

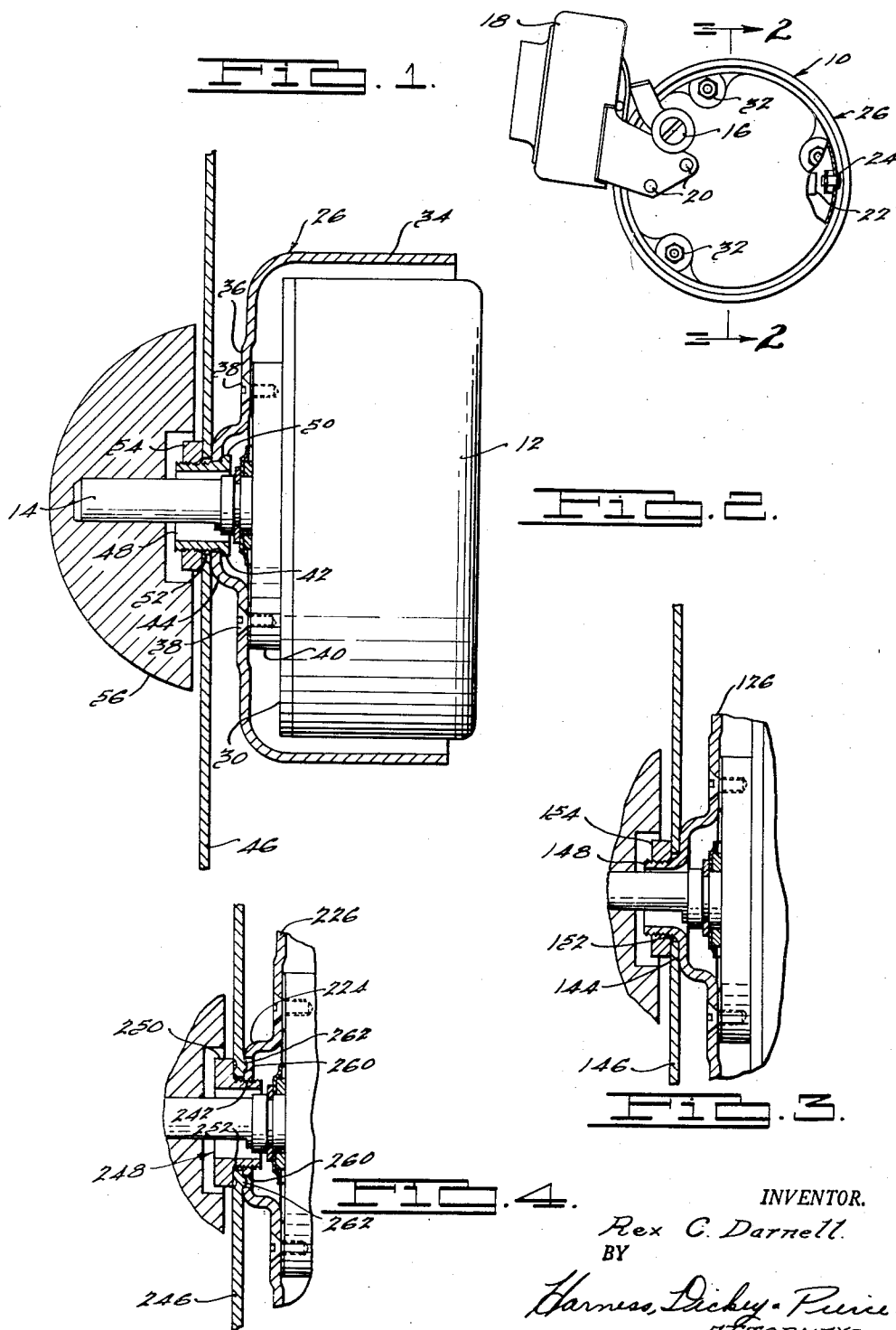
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R. C. DARNELL

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TIMER MOUNTING

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INVENTOR.

Rex C. Darnell.

BY

Harness, Dickey & Paine.
ATTORNEYS.

UNITED STATES PATENT OFFICE

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TIMER MOUNTING

Rex C. Darnell, Dexter, Mich., assignor to King-Seeley Corporation, Ann Arbor, Mich., a corporation of Michigan

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The present invention relates to timers of the type which are used in connection with stoves, washing machines or the like, and which are operable to actuate a signal device for guidance of the operator, and which may also be operable to initiate or terminate an operating cycle after a predetermined time interval. More particularly the present invention relates to an improved means for mounting timers of the above mentioned type on an associated supporting panel.

In stoves, washing machines or the like employing timer mechanisms, the timer is generally mounted on a convenient panel of the stove or washing machine. The front side of the panel is generally marked with a suitable dial and the timer is mounted on the back of the panel with its arbor extending forwardly through an aperture in the mounting panel. Prior to the present invention, it has been customary to secure timers to their associated supporting panels by means of mounting screws extending through holes in the supporting panel and threaded into tapped openings provided in the timer mechanism. It was therefore necessary that the holes provided in the supporting panel for the mounting screws be accurately located relative to one another in order that they may register with the tapped openings provided in the timer mechanism. Also it was necessary that these holes in the supporting panel be accurately located relative to the central aperture therein, through which the arbor of the timer mechanism projects, to insure the proper location of the arbor when the timer mechanism is secured to the panel. It has been found that in this construction the holes provided in the supporting panel for the mounting screws are frequently improperly located relative to one another or not accurately located relative to the central aperture and obvious difficulties in mounting the timer mechanism result.

Prior to the present invention it has been sought to eliminate this difficulty by providing a central mounting directly connecting the timer casing to the panel, and fastening the bell to the casing by a suitable bracket at the rear of the timer. While this construction eliminates one problem it is only satisfactory for timers limited to audible signal devices because the back of the timer is covered by the bell preventing the convenient mounting of a switch on the rear of the timer.

It is, therefore, an object of this invention to provide a timer of the above-mentioned type having a single central mounting means adapted for securing the timer to an associated supporting

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panel, thereby eliminating the necessity of accurately locating mounting screw holes in the supporting panel and in the timer, and also having the back of the timer exposed to facilitate the mounting of switch mechanism or the like.

Another object of the invention is to provide an improved timer of the above-mentioned type wherein the timer casing and the clock mechanism housed therein are mounted on the bell and means are provided at the center of the bell for mounting the latter on a supporting panel.

Another object is to provide a timer of the above-mentioned type incorporating improved means at the front of the timer for mounting the same on an associated supporting panel whereby the rear of the timer is left exposed for mounting suitable switch actuating mechanism or the like.

Other objects and advantages of the invention will become apparent from the following specification, the accompanying drawings, and the appended claims.

In the drawings:

Figure 1 is a rear elevational view of a timer mechanism embodying the invention and showing a part of the timer casing broken away to illustrate the bell hammer construction;

Fig. 2 is an enlarged sectional view of the structure illustrated in Fig. 1 taken along the line 2—2 thereof; and

Figs. 3 and 4 are broken sectional views similar to Fig. 2 illustrating a modified form of the invention.

Inasmuch as the type of timer to which the present invention relates may to a large extent be conventional in construction, only so much of the details of construction are shown as are necessary to fully understand the features of the present invention. For further details of a suitable type of timer to which the present invention relates reference may be had to the co-pending application for United States Letters Patent of Rex C. Darnell, Serial No. 659,764, filed April 5, 1946. It is sufficient for the present purposes that the mechanism generally comprises a casing containing any suitable form of clock mechanism, and a spring operated signal actuating device which is cocked when the timer is set to the desired timing cycle and which when tripped either rings a bell or operates an electrical switch, or both.

Referring to the drawing, the timer 10 there illustrated comprises any suitable clock mechanism (not shown) housed within a casing 12 and operable to drive an arbor 14 at a controlled

rate. The timer 10 includes a rotatable shaft 16 which is employed to control the opening and closing of a switch mechanism 18 which is secured to the rear of the casing 12 by rivets 20. The details of the switch 18 and the means by which it is controlled form no part of the present invention and, accordingly, are not described in detail herein. For further details of a suitable switch mechanism and means for operating the same, reference may be had to the copending application for United States Letters Patent of Glenn Morse, Serial No. 611,114, filed August 17, 1945, now Patent No. 2,507,381, dated May 9, 1950. For the present purposes, it is sufficient to note that the construction may be such that upon rotation of the arbor 14 in one direction the switch 18 is closed, and upon reverse movement of the arbor 14 the switch 18 is opened.

In the construction illustrated in the drawing, the timer also includes a striker arm 22 operable to actuate a bell hammer 24 adapted upon actuation by the striker arm 22 to strike the skirt of a bell 26 and afford an audible signal. Here, again, the details of construction of the bell hammer mechanism 24 and the striker arm 22, as well as the means for controlling the latter, form no part of the present invention and, accordingly, are not disclosed in detail. For further details of a suitable bell hammer and striker arm construction and means for actuating the latter, reference may be had to the copending application for United States Letters Patent of Kurt K. Neumann, Serial No. 681,740, filed July 6, 1946. It is sufficient to note for the present purposes that when the arbor 14 has been rotated from its zero position in a setting direction and is again returned to its zero position, the striker arm 22 is actuated, causing the hammer 24 to strike the skirt of the bell 26 and produce an audible signal.

In construction illustrated, the casing 12 is in the shape of a forwardly opening cup and the opening at the forward end of the casing is closed by a plate 30 to which the casing 12 is secured by means of bolts 32 (see Figure 1). The casing 12 and the plate 30 comprise a housing in which is enclosed the above mentioned clock mechanism and from which the arbor 14 projects forwardly through the plate 30.

The bell 26 is generally cup-shaped and includes a generally flat portion 36 which overlies the plate 30 and a substantially cylindrical rearwardly projecting skirt 34 which surrounds the plate 30 and the timer casing 12. The plate 30 is secured to the bell 26 by a pair of screws 38 which project through apertures in the flat portion 36 of the bell and are threaded into tapped openings in a pair of forwardly projecting bosses formed on the forwardly projecting central portion 40 of the plate 30.

The bell 26 is provided with a central aperture 42, through which the arbor 14 projects, and immediately adjacent the central opening 42 the bell 26 is formed to provide a forwardly offset locating portion 44. This forwardly projecting portion 44 is adapted to be secured to a mounting panel indicated at 46 in abutting relation therewith, and when so secured properly positions the timer relative to the panel. In the construction illustrated in Figure 2, the means employed for securing the forwardly offset portion 44 to the panel 46 comprises an externally threaded ferrule 48, the head portion 50 of which engages the inner surface of the bell 26 and the shank portion of which is externally threaded and pro-

jects forwardly through the central opening 42 in the bell and through a registering opening 52 in the supporting panel 46. A nut 54 is threaded on the forwardly projecting end of the ferrule 48 and engages the front face of the supporting panel 46, although, if desired, a lock washer (not shown) may be positioned between the nut 54 and the panel 46. The panel 46 may form a portion of the stove or other piece of equipment upon which the timer is to be mounted, and will ordinarily carry the usual indicating dial which co-operates with the pointer of a control knob 56 mounted on the forwardly projecting end of the arbor 14.

It will be noted that in this construction the forwardly offset locating portion 44 of the bell 26 insures that all other portions of the bell will be in proper spaced relation relative to the panel 46. It will also be noted that in this construction the plate 30, which carries the casing 12 and the clock mechanism housed therein, is mounted directly on the bell 26, thereby eliminating the necessity for accurately locating co-operating mounting apertures in the supporting panel 46 and the plate 30. This construction also eliminates the need for additional apertures in the bell 26 through which mounting means engaging the panel 46 and the plate 30 may project. It will also be noted that these advantages of center mounting are afforded in a construction which also leaves the rear of the timer exposed for mounting a switch mechanism, and facilitates angular adjustments of the position of the timer on the panel.

The construction illustrated in Figure 3 is generally similar to that illustrated in Figures 1 and 2, differing therefrom in that the bell 26 thereof has an integrally formed forwardly projecting tubular portion 148 which serves the purpose of the separate ferrule 48 of the above described construction. This tubular portion 148 of the bell is externally threaded and projects through an aperture 152 in the supporting panel 146. A nut 154 corresponding to the nut 54 of the above described construction is threaded on the tubular portion 148 of the bell and engages the front face of the supporting panel 146 to clamp the forwardly offset portion 144 of the bell against the rear face of the supporting panel 146.

Figure 4 illustrates a further modified form of my invention in which the central aperture 242 formed in the bell 226 is internally threaded. The bell 226 is secured to the supporting panel 246 by an externally threaded tubular bolt 248, the head 250 of which engages the forward face of the supporting panel 246 and the threaded shank of which projects through an opening 252 in the supporting panel and is threaded into the internally threaded central opening 242 of the bell 226. In this construction, the forwardly offset portion 244 is provided with a pair of small diametrically spaced apertures 260, adjacent the central opening 242, in which are received detents 262 pressed from the supporting panel 246. In this construction, it will be appreciated that the bell 226 is positively held against turning relative to the supporting panel 246 by the detents 262.

While only several forms of the invention have been illustrated and described in detail, it will be appreciated that numerous changes and modifications may be made therein without departing from the spirit of the invention or from the scope of the appended claims.

What is claimed is:

1. A timer adapted to be mounted on a panel

having an aperture, said timer comprising a housing, a timing mechanism in said housing including an arbor projecting from the front face of said housing and adapted to project through said aperture, a bell fixed to the front face of said housing having a skirt projecting rearwardly along and surrounding said housing, the rear of said housing being exposed to facilitate the mounting of suitable signal mechanism, a bell hammer controlled by said timing mechanism and adapted to strike the skirt of said bell, said bell having an opening opposite the front face of said housing and said arbor projecting through said opening, and fastening means adapted to project through said aperture and secure said bell to said panel.

2. A timer adapted to be mounted on a panel having an aperture, said timer comprising a housing, a timing mechanism in said housing including an arbor projecting from the front face of said housing and adapted to project through said aperture, a bell fixed to the front face of said housing and having a skirt projecting rearwardly along and surrounding said housing, the rear of said housing being exposed to facilitate the mounting of suitable signal mechanism, a bell hammer controlled by said timing mechanism and adapted to strike the skirt of said bell, said bell having a forwardly offset locating portion opposite the front face of said housing adapted to engage said panel, said locating portion having an opening therein and said arbor projecting through said opening, and fastening means adapted to project through said aperture and secure said locating portion of said bell to said panel.

3. A timer adapted to be mounted on a panel having an aperture, said timer comprising a housing, a timing mechanism in said housing including an arbor projecting from the front face of said housing and adapted to project through said aperture, a bell fixed to the front face of said housing having a skirt projecting rearwardly along and surrounding said housing, a switch mechanism mounted on the rear of said housing and controlled by said timing mechanism, a bell hammer controlled by said timing mechanism and adapted to strike the skirt of said bell, said bell having an opening opposite the front face of said housing and said arbor projecting through said opening, and fastening means adapted to project through said aperture and secure said bell to said panel.

4. A timer adapted to be mounted on a panel having an aperture, said timer comprising a housing, a timing mechanism in said housing including an arbor projecting from the front face of said housing and adapted to project through said aperture, a bell fixed to the front face of said housing having a skirt projecting rearwardly along and surrounding said housing, the rear

of said housing being exposed to facilitate the mounting of suitable signal mechanism, a bell hammer controlled by said timing mechanism and adapted to strike the skirt of the bell, said bell having an opening opposite the front face of said housing and said arbor projecting through said opening, a tubular bolt surrounding said arbor and projecting forwardly through said opening in said bell and adapted to project through said aperture in said panel, and means adapted to engage said bolt and cooperate therewith to secure said bell to said panel.

5. A timer adapted to be mounted on a panel having an aperture, said timer comprising a housing, a timing mechanism in said housing including an arbor projecting from the front face of said housing and adapted to project through said aperture, a bell fixed to the front face of said housing and having a skirt projecting rearwardly along and surrounding said housing, the rear of said housing being exposed to facilitate the mounting of suitable signal mechanism, a bell hammer controlled by said timing mechanism and adapted to strike the skirt of said bell, said bell having an internally threaded opening opposite the front face of said housing and said arbor projecting through said opening, and a tubular bolt adapted to project through said aperture in said panel and threadedly engage said bell at said internally threaded opening to secure said bell to said panel.

6. A timer adapted to be mounted on a panel having an aperture, said timer comprising a housing, a timing mechanism in said housing including an arbor projecting from the front face of said housing and adapted to project through said aperture, a bell fixed to the front face of said housing and having a skirt projecting rearwardly along and surrounding said housing, the rear of said housing being exposed to facilitate the mounting of suitable signal mechanism, a bell hammer controlled by said timing mechanism and adapted to strike the skirt of said bell, said bell having an externally threaded forwardly projecting tubular portion opposite the front face of said housing, said tubular portion surrounding said arbor and being adapted to project through said aperture of the panel, and nut means adapted to engage said tubular portion and cooperate therewith for securing said bell to said panel.

REX C. DARNELL.

REFERENCES CITED

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

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