

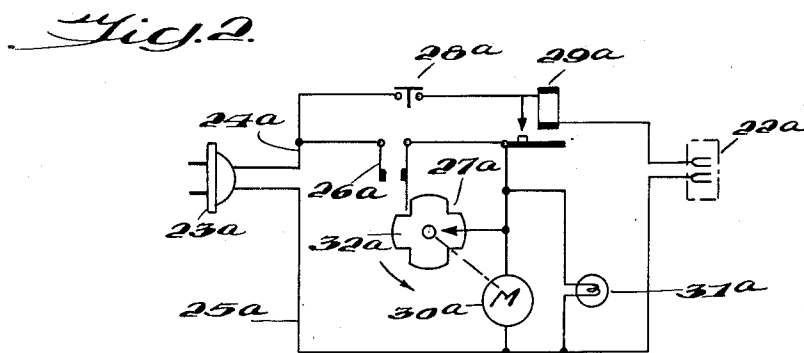
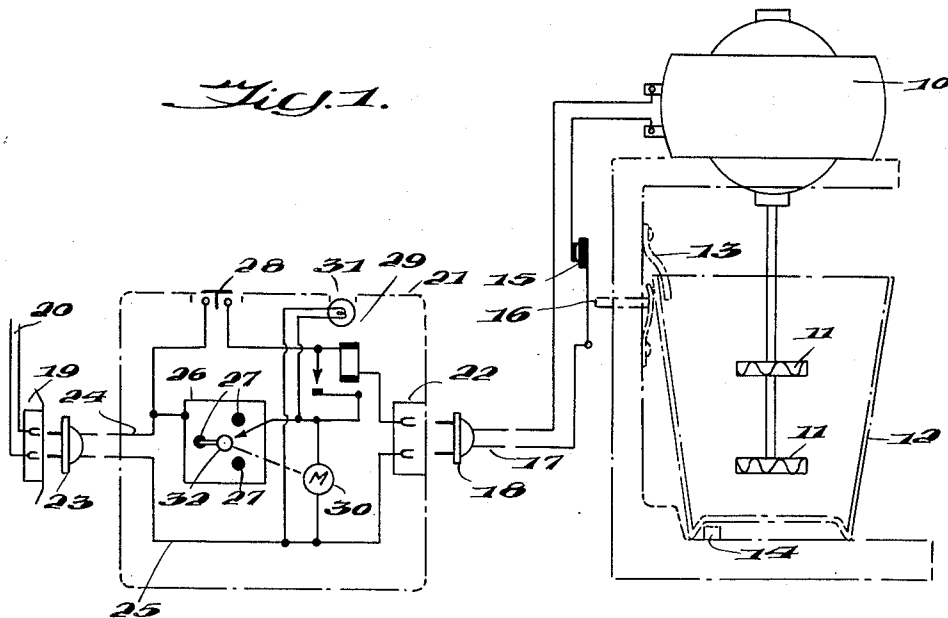
April 24, 1951

P. MARTIN

2,550,281

APPLIANCE TIMING CONTROLLER

Filed Sept. 29, 1948



Inventor

PHILIP MARTIN,

By *Hall & Houghton,*

Attorneys

UNITED STATES PATENT OFFICE

2,550,281

APPLIANCE TIMING CONTROLLER

Philip Martin, North Hollywood, Calif.

Application September 29, 1948, Serial No. 51,691

9 Claims. (Cl. 161—1)

1

This invention relates to a controller unit for timing the operation of devices such as fountain mixers or other devices including a manual or automatic device switch, and particularly to a portable unit of this character.

An object of the invention is to provide a controller of the character described which may be interposed between the convenience outlet and the appliance leads of the device with no extraneous connections and provide a timing circuit the operation of which is correlated with the closing of the circuit to the device.

A further object is to provide an inexpensive and effective portable timer for controlling the operation of fountain mixers or other electrical appliances.

The invention comprises the circuit arrangements and the combinations of parts hereinafter described and claimed.

In the accompanying drawings,

Fig. 1 shows diagrammatically a preferred embodiment of the invention associated with a fountain mixer of the type comprising a device switch automatically closed by the association of the cup with the mixer, and

Fig. 2 shows a modification of the controller.

In the form shown in Fig. 1 of the drawing the fountain mixer or other appliance to be controlled comprises a motor 10 which in the case of a mixer drives mixer elements 11 adapted to extend into a cup 12 which is positioned in any suitable way as by the retaining means 13, 14 in operative association with the mixer elements. Such devices are generally equipped with an automatic switch 15 which is closed, when the container is put in place, in some manner herein exemplified by the contact of the container with the push member 16 which serves to close the switch. Such fountain mixer and like devices are ordinarily provided with an appliance cord 17 terminating in an appliance plug 18 of some conventional form, which is ordinarily adapted to be plugged into a convenience outlet 19 associated with the power lines 20.

The present invention comprises a housing 21 provided with a convenience outlet or receptacle 22 for receiving the plug 18 of the appliance to be controlled and with a plug connector 23 to be plugged into the wall receptacle or convenience outlet 19.

The leads 24 and 25 from the power plug 23 enter the housing 21, and the lead 25 may pass directly therethrough to one of the contacts of the receptacle 22.

The other lead 24 in the form shown is con-

2

nected to a timer-switch element or contactor which may be in the form of a metal plate 26 having insulating inserts 27 therein, and to one of the contacts of a starter-button 28.

The other terminal of the starter-button is connected to the front contact and energizing coil of a relay 29 and thence to the other terminal of the receptacle 22.

The armature of the relay 29 is connected to the switch arm 32 of the switching device and to one side of self-starting motor 30 and a signal-light 31, the returns from which are connected to the companion lead 25.

With this arrangement, if the plug 18 is not inserted in the receptacle 22 depressing of the starter-button 28 has no energizing effect with respect to the motor 30 or light 31.

Similarly, if the device switch 15 is not closed depressing of starter-button 28 has no energizing effect on the motor 30 or on signal-light 31. If the plug is in place and the device switch 15 is closed, as by the presence of the cup 12 in the case of the fountain mixer, the closing of the starter-button 28 supplies current through the relay coil 29 and the appliance switch 15 to the appliance motor 10. The energizing of the coil of relay 29 closes the relay contacts and supplies current from the starter-button 28 to the timer-motor 30 and signal-indicator 31. The timer-motor 30, which, as shown by the broken line in Fig. 1 is arranged to drive the switch arm 32 at a predetermined rate as hereinafter described, immediately moves the contact arm 32 of the timer-switch from the insulating element 27 onto the plate 26 and thereby completes a circuit from the lead 24 through the switch plate and switch arm 32 to the motor 30 and to light 31, and through the relay contacts and relay coil of relay 29 to the appliance switch 15 and motor 10. The timer-motor 30 may be of any suitable type, and preferably comprises a synchronous motor of the type used in ordinary electric clocks. The spacing of the insulating elements 27 in the form shown may be determined as desired to control the length of time for which current will be supplied to the mixer or like appliance. In the case of a contact arm making one revolution per minute, the provision of three equally spaced insulating elements 27 will provide for twenty seconds operation of the mixer. If four such contacts are provided fifteen seconds operation will be established.

As soon as the timer-switch reaches its next circuit opening position, it cuts off the supply of current to the timer-motor 30, signal-light 31

3

and relay coil 29, the appliance 10 ceases operation and the relay 29 returns to open circuit position.

By this arrangement, with a device merely interposed between the appliance plug 18 and the convenience outlet 19, complete timed control dependent on the closing of the appliance switch 15 is provided. With this arrangement the operator may position the cup 12, closing the appliance switch 15, without initiating premature operation of the whippers 11 apt to cause spilling or splashing of the contents of the cup. If the cup is not properly positioned so as to close the appliance switch 15, the operator cannot start the operation of the appliance or of the timer. When the cup is properly positioned a single depression of the starter-button initiates the timer operation, which is cut off after the proper mixing interval without further attention by the fountain attendant.

If the starter-button 23 is not depressed for a sufficient time to allow the timer-motor 30 to complete the circuit through the switch 26, 32, on release of the starter-button the signal 31 is extinguished so the operator is immediately informed that the button must be pressed again to initiate the operation.

In the form shown in Fig. 2 the arrangement is generally the same, but instead of a brush or commutator type, timer-switch 26, 27, 32, the equipment comprises a pair of breaker points 26a, closed by the lands of a cam disc 32a, and opened when the notches 27a of the cam disc come into the position shown. The other elements are similar to those shown in Fig. 1 and are designated by like numerals with the modifying letter "a".

It will be obvious that the new controller may be used with various appliances having device switches and the invention is not limited to the exemplary form of appliance shown. It is further apparent that various types of timer-motors 30 and switch means 26, 27, 32 may be employed without departing from the invention, and that the invention in its broader aspects is not limited to the particular form shown.

I claim as my invention:

1. A timing controller for an appliance having an electrically operated element and power leads therefor, said controller comprising circuits connectible between the power outlet and the power leads of the appliance, said circuits comprising a starter-circuit, means for closing said starter-circuit to the appliance power leads, a timer-motor, means responsive to flow of current in said starter-circuit to said appliance leads for energizing said timer-motor from said starter-circuit, a timer-switch controlled by said timer-motor, a feeding circuit controlled by said timer-switch for energizing said timer-motor and for feeding said appliance leads after opening of said starter-circuit closing means so long as the circuit to said appliance is maintained.

2. A timing controller for an appliance having an electrically operated element and power leads therefor, said controller comprising circuits connectible between the power outlet and the power leads of the appliance, said circuits comprising a starter-circuit, means for closing said starter-circuit to the appliance power leads, a timer-motor, means responsive to flow of current in said starter-circuit to said appliance leads for energizing said timer-motor from said starter-circuit, a timer-switch controlled by said timer-motor, a feeding circuit controlled by said timer-

4

switch for energizing said timer-motor and for feeding said appliance leads after opening of said starter-circuit closing means so long as the circuit to said appliance is maintained, and an indicator circuit energized from said feed circuit as long as current is supplied to it from said starter-circuit or said timer switch.

3. A timing controller for an appliance having an electrically operated element and power leads therefor, said controller comprising circuits connectible between the power outlet and the power leads of the appliance, said circuits comprising a starter-circuit, means for closing said starter-circuit to the appliance power leads, a timer-motor, means responsive to flow of current in said starter-circuit to said appliance leads for energizing said timer-motor from said starter-circuit, a timer-switch controlled by said timer-motor, a feed circuit controlled by said timer-switch for energizing said timer-motor under control only of said timer-switch and for feeding said appliance leads under control of said timer-switch only so long as the circuit to said appliance is continuously maintained.

4. A timing controller for an appliance having an electrically operated element and power leads therefor, said controller comprising circuits connectible between the power outlet and the power leads of the appliance, said circuits comprising a starter-circuit, means for closing said starter-circuit to the appliance power leads, a timer-motor, means responsive to flow of current in said starter-circuit to said appliance leads for energizing said timer-motor from said starter-circuit, a timer-switch controlled by said timer-motor, a feed circuit controlled by said timer-switch for energizing said timer-motor under control only of said timer-switch and for feeding said appliance leads under control of said timer-switch only so long as the circuit to said appliance is continuously maintained, and an indicator-circuit energized from said feed circuit as long as current is supplied therethrough from said starter-circuit or said timer-switch.

5. In combination with an appliance having an electrically operated element and power leads therefor with a power switch associated therein, a controller comprising circuits for connecting said power leads to a source of current, said circuits comprising a starter circuit, means for closing said starter-circuit to said power leads, a timer-motor, means responsive to flow of current in said starter-circuit to said appliance leads for energizing said timer-motor from said starter-circuit, a timer-switch controlled by said timer-motor, a feeding circuit controlled by said timer-switch for energizing said timer-motor and for feeding said power leads under control of said timer-switch only so long as the circuit to said appliance through said power switch is maintained.

6. In combination with an appliance having an electrically operated element and power leads therefor with a power switch associated therein, a controller comprising circuits for connecting said power leads to a source of current, said circuits comprising a starter circuit, means for closing said starter-circuit to said power leads, a timer-motor, means responsive to flow of current in said starter-circuit to said appliance leads for energizing said timer-motor from said starter-circuit, a timer-switch controlled by said timer-motor, a feeding circuit controlled by said timer-switch for energizing said timer-motor and for feeding said power

leads under control of said timer-switch only so long as the circuit to said appliance through said power switch is maintained, and an indicator-circuit energized from said feed circuit as long as current is supplied to it from said starter-circuit or said timer-switch.

7. In combination with an appliance having an electrically operated element and power leads therefor with a power switch associated therein, a controller comprising circuits for connecting said power leads to a source of current, said circuits comprising a starter circuit, means for closing said starter-circuit to said power leads, a timer-motor and a timer switch driven thereby, means responsive to flow of current in said starter-circuit to said appliance leads for energizing said timer-motor only under control of said timer-switch and for feeding said appliance under control of said timer-switch only so long as the circuit to said appliance through said power switch is continuously maintained.

8. In combination with an appliance having an electrically operated element and power leads therefor with a power switch associated therein, a controller comprising circuits for connecting said power leads to a source of current, said circuits comprising a starter circuit, means for closing said starter-circuit to said power leads, a timer-motor and a timer switch driven thereby, means responsive to flow of current in said starter-circuit to said appliance leads for energizing said timer-motor only under control of said timer-switch and for feeding said appliance under control of said timer-switch only so long as the circuit to said appliance through said power switch is continuously maintained,

and an indicator-circuit energized from said feed-circuit as long as current is supplied to it from said starter-circuit or said timer-switch.

9. A controller for timing the operation of an appliance having its own appliance switch, and responsive in operation to the closing of said appliance switch, said controller comprising a timer-motor, a timer-switch operated thereby, a starter-button, a stick-relay, a signal light, and input and output connections, said starter-button and the coil of said relay being connected in series between one of the input and output connections, another lead connecting from the other input to the other output connection, said timer-switch being connected across said starter-button in series with the contacts of said relay, said timer-motor and signal-light being connected at one side between said timer switch and said relay contacts and having their returns connected to said other lead.

PHILIP MARTIN.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
1,412,568	Mortensen	Apr. 11, 1922
1,820,252	Shippy	Aug. 25, 1931
1,835,844	Butler	Dec. 8, 1931
2,053,143	Frederick	Sept. 1, 1936
2,100,284	Kriechbaum	Nov. 23, 1937
2,139,523	Smith	Dec. 6, 1938
2,143,692	Haar	Jan. 10, 1939
2,254,795	Daniels	Sept. 2, 1941