Sept. 23, 1930. S. MITCHELL 1,776,738

WEIGHT RELEASED SWITCH

Filed May 19, 1924

Fig. 1.

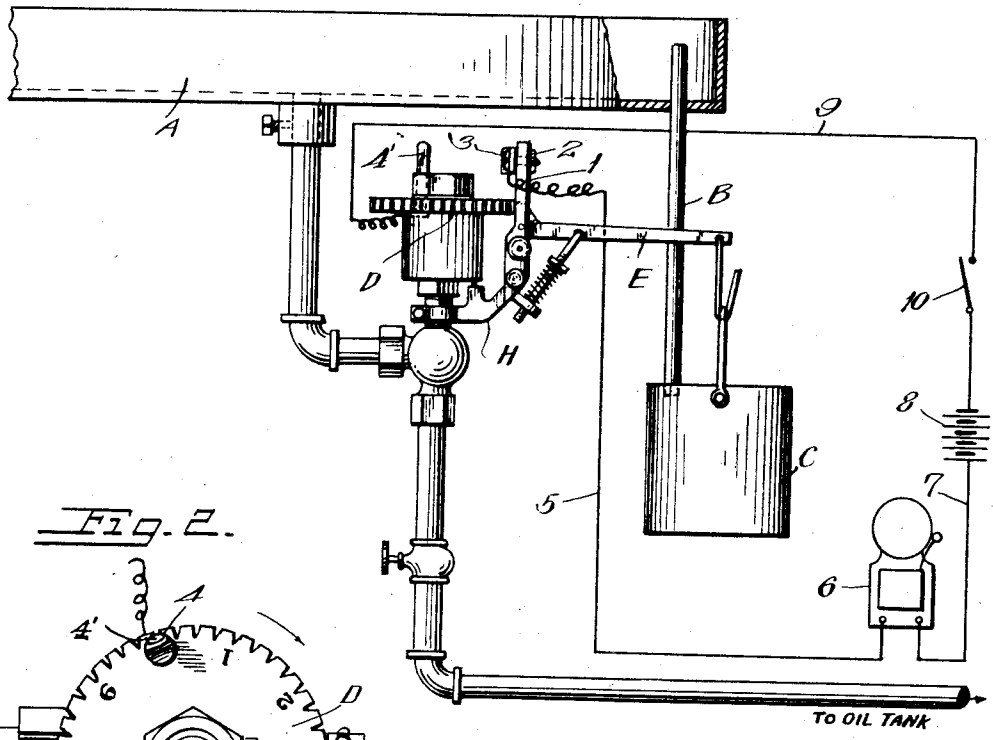


Fig. 2.

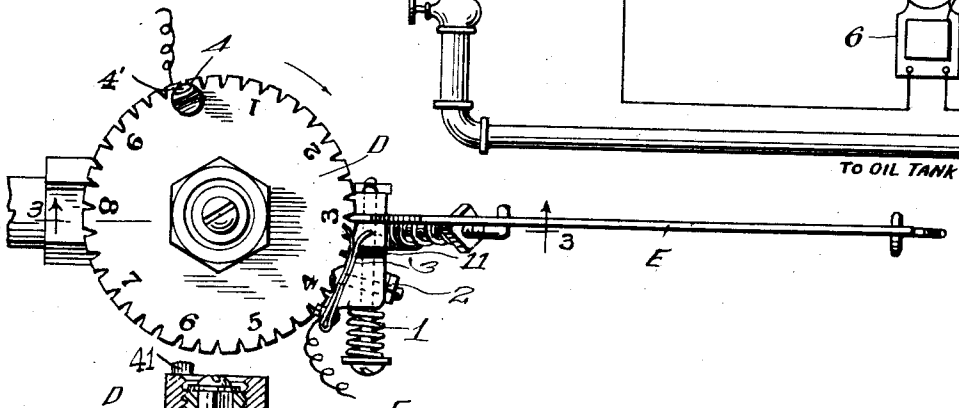
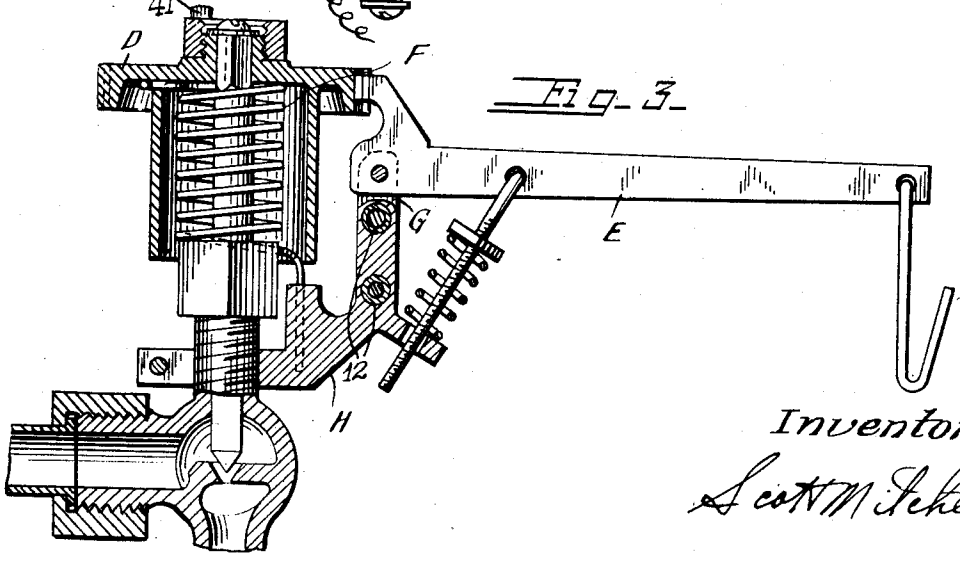


Fig. 3.



Inventor

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UNITED STATES PATENT OFFICE

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WEIGHT-RELEASED SWITCH

Application filed May 19, 1924. Serial No. 714,494.

This invention relates to a weight released switch for oil burners for furnaces and heating plants.

The primary object of the invention is to provide an alarm which is automatic in its action and which is put in operation if for any reason the flow of oil to the burners of an oil burner has been shut off.

Another object of the invention is to provide an audible alarm for automatic oil burners that is operated by the movement of a safety valve of the oil burner which controls the oil to the burners thereof.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claim.

In describing my invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:

Figure 1 is a view illustrating the application of the alarm system to the safety valve of an oil burning furnace.

Figure 2 is a top plan view of the safety valve actuating means and showing the electric contacts for the alarm.

Figure 3 is a view showing parts in side elevation and section to illustrate the operation of the safety valve.

Referring to the drawings in detail the letter A indicates an oil bowl of an automatic oil burner, B the overflow pipe therefor and C the overflow bucket which is arranged to receive the excess oil from the oil bowl.

Interposed between the ends of the oil line to the oil bowl is a safety valve of the rotary type which includes a notched wheel D which controls the valve through the medium of a lever E adapted to be actuated by the weight of the contents of the bucket C. The valve is closed by the tension of the spring F when the wheel is released. The lever E is pivoted adjacent one end to a link G which is secured to a part of a bracket H clamped to the valve casing as shown in Figure 3 of the drawings.

Rising from and secured to the bracket H is an arm 1 insulated from the bracket and secured to the arm 1 through the medium of a headed screw bolt 2 is a spring contact 3 arranged in the path of a screw contact 4 threadedly secured to the notched wheel D adjacent the periphery thereof as shown in Figure 2. Fixed to the headed screw bolt 2 is a conductor 5 having its opposite end secured to an electric bell 6 which has extending therefrom a conductor 7 electrically connected to the battery 8 which is further provided with a conductor 9 having its opposite end secured to the screw contact 4 as shown in Figure 1. Interposed in the conductor 9 is a switch 10 whereby the circuit can be controlled.

The arm 1 is enlarged adjacent its lower end to provide adequate space for accommodating a pair of spaced bolts which not only secures the arm in its upright position but act as a securing means for the link between the bracket and the lever E as above stated. The arm 1 is insulated from the bracket by an insulating strip 11 which is interposed between the arm and the bracket, and sleeves 12 of insulating material surround the bolts as shown in Figure 3 of the drawings. It should be noted that the spring contact 3 is of substantially U-shaped formation having the arms thereof arranged in contacting engagement and providing resilient fingers to receive an upstanding blade 4′ therebetween and which is formed with the screw contact 4. This action takes place when the safety valve has been closed.

From the above and disclosure as presented by the drawings it will be apparent that the alarm system of the present invention will indicate that the safety valve has been closed and the operation of the device may be described as follows:

Assuming that the oil bowl A has overflowed and the bucket C contains sufficient excess oil to provide weight to overcome the tension exerted upon the lever E, the latter will be arranged out of engagement with the teeth of notched wheel D with the result that said notched wheel will be revolved through

the medium of the spring of the safety valve as disclosed in Figure 3 and the blade 4′ will be arranged between the spring fingers of the spring contact 3 and thereby close the circuit for ringing the bell 6 to indicate that the safety valve has closed.

It is thought from the foregoing description that the advantages and novel features of my invention will be readily apparent.

I desire it to be understood that I may make changes in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claim.

What I claim is:

In a valve actuated switch, a screw contact threadedly secured to a movable element, a blade formed with and rising from said screw contact, a stationary arm, a substantially U-shaped spring contact fixed to said arm and arranged in the path of the blade to receive the same between the arms thereof for engagement with the latter, and the arms of the substantially U-shape spring contact having outwardly flared free ends.

In testimony whereof I affix my signature.

SCOTT MITCHELL.