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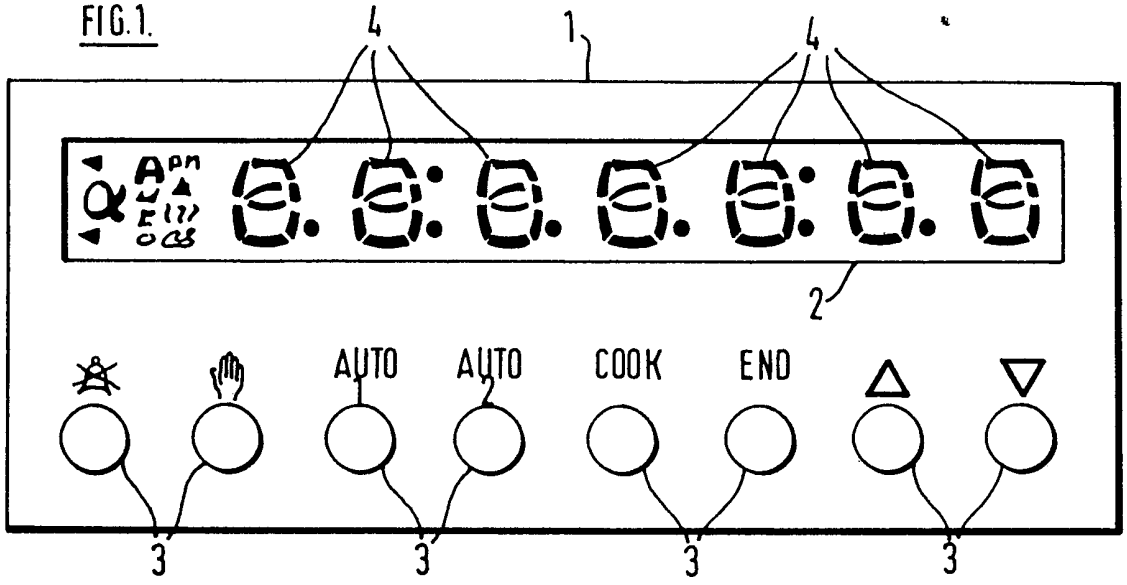
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G3T
Selected US specifications from IPC sub-classes H03K G04G A47J

(54) Cooker timers

(57) A cooker timer 1 is provided with a plurality of multi-segment displays 4 for displaying digital time information and also for displaying a succession of multi-word instructions defining the setting-up sequence of the timer, thereby enabling a user to programme the timer without reference to other operating instructions.

FIG.1.

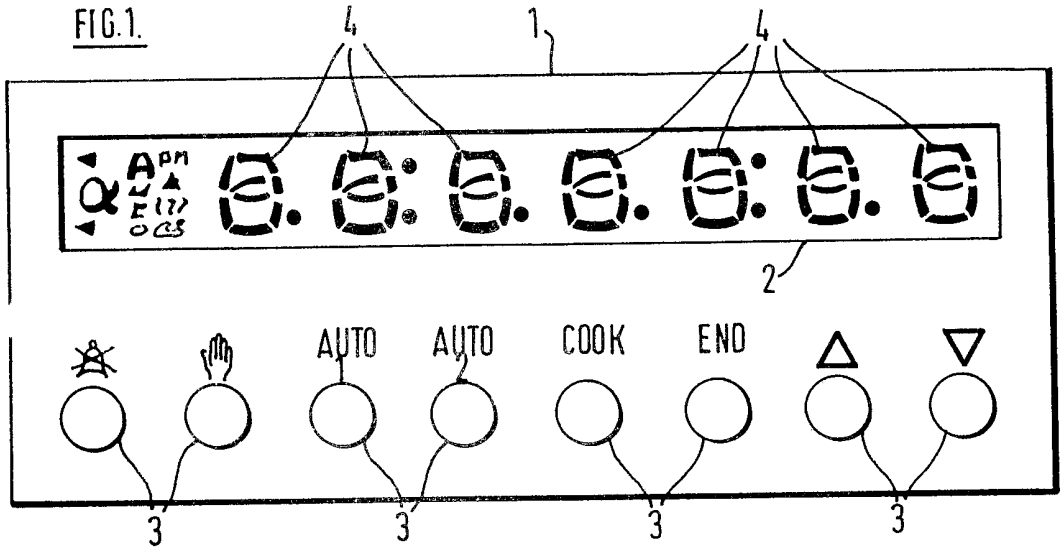


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The drawing(s) originally filed was/were informal and the print here reproduced is taken from a later filed formal copy.

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FIG.1.



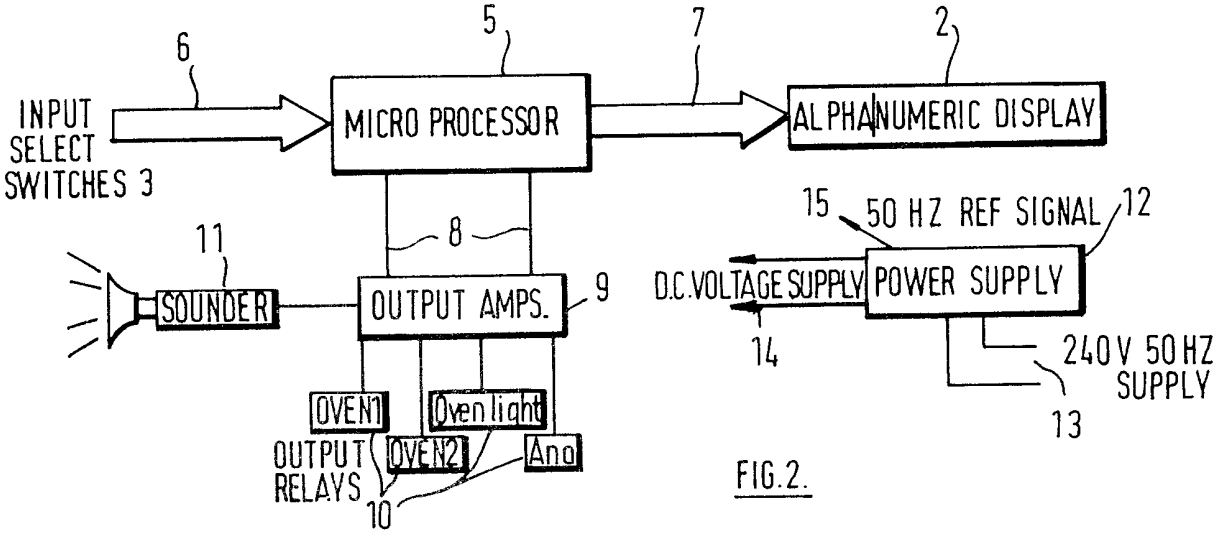


FIG.2.

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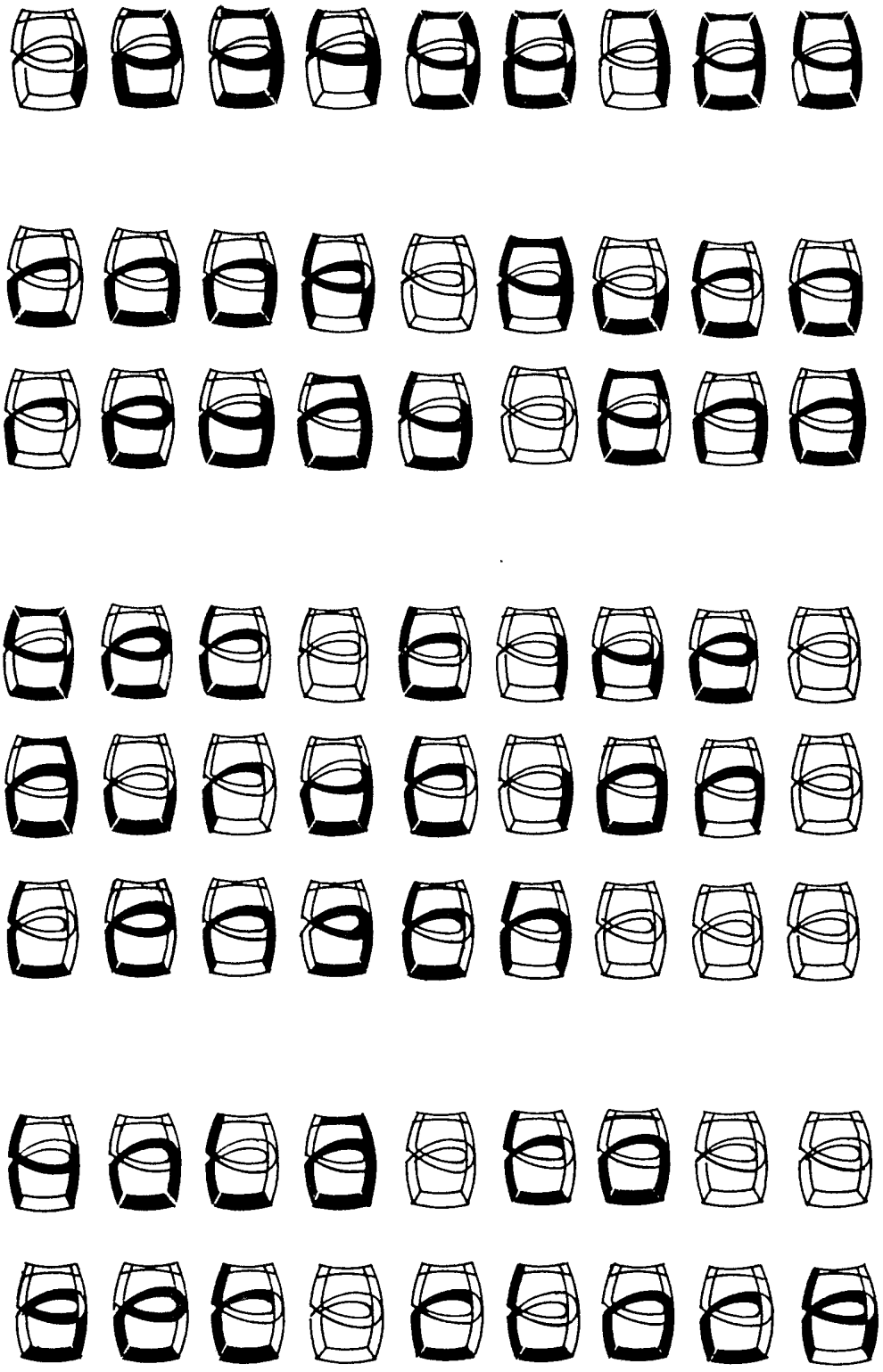


FIG. 3.

SPECIFICATION

Cooker timers

This invention relates to cooker timers.

Cooker timers are known which incorporate a plurality of multi-segment displays which are used, for example, for providing time of day indications and also for setting-up the timer in order that it can be used as a time switch control for the cooker in which it is fitted. Typically such timers are incorporated into electric or gas cookers, in order to control the operation thereof in accordance with a desired programme which is entered into the timer via its associated controls and making use of the multi-segment displays. Typically, such multi-segment displays incorporate four 7-segment displays two of which are used to display hours typically on a 0-12 or 0-24 hour basis, and the other two of which are used to display 0-59 minutes.

A major problem with known forms of cooker timers is that they are passive devices that simply translate programmes that are fed into them and with the increasing sophistication of, for example, electric cookers, the programmes that are required to be inserted into the timers can be very complex, often necessitating reference to be made to operating instructions in order that the correct setting-up procedure be followed.

An object of the present invention is to provide an improved form of cooker timer.

According to the present invention there is provided a cooker timer comprising a plurality of multi-segment displays for displaying digital time information, microprocessor means for controlling the operation of said timer, and a plurality of control means for setting-up said timer, said microprocessor means being adapted to cause said displays to display a succession of multi-word instructions defining the setting-up sequence of said timer.

In this way, during the programming of the timer, the multi-segment displays are used to display instructional information such as "set cook time" or "set ready time" etc., thereby enabling a user to programme the timer without reference to other operating instructions.

In carrying out the invention, it will be arranged that the successive instructions are initiated by the selective operation of one or more of said control means, and it may also be arranged that the microprocessor means is effective, when the cooker timer has been set-up, for causing the multi-segment displays to display information indicative of the operation of said timer.

In one arrangement it may be arranged that the microprocessor means is adapted to cause each multi-word instruction to be displayed as a sequence of fixed words, but in a preferred arrangement it will be arranged that the microprocessor means is adapted to cause each multi-word instruction to be displayed as a moving character display.

Advantageously, it will be arranged that the microprocessor is adapted to cause each multi-word instruction to be repeated until a required one of said control means has been operated.

In accordance with a preferred embodiment of the invention it will be arranged that the multi-segment displays are constituted by specially designed 8-segment displays which enable alphabetic characters to be displayed better than do conventional 7-segment displays.

An exemplary embodiment of the invention will now be described, reference being made to the accompanying drawings, in which:

Figure 1, is a front view of a cooker timer in accordance with the present invention;

Figure 2, is a block schematic diagram of the cooker timer of Figure 1; and

Figure 3, depicts typical numerical and verbal information that may be displayed on the cooker timer of Figure 1.

The cooker timer 1 shown in Figure 1 of the drawings comprises an alpha-numeric display 2 and eight input select switches 3 which are used to set up the operating sequence of the cooker timer 1. Amongst other things, the alpha-numeric display 2 comprises seven specially designed 8-segment displays 4 which are used for displaying both digital (e.g. time) information and verbal (alphabetic) information or a combination of the two.

Turning now to Figure 2 of the drawings, this depicts the block schematic diagram of the cooker timer 1 of Figure 1 and consists of a microprocessor 5 to which is applied signals 6 from the input select switches 3 of the cooker timer of Figure 1, and which affords outputs 7 to the alpha-numeric display 2 thereof and also outputs 8, via output amplifiers 9, to various output relays 10 and to a 'sounder' 11, the relays 10 being used to control, for example, the operation of two ovens, 'OVEN 1' and 'OVEN 2' and also an 'oven light'. The diagram of Figure 2 also includes a power supply 12 which is fed from a 240V 50HZ AC mains supply 13 and which affords a DC voltage supply 14 to the cooker timer proper and also a 50 HZ reference signal 15 which is required for timing purposes.

As will be appreciated, the operation of the cooker timer depicted in Figure 2 is basically controlled by the microprocessor 5, which is supplied with control inputs via the input select switches 3. The microprocessor 5 is provided in its memory (not shown) with a plurality of multi-word verbal instructions, successive ones of which, in response to the operation of the input select switches 3 are caused to be displayed on the alpha-numeric display 2 in order to instruct a user how to set-up the cooker timer. Thus a user may be instructed to "set cook time" or "set ready time" and having carried out a particular in-

struction, the next instruction in the setting-up sequence will be displayed.

It may be arranged that the microprocessor 5 causes each multi-word instruction to be displayed on the alpha-numeric display 2 either as a series of fixed words or more preferably as a moving character display in which the instruction appears to move across the alpha-numeric display 2 from right to left as viewed in Figure 1. It may also be arranged that each instruction is also repeated continuously until the user has carried out the required instruction at which time the microprocessor will cause the next instruction to be displayed.

Once the cooker timer has been set-up in accordance with the required cooking sequence, it may be arranged that the microprocessor causes the alpha-numeric display 2 to display information indicative of the operation of the cooker timer, e.g. "READY TIME WILL BE 16:30" or "COOK TIME WILL BE 9:43", as well as current time-of-day information.

It should be appreciated that the multi-segment displays 4 of the alpha-numeric display 1 may take any convenient form, such as conventional 7-segment displays which are presently used in cooker timers. However, such 7-segment displays have the capability of forming only a very restricted number of the letters of the alphabet thereby severely restricting the amount of verbal information that can be displayed. It is also possible to use conventional 12-segment displays which enables all the letters of the alphabet to be displayed, but these have the severe disadvantage that they require a large amount of microprocessor power in order to drive them.

In accordance with a preferred embodiment of the present invention, the multi-segment displays 4 are constituted by specially designed 8-segment displays as shown in Figure 1, which are adapted to provide adequate letter and number displays and yet do not require the microprocessor power to drive them that conventional 12-segment displays require. In Figure 3 of the accompanying drawings there is shown some examples of numerical and verbal information that may typically be displayed using the 8-segment display used in the cooker timer of Figure 1.

It will be understood, however, that multi-segment displays having other than 7, 12 or 8 segments may be used.

CLAIMS

1. A cooker timer comprising a plurality of multi-segment displays for displaying digital time information, microprocessor means for controlling the operation of said timer, and a plurality of control means for setting-up said timer, said microprocessor means being adapted to cause said displays to display a succession of multi-word instructions defining the setting-up sequence of said timer.

2. A cooker timer as claimed in claim 1, in which the successive instructions are initiated by the selective operation of one or more of said control means.

3. A cooker timer as claimed in claim 1 or claim 2, in which the microprocessor means is effective, when the cooker timer has been set-up, for causing the multi-segment displays to display information indicative of the operation of said timer.

4. A cooker timer as claimed in any preceding claim, in which the microprocessor means is adapted to cause each multi-word instruction to be displayed as a sequence of fixed words.

5. A cooker timer as claimed in any of claims 1 to 3, in which the microprocessor means is adapted to cause each multi-word instruction to be displayed as a moving character display.

6. A cooker timer as claimed in claim 4 or claim 5, in which the microprocessor is adapted to cause each multi-word instruction to be repeated until a required one of said control means has been operated.

7. A cooker timer as claimed in any preceding claim, in which the multi-segment displays are constituted by 8-segment displays.

8. A cooker timer as claimed in claim 7, in which each multi-segment display is constituted by an 8-segment display substantially as hereinbefore described with reference to Figures 1 and 3 of the accompanying drawings.

9. A cooker timer substantially as hereinbefore described with reference to the accompanying drawings.

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