June 15, 1954 B. E. CAULK, JR 2,681,443

CURRENT RESPONSIVE SIGNAL

Filed June 8, 1953

Fig. 1

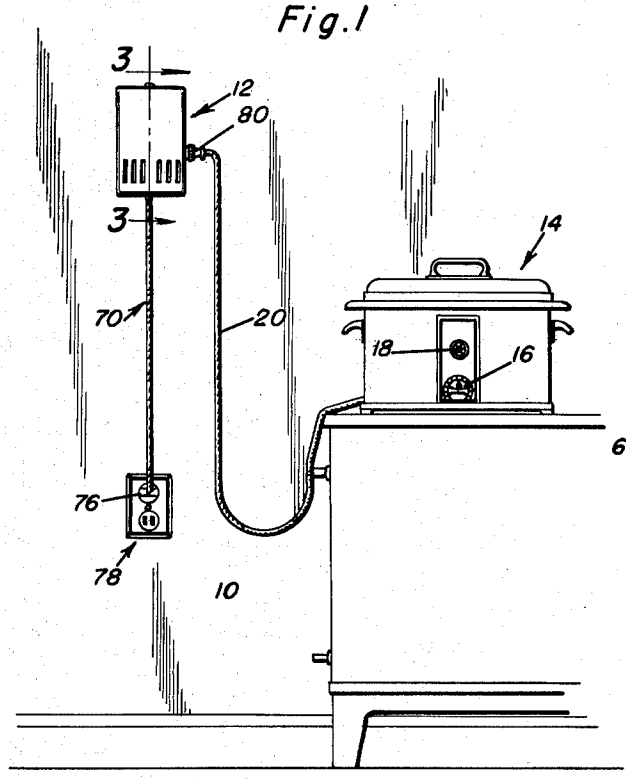


Fig. 2

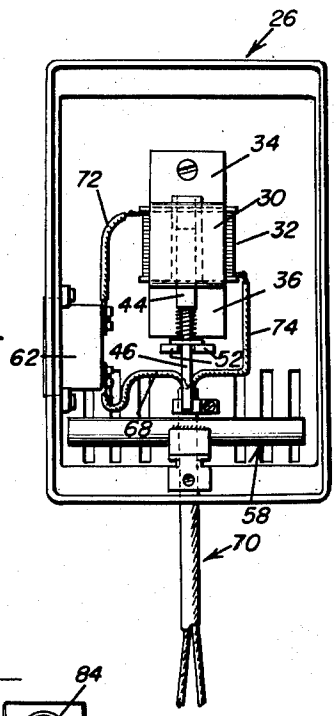


Fig. 3

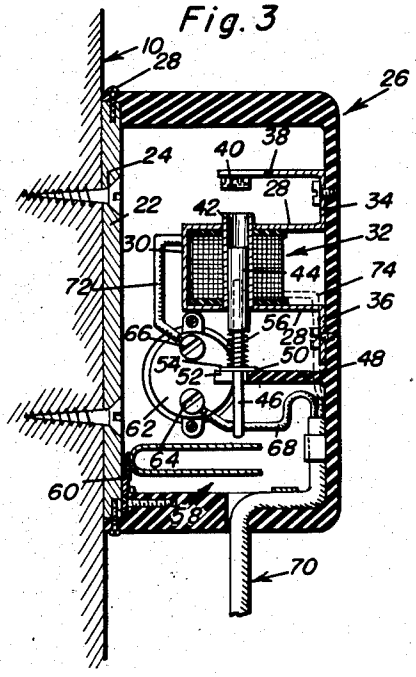
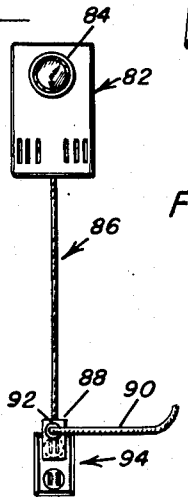


Fig. 4



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CURRENT RESPONSIVE SIGNAL

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5 Claims. (Cl. 340—253)

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This invention relates generally to household appliances and pertains more particularly to an attachment for use with electrical appliances provided with current shut-off mechanisms.

A primary object of this invention is to provide an appliance attachment which incorporates audible signal means actuated in response to de-energization of an appliance with which it is associated.

Another object of this invention is to provide an attachment for producing audible indicating signals in conjunction with household electrical appliances which is simple, yet effective, in construction and lends itself readily to mass production.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout and in which:

Figure 1 is an elevational view of the novel attachment shown in use with a suitable household appliance;

Figure 2 is a plan view of the attachment with its cover removed, showing details of its internal construction on an enlarged scale;

Figure 3 is a transverse vertical section taken substantially along the center line of the attachment, as indicated by the section line 3—3 of Figure 1, the section showing details of the internal construction of the attachment on an enlarged scale; and

Figure 4 is an elevational view of a modified form of attachment.

Referring now more particularly to the drawings, reference numeral 10 indicates generally the wall of a room to which the novel attachment may be conveniently secured, the attachment in its entirety being indicated generally by the reference character 12, while reference numeral 14 indicates generally a household appliance, such as an electrically operated automatic roaster, deep fryer or the like. These appliances are conventionally provided with mechanisms for de-energizing or interrupting the flow of current to the same when the desired operating temperature or condition has been attained, as set, for example, by the control knob assembly 16. Simultaneously with the de-energization of the appliance, it is customary to provide a suitably colored indicating light on the appliance which goes out when the current is shut off. It will be appreciated that this means of indicating the desired operating condition of the appliance is not wholly desirable inasmuch as it requires close scrutiny of the same to ascertain whether or not the indicating light has been de-energized. For this reason, the hereinafter described attachment is to be connected through the suitable lead-in cord 20 of the appliance.

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Referring now more particularly to Figures 2 and 3, the attachment includes the main base plate portion 22 which may be provided with suitable countersunk apertures 24 for the reception of fastening means for securement of this plate portion to any suitable support, such as the wall 10, and a cover 26 is secured by the fastening elements 27 thereto. An angulated bracket plate is secured to the inner surface of the cover 26 and this plate includes a generally U-shaped central portion presenting the vertically spaced horizontally extending legs 28 interconnected by the bight portion 30 between which the electromagnetic coil 32 is sandwiched. The free ends of these legs are provided with right angularly bent feet 34 and 36 which are rigidly secured to the inner surface of the cover, and the upper foot 34 is provided with a stop ear 38 extending parallel to the legs 28 and whose under surface at its free end is provided with a resilient buffer 40 for a purpose presently apparent.

Legs 28 are provided with registering apertures through which a guide sleeve 42 extends, and it will be seen that the outer surface of this sleeve is in frictional engagement with a vertical bore extending through the coil 32 while the inner surface of the sleeve provides a guide for the core 44. In this manner, the sleeve 42 serves not only to properly maintain the coil 32 in position between the legs 28 but also serves as a guide member for the core 44.

Core 44 is longitudinally recessed and receives the upper end of a striker rod 46, there being a tight frictional engagement between these two members. A guide shelf 48 extends inwardly from the front wall of the cover 26 and is notched at its inner end, as indicated by the reference numeral 50, to present bifurcated leg portions 52 which receive the striker 46 therebetween. A washer 54 surrounds the striker and a coil spring 56 is telescopically received on an intermediate portion of the striker member 46 in interposition between the lower end of the core 44 and the upper surface of the washer 54 so that the coil spring will normally maintain the assembly in the position shown in Figure 3. A chime member 58 of elongated U-shaped configuration is

provided at its bight portion with a mounting flange 60 which is suitably secured to the cover 26, this chime member being disposed slightly below the lower end of the striker rod 46 when the latter is in the normal position shown in Figure 3.

An outlet socket 62 is provided on one side of the cover and, as is conventional, this outlet socket is provided with a pair of contact elements 64 and 66, the former of which is connected to a conductor 68 of the inlet wire assembly 70. Contact 66 is connected through the conductor 72 to one side of the coil 32 whereas the other side of the coil is connected through the conductor 74 which constitutes the other conductor of the wire assembly 70.

In operation, the wire 70 is provided with a plug 76 which is inserted into a wall outlet 78 and the plug 80 of the inlet wire 20 of the electrical appliance 14 is connected with the outlet socket 62 of the attachment. Assuming the appliance to be turned to the "on" position, such appliance will draw current through the attachment to energize the coil 32 and elevate the plunger 44 from its normal position shown in Figure 3, the buffer 40 being provided to prevent too great an upward displacement of the plunger. When the appliance has reached its proper operating temperature or condition, its mechanism shuts off the flow of supply current, thus de-energizing the coil 32 and allowing the plunger 44 and striker 46 to fall by gravity to strike upon the chime 58 and produce an audible sound. The spring 56 will, of course, immediately return the striker 46 to its spaced position with relation to the chime so as to allow the latter to freely vibrate and produce a pleasing and lasting tone to call the user's attention to the fact that the appliance has reached its proper operating condition.

Referring now more particularly to Figure 4, a modified form of attachment is shown whose construction is substantially identical to the previously described attachment with the exception that its cover 82 is provided with an electrically operated clock 84, there being no outlet socket in this cover. Instead, the wire assembly 86 is provided with suitable conductors which supply current to the electromagnetic mechanism within the housing of the attachment, and which also constitute supply conductors connected to the combination plug and socket 88 so that the appliance wire 90 may be connected thereto through its plug 92. The member 88 is, of course, provided with suitable prongs for engagement with the conventional wall outlet 94.

From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

What is claimed as new is as follows:

1. In combination with an electric appliance provided with control means for disestablishing electrical input thereto, a signal apparatus comprising a housing provided with an outlet for connection to said appliance, an electromagnetic coil in said housing connected serially with said outlet, a core received in said coil and movable thereby to an elevated position, an audio indicating mechanism in said housing below said core whereby the core will fall by gravity and strike said mechanism when the appliance disconnects its input energy.

2. The combination of claim 1 wherein a guide member is disposed between said coil and said mechanism, guidably receiving said core.

3. The combination of claim 2 wherein said core is provided with an enlarged upper portion, resilient means engaged between said enlarged portion and said guide.

4. The combination of claim 3 wherein said resilient means comprises a coil spring telescopically received on said core.

5. A signal apparatus for electric appliances of the type having temperature responsive input control devices, said apparatus comprising a housing having an electrical outlet for connection to an appliance, an electromagnet coil in said housing connected to said outlet and provided with a movable core, a chime disposed below said core, said core being elevated when said coil is energized whereby the core will strike said chime when the flow of current through said coil is interrupted.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,980,194	Ford	Nov. 13, 1934
2,427,444	Colombo	Sept. 16, 1947
2,582,790	Newell	Jan. 15, 1952
2,592,989	Wilson	Apr. 15, 1952
2,609,431	Faltz	Sept. 2, 1952