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TIME INTERVAL INDICATING DEVICE

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Fig. 1.

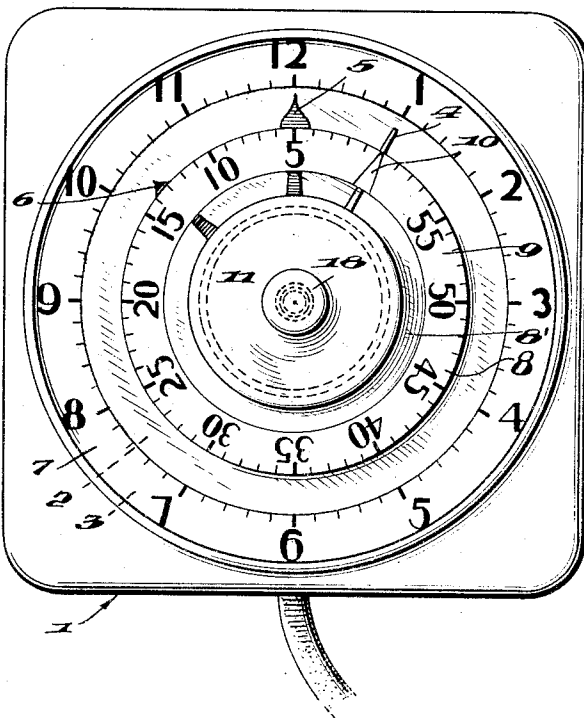
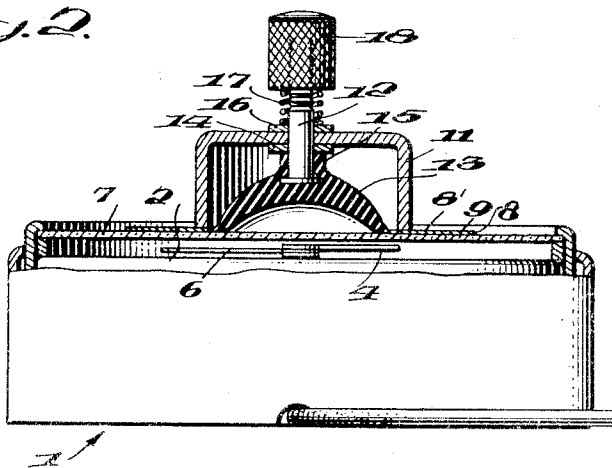


Fig. 2.



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TIME INTERVAL INDICATING DEVICE

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12 Claims. (Cl. 58—57)

This invention relates to time interval indicating devices for clocks, watches and the like, additional to and functioning independently of the usual instrument face.

An object of the invention is to provide a time indicating device auxiliary to the face of a clock or the like, which will indicate at a glance when a predetermined interval of time has elapsed.

Another object of this invention is to provide a time measuring device for clocks or the like which will indicate at a glance an amount of elapsed time.

Another object of the invention is to provide a device of the type indicated to be mounted on the face crystal of a clock, and which can be selectively rotated independently of the crystal and other parts of the clock.

Another object of the invention is to provide a time interval indicating device which may be readily attached to, and detached from, a clock or the like.

Still another object of this invention is to provide a time interval indicating attachment for use in conjunction with any type of household clock, watch, or the like, regardless of the style, shape or size of the clock, or the contour of the face of the clock.

Another object of this invention is to provide a time interval indicating device which is easily adjusted, and which will stay in its adjusted position until it is desired to again adjust the same.

Another object of the invention is to provide a time interval indicating device which may be attached to any clock, or the like, wherein it is unnecessary to alter or add to the construction of the clock.

With the foregoing and other objects in view, this invention embodies the feature of the construction, combination and arrangement of parts as will hereinafter more fully be described in detail, illustrated in the accompanying drawing, which discloses the preferred embodiment of the invention, and set out in the claims appended hereto.

In the drawing:

Fig. 1 is a plan view of a clock showing the subject-matter of this invention attached at the face thereof;

Fig. 2 is a side view corresponding to Fig. 1, partly in section, and partly in elevation.

Referring now to the drawing, reference numeral 1 generally indicates a clock which may be of any known make or size. The clock is provided with the usual face 2 with a standard scale 3, second hand 4, minute hand 5 and hour hand 6.

The hands 4, 5 and 6 are mounted at the center for rotation about the face 2 upon shafts (not shown) in the usual manner. A glass cover 7 overlies the face.

The device of the invention consists of a rotatable dial member generally designated by the reference numeral 8 mountable concentric with, and capable of rotation relative to, clock face 2. Such dial member includes a scale bearing portion 8' having thereon a scale 9, and having a central portion 11. For reasons hereafter to be explained the dial member 8 preferably is so formed as to provide a hollow housing extending outwardly from the side of the dial member opposing the clock face. In the form of the invention shown, but not necessarily, the scale bearing portion 8' of the dial member is flat and may be made of relatively rigid material such as sheet metal or a transparent stiff material such as Celluloid, and in such case the hollow housing area of the dial member is formed merely by making the central portion 11 thereof hollow. The dial member will ordinarily be made sufficiently small in diameter that the outer periphery of the scale bearing portion 8' thereof will lie entirely inside of scale 3 of the clock face, and preferably also will be of such dimensions that the hands of the clock will project outwardly beyond portion 8', so as not to interfere with the reading of the hands against clock scale 3. However, when scale bearing portion 8' is transparent such restrictions do not apply since the inner portions of the hands will appear through scale bearing portion 8' inside of scale 9. Where portion 8' is transparent, an opaque backing may be provided for scale 9 as shown.

Scale 9 will be graduated according to the clock hand which is to be read thereon. In the form shown it is graduated counter-clockwise from 0 to 60 and may be used either with the second hand 4 to show seconds, or with the minute hand 6 to read minutes. An arrow 10 is inscribed in lieu of the 0, 60 graduation. The scale numerals may run clockwise, or, as shown, counter-clockwise.

Dial 8 is mounted for rotation over the clock face so that any graduation may be quickly brought into registry with one of the hands while the clock is running.

The central portion 11 of the dial member preferably takes the form of a raised hub rigid with the scale bearing portion 8', and the same will serve as a turning knob for rotative adjustment of the dial member. Hub portion 11 may be integral with scale bearing portion 8' or, as

shown, may be separately formed and secured thereto.

The mounting for the dial member is of such character that the whole auxiliary structure device may be readily attached to and detached from a clock or watch. Extending axially of the hub member is a supporting shaft 12 upon which the dial member is rotatable. At the lower end of the shaft is a securing member, preferably in the form of a suction cup and adapted to secure the whole assembly to the face crystal or cover 7 at the center of the clock. Dial member 8 as previously mentioned is so formed as to provide a hollow housing facing the underside thereof, and this is for the purpose of receiving the suction cup 13. The suction cup housing is in the illustrative embodiment confined to the central hub portion 11 of the dial member since the scale bearing portion 8' is of flat sheet material. As will be observed in Fig. 2, the central area of the scale bearing portion 8' is cut out so as to leave the suction cup housing open at the underside of the dial member which faces cover 7 of the clock.

In order that dial 8 may be positioned against or in proximity to cover 7, the suction cup and shaft 12 are made axially adjustable in hub portion 11. A washer 14 is loosely mounted on shaft 12 between hub portion 11 and the stop formed by the upper end 15 of the suction cup 13, and a similar washer 16 engages the upper side of the hub portion. A spring 17 acting against washer 16 serves to normally hold the assembled parts against the upper end 15 of the suction cup. A small knurled knob 18 may be provided at the upper end of the shaft 12, and serve to hold the upper end of the spring. By depressing shaft 12 axially of the hub portion 11 the suction cup may be forced into suction engagement with cover 7. Thereafter spring 17 will hold the dial 8 against cover 7.

Due to the tension of the spring 17 between the knob 18 and the washer 16, the portion of the hub 11 surrounding the central bore therein is frictionally held between the washers 15 and 16. This frictional engagement is not sufficient to prevent rotation of the hub 11 about the shaft 12 when the hub 11 is manually turned, but the same is enough to prevent the hub from accidentally rotating.

The inventive device in cooperation with a clock hand is useful for indicating, by direct reading, intervals of elapsed time. It can be adapted to show expiration of predetermined intervals, to measure intervals required for completion of acts, or both, depending on the arrangement of its time indicating scale. For the former purpose it is preferable to use a scale running counter-clockwise on dial 8. With such arrangement, let it be assumed that the time interval is twenty seconds. The dial member 8 is rotated through hub portion 11 thereof until the numeral 20 of scale 9 is opposite the then position of second hand 4. When hand 4 has rotated to a position opposite the arrow on scale 9 this will indicate that the interval has expired. Inasmuch as the dial is rotatable the measurement may be commenced regardless of the position of the clock hand.

The measurement of a predetermined time interval may also be made employing a scale on dial 8 running clockwise. In this case the arrow 10 on the scale will initially be brought into registry with the clock hand, and if the time interval to be measured is again twenty seconds, the period will be completed when the hand reaches

the position opposite numeral 20 of the dial scale. The second form of scale is preferably also used for measuring the length of elapsed time, following the procedure just mentioned.

It will readily be seen that the time interval indicating device may be easily and quickly attached to any type of clock face, whether the cover is in a flat form, as shown in the illustrated drawing, or whether the same is of slightly rounded contour; and the device may be quickly detached from the face of the clock, when the device is not in use. Also, as the dial 8 coacts with only the hands of the clock, variations in shape and size of the clock face have no significance whatsoever, and the device is therefore adapted for use with clocks and watches of varying form interchangeably.

While the invention has been shown in connection with a household clock, it will be readily understood that the device may also be secured to the crystal of a watch or any other mechanical or electrical time piece. If the watch, upon which the device is to be mounted, is particularly small it is desirable that the dial 8 have a transparent portion within scale 9 through which the hands of the watch may be seen.

As will readily be seen, the illustrated mounting of the inventive device in no way injures a watch or clock in securing the same thereon, and it is unnecessary to alter or add to the construction of the watch or clock face.

While one embodiment of the invention has been shown and described, it is to be understood that various modifications thereof may be apparent to those skilled in the art without departing from the spirit and scope of this invention, and, therefore, the same is only to be limited by the scope of the prior art and the appended claims.

We claim:

1. A time interval indicating device for clocks and the like including a rotatable dial member bearing a graduated auxiliary time interval scale, said dial member being rotatably settable to bring a selected starting graduation of the auxiliary scale to registry with a hand of the clock in any hand position and indicating elapsed time by movement of the clock hand along the dial member to registry with succeeding graduations of said auxiliary scale, a central opening in the dial member, a suction cup supporting the dial member for rotation projecting above the underface of the dial member and located in said central opening, and mounting means interconnecting the dial member and suction cup and supporting the suction cup for axial movement relative to the dial member.

2. A time interval indicating device for clocks and the like including a rotatable dial member bearing a graduated auxiliary time interval scale, said dial member being rotatably settable to bring a selected starting graduation of the auxiliary scale to registry with a hand of the clock in any hand position and indicating elapsed time by movement of the clock hand along the dial member to registry with succeeding graduations of said auxiliary scale, a central portion rigid with and projecting above the scale bearing portion of the dial member, a central shaft rotatably supporting the dial member and being movable axially relative to the dial member, and a suction cup on said axially movable shaft for supporting the dial member centrally over the face of the clock.

3. A time interval indicating device for clocks

and the like including a rotatable dial member bearing a graduated auxiliary time interval scale, said dial member being rotatably settable to bring a selected starting graduation of the auxiliary scale to registry with a hand of the clock in any hand position and indicating elapsed time by movement of the clock hand along the dial member to registry with succeeding graduations of said auxiliary scale, a hollow hub portion on said dial member, and mounting means for rotatably supporting said dial member including a suction cup housed within said hollow hub portion and adapted to support said dial member centrally over the face of the clock.

4. A time interval indicating device for clocks and the like including a rotatable dial member bearing a graduated auxiliary time interval scale, said dial member being rotatably settable to bring a selected starting graduation of the auxiliary scale to registry with a hand of the clock in any hand position and indicating elapsed time by movement of the clock hand along the dial member to registry with succeeding graduations of said auxiliary scale, a hollow hub portion on the dial member, a suction cup for supporting the dial member seating in the hollow hub portion, the hub member being movable rotatably relative to the suction cup and said suction cup being movable axially relative to the hub portion, yieldable means resisting relative movement between the hub portion and suction cup, and means for depressing the suction cup axially relative to the hub portion.

5. In a clock having a scale bearing face, hands coactive with the scale and a transparent cover overlying the face and hands, a rotatable dial member having an annular wall portion adjacent its rim bearing a graduated auxiliary time interval scale, said dial member being rotatably settable to bring a selected starting graduation of the auxiliary scale to registry with a hand of the clock in any position of said hand relative to the clock free scale and indicating elapsed time by movement of the clock hand along the dial member to registry with succeeding graduations of said auxiliary scale, said dial member being sufficiently smaller in diameter than the clock face as to lie entirely inside of the clock face scale and leave the outer ends of the clock hands exposed beyond the rim of the dial member for easy reading of one of the clock hands against the auxiliary scale of the dial member without interfering with the reading of the clock hands against the clock face scale, a central shaft member for rotatably securing the dial member to the transparent cover of the clock, means carried by the shaft member securing the same to said cover with the clock hand axis concentric with the axis of the dial member, and a turning knob mounted on the shaft and rigid with the scale bearing dial portion for rotating the dial member.

6. A time interval indicating device for clocks and the like including a rotatable dial member bearing a graduated auxiliary time interval scale, said dial member being rotatably settable to bring a selected starting graduation of the auxiliary scale to registry with a hand of the clock in any hand position and indicating elapsed time by movement of the clock hand along the dial member to registry with succeeding graduations of said auxiliary scale, a mounting including a stationary shaft rotatably mounting the dial member, means on the shaft for securing the

same to the transparent cover of a clock with the clock hand axis concentric with the axis of the dial member, and a turning knob rotatable on the shaft and rigid with the scale bearing dial portion for rotating the dial member.

7. A time interval indicating device for clocks and the like including a rotatable dial member bearing a graduated auxiliary time interval scale, said dial member being rotatably settable to bring a selected starting graduation of the auxiliary scale to registry with a hand of the clock in any hand position and indicating elapsed time by movement of the clock hand along the dial member to registry with succeeding graduations of said auxiliary scale, a central hub portion rigid with the scale bearing portion of the dial member projecting upwardly above, and being surrounded by said scale bearing portion, said hub portion forming a turning knob for rotating the dial member, a shaft carried by and extending centrally of the hub portion, and a suction cup mounted on the shaft for rotatably securing the dial member to the transparent cover of a clock.

8. A time interval indicating device for clocks and the like including a rotatable hollow dial member bearing a graduated auxiliary time interval scale, said dial member being rotatably settable to bring a selected starting graduation of the auxiliary scale to registry with a hand of the clock in any hand position and indicating elapsed time by movement of the clock hand along the dial member to registry with succeeding graduations of said auxiliary scale, a suction cup housed interiorly of the hollow dial member for securing the dial member to the transparent cover of a clock, and connecting means mounting the dial member for rotation on the suction cup.

9. A time interval indicating device for clocks and the like including a rotatable dial member bearing a graduated auxiliary time interval scale, said dial member being rotatably settable to bring a selected starting graduation of the auxiliary scale to registry with a hand of the clock in any hand position and indicating elapsed time by movement of the clock hand along the dial member to registry with succeeding graduations of said auxiliary scale, and suction cup means for rotatably supporting the dial member centrally of the transparent cover of a clock, said dial member having a hollow portion at its underside providing a housing surrounding the suction cup means.

10. A time interval indicating device for clocks and the like including a rotatable hollow dial member, said dial member including a hub portion adapted to be grasped to rotate the dial and a surrounding rim portion bearing a graduated auxiliary time interval scale, said dial member being rotatably settable to bring a selected starting graduation of the auxiliary scale to registry with a hand of the clock in any hand position and indicating elapsed time by movement of the clock hand along the dial member to registry with succeeding graduations of said auxiliary scale, and a suction cup mounted in the hollow dial member concentric therewith and adapted to rotatably secure the dial member centrally of the transparent cover of a clock.

11. A time interval indicating device for clocks and the like including a rotatable dial member bearing a graduated auxiliary time interval scale, said dial member being rotatably settable to bring a selected starting graduation of the auxiliary

scale to registry with a hand of the clock in any hand position and indicating elapsed time by movement of the clock hand along the dial member to registry with succeeding graduations of said auxiliary scale, the dial member being formed with a hollow opening at the underside thereof providing a housing, a suction cup mounted in said housing and adapted to rotatably secure the dial member to a clock, means for depressing the suction cup axially relative to the dial member and spring means resisting relative axial movement between the suction cup and the dial member.

12. A time interval indicating device for clocks and the like including a rotatable dial member bearing a graduated auxiliary time interval scale, said dial member being rotatably settable to bring a selected starting graduation of the auxiliary

scale to registry with a hand of the clock in any hand position and indicating elapsed time by movement of the clock hand along the dial member to registry with succeeding graduations of said auxiliary scale, and a central raised hub portion rigid with and surrounded by the scale bearing portion of the dial member adapted to be grasped to rotate the dial member, supporting means for the dial member including a central shaft connecting with the hub portion and rotatably supporting the dial member, a suction cup mounted on said shaft adapted to support said shaft centrally of the face of the clock, and friction means on said shaft for preventing accidental rotation of the dial member.

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