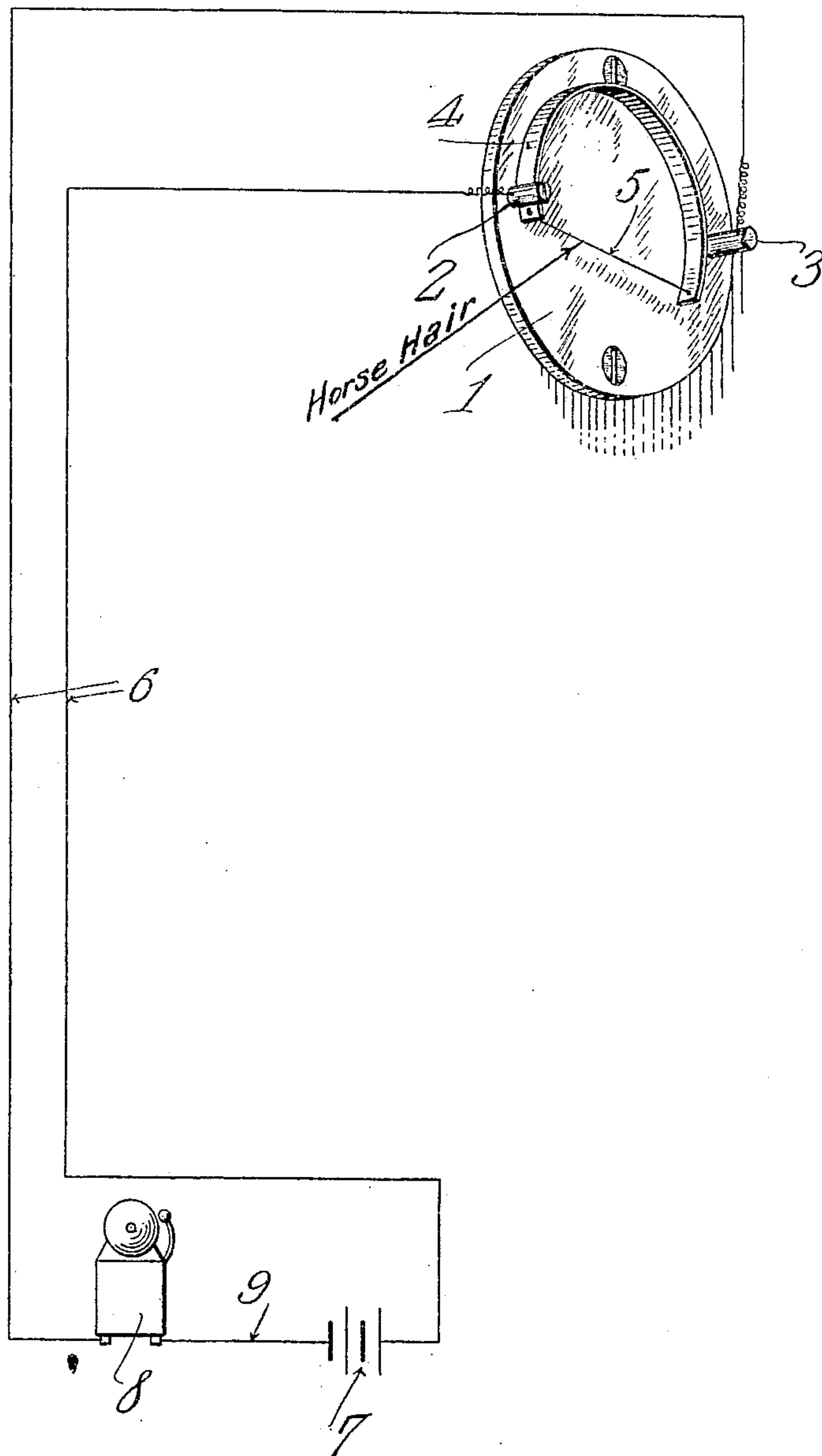


962,552.

Patented June 28, 1910.



Witnesses

E. J. Stewart
H. J. Chapman

Inventor

Martin V. Crawford

By

C. A. Snow & Co.
Attorneys

UNITED STATES PATENT OFFICE.

MARTIN V. CRAWFORD, OF BLAINE, WASHINGTON.

FIRE-ALARM.

962,552.

Specification of Letters Patent. Patented June 28, 1910.

Application filed February 4, 1909. Serial No. 476,014.

To all whom it may concern:

Be it known that I, MARTIN V. CRAWFORD, a citizen of the United States, residing at Blaine, in the county of Whatcom and State of Washington, have invented a new and useful Fire-Alarm, of which the following is a specification.

This invention has reference to improvements in automatic fire alarms, and its object is to provide an alarm mechanism which will respond to an undue degree of heat, but which at the same time is not thermostatic in its operation.

The invention comprises an electric alarm circuit including circuit terminal devices which are held in the disengaged position by means of a fiber or strand, so that when the fiber or strand is destroyed by an undue degree of heat, the circuit terminals will move together because of the resiliency of one of said circuit terminals which is held out of contact with the other by the strand or fiber.

In the present invention the strand or fiber employed is made of animal fiber, and specifically of horse hair.

The invention will be best understood from a consideration of the following detail description taken in connection with the accompanying drawing forming a part of this specification, in which drawing there is shown a perspective view of the circuit controlling device with an electric circuit indicated diagrammatically.

Referring to the drawing, there is shown a base plate 1, which, in the preferred form, is made of a disk of glass, although porcelain or any other refractory insulating material may be used.

Mounted on the base 1 in spaced relation are two posts 2, 3 of conducting material, and one of these posts carries one end of a spring 4 which may be in the form of a strip of brass or other elastic material having electro conductive properties, and the other or free end of this spring 4 is disposed in operative relation to the post 3. The two ends of the spring are perforated for the passage of the ends of a strand or fiber 5, which in the particular instance shown is to be considered as made of a piece of horse hair, and this strand or fiber is of such effective length that the free end of the spring 4, that is the end remote from the post 2, is drawn toward said post to an ex-

tent sufficient to carry it out of contact with the post 3 and there hold it.

Extending from the posts 2 and 3 are electric conductors 6, one leading to one side of a battery 7 and the other to a suitable bell 8, and the other side of the battery and the side of the bell remote from the respective conductor 6 are connected by another conductor 9. Of course, any other source of electrical energy besides a battery may be employed. The bell 8 in the particular system shown in the drawings is of the trembler type, and may be replaced by any other type of bell suited to the particular source of electric current. The bell 8 may be taken as a type of any audible signal, or, in fact, of any signal of any type whatever capable of being rendered active by an electric current.

It is customary to attach the plate 1 to the wall of a room in such position as would bring the device in the path of hot gases or the actual flames proceeding from a fire.

It is characteristic of animal fiber, of which horse hair may be taken as a type, that it is not hygroscopic, nor will it respond to heat changes, while hair, and particularly horsehair, is especially resistant to the ravages of time. Nor is it liable to be attacked by insects, while it is specially responsive to the effects of even comparatively moderate degrees of heat, and much more so than manufactured articles of vegetable fiber, such as thread or cord.

In case of a fire, the strand 5 of horse hair while amply strong under normal conditions to maintain the spring 4 in the bowed condition with its free end away from the post 3, is, because of its physical nature and because of its minute diameter rendered instantly so fragile by the effects of a degree of heat which would have no material effect upon a cord or manufactured thread of vegetable fiber that it would be no longer able to withhold the spring 4, but the natural force stored up in the latter would tend to rupture the hair 5 and the circuit would be completed from the battery to the bell and an alarm be given long before a fire could gain any material headway. The hair 5 is destructively affected by a degree of heat not greater than that necessary to operate a thermostat set to indicate dangerous conditions from a fire within a room or building, while the cost of the device is, because of its

simple nature, far less than that of an efficient thermostat.

Should the device be operated it may, of course, be readily put again into working
5 condition by the renewal of the horse hair, which latter is easily obtained at any time.

What is claimed is:—

1. A thermo responsive means for fire
alarm systems comprising a fixed terminal
10 and an elastic terminal, and a strand of horse hair for holding the elastic terminal away from the fixed terminal against its elastic tendency.

2. A thermo responsive means for fire
15 alarm systems comprising a plane insulating base of refractory material, spaced conduct-

ing posts thereon, a conducting strip of elastic material carried by one post and movable by its elastic tendency into contact with the other post in a plane parallel with the face 20 of the base, and a strand of horse hair connecting the ends of the elastic strip and holding it against its elastic tendency out of contact with the post adjacent to its free end.

In testimony that I claim the foregoing as 25 my own, I have hereto affixed my signature in the presence of two witnesses.

MARTIN V. CRAWFORD.

Witnesses:

W. H. McKEE,
C. C. COONSE.