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CONTROL MEANS FOR CLOCKS AND THE LIKE

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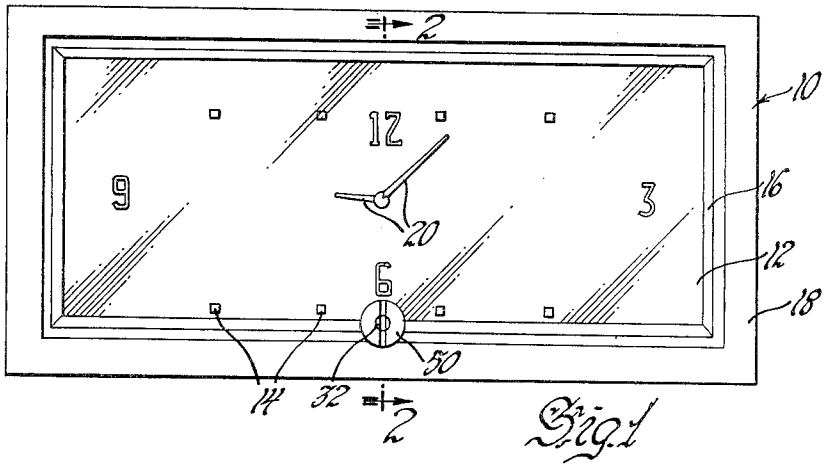


Fig. 1

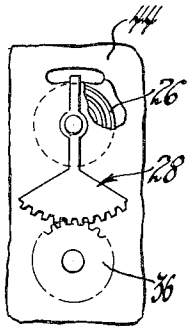


Fig. 3

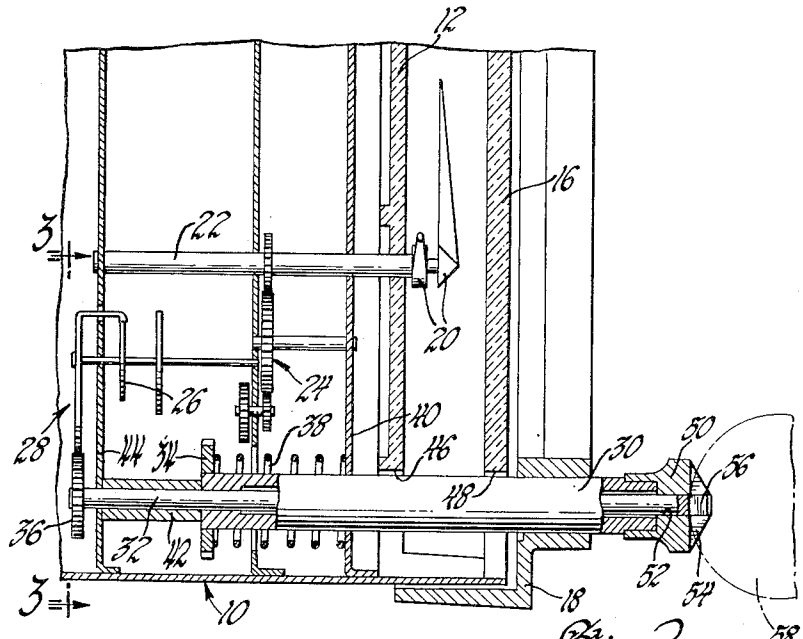


Fig. 2

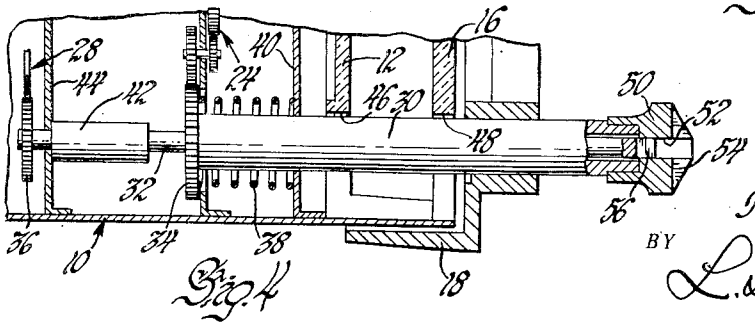


Fig. 4

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CONTROL MEANS FOR CLOCKS AND THE LIKE

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12 Claims. (Cl. 58—109)

This invention relates to control means and particularly such means adapted for use with clocks mounted upon the instrument panel of a vehicle in a manner whereby the rear side of the clock is inaccessible.

Although a clock may be automatically operated and thereby require no manually operated controlling means, it is still necessary that means be provided for setting the clock and for regulating the speed thereof. With clocks which are mounted in a manner making the back side thereof inaccessible, it is desirable that setting and regulating control means be accessible from the front of the clock. It is also desirable that such means be conveniently disposed, compactly arranged and each be adjustable without interference with the setting of the other.

It is here proposed to provide coaxial and concentrically disposed shafts separately adapted for adjusting clock setting and regulating mechanism or the like. It is proposed to have the adjustment means more frequently used disposed about the other adjustment means in an unobstructing manner; for example, in a clock, to have the shaft used to set the clock disposed concentrically about the shaft used to regulate the speed setting thereof. It is further proposed to have the control means more frequently used normally biased out of engagement with the mechanism it is its purpose to control and to have the other control means intentionally accessible only when the first-mentioned control means is so disengaged. It is proposed to provide concentrically disposed control shafts having the innermost shaft withdrawn within and spaced from the end of the outer shaft and to have both shafts adapted to control their respective mechanisms only when the other shaft is in an inoperative position.

In the drawings:

Figure 1 is a front view of a clock embodying the present invention.

Figure 2 is an enlarged partial cross-sectional view of the clock of Figure 1 as taken in the plane of line 2—2 and looking in the direction of the arrows thereon.

Figure 3 is an end view of the clock regulating means shown in Figure 2 taken in the plane of line 3—3 and looking in the direction of the arrows thereon.

Figure 4 is similar to Figure 2, showing the clock setting means as engaged with its controlled mechanism.

The clock shown in the drawings is of the type adapted to be mounted upon the instrument panel of a vehicle in a manner making the back side of the clock not readily accessible.

The clock includes a casing 10 having a dial face member 12 disposed at the front side thereof with suitable time indicating indicia 14 provided thereon. A cover glass 16 is disposed over the dial face 12, in spaced relation thereto, and an ornamental cover glass retainer ring 18 is engaged around the edges of the cover glass and to the casing 10 in a conventional manner.

Clock hands 20 are disposed between the dial face 12 and cover glass 16 and are secured to a shaft 22 mounted within the casing 10 and extending through the dial face.

Suitable hand-setting mechanism, such as the gear train 24 shown, is mounted within the casing 10 in a conventional and well-known manner. Also disposed within the casing 10 is suitable clock operating mechanism including a hairspring member 26 engaged by clock speed regulating mechanism 28. The means used to operate the clock other than the hairspring 26 being well-known and generally recognized has not been here shown.

A pair of coaxial and concentrically disposed shafts 30 and 32 are mounted within the casing 10 with the innermost shaft 32 extending beyond one end of the other shaft 30. Both shafts 30 and 32 include gear members 34 and 36, respectively, provided upon the ends thereof for control engagement with the clock hand-setting and speed regulating mechanisms, 24 and 28 respectively. The outer tubular shaft 30 including the gear means 34 adapted for engagement with the hand-setting mechanism 24 is biased out of engagement therewith by spring means 38 engaged between the gear member 34 and a wall 40 provided within the clock casing 10. The end of a spacer sleeve 42 disposed about the control shaft 32, and engaging another wall 44 provided within the clock casing 10, limits the biased travel of the tubular control shaft 30.

The concentrically disposed shafts 30 and 32 extend through openings 46 and 48 provided within the dial face 12 and cover glass 16, respectively, towards the front side of the clock. The shafts are also here shown as extended through the ornamental cover glass retainer 18.

A control knob 50 is provided upon the end of the outer tubular shaft 30 and is formed to include a central opening 52 therethrough permitting access to the clock speed regulating control shaft 32. The inner shaft 32 will be noted to be withdrawn within and spaced apart from the end of the outer shaft 30, as including the control knob member 50. A tool receiving access, preferably a coin slot 54 is provided within the end of the shaft 30 and tool receiving means, preferably another coin slot 56, is provided upon the end of shaft 30.

The tool receiving access 54 provided within the control knob 50 is preferably of a depth permitting access to the tool receiving means 56 of the inner shaft 32 only when the outer shaft 30 is disengaged from the clock hand-setting mechanism 24. Where the tool receiving access 54 and means 56 are similar coin slots a coin 58, shown in phantom in Figure 2, may be used as a tool to control the inner shaft when the outer shaft is disengaged as aforesaid.

The clock hands 20 may be reset by gasping the knob 50 and pulling on shaft 32 outward from the face of the clock to engage the gear 34 upon the inner end thereof with the hand-setting mechanism 24 and by rotating the knob as required. During the setting of the clock hands 20 the tubular shaft 30 is rotated about the inner shaft 32 without interference therewith.

When it is desired to regulate the speed of the clock, a tool, here coin 58, is inserted within the receiving slot 54 provided within the knob 50 and in engagement with the tool receiving slot 56 formed within the end of the inner shaft. Although the coin 58 locks together the outer and inner shafts 30 and 32 for simultaneous rotation, the rotation of the outer shaft 30 does not affect the hand-setting mechanism 24 since the gear member 34 is disengaged therefrom by the biasing spring member 38 and thus permits adjustment of the clock speed regulating mechanism 28 without interference with the hand-setting mechanism.

It will be appreciated that the concentrically disposed control means here disclosed may be used elsewhere than within a clock and that the means disclosed provide for separate adjustment of different mechanisms without interference or obstruction to other mechanism controlled

by the other of the concentrically disposed controlling shaft means.

What is claimed is:

1. Control means for mechanisms requiring separate regulation including, concentrically disposed shafts having each shaft disposed for operative control of different of said mechanisms, and means engaged with and provided upon said shafts permitting operative control adjustment of said shafts only when the other thereof is inoperatively disposed.

2. Control means for separate mechanisms requiring regulation including, concentrically disposed shafts having one of said shafts engaged with its mechanism, means biasing the other of said shafts out of engagement with its respective mechanism, separate regulating means provided upon adjacent ends of said shafts, one of said regulating means being removed within the other of said regulating means and being accessible only when said other shaft is disengaged as aforesaid and being inaccessible when said other shaft is engaged.

3. Control means as provided for in claim 2 wherein said one regulating means includes a coin slot and said other regulating means includes a knob having a coin slot formed transversely therethrough to a depth permitting access to said first-mentioned coin slot of said one shaft when said other shaft is in a disengaged position as aforesaid.

4. A clock including clock regulating and setting means, coaxial shafts concentrically disposed and separately adapted to operatively control different of said named means, means biasing one of said shafts out of engagement with one of said named means, the other of said shafts being so disposed with respect to said one shaft to be accessible for control of the other of said named means only when said one shaft is disengaged as aforesaid.

5. A clock as provided for in claim 4 having said one shaft concentrically disposed and removed within said other shaft from other than intentional regulation.

6. A clock as provided for in claim 4 having said one shaft concentrically disposed and removed within said other shaft, said shafts having separate control means provided upon the ends thereof, the control means of said one shaft being accessible only through said other shaft and being undisturbed by regulation of said other shaft.

7. A clock including a casing, a dial face provided with an aperture therethrough, hands movable over said dial, means within said casing for regulating the speed of said clock, means within said casing for setting said hands, a tubular shaft operatively disposed for engagement with said setting means and extended through said aperture, and a second shaft concentrically disposed within said tubular shaft and engaged with said regulating means, said shafts both being operable from the front of said dial face for adjusting said regulating and setting means respectively.

8. A clock as provided for in claim 7 including having said second shaft spaced within the end of said tubular shaft and each of said shafts formed to include tool receiving means within the ends thereof.

9. A clock as provided for in claim 7 including an operating knob provided upon the end of said tubular shaft and formed to permit access to said second shaft therewithin, said second shaft being spaced within the end of said tubular shaft and including tool receiving means provided upon the end thereof and accessible only when said tubular shaft is disengaged from said setting means.

10. A clock including a casing, a dial face and a cover glass assembled together, a pair of concentrically disposed coaxial shafts mounted within said casing and extended through openings provided through said dial face and cover glass, clock regulating and setting means disposed within said casing for separate operative engagement by different of said shafts, means biasing the outermost of said concentric shafts out of engagement with one of said named means, and means provided upon the end of the other of said shafts for controlling the other of said named means and which is accessible only when said outermost shaft is disengaged.

11. A clock as provided for in claim 10 having one end of one of said shafts withdrawn within the other of said shafts and including a coin slot formed within said one end thereof accessible only when said other shaft is disengaged from said other named means.

12. A clock as provided for in claim 10 having one end of the innermost of said shafts withdrawn within said outermost shaft, said shafts including separate regulating means including a coin slot formed within said one end of said innermost shaft and the other of said shafts including a knob having a coin slot provided therein to a depth permitting access to said first-mentioned coin slot only when said other shaft is disengaged as aforesaid.

No references cited.