J. STEVENS.

COMBINED ALARM CLOCK AND FIRE SIGNAL.

APPLICATION FILED FEB. 24, 1914.

1,240,618.

Patented Sept. 18, 1917.

3 SHEETS—SHEET 1.

Fig. 3.

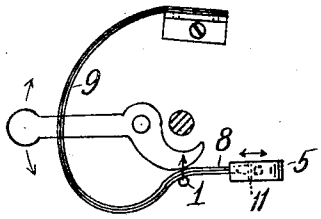


Fig. 4.

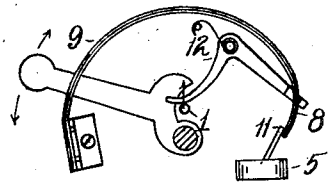


Fig. 5.

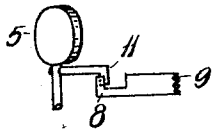


Fig. 1.

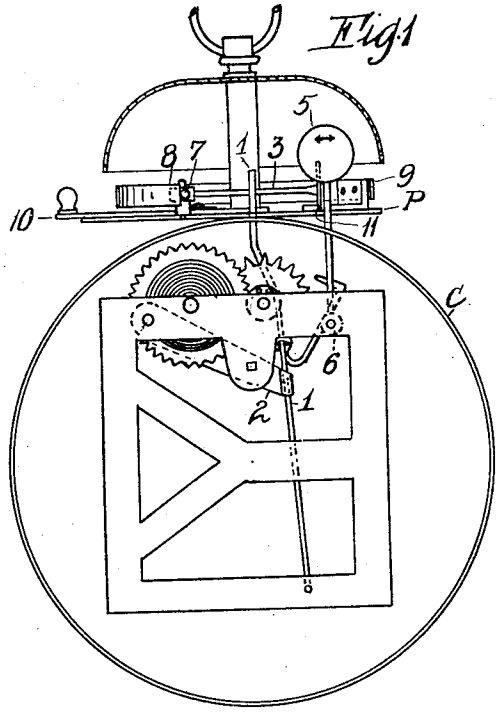


Fig. 2.

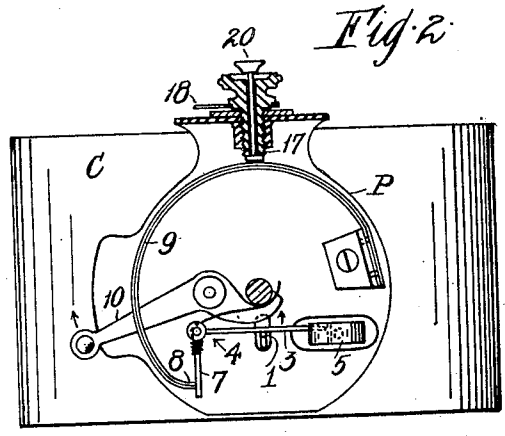
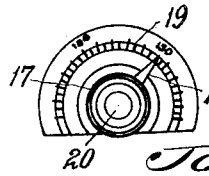


Fig. 6.



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3 SHEETS—SHEET 2.

Fig. 7.

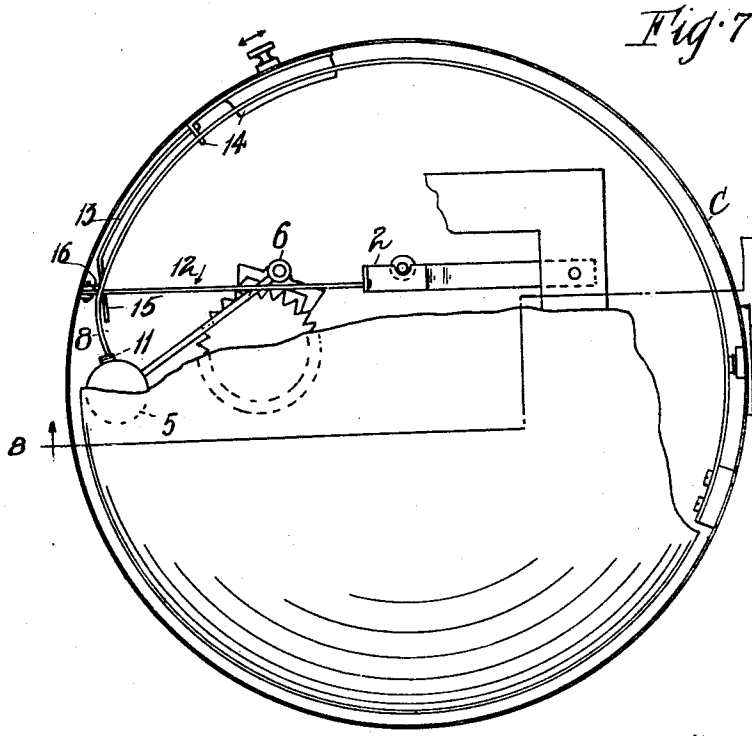


Fig. 9.

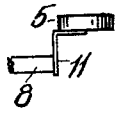
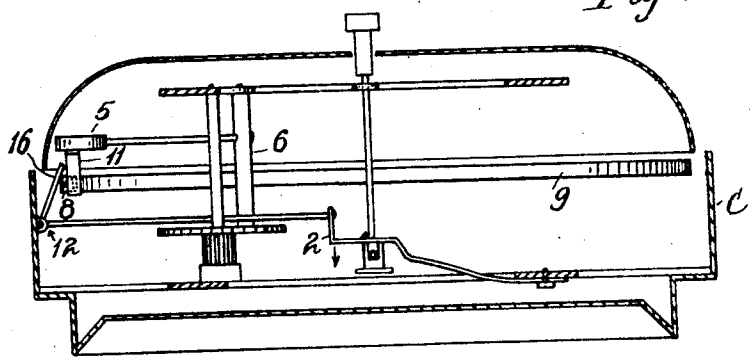


Fig. 8.



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3 SHEETS—SHEET 3.

Fig. 10.

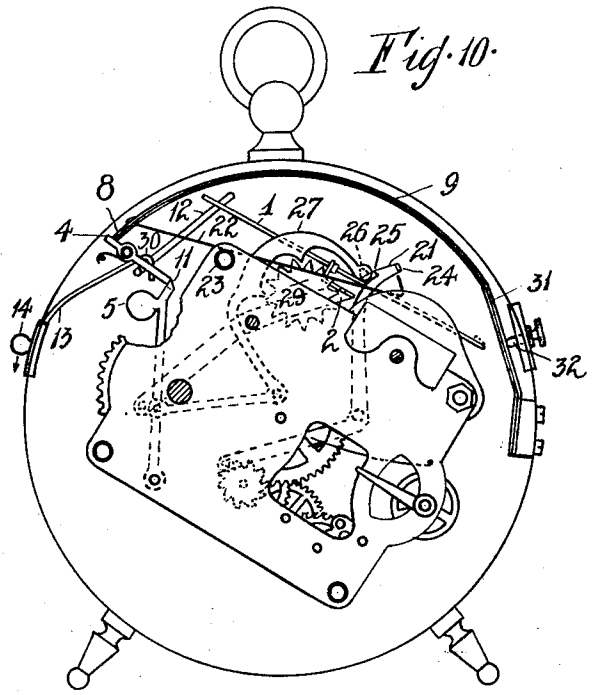


Fig. 13.

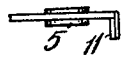


Fig. 11.

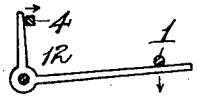


Fig. 12.

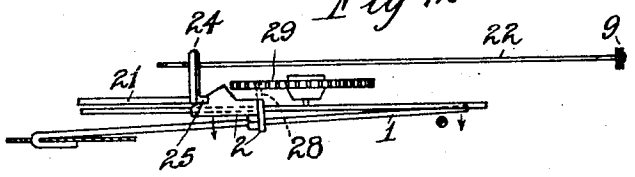
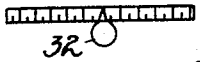


Fig. 14.



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UNITED STATES PATENT OFFICE.

JOHN STEVENS, OF LAUNCESTON, TASMANIA, AUSTRALIA.

COMBINED ALARM-CLOCK AND FIRE-SIGNAL.

1,240,618. Specification of Letters Patent. Patented Sept. 18, 1917.

Application filed February 24, 1914. Serial No. 820,714.

To all whom it may concern:

Be it known that I, JOHN STEVENS, a subject of the King of Gt. Britain, residing at 41 George street, Launceston, in the State of Tasmania, Commonwealth of Australia, watchmaker, have invented certain new and useful Improvements in Combined Alarm-Clocks and Fire-Signals, of which the following is a specification.

This invention contemplates the employment of the ordinary household or other alarm-clock as a fire-signal by combining therewith a thermostat adapted to release the alarm mechanism thereof without interfering with the ordinary "setting" of the alarm.

For this purpose the free end of a thermostat is adapted to either directly or indirectly release the striking hammer of the clock alarm mechanism so that on a predetermined rise of temperature the flexure of the thermostat automatically releases the hammer which sounds the bell or gong.

According to this invention a compound thermostatic bar, curved in general conformity to the outline of the bell, is mounted on the alarm clock beneath the bell or gong and convenient to the hammer in such a manner as to normally retain said hammer against the action of the pallet staff which is adapted to be freed either by the movement of the free end of the thermostatic bar or by the movement of the releasing spring of the ordinary alarm setting mechanism of the clock work.

By this means when the temperature rises to a predetermined degree the hammer of the bell is freed and the alarm sounded.

The appended sheets of drawings illustrate practical forms of the invention.

Figure 1 is a rear internal view of those parts of an "Ansonia" alarm clock to which the invention relates with the bell in section.

Fig. 2 is a plan view partly in section with the alarm bell removed.

Figs. 3 and 4 are fragmentary detail plan views illustrating certain variations while

Fig. 5 is a detail side view of a part of Fig. 4.

Fig. 6 is an elevation of the regulating and testing device shown in Fig. 2.

Fig. 7 is a rear view with parts broken away of these parts of a "Columbia" alarm clock to which the invention relates and

Fig. 8 is a transverse section on the line 8—8 of Fig. 7 and

Fig. 9 is a detail of Figs. 7 and 8.

Fig. 10 illustrates the application of the invention to a "Big Ben" alarm clock provided with repeat alarm mechanism.

Figs. 11, 12, 13, 14 are enlarged details of parts of Fig. 10.

Referring to the embodiment of the invention shown in Figs. 1 and 2 a wire 1 is attached to the usual releasing spring 2 and extended to contact with one arm 3 of a spring controlled lever 4 which normally arrests the hammer 5 of the bell said hammer being mounted on the pallet staff 6 of the alarm mechanism. In this case the other end 7 of the lever contacts with the free end 8 of the thermostatic bar 9 which is attached at one end to a plate P or casing C of the clock. Thus when either the wire 1 is sprung forward or the thermostatic bar 9 expanded the lever arm 3 releases the hammer.

A cut out lever or the like 10 may be employed to render the sleeping alarm mechanism inoperative and for this purpose the lever is moved in the direction of arrow to hold back or prevent the forward movement of the wire 1 attached to the releasing spring 2.

According to another simplified embodiment of the invention (Fig. 3) the lever 4 may be dispensed with in which case the free end 8 of the thermostatic bar is placed in direct contact with a nib 11 provided on the hammer 5 or rod thereof and with the wire or the like 1 connected to the releasing spring of the ordinary alarm setting mechanism as in Figs. 1 and 2.

Fig. 4 illustrates an indirect connection between the free end of the bar and the wire whereby an intervening spring controlled lever 12 is employed which is operated upon by the movement of the wire and engaging the free end 8 of the bar presses same inward and releases the hammer. The nib 11 in this case may engage a projection on the end of a recess in the bar as illustrated in Fig. 5. The lever 12, as shown, has a controlling spring but instead of this arrangement said controlling spring may be omitted and the lever may be formed with a notch which engages the thermostat bar so that the said bar functions also as the controlling spring for said lever. The cut-out 10 may also be employed in the construction shown in Figs. 3 and 4.

In a further example of the invention

(Figs. 7, 8, and 9) the end 8 of the compound thermostatic bar contacts with the nib 11 on the hammer 5 as in Fig. 9 and a lever 12 is connected to the releasing spring 2 and adapted to bear against the free end of the bar. This construction is particularly applicable to a "Columbia" alarm clock and the ordinary arm thereof that engages the releasing spring 2 and the cut out arm both usually mounted on the pallet staff 6 are dispensed with and the cut out is effected by an arm 13 attached to the cut out slide 14 and formed with an inclined end 15 which is adapted to bear against the limb 16 of the lever. Thus when the slide is moved forward the inclined end 15 prevents the lever being operated.

An adjusting device such as a screw 17 Fig. 2 bearing against the thermostatic bar may be employed for determining the degree of temperature at which the fire alarm will be given, which screw is provided with an indicator 18 adapted to traverse a graduated scale 19.

Furthermore a press button 20 adapted to be pressed against the thermostatic bar may be employed for testing the alarm mechanism.

Referring to Figs. 10–14 illustrating the "Big Ben" alarm clock provided with a repeat alarm mechanism the end 8 of the thermostat bar 9 engages the lever 4 which contacts with a nib 11 on the hammer 5. The wire 1 is attached to the releasing spring 2 and bears against a lever 12 which when the spring is released strikes the spring controlled lever 4 and releases the hammer at the set time for the alarm. The flexure of the thermostat bar under heat also frees the lever 4 from the nib 11 on the hammer and sounds an alarm.

In order to throw the repeat alarm lever 21 out of action when the thermostat bar causes the alarm, a rod 22 is attached to said bar and bears against the pillar 23. The free end of the rod moves forward when the bar expands and engages the projection 24 on the end of the lever 22 thus preventing the catch 25 on the latter engaging the projection 26 on the pallet 27. It will be evident that should the clock be stopped with the catch 25 in engagement with the projection 26 the operation of the fire alarm mechanism would be prevented, hence the necessity of this rod 22.

When the invention is applied to a "Big Ben" alarm clock the tooth 28 on the end of the spring 2 that normally arrests the wheel 29 which usually operates the pallet, is dispensed with as the levers 4 and 12 accomplish the object.

The cut-out device for throwing the ordinary alarm out of action consists of a slide 14 to which is attached a wire 13 with a hook 30 adapted to prevent movement of the lever 12.

The thermostat bar 9 is formed near its fixed end with an incline 31 against which a slide 32 provided with a pointer bears. The movement of the slide adjusts the bar and so determines at what degree of temperature the fire alarm will be given. The pointer of the slide traverses a graduated scale as in Fig. 14.

It is to be understood that this invention is applicable to other alarm clocks as well as "Ansonia," "Columbia" and "Big Ben" alarm clocks.

I claim:—

The combination with an alarm clock having the usual alarm bell, hammer, alarm train for operating said hammer and releasing spring for said train, of a thermostatic bar arranged beneath said bell and curved in general conformity thereto, said bar having a fixed end and a free end, and by means of its free end controlling the operation of said hammer, the bar when expanded by heat effecting the release of said hammer and a rod connected to the releasing spring and operative by said spring to effect the release of said hammer independently of said bar.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN STEVENS.

Witnesses:
EDWARD WATERS,
EDWARD N. WATERS.