

Sept. 26, 1939.

J. B. SCHROEDER

2,174,331

CONTROL CLOCK

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Fig. 1.

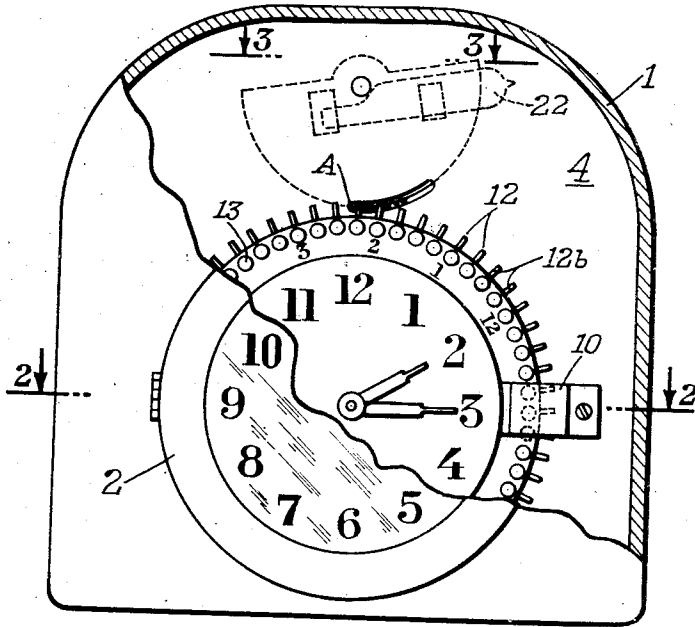


Fig. 3.

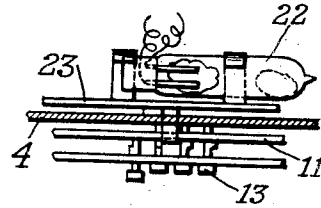


Fig. 5.

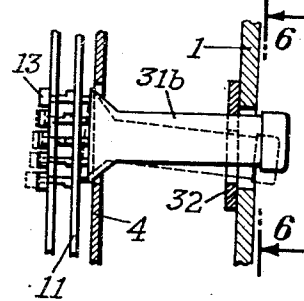


Fig. 6.

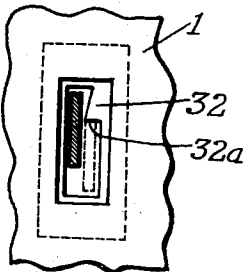


Fig. 2.

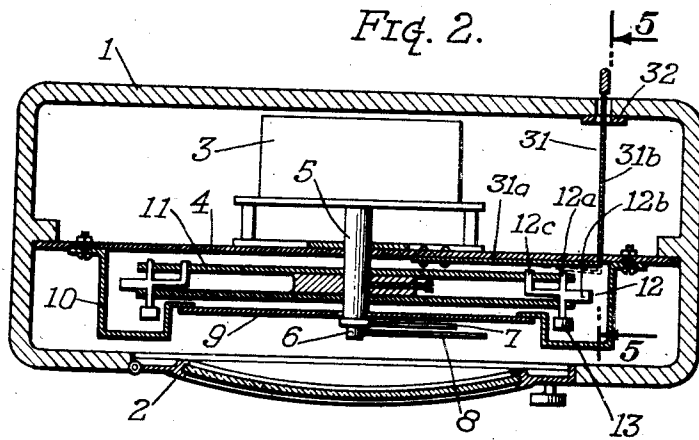
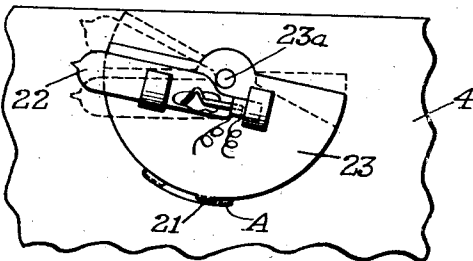


Fig. 4.



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CONTROL CLOCK

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3 Claims. (Cl. 200—38)

My invention relates to a control clock for controlling the time of operation of radios, stoves, or other equipment.

One of the principal objects of this invention is to provide a simple means for periodically controlling a time switch, and one which produces no appreciable resistance to the clock mechanism employed in operating said means.

An important object also is the provision of such means in which there is no appreciable wear of the moving parts.

Another important object is to provide simple means for automatically returning manually shiftable keys to their inoperative positions after having performed their desired functions.

A further object is to provide a novel clock case whereby the keys, for setting the mechanism to operate at predetermined times, may be wholly enclosed, hidden from view and protected from dust.

With these and other objects in view, as will appear hereinafter, I have devised a control clock embodying such novel features and construction, as will be hereinafter described in detail and particularly set forth in the appended claims, reference being had to the accompanying drawing and to the characters of reference thereon, which form a part of this application, in which:

Fig. 1 is a fragmentary front elevation of a clock embodying my invention, with a portion of the clock case and bezel broken away to facilitate the illustration;

Fig. 2 is a sectional view thereof taken through 2—2 of Fig. 1;

Fig. 3 is a fragmentary section taken at 3—3 of Fig. 1, showing in plan the pivotal switch;

Fig. 4 is a rear elevation of the pivotal switch showing by dotted lines its position of rest and its extreme raised position;

Fig. 5 is a fragmentary elevation of the key resetting means; and,

Fig. 6 is a fragmentary rear elevation thereof showing by dotted lines the shifted position of the key resetting means.

The clock is shown enclosed in a case 1 having a hinged bezel 2 at the front side. The clock mechanism, designated generally as 3, is supported on the back of a plate 4. The concentric hour and minute shafts 5 and 6, respectively, extend forwardly through the plate 4, the shaft 5 being tubular and positioned around the shaft 6. These shafts carry hands 7 and 8 respectively which move over a dial 9. This dial is supported, preferably at diametrically opposite edges, by forwardly off set brackets 10, on the plate 4.

On the hour shaft 5 between the plate 4 and the dial 9 is mounted a double flanged spool or disc 11, which is of larger diameter than the dial. At the peripheral portions of the two spaced flanges of the disc are a plurality of movable keys 12.

Each key has a longitudinal portion 12^a which is shiftable mounted at its opposite ends in the opposite flanges of the disc. The front end extends through the front flange and has on said end a button 13 for shifting the key in or out. Intermediate the ends of the portion 12^a, and between the flanges of the disc, is a dog 12^b which extends radially outwardly with respect to the disc. At the radially inner side of the key is an arm 12^c which is mounted in one of the flanges to retain the key from turning when the dog encounters an obstruction, as will be described hereafter.

In the structure illustrated, each hour is divided into quarter hour contacts, necessitating the provision of forty-eight keys and buttons. These keys are labelled with hour designations similar to the dial, but unnumbered counterclockwise. The number designation of the key engaging the finger 21 of the pivotal switch 22 corresponds with the time of the clock.

The pivotal switch illustrated is a mercury switch mounted on a carrier plate 23 which is pivoted at 23^a. This plate 23 is provided at its lower portion with the finger 21 which is adapted to be engaged by the dogs 12^b of the keys for tilting the mercury switch about its pivot axis and thereby closing the switch at a designated time.

The operation of the control means is briefly as follows:

It is assumed that the keys are all out or forwardly from the disc. When the bezel is open the desired keys are pushed in. This places the dogs of the selected keys in a rear plane or in an arcuate path to engage the forwardly projecting finger 21 when the particular key is rotated by the clock mechanism to such position. The key is adapted to engage the finger and shift the same slightly in order to tilt the same and close the switch. The switch continues to be tilted until the propelling key has progressed a quarter ($\frac{1}{4}$) hour, when the switch carrier plate 23 will fall back to its farthest position, designated A, unless the following key has been forced in, in which event the finger will fall back only to the following dog and continue the closed position of the switch.

I have provided means for automatically forcing

ing the keys forwardly or out of the path of the finger 21. Such means may consist of a lever 31 which in this instance is a thin metal plate bent at right angles. One leg 31^a is fastened to the forward side of the plate 4 and the other leg 31^b extends backwardly through the plate and through a notched member 32 in the rear wall of the case. As the rear leg or lever portion 31^b is forced down below the notch 32^a in the notched member 32, the forward leg 31^a is distorted, as shown by dotted lines, forming an inclined surface in the path of the rotating keys, which forces the keys forwardly to inoperative positions.

Though I have shown and described a particular construction, I do not wish to be limited to the same, but desire to include in the scope of my invention, the construction, combination, and arrangement substantially as set forth in the appended claims.

I claim:

1. In a control clock, a clock mechanism, a disc rotatable thereby, keys movable mounted on the disc and shiftable into different arcuate paths, a pivotal switch having a finger adapted to be engaged by the keys shifted into the path of the finger for tilting the switch and closing the same, and a manual control means adapted, when actuated, to be shifted into the path of the moving keys whereby the latter are automatically shifted out of the path of the engaging finger of the switch.

2. In a control clock, a clock mechanism having a stationary dial and time designations, a disc rotatable by the mechanism in timed relation to the time designations on said dial, keys manually movably mounted on the peripheral portion of the disc, said keys having dogs arranged to move in an arcuate path and shiftable forwardly or rearwardly with respect to the disc, a pivotal switch having a finger adapted to be engaged by the dogs shifted into the path of the finger for tilting the switch and closing the same, and a manual control means adapted, when actuated, to be shifted into the path of the moving dogs whereby the latter are automatically shifted out of the path of the engaging finger of the switch.

3. In a control clock, the combination with a clock mechanism having a dial, an hour shaft, and an hour hand for the dial, of a disc located behind the dial and mounted on and rotatable with the hour shaft, keys reciprocally mounted at the periphery of the disc parallel with the axis thereof, means for shifting the keys in a forward or rearward plane, a pivotal switch having a finger adapted to be engaged by the keys when the latter are shifted in one plane for tilting the switch and thereby closing the same, and manual control means adapted, when actuated, to be shifted into the path of the moving keys, whereby the latter are automatically shifted out of the plane of the engaging finger of the switch.

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