Nov. 11, 1952

T. R. KILGOUR

2,617,216

KNOB AND SHAFT ASSEMBLY

Filed Aug. 10, 1950

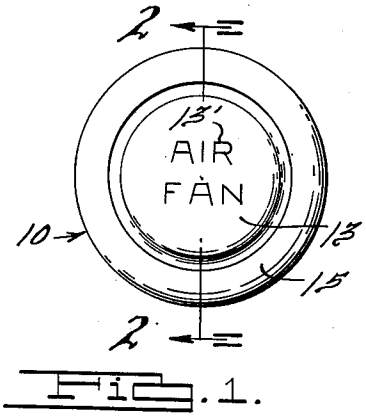


Fig. 1.

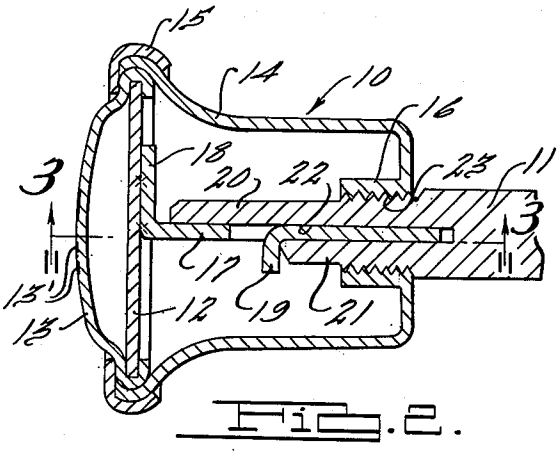


Fig. 2.

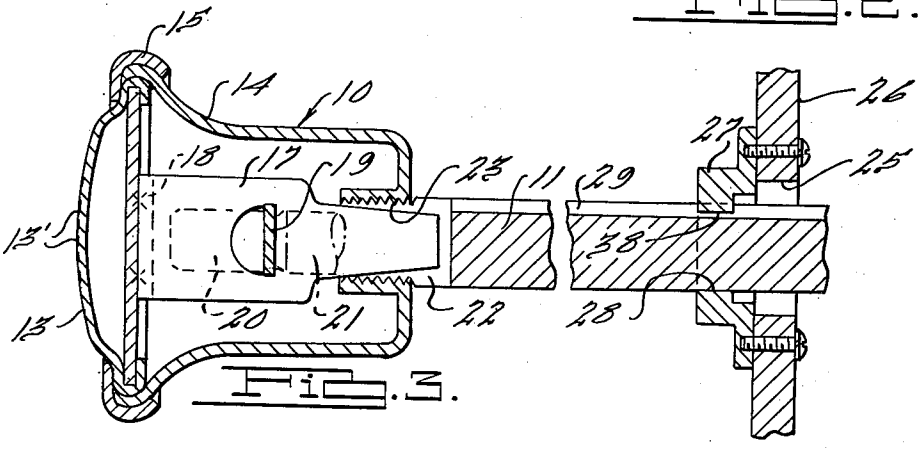


Fig. 3.

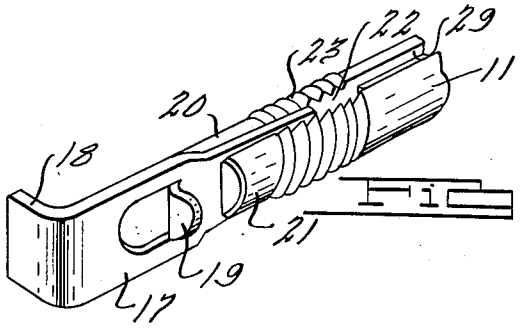


Fig. 4.

INVENTOR.
Thomas R. Kilgour
BY
Harness and Harris
ATTORNEYS.

Patented Nov. 11, 1952

2,617,216

UNITED STATES PATENT OFFICE

2,617,216

KNOB AND SHAFT ASSEMBLY

Thomas R. Kilgour, Highland Park, Mich., assignor to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware

Application August 10, 1950, Serial No. 178,661

8 Claims. (Cl. 40—8)

1

The present invention relates to an improved knob and assembly of a shaft and knob of the type commonly used to regulate the control of mechanically and electrically operated devices.

Knobs of this character frequently bear legends which have to be arranged in a predetermined position in order to be easily read.

It is a principal object of my invention to provide an improved shaft and knob which may be assembled only in one way, so that the lettering on the knob is always oriented in a predetermined manner.

A further object of the invention is to provide cooperating means externally of a knob and on a companion shaft respectively which serve to guide the assembling movement of the knob and shaft.

Another object of the invention is to provide externally protruding guide means of this kind on a knob which also serves to positively prevent assembly of the knob on its shaft in any orientation which will not position indicia of the knob in a predetermined position.

Another object of my invention is to provide an improved shaft and knob assembly which is easily as well as economically manufactured.

My invention relates more particularly to an assembly including a shaft having a bifurcated end portion defining legs of unequal length and a knob having an axially extending, externally projecting, strip receivable in the slot of the bifurcated end. The strip has a tab or ear extending from only one of its sides which abuts only the shorter of the legs when the casing of the knob is screwed on to the shaft.

Other objects and advantages will become more apparent from the following description of one embodiment of my invention, reference being had to the accompanying drawings in which:

Fig. 1 is a front elevational view of my improved shaft and knob assembly.

Fig. 2 is a sectional view of the assembly taken on the line 2—2 of Fig. 1.

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2 and showing in addition the associated panel structure through which the shaft extends.

Fig. 4 is a perspective view of the shaft partially assembled with the metal strip shown in Figs. 2 and 3.

In the drawings, I have shown my improved knob and shaft assembly which comprises a knob, generally designated by the numeral 10, secured to a shaft 11. The knob 10 has a main body portion which comprises a base member or disc 12 on which is mounted a circular dome shaped plate 13 bearing indicia 13'. The plate 13 has

2

edge portions 12' crimped over the periphery of the disc 12 and so firmly clamped upon the disc 12 as to prevent relative movement between these two parts. The exterior of the crimped peripheral edge of the plate 13 is rounded and is received in an open flared end of a knob casing 14. This end of the casing 14 is rotatably secured to the plate 13 by a ring 15 of rounded cross section which clamps the casing and plate together against axial movement but allows relative rotation. The open end of the casing 14 is flared and its opposite end portion is substantially cylindrical and is provided with an integrally connected internally threaded sleeve 16 which extends inwardly of the cylindrical end portion of the casing 14. The threaded sleeve 16 is utilized to connect the knob 10 to the shaft 11.

The disc 12 is provided with a metallic locating strip 17 which has a flanged end 18 welded or in some other suitable fashion secured to the disc. The strip 17 extends rearwardly from the disc 12 substantially through the center of the casing 14, through the sleeve 16 to a location externally of the knob and spaced from the end of the casing adjacent the sleeve 16. The strip 17 is provided with an ear or abutment 19 which extends substantially perpendicularly outwardly from one side of the strip and, as shown in the drawings, may be stamped out of the intermediate portion of the strip 17. The function of the ear 19 and its relative location will hereinafter be set forth.

The shaft 11 is circular in cross section and is provided with a bifurcated end portion defining legs 20 and 21 having a slot 22 disposed therebetween. The shaft 11 is also provided with a threaded portion 23 substantially at the base of the legs 20 and 21. The shaft 11 cooperates with the locating strip 17 as well as the sleeve 16 to secure the knob 10 on the shaft in a predetermined position with respect thereto.

In the drawings, it will be seen that a portion of the strip 17 is disposed within the slot 22 and that the ear 19 abuts the shorter leg 21 of the shaft 11. It will also be seen that the threads of the sleeve 16 mesh with the threads on the threaded portion 23 of the shaft. By placing the strip 17 within the slot 22 in the shaft, the disc 12, as well as the plate 13, are non-rotatably fixed to the shaft 11. The indicia 13' on the plate 13 is so arranged with respect to the abutment 19 and strip 17 that when the knob is properly placed to be threaded on the shaft, the letters on the plate remain in a horizontal upright position. The casing may be rotated relative to the disc 12 and plate 13 in order to screw the knob on the

shaft without disturbing the position of the indicia.

It will be seen that the knob 10 and shaft 11 may be assembled only in one way. In the assembly of the knob and shaft, as for example, on a production line, the shaft may be axially shiftably mounted on a structure which positively holds it against rotation and the assembly man cannot rotate the knob 180 degrees from the position shown in the drawings since the ear 19 would engage the longer leg 20 and consequently, the sleeve 16 and the threaded portion 23 would not be close enough together to have their threads engage. The distance from the end wall of the casing 14 adjacent the sleeve 16, to the ear 19 is less than the distance from the tip of the longer leg 20 to the forward thread of the threaded portion 23.

A shown in Fig. 3, the shaft 11 extends through an opening 25 in a wall structure 26, such as, for example, a vehicle dashboard. The structure 26 has fixed thereto a supporting collar 27 which is provided with an opening 28 in registration with the opening 25. The shaft 11 is provided with an axially extending groove 29 which receives a key 30 formed on the collar 27. The diameter of the opening 28 is only slightly larger than the diameter of the shaft 11 thereby allowing the shaft 11 to move in and out through the opening 28 while the key 30 remains in the groove 29 keeping the shaft from rotating about its longitudinal axis. By this construction, the shaft 11 is fixed against rotation and the indicia on the knob is fixed.

Substantially one half of the strip 17 is reduced in width so that it may conveniently pass through the sleeve 16. Similarly, the shaft 11 is reduced in diameter forwardly of the threaded portion 23 so that it may pass through the sleeve.

While I have illustrated and described but one embodiment of my invention, it is to be understood that such is for the purpose of illustration only, and it is contemplated that those skilled in the art may modify certain details without departing from the spirit or scope of the invention as defined in the claims appended hereto.

I claim:

1. A shaft and knob assembly comprising a shaft having a bifurcated end portion providing first and second legs of unequal length and having a slot therebetween, and a knob secured to said shaft including a locating strip extending into said slot, said strip having abutment means so positioned that it engages the shorter of said legs when said knob is secured to said shaft.

2. A shaft and knob assembly comprising a partially threaded shaft having a bifurcated end portion providing first and second legs of unequal length and having a slot between said legs, and a knob threaded on said shaft including an axially extending locating element receivable in said slot, said locating element having a laterally extending ear so positioned that it abuts the shorter leg when said knob is threaded on said shaft.

3. A shaft and knob assembly comprising a partially threaded shaft having a bifurcated end portion providing first and second legs of unequal length and having a slot between said legs, and a knob secured to said shaft comprising casing means having a threaded portion engaging the threads on said shaft, and a locating strip extending through said casing and into said slot, said locating strip being provided with an ear within said casing so positioned that it abuts the shorter of said legs when said knob is secured to said shaft.

4. A shaft and knob assembly comprising a shaft having a threaded portion and a bifurcated end portion providing first and second legs of unequal length having a slot therebetween, and a knob secured to said shaft, said knob including a base member, a casing secured to said base member and having a threaded portion engaging the threaded portion of said shaft, and means for non-rotatively positioning said base member relative to said shaft comprising a strip secured to said base member, extending through said casing and terminating in said slot, said strip being provided with a laterally extending ear engaging the shorter of said legs.

5. A shaft and knob assembly comprising a shaft having a bifurcated end portion providing first and second legs of unequal length, and a knob secured to said shaft and including a base member, a knob casing rotatably secured to said base member, and means for non-rotatively positioning said base member relative to said shaft including a strip fixed to said base member, extending through said casing and penetrating said bifurcated end portion of said shaft, said strip being provided with abutment means engaging the shorter of said legs.

6. A shaft and a knob assembly comprising a shaft having a bifurcated end portion providing first and second legs of unequal length, said shaft having a threaded portion starting at a location spaced from said shorter leg and extending in a direction away from said bifurcated end portion, and a knob secured to said shaft, said knob including a base member, a casing having one end rotatably secured to said base member and its opposite end provided with a threaded portion engaging the threaded portion on said shaft, means for non-rotatably positioning said base member relative to said shaft comprising a locating strip rigid with said base member and penetrating said bifurcated end portion, and abutment means secured to said strip and abutting the smaller leg of said shaft, the distance from the tip of the larger leg to the starting location of the threaded portion on said shaft being greater than the distance from the abutment means on said strip to the aforementioned opposite end of said casing.

7. A knob for attachment to a shaft having a threaded intermediate section and an adjacent bifurcated end portion providing spaced legs of unequal length and having a slot therebetween, said knob comprising a knob body including a front indicia bearing member and a rearwardly projecting locating element fixed to said indicia bearing member and receivable in said slot for positively locating the indicia of said member in a predetermined arrangement with respect to said shaft, a shell mainly surrounding said knob body and locating element and having a threaded sleeve on one end threadedly engageable with the threads of said shaft, the other end of said shell being flared for receiving said knob body, means for rotatively securing said flared end of said shell and said knob body against relative axial displacement, said locating element including a laterally extending abutment engageable with the free extremity of the longer of said legs for holding said knob and shaft against assembly with said indicia in an inverted position.

8. A knob for attachment to a shaft having

a threaded intermediate section and an adjacent bifurcated end portion having a slot therein, said knob comprising a knob body including a front indicia bearing member and a rearwardly projecting locating element fixed to said indicia bearing member and receivable in said slot for positively locating the indicia in a predetermined arrangement with respect to said shaft, a shell mainly surrounding said knob body and locating element and having a sleeve on one end threadedly engageable with the threads of said shaft, the other end of said shell being flared for receiving said knob body, and means for

rotatively securing said flared end of said shell and said knob body against axial movement.

THOMAS R. KILGOUR.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,930,783	Watson	Oct. 17, 1933
2,507,392	Williams	May 9, 1950