

(No Model.)

F. S. PALMER & L. H. DESISLE.
AUTOMATIC ELECTRIC HEAT ALARM.

No. 475,340.

Patented May 24, 1892.

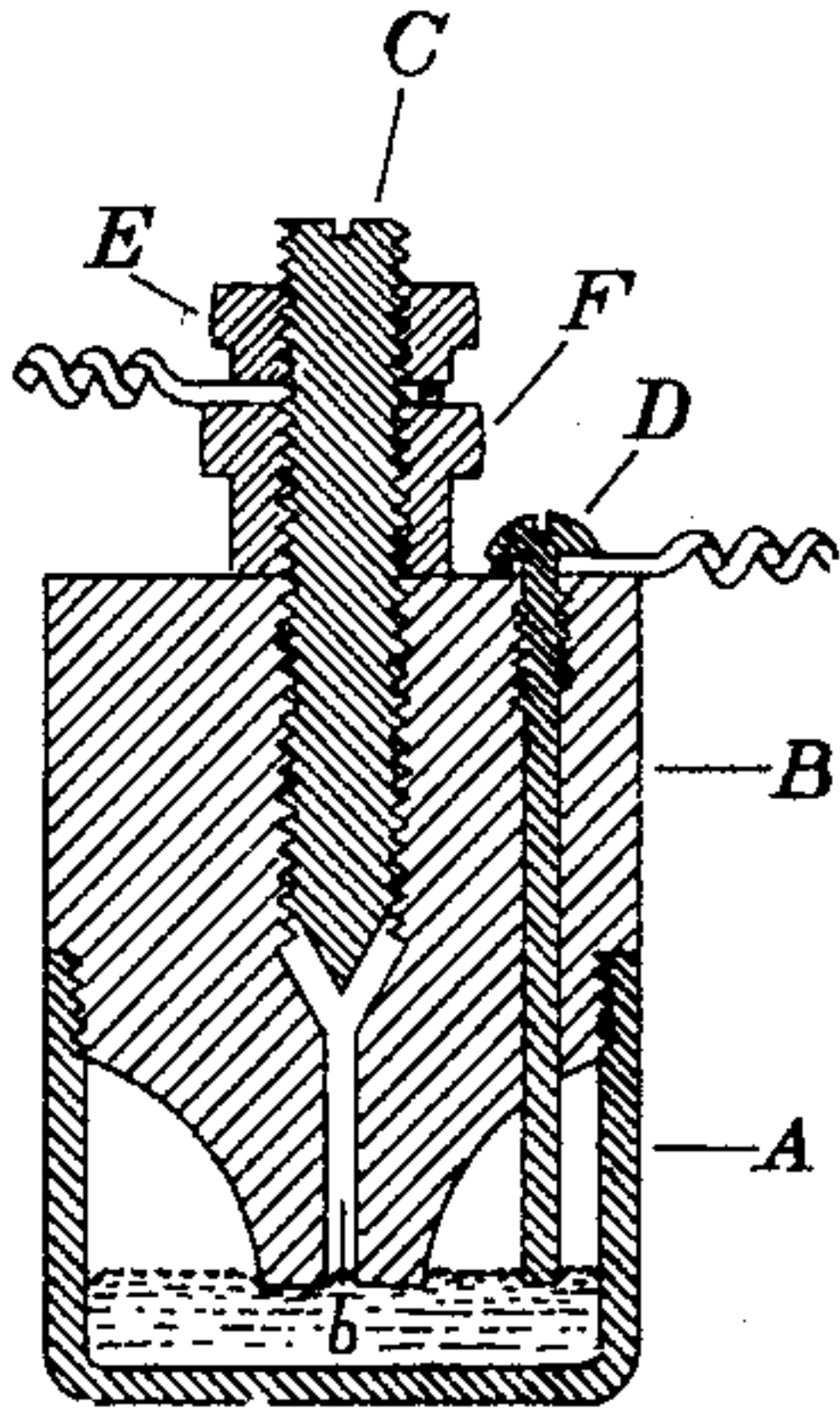


Fig. 1.

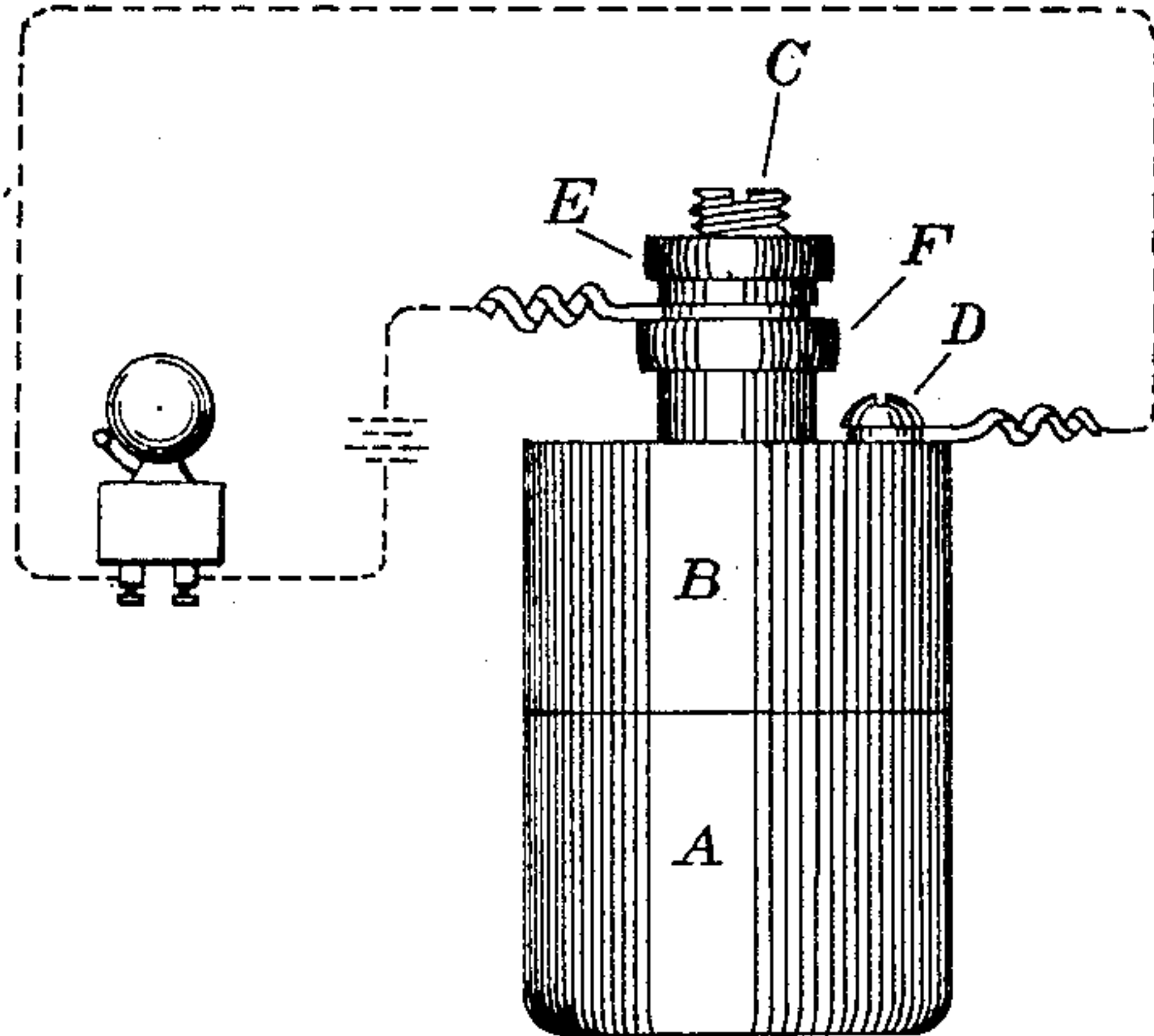


Fig. 3.

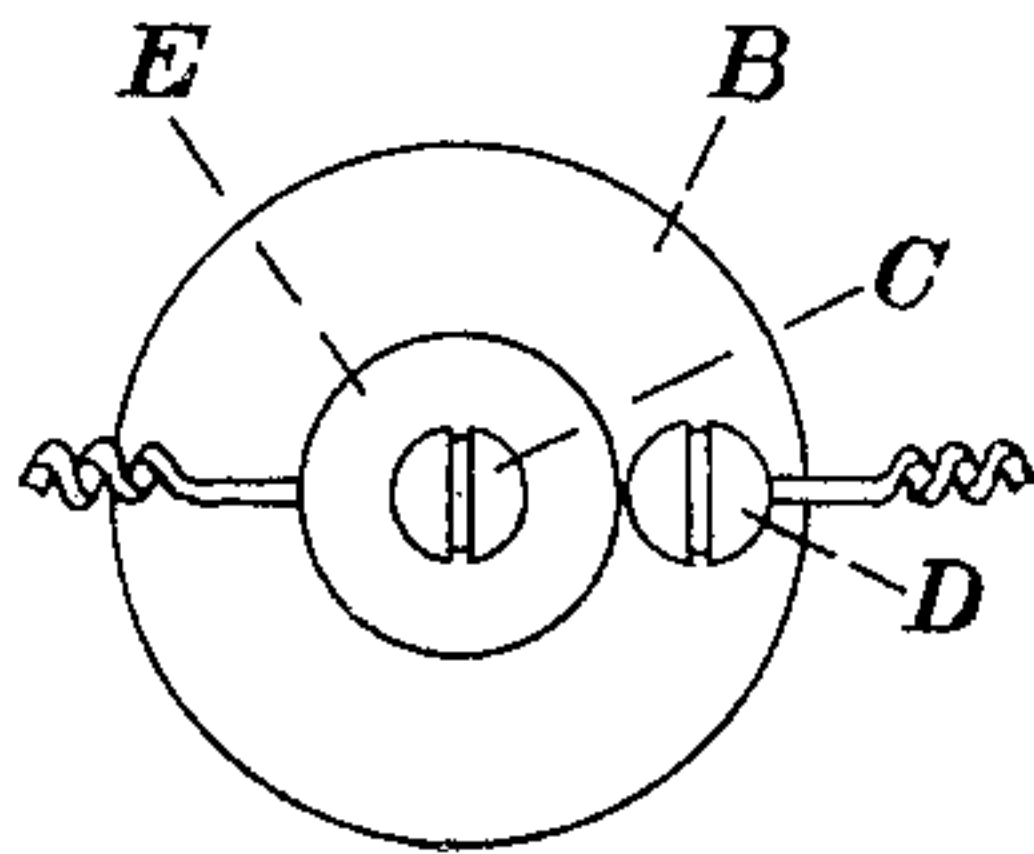


Fig. 2.

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FRED SUMNER PALMER, OF BOSTON, MASSACHUSETTS, AND LEONARD H. DESISLE, OF LAMOINE, MAINE, ASSIGNORS TO THE ELECTRIC HEAT ALARM COMPANY, OF BANGOR, MAINE.

AUTOMATIC ELECTRIC HEAT-ALARM.

SPECIFICATION forming part of Letters Patent No. 475,340, dated May 24, 1892.

Application filed January 9, 1892. Serial No. 417,447. (No model.)

To all whom it may concern:

Be it known that we, FRED SUMNER PALMER, residing at Boston, in the county of Suffolk and Commonwealth of Massachusetts, and LEONARD H. DESISLE, residing at Lamoine, in the county of Hancock and State of Maine, citizens of the United States, have invented certain new and useful Improvements in Automatic Electric Heat-Alarms; and we 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.

Our invention consists of an automatic electric heat-alarm and is intended for use chiefly in connection with journals, bearings, and other parts of machinery where injury may occur through overheating by reason of friction or other causes, it being designed automatically to give an alarm when the heating of the parts begins to be so great as probably to cause damage.

It is fully illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section. Fig. 2 is a plan. Fig. 3 is an elevation of the whole device.

Similar letters refer to corresponding parts throughout the figures.

We provide a thin metallic cup or reservoir A. A plug B, constructed of some material which is a non-conductor of electricity, preferably hard rubber, vulcanite, or laminated fiber, is fitted or screwed into said reservoir. From the center of the plug B is a downwardly-extending thermometric tube *b*, reaching nearly to the bottom of the reservoir A, and the upper portion of the plug B is centrally and vertically bored to receive a conductor-wire or spindle C, the spindle being vertically adjustable in said plug by means of a nut F or other suitable device. The plug B is also bored vertically near its outer edge to receive a second conductor-wire or spindle D, the lower end of which extends nearly to the bottom of the reservoir A. The spindle C is connected at its upper end with one of the poles of an electric battery by means of the set-screw E and the spindle D with the other pole of the battery by any convenient device.

In operation the reservoir A is partially filled with mercury, the plug B and reservoir A are fitted together, and the whole device set in or upon the journal-box or bearing of the machine. As the parts become heated, the mercury expands and rises in the tube *b* until it comes in contact with the spindle C, and having been always in contact with the spindle D an electric circuit is thus completed and an alarm is given by means of a bell or other device. The spindle C, being vertically adjustable in the plug B, may be so set as to be brought in contact with the mercury at any desired temperature.

Our device is constructed upon the general principle of the invention of M. S. Pierce, O. C. Oliver, and Leonard H. Desisle, for which Letters Patent were issued January 12, 1892, and is designed to overcome a possible practical difficulty in the operation thereof.

Our improvement, for which alone we make application for Letters Patent, (hereby expressly disclaiming the special features claimed and allowed to said Pierce, Desisle, and Oliver,) consists in making the entire plug B of material which is not a conductor of electricity, and in using the spindle D, extending downwardly through the plug B to the reservoir A, as one of the battery connections, instead of using a metallic plug and making direct connection with such plug.

The principal advantage of our improvement lies in the fact that with the metallic plug and thermometric tube it is found in practice that globules of the mercury may, under certain conditions, as by sudden jars, be thrown upward into the metallic tube and chamber of Pierce, Desisle, and Oliver, and be left in contact with the spindle, thus making an electric connection and giving an alarm needlessly, whereas with our device no alarm is given under the same circumstances, because the whole plug and tube are of non-conducting material and no electric connection is established.

The use of the plug constructed entirely of non-conducting material also simplifies and cheapens the construction and cost of construction of the device, as it obviates the necessity of the special insulation of the spin-

dle C, which is required when the metallic plug is employed. It is obvious that the use of our spindle D becomes necessary as a consequence of the adoption of the non-conducting plug.

5 Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

10 An automatic electric heat-alarm consisting of the combination of a hollow metallic reservoir, a quantity of mercury within said reservoir, a plug constructed of material which is a non-conductor of electricity partially filling said reservoir and having a small downwardly-extending tubular bore, a conductor-
15 wire or spindle supported within and sur-

rounded by said non-conducting plug and extending to such point as that it may be reached by said mercury when expanded and risen in said tube, a second conductor-wire or spindle 20 supported within said plug and in contact with said mercury before said mercury is expanded, the whole in combination with an electric battery having its poles connected with said spindles, respectively, and a bell or 25 other alarm or indicator connected with and operated by said electric battery.

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