Feb. 24, 1959

G. M. TRACY

2,875,298

THERMAL FUSE

Filed Aug. 28, 1956

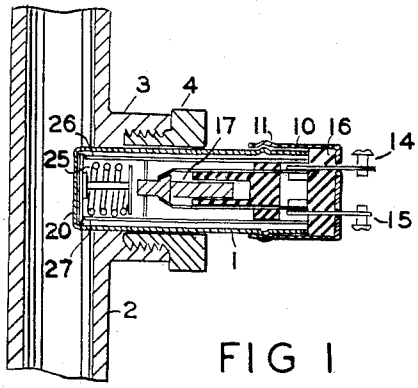


FIG 1

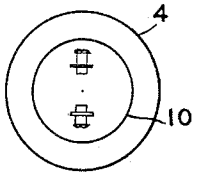


FIG 1A

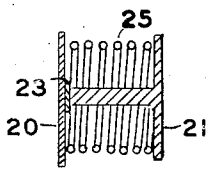


FIG 2

INVENTOR.

GLEN M. TRACY

United States Patent Office 2,875,298
Patented Feb. 24, 1959

2,875,298

THERMAL FUSE

Glen M. Tracy, Rockville Centre, N. Y., assignor to Glenton Industries, Inc., Hempstead, N. Y.

Application August 28, 1956, Serial No. 606,719

1 Claim. (Cl. 200—142)

This invention relates to thermal fuses and more particularly to water temperature fuses having replaceable fusible elements.

In cases such as automatic hot water heaters, if there is any malfunction of the regulation, there is the danger of extremely hot water or even steam, which might scald a user or cause an explosion in the system.

The present invention provides a replaceable fusible element or button which is adapted to open electrical contacts. Conversely, the contacts may be closed, for instance, when used as a detector in an automatic fire prevention sprinkling system or other similar uses.

Accordingly, a principal object of the invention is to provide new and improved thermal fuse means.

Another object of the invention is to provide new and improved thermal fuse means with replaceable fusible elements.

Another object of the invention is to provide new and improved thermal fuse means with replaceable fusible elements adapted to make or break electrical contacts.

Another object of the invention is to provide thermal fuse means comprising a pair of electrical contacts and means to change the position of said contacts relative to each other comprising replaceable fusible means including a spring-loaded member.

These and other objects of the invention will be apparent from the following specification and drawings, of which:

Figure 1 is a sectional view of an embodiment of the invention.

Figure 1A is an end view of Figure 1, and

Figure 2 is a detail view of the embodiment of Figure 1.

Referring to the figures, the invention comprises a casing **1** which is adapted to be set in a water pipe **2** by means of the **T** connection **3** and the connector **4**. An upper casing **10** is adapted to slide over the casing **1** and snap on at the indented part **11**. The upper casing has mounted therein a pair of electrical contacts **12** and **13** which are connected to a pair of external terminals **14** and **15**. The contact strips are mounted in a block of insulating material **16**. In the position shown, contact is made between the tips **12** and **13** by means of the slidable wedge shaped conducting member **17**.

Referring to Figure 2, the replaceable fusible elements comprise a base member **20** and a top button member **21**, having a shaft integral with or fixedly connected to the top member **21**. It is fused to the bottom member

20 and held there by the fusible material **23**. A spring **25** is compressed between the top and bottom members **20** and **21**.

The fusible material is predetermined for a particular temperature. For instance, various types of fusible or bonding combinations may be used and it is possible to obtain materials which will melt at predetermined temperatures with great accuracy.

The fusible material is a eutectic alloy having a high percentage of bismuth and alloyed with other metals. By using varied amounts of bismuth with other metals, different melting temperatures can be obtained. These melting temperatures can be predetermined and standardized. For instance, eutectic alloys have been produced having melting points of 117° F., 136° F., 158° F. and other temperatures up to 281° F. Commercially available eutectic alloys of desired melting points may be used.

The operation of the device is as follows: When your water reaches the predetermined temperature, the fusible material will melt and the spring will force the top member **21** against the electrical connecting member **17**, thereby opening the electrical contacts **12** and **13**.

Once the element of Figure 2 is used, it may be removed from the casing and a new one snapped in. The replaceable element is held by the walls **26** and **27** connected to the removable casing **10**.

The apparatus may be designed to close the contacts by reversing the connecting member **17** to a position as to contact the two contacts when it is moved by the spring.

When connected to an ordinary hot water system, the fusible material could be a material such as solder having a melting point of approximately 170° to prevent the possibility of scalding water.

The device is not limited to water systems but may be used in hot air systems such as ovens, hot air heating systems, fire detection, and/or sprinkling systems and other uses which will occur to those skilled in the art.

I claim:

Thermal fuse means for a pipe carrying liquid under pressure comprising a first fixed casing connected to and extending into said pipe, a removable casing adapted to snap onto said first casing, a pair of electrical contacts in said removable casing connected to external terminals and means to change the position of said contacts relative each other, comprising replaceable fusible unit means including a spring loaded member, fusible means locking said member, said member being adapted to change the position of said contacts when unlocked, said fusible means being easily replaceable by removing said removable casing.

References Cited in the file of this patent

UNITED STATES PATENTS

1,391,167	Carlson	Sept. 20, 1921
1,416,008	Fayle et al.	May 16, 1922
1,642,953	Hickel et al.	Sept. 20, 1927
1,685,136	Montgomery	Sept. 25, 1928
1,813,844	Gilbert	July 7, 1931
1,982,984	Durant	Dec. 4, 1934
2,442,830	Spracher	June 8, 1948