

H. R. SHIRLEY.
 AUTOMATIC FIRE ALARM.
 APPLICATION FILED FEB. 21, 1912.

1,054,624.

Patented Feb. 25, 1913.

2 SHEETS—SHEET 1.

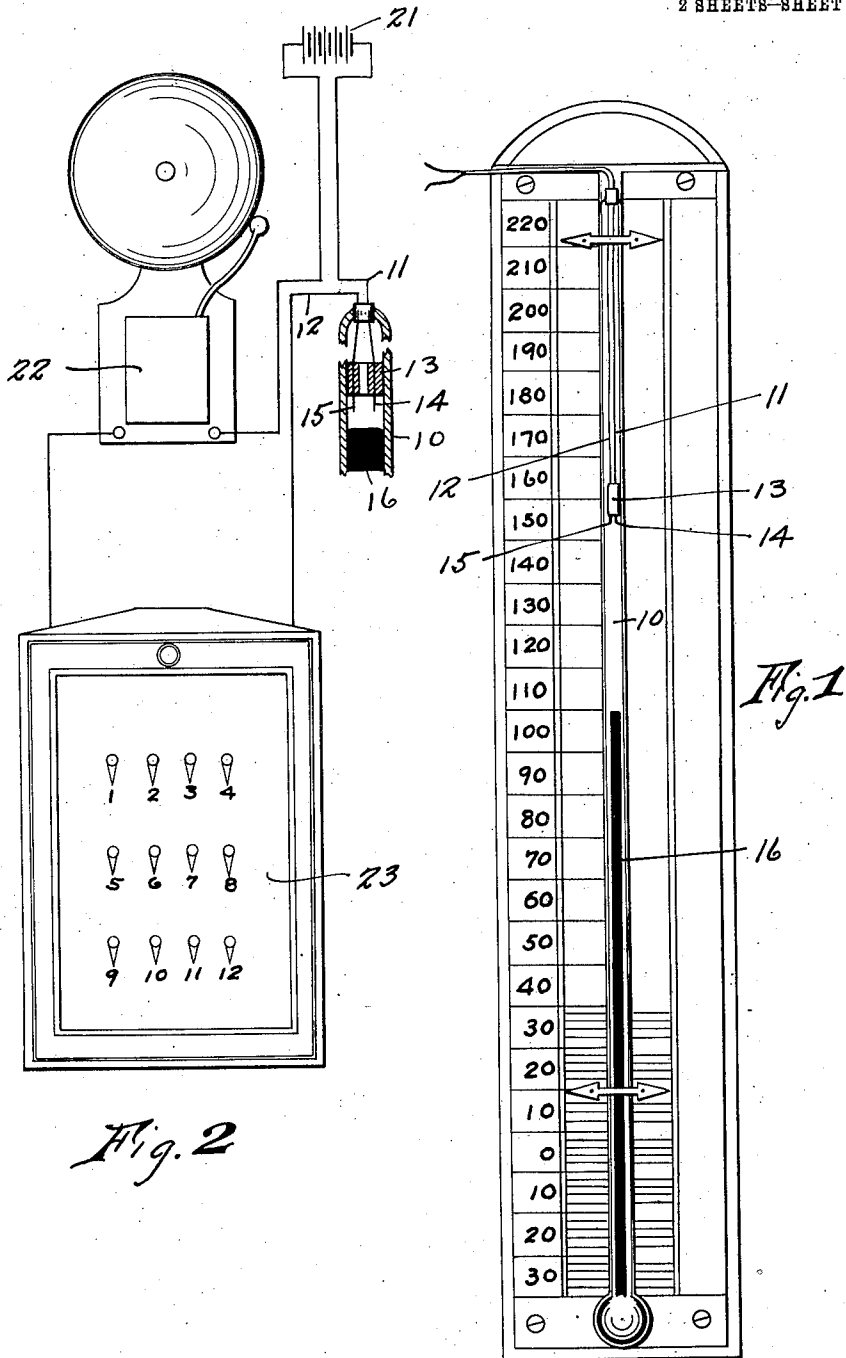


Fig. 2

Fig. 1

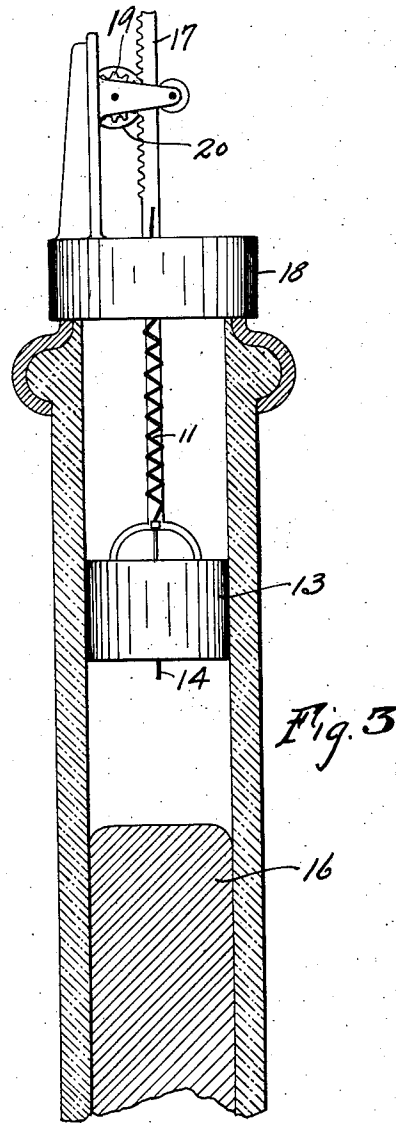
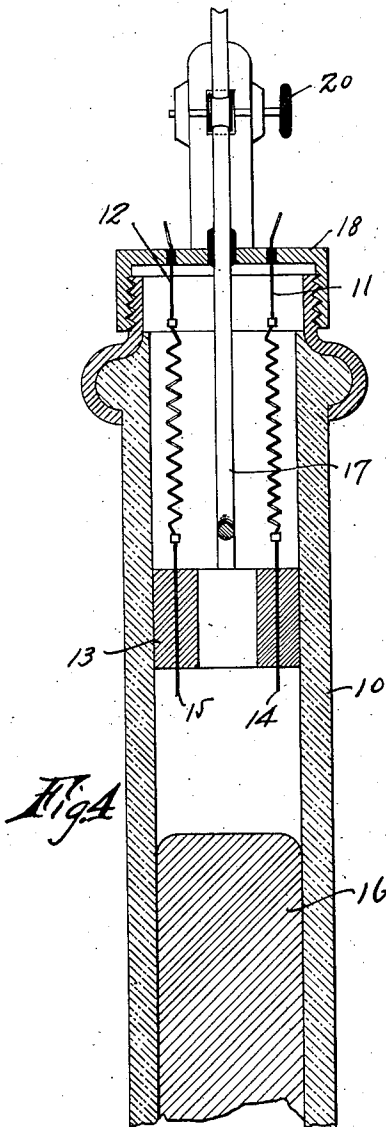
WITNESSES
 N. L. Meem.
 Ruth Shreve.

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UNITED STATES PATENT OFFICE.

HENRY R. SHIRLEY, OF PHOENIX, BRITISH COLUMBIA, CANADA.

AUTOMATIC FIRE-ALARM.

1,054,624.

Specification of Letters Patent.

Patented Feb. 25, 1913.

Application filed February 21, 1912. Serial No. 679,133.

To all whom it may concern:

Be it known that I, HENRY R. SHIRLEY, a citizen of the United States, residing at Phoenix, British Columbia, Canada, have invented certain new and useful Improvements in Automatic Fire-Alarms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to automatic fire alarms and has for an object to provide a normally open electric circuit with improved means for closing the circuit by and incident upon the expansion of a mercury column.

A further object of the invention is to provide a mercury column operating substantially as a thermometer with contacts disposed within the mercury tube adjustable to various heights relative to the tube.

A further object of the invention is to provide in a mercury tube a longitudinally movable member carrying contacts positioned to be engaged by the mercury within the column with improved means for adjusting the contact carrying member.

With these and other objects in view the invention comprises certain novel constructions, combinations and arrangement of parts as will be hereinafter more fully described and claimed.

In the drawings:—Figure 1 is a view of a mercury column similar to a thermometer, showing the contact member applied thereto in its simplest form. Fig. 2 is a view of the mercury column broken showing the contact member therein with an annunciator alarm system connected therewith. Fig. 3 is a fragmentary view of the tube of the mercury column showing the means for adjusting the contact member therein. Fig. 4 is a view similar but taken at right angles to Fig. 3.

Like characters of reference indicate corresponding parts throughout the several views.

A tube 10 is provided which preferably is of glass, similar to a thermometer tube but is constructed at the top to permit the introduction of wires 11 and 12. The wires extend downwardly within the tube 10 and are carried by a block 13 which is movable

within the tube with the ends of the wires 11 and 12 inserted through the block to form contact terminals 14 and 15 in position to be engaged by the mercury column 16 when it shall rise within the tube 10 to a sufficient height.

In its simplest form, as shown at Fig. 1, the block 13 is simply drawn upwardly and downwardly by engaging the wires 11 and 12 but it is found more convenient to employ means for adjusting the block 14 and for that purpose a rack 17 is provided which extends upwardly through the cap 18 as shown at Figs. 3 and 4, with a pinion 19 actuated by a hand wheel or knurled disk 20. As the knurled disk 20 is actuated it will be apparent that the rack 17 and the block 13 connected therewith will be moved upwardly or downwardly, the wires 11 and 12 being provided with spiral portions as shown at Figs. 3 and 4 to permit of such adjustment without the wires themselves being adjusted or inserted through the cap 18.

As shown at Fig. 2, the wires 11 and 12 are connected with the source of electrical energy 21 and thence to an alarm 22 and with an annunciator 23 in the usual well known manner.

In employing the disk as a fire alarm it will be apparent that a nicety of registration will not be required, as in a thermometer, so that the tube 10 need not to be constructed as a vacuum as is the practice in thermometry. The variation of the mercury column within the tube, even if subjected to atmospheric pressure, will not be sufficient to detrimentally vary the operation of the device.

I claim:—

1. In an electrical alarm, a tube, a mercury column within the tube, a block mounted to move longitudinally of the tube, conductors passing through said block, a cap covering the top of the tube, conductors passing through said cap, flexible conductors secured to said aforementioned conductors and extending between the cap and block, and means for moving the block.

2. In an electrical alarm, a tube, a column of mercury in said tube, a block mounted to slide within said tube and frictionally held by the walls thereof, an air passage through said block, a plurality of conductors passing through said block, a cap clos-

ing the tube, a plurality of conductors passing through the cap, a plurality of flexible electrical conductors connecting said first mentioned conductors with the second mentioned conductors and extending between
5 the cap and block, and means for moving the block.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY R. SHIRLEY.

Witnesses:

H. E. SMITH,
NANNIE MEEM.