

(No Model.)

C. E. KELLS, Jr.
ELECTRIC THERMOSTAT.

No. 322,612.

Patented July 21, 1885.

Fig. 1

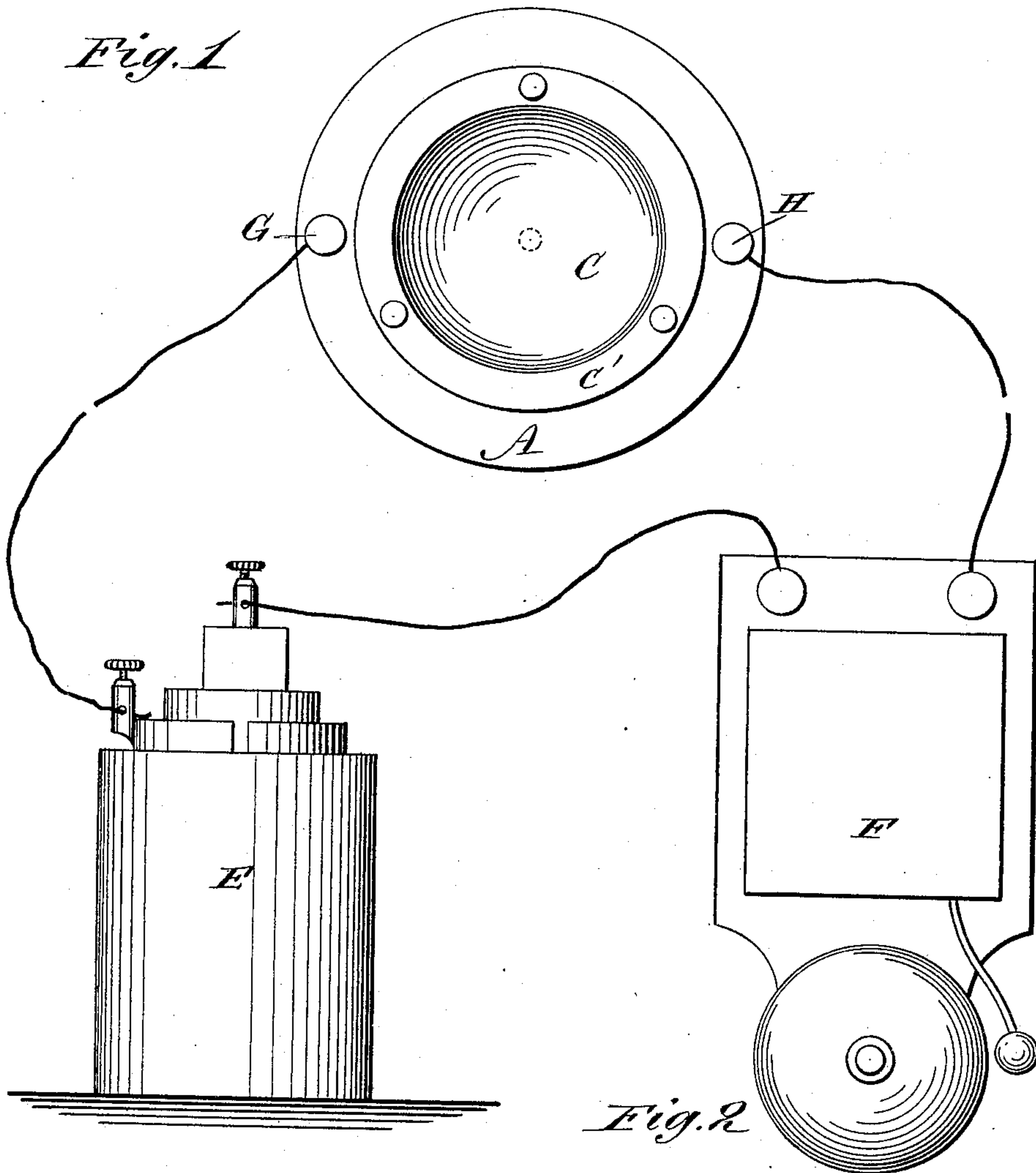
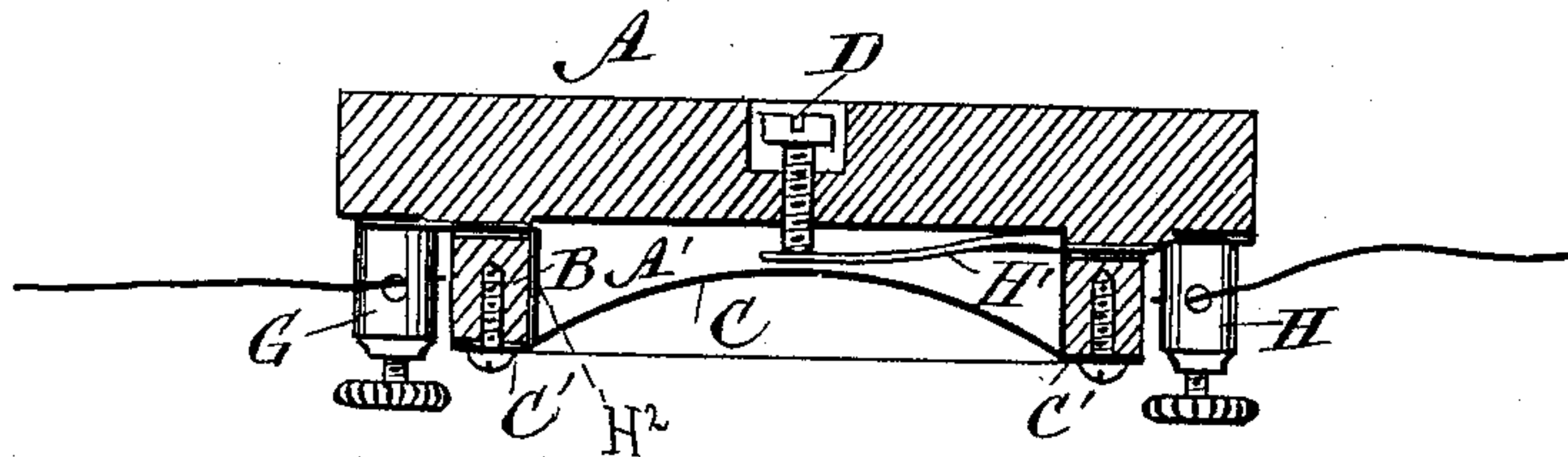


Fig. 2



WITNESSES:

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ELECTRIC THERMOSTAT.

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Application filed January 15, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHARLES EDMUND KELLS, Jr., a citizen of the United States, residing in the city of New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Electric Fire-Alarms or Thermostats; of which the following is a specification.

My invention relates to that class of electric fire-alarms in which the circuit is completed on the application of heat by the expansion of one of the electrodes. Such contact has been caused by the expansion of a liquid or the melting of a fusible plug.

The object of my invention is to secure a cheap, simple, and efficient fire-alarm, which will operate by the direct movement of one of the electrodes on the application of heat. This end I attain by securing a thin concavo-convex metallic diaphragm around its edge to an unyielding support in close proximity to an adjustable contact-point, the diaphragm constituting one electrode or terminal of an electric circuit of which the contact-point constitutes the other, the circuit being closed on the application of heat by the bulging or expansion of the diaphragm into contact with the electrode.

The subject-matter claimed is hereinafter specified.

As this invention constitutes a new combination of well-known instrumentalities, a detailed description of their construction is unnecessary here; but so far as I am aware the organization herein claimed is new.

In the accompanying drawings, which represent my improved apparatus as constructed in the best way now known to me, Figure 1 is a face view of the entire apparatus, including the battery and alarm-indicator, and Fig. 2 a vertical transverse central section through the thermostat proper.

The frame of the instrument or support of the apparatus is shown as consisting of a circular piece, A, of wood, rubber, or other non-conductor of electricity, provided with a central recess, A', thereby forming an annular ridge, B, upon one side thereof. A thin concavo-convex metallic plate or diaphragm, C, preferably made of zinc, is provided with an

annular rim or flange, C', securely fastened to the ridge by nails driven through the rim into the ridge. An adjustable screw, D, is inserted in the frame A in such manner that its inner end will face the outer or convex surface of the diaphragm. The support A is provided with two binding-posts, G H, the former of which is electrically connected with the diaphragm by means of a metallic strip, H², and the latter with a screw, D, by means of a corresponding strip, H'. The binding-post G is electrically connected by suitable wires with a battery, E, which is in turn correspondingly connected with the binding-post H through the electric bell F, constituting an alarm-indicator. It will thus be seen that the diaphragm constitutes one electrode or terminal of the circuit, while the adjustable contact constitutes the other contact-point, electrode, or terminal of said circuit. This screw can be so adjusted that the diaphragm will come in contact with the strip H' sooner or later, as desired—that is, the instrument can be adjusted to give an alarm at any desired increase of temperature or degree of heat. If the temperature of the room in which the fire-alarm is located increases beyond the point of safety, the diaphragm expands or bulges until its convex side comes in contact with the adjustable contact, which closes the circuit and actuates the indicator or alarm.

As my improved apparatus operates directly by the bulging of the diaphragm against a contact-point without the intervention of expanding springs, fluids, or gases, its simplicity and efficiency will readily be perceived without further amplification.

I claim as my invention—

1. The combination, substantially as herein set forth, of the unyielding non-conducting frame, the concavo-convex metallic diaphragm rigidly connected therewith near its edge, constituting one electrode of an electric circuit, and an adjustable contact-point constituting another electrode thereof, to complete the circuit by the direct expansion of the diaphragm when exposed to a high temperature.

2. The combination, substantially as herein set forth, of the unyielding non-conducting frame, the concavo-convex metallic diaphragm

rigidly connected therewith near its edge, constituting one electrode of an electric circuit, an adjustable contact-point constituting the other electrode, a battery, an alarm-indicator,
5 and electrical connections including the battery, alarm, contact-point, and diaphragm in the circuit, to give notice when the diaphragm

expands into contact by the application of heat.

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Witnesses:

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