Dec. 25, 1956 R. C. SLOAN 2,775,669

THERMALLY OPERATED CIRCUIT MAKER

Filed May 6, 1954

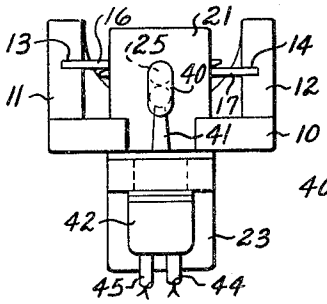


Fig-3

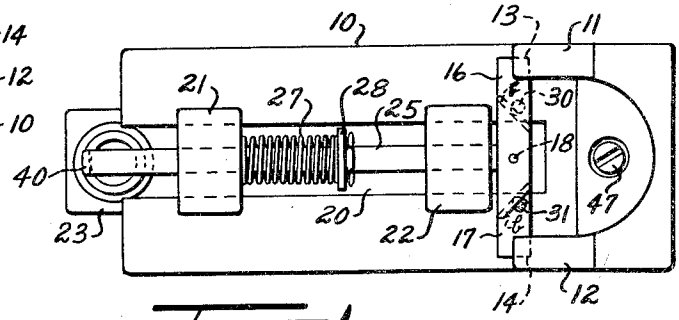


Fig-1

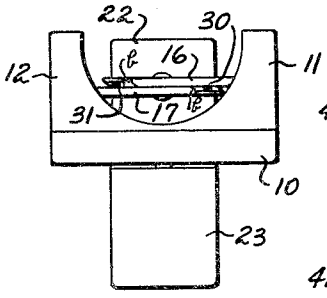


Fig-4

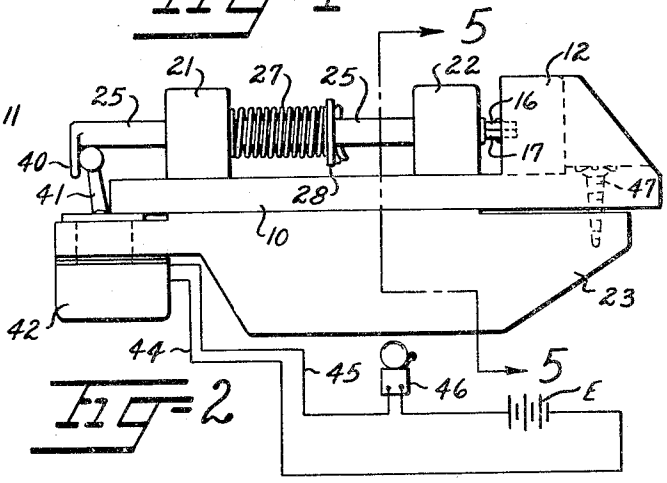


Fig-2

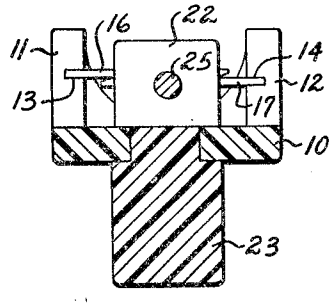


Fig-5

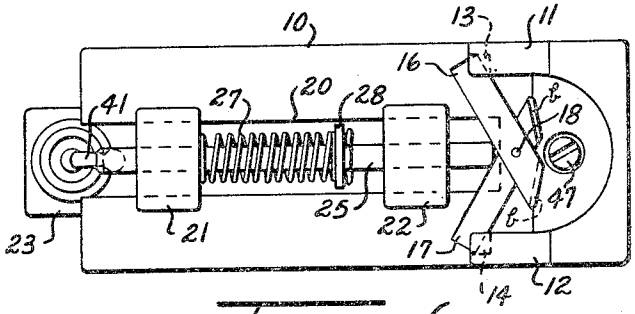


Fig-6

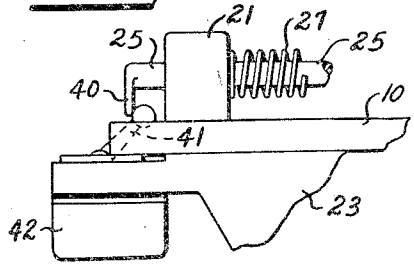


Fig-7

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THERMALLY OPERATED CIRCUIT MAKER

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7 Claims. (Cl. 200—142)

This invention relates to a circuit maker adapted to be associated with a fire alarm system or it could be used for actuating a sprinkling apparatus to prevent a fire within a building.

It is an object of this invention to provide a circuit maker which is normally held in open position and which, upon a predetermined high temperature being reached within the space in which this device is positioned, will automatically move a switch to closed position to actuate an alarm or other system to thus indicate a fire is disposed within the building in which this device is located.

It is an object of this invention to provide an efficient and inexpensive circuit maker for activating a fire alarm system which is not liable to get out of order and which will operate with precision and accuracy.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds when taken in connection with the accompanying drawings, in which—

Figure 1 is a top plan view of the device;

Figure 2 is a side elevation looking up at the lower side in Figure 1;

Figure 3 is an end view looking at the left hand end of the apparatus in Figure 2;

Figure 4 is an end view looking at the right hand end of the device in Figure 2;

Figure 5 is a vertical sectional view taken substantially along the line 5—5 in Figure 2;

Figure 6 is a view similar to Figure 1 but showing the parts in a position they will occupy upon temperature reaching a predetermined point;

Figure 7 is an elevation of the left hand portion of Figure 6 looking upward from the bottom of Figure 6.

Referring more specifically to the drawings, the numeral **10** indicates a main portion of the device which has a pair of uprising portions or supports **11** and **12** each provided with cavities **13** and **14** in which the remote ends of suitable bars **16** and **17** are mounted for movement. These bars **16** and **17** are pivotally secured to each other by a pivot pin **18** and have their overlapped ends beveled as at *b*. The member **10** has a longitudinally extending slot **20** which is penetrated by uprising post members **21** and **22** which are integral with a base member **23**.

Slidably mounted in the uprising posts **21** and **22** is a shaft **25** the right end of which in Figures 1 and 2 is adapted to press against the bars **16** and **17** by means of a compression spring **27** disposed between post **21** and a collar **28** fixed on the shaft **25**. The bars **16** and **17** are held in alinement with each other by means of spots of glue **30** and **31** applied to their upper surfaces and are positioned to engage the tapered ends of the bars **16** and **17** in alined position even though the pressure of the spring **27** is exerted against them in their strengthened position as shown in Figures 1 and 2. This glue is of a type which has a rather high melting point somewhat higher than paraffin and is sometimes referred to as jeweler's glue. However, it has a melting point of between 110 and 125 degrees F. or above any normal temperature but has a melting point which is low enough to melt upon the rising of the temperature in the location of the device which will be created by a fire in the vicinity.

The left hand end of the shaft **25** in Figures 1 and 2 has a downturned portion **40** which is adapted to travel in alinement with a toggle switch lever **41** which is a part of a toggle switch mechanism **42** which is mounted on the base member **23** and insulated thereupon and has wires **44** and **45** leading therefrom to a suitable alarm device **46** and these wires **44** and **45** are connected to a suitable source of energy E.

As shown in the drawings the base member **23** and the portion **10** are made of plastic material to insulate the toggle switch mechanism, but the parts **23** and **10** could be made of any suitable material so long as the toggle switch mechanism **42** is insulated from the parts **10** and **23**.

The parts **10** and **23** are secured together by any suitable means such as a screw **47** penetrating the member **10** and embedded in the member **23**. These two parts are secured together when they are adjusted relative to each other so as to cause the parts to occupy the position shown in Figure 1.

The device is set in the position shown in Figures 1 and 2 and when the temperature has risen to a predetermined point so as to melt the glue spots **30** and **31**, the spring **27** acting upon the shaft **25** will move the parts to the position shown in Figure 6, at which time the toggle switch lever **41** will be moved from the position shown in Figure 2 to the position shown in Figures 6 and 7 which will make a circuit in the switch mechanism **42** and energize the alarm **46**.

Instead of connecting the wires **44** and **45** to an alarm **46** they could be connected to a sprinkler mechanism or extended to a fire station or any other suitable place if desired.

In the drawings and specification there has been set forth a preferred embodiment of the invention and although specific terms are employed, they are used in a generic and descriptive sense only, and not for purposes of limitation, the scope of the invention being defined in the claims.

I claim:

1. A circuit controlling element comprising a base member having a pair of uprising supports, a pair of members pivoted to each other intermediate their ends, and having their distal ends engaging said pair of supports, a shaft slidably mounted in said base member and having one end thereof adapted to engage a medial portion of the two members pivotally connected to each other, a compression spring mounted on said shaft, said shaft being settable manually to a position to where one end thereof will engage the two members pivoted to each other, the other end of the shaft having a downturned portion, a toggle switch mechanism mounted on the base member and having a lever projecting upwardly in the path of the downturned portion on the shaft, the two members pivoted intermediate their ends having a fusable material on each adapted to hold the two members in alined position against the pressure of said compression spring and said material meltable at a predetermined temperature to allow the compression spring to pivot the two members out of alinement with each other and to allow the downturned portion of said shaft to move the toggle switch lever mechanism from one position to the other.

2. A circuit controlling element comprising a base member having a pair of uprising supports, each provided with a slot, a pair of members pivoted to each other intermediate their ends and having their distal ends mounted

in said slots, a shaft slidably mounted in said base member and having one end thereof adapted to engage a medial portion of the two members pivotally connected to each other, a compression spring mounted on said shaft and biased to press one end of the shaft against the pair of members, said shaft being settable manually to a position to where one end thereof will engage the two members pivoted to each other, the other end of the shaft having a downturned lug, a toggle switch mechanism mounted on the base member and having a lever projecting upwardly in the path of the downturned lug on the shaft, the two members pivoted intermediate their ends having a fusable material on each adapted to hold the two members in alined position against the pressure of said compression spring, and said fusable material being meltable at a predetermined temperature to allow the compression spring to pivot the two members out of alinement with each other and to allow the downturned lug on said shaft to move the toggle switch lever mechanism from one position to the other.

3. In a circuit maker and breaker for an alarm circuit, a base member having a pair of upwardly projecting portions, a shaft slidably mounted in said upwardly projecting portions, compression spring means on said shaft for moving the shaft in one direction, a pair of members pivoted intermediate their ends and having overlapping portions, a member associated with said base member and having a pair of spaced upwardly projecting portions, each provided with a cavity therein into which the distal ends of the pair of members pivotally connected to each other are adapted to rest, the pair of members each having thereon a meltable substance adapted to hold the pair of members in alined position, the pair of members being mounted in the path of said shaft and said compression spring tending to move one end of said shaft against an intermediate portion of said pair of members, a toggle switch mechanism mounted on said base member adjacent the end of the shaft remote from the pair of pivoted members, said shaft having a downturned portion disposed adjacent the lever of the toggle switch mechanism, said shaft being manually settable to where the pair of alined members which are pivotally secured to each other may have their distal ends inserted in said cavities and be disposed in the path of said shaft so that the compression spring mounted on said shaft will exert pressure on a medial portion of said overlapped members, and said shaft having a downturned portion adapted to travel in the path of the lever of the toggle switch mechanism, whereby upon a fusing of the meltable substance on the pair of members pivotally connected to each other the members will be allowed to pivot relative to each other under pressure of said compression spring and thus allow the movement of the shaft with its downturned end to move the toggle switch mechanism from one position to another.

4. A circuit controlling element comprising a base member having a pair of uprising supports, a pair of members pivoted to each other intermediate their ends

and having their distal ends engaging said pair of supports, a fusable material on said pair of members adapted to normally hold said members in alined position transverse to said pair of supports, a switch mechanism mounted on said base member remote from said pair of members and means mounted on said base intermediate said switch and said pair of members adapted to exert pressure on said pair of members pivoted to each other to pivot said pair of members out of alinement and to move the switch from one position to another upon said fusable material being melted at a predetermined temperature.

5. A circuit controlling element comprising a base member having a pair of uprising portions, a pair of pivotable members having their distal ends engaging said pair of uprising portions, a fusable material on said pair of pivotable members adapted to normally hold said pivotable members in alined position transverse to said pair of uprising portions, a switch mechanism mounted on said base member remote from said pair of pivotable members and means mounted on said base intermediate said switch and said pair of pivotable members to pivot the same out of alinement and to move the switch from one position to another upon said fusable material being melted at a predetermined temperature.

6. A circuit controlling element comprising a base member having a pair of uprising portions, a pair of pivotable members having their distal ends engaging said pair of uprising portions, a fusable material on said pair of pivotable members adapted to normally hold said pivotable members in alined position transverse to said pair of uprising portions, a switch mechanism mounted on said base member and means mounted on said base adapted to exert pressure on said pair of pivotable members to pivot the same out of alinement and to move the switch from one position to another upon said fusable material being melted at a predetermined temperature.

7. A circuit controlling device comprising a base member having a pair of uprising portions, at least one pivotable member having one end engaging one of said pair of uprising portions, a fusable material on said pivotable member adapted to normally hold said pivotable member in alined position transverse to said pair of uprising portions, a toggle switch having a switch lever mounted on said base member and means mounted on said base adapted to exert pressure on said pivotable member to pivot the same out of alinement and to move the toggle switch lever from one position to another upon said fusable material being melted at a predetermined temperature.

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