

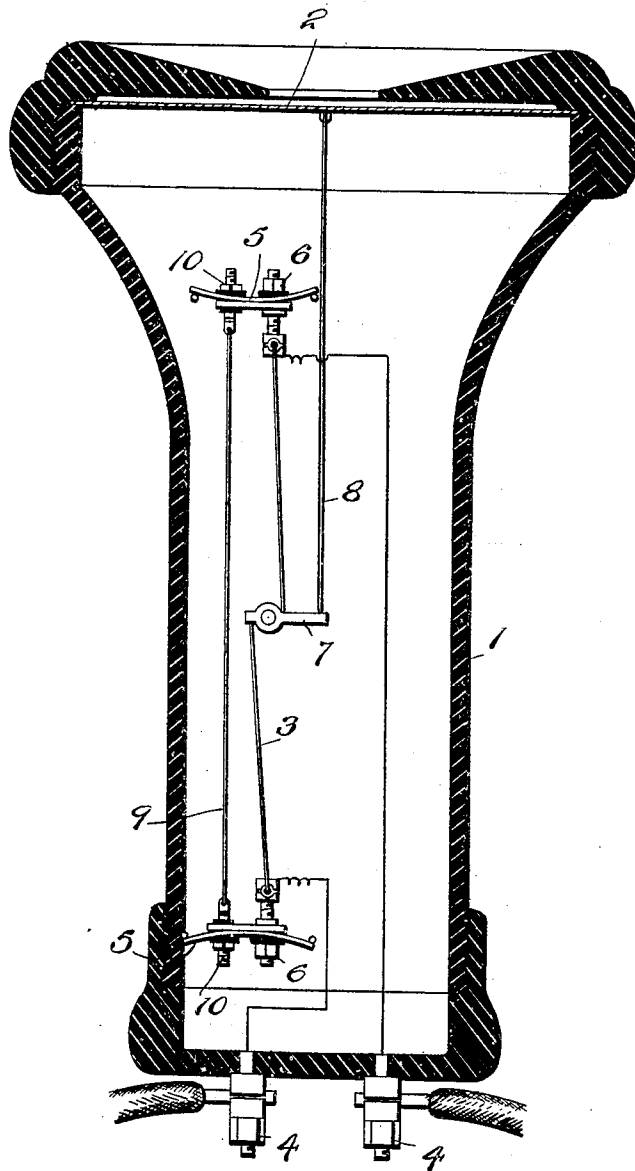
M. J. WOHL & H. HERTZBERG.

SIGNALING DEVICE.

APPLICATION FILED MAR. 16, 1908.

962,687.

Patented June 28, 1910.



Witnesses:
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UNITED STATES PATENT OFFICE.

MAURICE J. WOHL, OF NEW YORK, AND HARRY HERTZBERG, OF BROOKLYN, NEW YORK, ASSIGNORS TO ABBOT A. LOW, OF HORSESHOE, NEW YORK; MAURICE J. WOHL, OF NEW YORK, N. Y., AND HARRY HERTZBERG, OF BROOKLYN, NEW YORK, TRUSTEES.

SIGNALING DEVICE.

962,687.

Specification of Letters Patent. Patented June 28, 1910.

Application filed March 16, 1908. Serial No. 421,428.

To all whom it may concern:

Be it known that we, MAURICE J. WOHL and HARRY HERTZBERG, citizens of the United States, and residents, respectively, of the city of New York, borough of Manhattan, county and State of New York, and of the city of New York, borough of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Signaling Devices, of which the following is a specification.

The object of this invention is to produce a signaling device in which an audible signal is caused by the vibration of a diaphragm through the expansion and contraction of a thermal expansible conductor.

To this end, the invention consists broadly in a signaling device having a diaphragm and a thermal expansible conductor connected with said diaphragm and arranged so that the alternate expansion and contraction of said conductor caused by the fluctuations of the current in the operating circuit vibrates said diaphragm and produce an audible signal.

The invention is illustrated in the accompanying drawing, which shows a longitudinal section through a receiver embodying the novel principle.

In this drawing, 1 is the receiver casing, and 2 the diaphragm, both very much as usual.

3 is a thermal expansible conductor or wire, most conveniently disposed longitudinally within the receiver. This wire is of the greatest thermal delicacy, so as to expand and contract slightly under the changes in temperature due to current variations therein. The usual binding posts 4 are provided for connecting this conductor in the receiver circuit. The conductor 3 is stretched between spring supports 5, to which it is connected by tension adjusting devices 6. The conductor is connected intermediate its length to a short, transversely disposed lever 7; said conductor being connected to this lever at two points at opposite sides of the pivotal axis thereof, so that contraction of the conductor swings the lever in one direction. Said lever is connected with the diaphragm by a wire 8, which may or may not be insulated from the conductor 3. It is to be noted that the spring action of the dia-

phragm takes up the slack in conductor 3, when the latter expands.

In order to prevent the diaphragm being vibrated as a result of expansion and contraction of conductor 3 which are due merely to variations in the surrounding temperature, there is provided a compensating wire 9, which is also stretched between the spring supports 5, being connected thereto by the tension adjusting devices 10. This wire is so selected as to have the same total linear expansion per unit change in surrounding temperature as the conductor 3. It follows, therefore, that changes in the surrounding temperature will not cause the conductor 3 to swing the lever 7; because the conductor and compensating wire expand and contract equally under such condition, and, the compensating wire, being connected only to the spring supports 5, causes these latter to flex one way or the other by just this amount: therefore, the outer ends of the conductor suffer displacement, but not the points on the conductor which are connected with the lever. It will be understood that the compensating wire 9 is suitably insulated from the conductor 3, so as to carry no current.

In operation, the current fluctuations within conductor 3 cause the temperature of the conductor to fluctuate, and this in turn creates variations in the length of the conductor. These slight movements of the conductor 3 are transmitted to the diaphragm through the lever 7 and wire 8; and the resulting vibration of the diaphragm is audible as a signal.

What is claimed as new is:

1. A signaling device comprising a diaphragm, a thermal expansible conductor in the signaling circuit, and mechanical multiplying connection between said conductor and the diaphragm.

2. A signaling device comprising a diaphragm, a lever, connection between the lever and diaphragm, and a thermal expansible conductor in the signaling circuit operatively connected intermediate its ends with said lever.

3. A signaling device comprising a diaphragm, a pivoted lever, connection between said lever and said diaphragm, a thermal expansible conductor connected intermediate

its length to said lever at two points at opposite sides of the pivot thereof, and supports between which said conductor is stretched.

- 5 4. A signaling device comprising a diaphragm, a pivoted lever, connection between said lever and said diaphragm, a thermal expansible conductor connected intermediate
10 its length to said lever at two points at opposite sides of the pivot thereof, spring supports between which said conductor is stretched, and a compensating wire, substantially as described, also stretched between said supports.
- 15 5. A signaling device comprising a diaphragm, a thermal expansible conductor in

the signaling circuit, connection between said conductor and said diaphragm whereby expansion and contraction of the former due to current variation therein vibrates the diaphragm, and compensating means whereby expansion and contraction of said conductor due to variations in surrounding temperature do not affect the diaphragm.

Signed at New York in the county of Kings and State of New York, this 12th day of March 1908.

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