fig. 6.

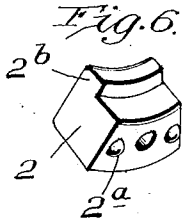


Fig. 2.

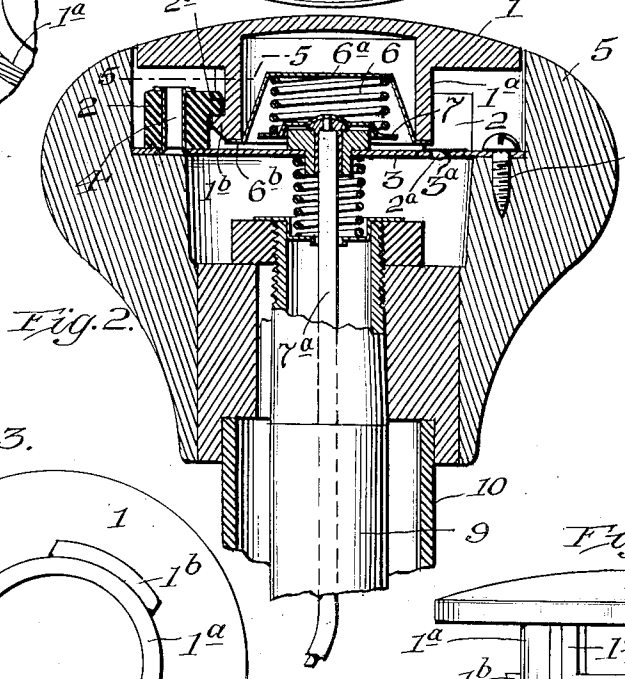


Fig. 3.

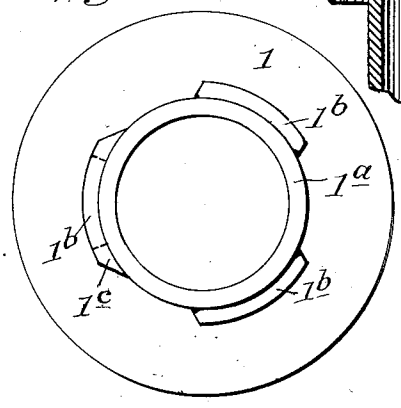
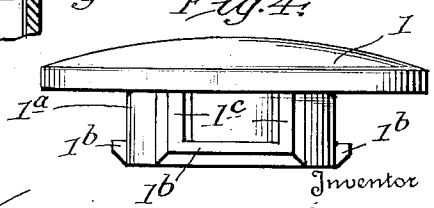


Fig. 4.



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Patented Nov. 17, 1936 2,061,222

UNITED STATES PATENT OFFICE

2,061,222

HORN BUTTON

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Application May 4, 1936, Serial No. 77,834

8 Claims. (Cl. 200—59)

This invention is an improvement in so-called "horn button" switches, such as are commonly used on the steering gear shaft of automobiles; but may be used in other situations.

The object of the present invention is to provide a very simple construction whereby the button can be easily assembled with the other operative parts of the switch, and when positioned will be securely retained in operative position, but when necessary may be removed to permit access to the underlying parts and replaced without having to manipulate screws or other disconnectible fastenings.

The objects of the invention are to facilitate assembly without screws or other conventional means of attachment; to provide a construction which permits variations in design, shape, size and ornamentation of the button without necessarily requiring changes in the design of the other parts of the switch; and to provide a construction which will reduce material cost, eliminate noise or rattling, and obviate many practical difficulties heretofore experienced with existing designs and constructions of horn button switches.

In the accompanying drawing I have illustrated one practical embodiment of the invention and will describe the same with reference thereto, to enable others to readily understand and use the invention. In the claims I have summarized the essentials of the invention and novel features of construction and novel combination of parts for which protection is desired.

In said drawing:—

Fig. 1 is a top plan view of a horn button switch assembly embodying my invention;

Fig. 2 is a vertical section of the switch on the line 2—2, Fig. 1;

Fig. 3 is a bottom view of the button detached;

Fig. 4 is a side view of the button;

Fig. 5 is a detail section on the line 5—5, Fig. 2; and

Fig. 6 is a perspective view of one of the segments with which the button interlocks.

In the construction shown in the drawing the button 1 is provided on its underside with an annular depending flange 1*a* which has adjacent its lower edge a plurality of outwardly projecting spaced segmental flanges 1*b*; three being shown, but the number may vary. When the button is in place the flanges 1*b* are beneath and opposed to flanges 2*b* on segments 2 formed on or attached to a suitable support.

One or more of the opposed flanges should be yieldable or resilient to permit assembly of the button. For economy and simplicity I preferably make the segments 2 of rubber. The segments 2 are preferably spaced equi-distant, the spaces between the segments being slightly greater than the length of the segmental flanges 1*b* on the button, so that by placing the button over the segments with the flanges 1*b* intermediate the segments, and then partially rotating the button, the flanges 1*b* on the button can be brought opposite to and beneath the flanges 2*b* on the segments; as in Fig. 1, in which position the button cannot be withdrawn, although it can rock or move axially.

Preferably I provide vertical ribs 1*c* at opposite ends of one of the flanges 1*b*, said ribs extending from the flange upwardly, as shown in Figs. 4 and 5. The space between the ribs 1*c* is slightly greater than the length of one of the flanges 2*b*. When partially rotating the button as above described, one or the other of these ribs can be forced past the resilient flange 2*b*, but said flange will spring back into the recess between said ribs, and above the related flange 1*b*, and prevent casual rotation of the button relative to the segments, while permitting vertical or rocking movement of the button to an amount limited by the distance between the tops of the flange 1*b* and the underside of the button (see Fig. 2).

In the construction shown the segments 2 are secured to a base plate 3 by suitable fastening devices, preferably tubular rivets 4. The plate 3 is secured by screws 3*s* within a recess in the upper end of a body member 5, mounted on the upper end of the hollow steering shaft 10 in the usual manner. Preferably plate 3 is provided at opposite sides of the rivet with perforations 3*a* for the engagement of tits 2*a*, on the underside of the segment 2, which prevent turning of the segment on the rivet. This construction is economical and practically efficient, but I do not consider the invention limited to such construction.

In assembling the switch the button is placed over the plate 3 in such manner that the three segments on the button enter the spaces between the rubber segments 2 attached to said plate. The button is then turned, by the palm of the hand, until one of the flanges 2*b* projects into the recess between ribs 1*c* and locks the button against rotation. The said flange 2*b* yields during the operation of turning the button but returns to its normal position when the proper location of the button is attained. As far as the assembly is concerned it would only be necessary to have

one flange 2b yieldable or of rubber, the other retaining segments could be yielding or made of inelastic material; but rubber is desirable because of its simplicity and its effectiveness in preventing noise and rattle due to vibration.

In the construction shown the button 1 is normally pressed upward by a spring 6 bearing against an inverted cup-shaped disk 6a having a peripheral flange 6b underlying the flange 1a of the button. The spring 6 is supported on a disk 7 which is connected to a conductor 7a that extends through a tube 9, within the steering shaft 10, and the usual electrical connections, not shown, are provided, so that when the button 1 is depressed or tilted the electrical circuit will be closed and the horn sounded. The particular construction of the electrical connections by which the circuit will be closed upon depressing or tilting the button may be of any suitable construction and form no part of the present invention.

I claim:—

1. In a horn button switch; a button having a plurality of segmental flanges on its underside; and a plurality of segments attached to a supporting member; said segments having flanges adapted to be brought to opposed position by partially rotating the button; and provided with means whereby the button is yieldably locked against rotatorial adjustment when the flanges are properly opposed.

2. In a horn button switch; a button having a plurality of segmental flanges on its underside; a plurality of segments attached to a supporting member; the said segments having opposed flanges, one of the flanges being resilient and the opposed flange having means to engage the resilient flange and yieldably lock the button against rotatorial movement.

3. In a horn button, a button having a plurality of segments on its underside; a plurality of segments attached to a supporting member; the said segments having opposed flanges, one of the flanges being resilient and the opposed flange having ribs at its ends adapted to engage the ends of the resilient flange and prevent rotatorial movement of the button.

4. In combination, a horn button having an annular depending flange, a plurality of spaced segmental flanges on the periphery of said flange; a supporting member; a plurality of equi-spaced segments on said member having segmental flanges adapted to be opposed to the flanges on the button; and yieldable interengaging means on opposed flanges for preventing casual rotation of the button when the flanges are opposed.

5. In combination, a horn button having an annular depending flange, a plurality of spaced segmental flanges on the periphery of said flange, a base plate, a plurality of spaced segments on said plate or support having segmental flanges adapted to be opposed to the flanges on the button, one of the flanges being resilient and the opposed flange having ribs at its ends adapted to engage the ends of the resilient flange and prevent rotatorial movement of the button.

6. In a horn button switch; a button having a plurality of segmental flanges on its underside; and a plurality of rubber segments attached to a supporting member; said segments having flanges adapted to be brought to opposed position by partially rotating the button; the flange on one rubber segment being resilient and adapted to engage retaining devices on the opposed flange whereby the button is yieldably locked against rotatorial adjustment when the flanges are properly opposed.

7. In combination, a horn button having an annular depending flange, a plurality of spaced segmental flanges on the periphery of said flange, a base plate, a plurality of spaced rubber segments on said plate or support having segmental flanges adapted to be opposed to the flanges on the button, two of the opposed segments having yieldable interengaging members adapted to prevent rotation of the button when the flanges are opposed.

8. In combination, a horn button having an annular depending flange, a plurality of spaced segmental flanges on the periphery of said flange, a base plate, a plurality of spaced segments on said plate or support having resilient segmental flanges adapted to be opposed to the flanges on the button, one of the flanges having ribs at its ends adapted to engage the ends of the opposed resilient flange and prevent rotatorial movement of the button.

WILLIAM K. CRESON.