

H. P. TAUBER.

FLOAT GAGE.

(Application filed Oct. 3, 1901.)

(No Model.)

Fig. 1

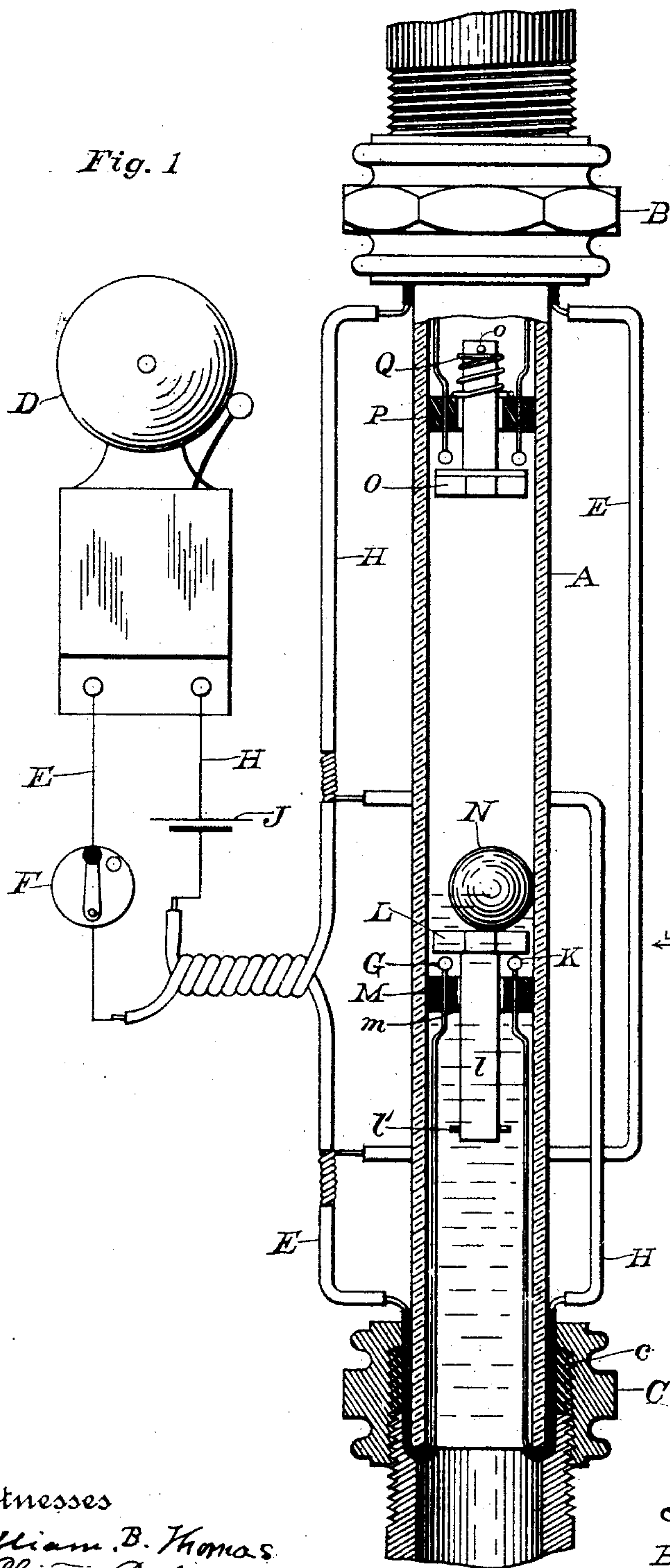
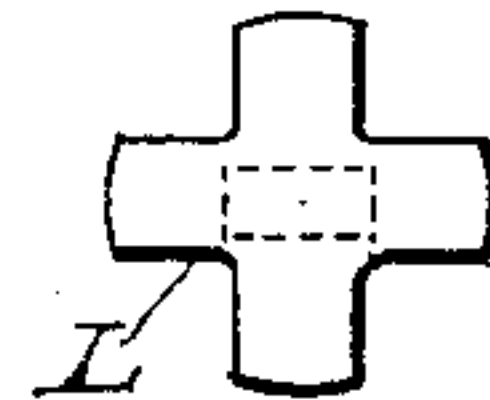


Fig. 2



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HANS PETER TAUBER, OF BROOKLYN, NEW YORK.

FLOAT-GAGE.

SPECIFICATION forming part of Letters Patent No. 696,280, dated March 25, 1902.

Application filed October 3, 1901. Serial No. 77,437. (No model.)

To all whom it may concern:

Be it known that I, HANS PETER TAUBER, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Float-Gages; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to float-gages; and its object is to provide a simple, cheaply-constructed, and reliable device for the purpose of indicating the levels of water contained in steam-boilers or ordinary water-tanks and at the same time to sound an adequate alarm when the level of the water reaches such a plane as to endanger the boiler by a further fall in level.

My invention belongs to that class of float-gages in which the terminals of an electric circuit are located inside the tube and are connected by the action of the float at different levels.

I accomplish the object stated above by placing the two terminals or electrodes in the path of a descending or ascending auxiliary float or table, the auxiliary float being moved by the primary or sight float. The special object of the auxiliary float is to insure a positive, certain, and even connection with the electrodes whether or not the sight-float descends centrally or at one side of the axis of the gage-tube.

Each constituent element of my invention is described in detail and its individual office, together with the mode of operation of the whole, fully explained hereinbelow.

In the accompanying drawings, Figure 1 illustrates my invention and represents a side view of the customary glass-tube gage in vertical section. One of the stuffing boxes or glands in which the ends of the tube are held is also shown in section, while the battery and bell connections are diagrammatic. Fig. 2 is a top plan of the table-floats.

Like letters refer to like parts.

Considering the drawings, letter A marks the glass tube of any length or thickness pass-

ing at the top into the stuffing-box B. Letter C designates the lower stuffing-box, shown in section and having the ring of packing *c*, and these elements may be of any chosen form and construction. I do not limit myself to the particular construction of stuffing-box shown. An arrow indicates the point of low water.

Outside the tube and located at any desired point is the bell D or other electrically-operated signal. From the left-hand terminal of the bell the conductor E leads to the switch F, also situated at any chosen point, and from the switch the conductor passes by way of the lower stuffing-box C into the tube A, where it terminates in an electrode G, which constitutes one terminal of the circuit and, as illustrated, is found below the line of low water. The office of the switch F is merely to cut the circuit when the machine is out of use and no water or but little water is in the boiler. From the right-hand terminal of the bell D the conductor H leads by way of the battery J through the lower stuffing-box C into the tube, where it ends in the electrode K. It will be here noted that the conductors pass under or through the packing *c*, and when this packing is compressed by screwing the parts of the box together a water-tight joint is made with the conductors by reason of such compression. It is believed to be within the scope of my invention to pass the two conductors into the tube directly through the glass, in which they may be welded or otherwise effectively secured. The mode illustrated shows a cheap and simple way of introducing the conductors.

Letter L marks the lower auxiliary float, having the top or table of the form substantially as shown in Fig. 2. This cruciform contour affords ample room for circulation of water and still provides sufficient surface to insure certain contact with the electrodes G and K. The leg *l* of the table possesses greater breadth than thickness, and the insulator-bar M has a slot *m* cut through it midway of the same cross-section as the leg *l*, but somewhat larger, in order that the leg may rise and fall through the slot without binding. It will be noted that below the insulator-bar M the leg carries a transverse pin *l'*, which prevents it from escaping upwardly.

Another office of the insulator-bar M is to hold the conductors E and H in the same position with relation to each other. They are usually cemented in the ends of the bar or otherwise effectively secured. The ends of the conductors which enter the tube support the bar.

The letter N marks the sight-float. This element may be either metal or non-metal. It is, advantageously, of the usual spherical form and dark in color, that it may be readily seen. It is smaller than the tube and by reason of its shape cannot well stick at any point of contact with tube A. If from evaporation or leak the water falls, float N descends, and it matters not upon what point of table-float L it touches the table will be depressed into contact with the electrodes and the alarm sounded.

I construct the float L of hollow metal in the form shown and described, but do not limit myself to an entirely metal float. It is sufficient that the table portion be of metal, or its lower surface may be a metal plate.

I do not always include the high-water table O, the office of which is to give notice of an excess of water. It has precisely the same form as auxiliary float L, but occupies an inverted position. The insulator-bar immediately related to it is marked P and is supported by the conductors, as previously explained. As this table O does not normally float, its weight is balanced by a spring Q, and it is therefore easily raised by the sight-float N in case of high water.

The letter o designates the pin through the leg of table O in contact with the uppermost coil of spring Q.

All the metal employed within the tube is selected with the view of resisting the corro-

sive action of water. The conductors and electrodes may be platinized.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a float-gage, the combination of the gage-tube, a battery, an electrically-operated sounding device, a metallic circuit or series of conductors including the said sounding device and battery, the ends of the circuit being introduced into the tube and terminating in suitable electrodes, a sight-float within the tube, and an auxiliary float adapted to be depressed by the said sight-float into contact with the said electrodes as the water-level descends, the said auxiliary float being constructed to connect the said electrodes metallically, substantially as described.

2. In a float-gage, the combination of the gage-tube, a battery, an electrically-operated sounding device, a switch, a metallic circuit or series of conductors including the said sounding device and battery, the ends of the circuit being introduced into the tube and terminating in suitable electrodes, a sight-float within the tube, an auxiliary float adapted to be depressed by the said sight-float into contact with the said electrodes as the water-level descends, the said auxiliary float being constructed to connect the said electrodes metallically, and means actuated by an excess of water in the tube for closing the circuit, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

HANS PETER TAUBER.

Witnesses:

FREDERICK SCHAFER,
CHAS. HENNING.