This invention relates to time controlled devices, and more particularly to a clock-controlled device for operating electrical appliances at a desired time.

A main object of the invention is to provide a novel and improved circuit controller adapted from a conventional electric alarm clock, said circuit controller comprising very simple parts, being easy to install and being very reliable in operation.

A further object of the invention is to provide an improved time controlled circuit device which includes a conventional electric clock as the time controlling structure, said clock having associated therewith a plurality of electrical outlets into which the devices to be controlled are plugged, the device being inexpensive to manufacture, compact in assembly and efficient in performance.

Further advantages and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings, wherein:

Figure 1 is a front elevational view of a circuit control device according to the present invention, said device being shown partly broken away to disclose interior structural details.

Figure 2 is a side elevational view, with parts broken away, of the control device of Figure 1.

Figure 3 is a schematic circuit diagram of the control device of Figure 1.

Figure 4 is a fragmentary enlarged detail view showing the relationship of the parts when the ringer arm is in its upper vibrating position.

Referring to the drawings, 11 designates a vertical face plate or mounting plate for the control device, said plate being of plastic or similar suitable material. Secured to plate 11 and supported rearwardly thereof is a conventional electric clock housing 12 having its front face 13 positioned in and exposed through plate 11. Also provided in plate 11 are a pair of electrical outlets 14, 14 connected in parallel to the power supply lines through the contacts of a double-pole single-throw relay 15 which is mounted on the upper portion of clock housing 12 behind plate 11.

Contained within clock housing 12 is a conventional electric alarm clock mechanism which includes a resilient ringer arm 16 formed with a depending lug member 17 which cooperates with an adjustable notched cam disc 18. Lug member 17 is of magnetic material and cam disc 18 is rotated by the clock mechanism into a position wherein lug member 17 drops into the notch in cam disc 18, whereupon the alternating magnetic flux imparts a vibratory movement to ringer arm 16 thereby ringing the alarm bell of the clock.

In accordance with the present invention the bell ringing feature is eliminated, and instead the energization of the external electrical appliances plugged into outlet sockets 16, 16 is obtained. To this end, a strip of insulating material 15 is secured to arm 16, said strip projecting forwardly of the main body portion of said arm. Loosely secured to strip 15 at 20 and overlying the strip is a forwardly projecting contact arm 21 biassed toward the adjacent strip surface by a cushioning spring 22. Cushioning spring 22 is engaged by a headed securing pin 23 which is secured at its lower end to strip 15, the spring 22 bearing between the head of pin 23 and the upper surface of arm 21. Arm 21 cooperates with a stationary contact arm 24 supported on a suitable insulating bracket member 25 secured to housing 12. Arm 24 is connected by a suitably insulated conductor 26 to one terminal of the winding of relay 15. The other terminal of the relay winding is connected to one of the power supply wires 27 and movable arm 21 is connected to the other power supply wire 28.

Normally contact arm 21 is maintained in separated position from contact arm 24 by the engagement of lug member 17 with the periphery of cam disc 18. When lug member 17 drops into the notch in cam disc 18 as the desired time for operation of the external electrical appliances is reached, contact arm 21 is moved into contact with stationary arm 24 and the energizing circuit for relay 15 is closed. This closes the double pole contacts controlled by relay 15 and connects sockets 11, 14 to power supply wires 27, 28. To de-energize relay 15 before the end of the time period provided by the notch in cam disc 18, the alarm stop button 29 of the clock is manually pushed in, thus raising arm 16 and lug 17 to a held position wherein lug 17 is out of contact with the periphery of disc 18. This also moves arm 21 out of contact with stationary contact arm 24 which de-energizes relay 15.

As has already been stated, the alternating magnetic flux imparts a vibratory movement to ringer arm 16 when the lug member 17 crops into the notch in cam disc 18. Figure 4 shows the position of the parts when the outer end of the ringer arm is in its uppermost vibratory position, the fixed and stationary contacts being engaged. Figure 5 shows the position of the parts when the ringer arm is in its lowest vibratory po-
sition, the spring 22 being compressed against the head 23 by the upward motion of the contact arm 21 away from strip 19, about pivot 29. By this means the fixed and movable contacts are maintained in engagement notwithstanding the vibration of the ringer arm 16 between the positions shown in Figures 4 and 6. It will be seen that the spring 22 thus has a dampening effect upon the vibration of the ringer arm, since the spring must be compressed to permit angular separation of the members 19 and 21 as shown in Figure 5.

Therefore the alarm bell does not ring but instead the devices plugged into sockets 14, 14 are energized. These devices may include radio receivers, electric fans, refrigerators, or the like.

While a specific embodiment of a clock controlled device for operating electrical appliances has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore it is intended that no limitations be placed on the invention other than as defined by the scope of the appended claims.

What is claimed is:

1. A circuit controlling device comprising an electric clock having a resilient ringer arm, a depending lug member carried by said ringer arm, a notched cam disc driven by the clock mechanism, said lug member resiliently engaging the periphery of said disc, a first contact member loosely secured to the upper surface of said ringer arm, a spring biasing said first contact member toward said upper surface, a second contact member which is secured in stationary position in the clock housing and which is normally spaced from said first contact member but which is adapted to be engaged by said first contact member responsive to the entry of said lug member into a notch in the cam disc, said spring being placed under stress responsive to the engagement of the contact members, a relay having an energizing winding, said winding being connected to a power source through said contact members, and an appliance socket having an energizing circuit controlled by said relay.

2. The structure of claim 1, and wherein the relay is mounted on the clock housing.

3. The structure of claim 1, and wherein the relay is mounted on the clock housing and wherein a vertical face plate is provided, said clock housing and said socket being mounted in the vertical face plate.

4. A circuit controlling device comprising an electric clock having a resilient ringer arm, a depending lug member carried by said ringer arm, a notched cam disc driven by the clock mechanism, said lug member engaging the periphery of said disc, a first contact carried by said ringer arm, and loosely connected thereto, spring means constructed and arranged for biasing said first contact toward said ringer arm, a second contact adapted to be engaged by said first contact responsive to movement of said lug member into a notch in said disc, and an outlet socket, said outlet socket being connected to the power supply line through a control circuit adapted to be completed responsive to the engagement of said first contact with said second contact.

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REFERENCES CITED

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

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<thead>
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