

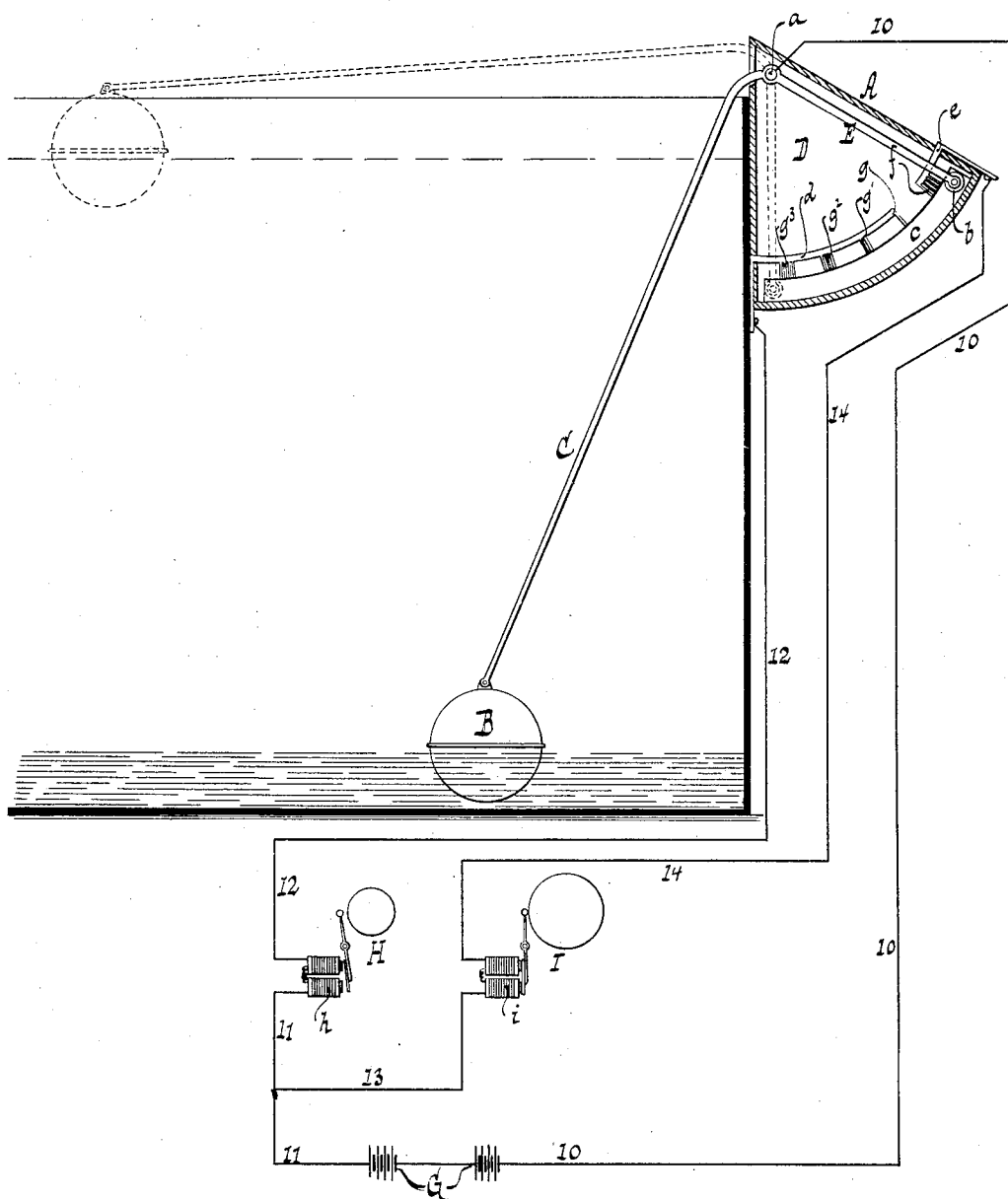
(No Model.)

J. C. BOYLE.

ELECTRIC LIQUID GAGE AND ALARM.

No. 317,289.

Patented May 5, 1885.



WITNESSES:

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ELECTRIC LIQUID GAGE AND ALARM.

SPECIFICATION forming part of Letters Patent No. 317,289, dated May 5, 1885.

Application filed December 29, 1884. (No model.)

To all whom it may concern:

Be it known that I, JEFFREY CRON BOYLE, a subject of the Queen of Great Britain, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Electric Liquid Gages and Alarms, of which the following is a specification.

This invention has for its object to provide novel means for indicating at a distance the level of water in a tank, vessel, cistern, or well; and it consists in the combination of devices hereinafter described and claimed.

The accompanying drawing represents a sectional face view of my electric liquid-gage. In this drawing, the letter A designates a case, which is made of hard rubber or other bad conductor of electricity.

B is a float, which may be made of any material and of any shape suitable for the purpose. This float is secured to an arm, C, which is mounted on a pivot, *a*, secured in the back D of the case A, and which extends beyond the said pivot, so as to form the contact-arm E. This contact-arm is made of metal; but it may be made separate from the float-arm C, and connected to the same in such a manner that its position is controlled by the position of the float.

On the lower end of the contact-arm E is mounted a metallic roller, *b*, which extends into a slot, *c*, in the back of the case A. In this back are secured two metallic strips, *d e*, which are detached and consequently insulated from each other, and from the strip *e* extend one or more contact-strips, *f*, flush with or slightly beyond the upper edge of the slot *c*, so that when the roller *b* approaches the position shown in full lines in the drawing it comes in contact with the ends of the strip *f*. From the metallic strip *d* extend a series of contact-strips, *g g' g'' g'''*, flush with or slightly beyond the upper edge of the slot *c*, so that as the roller *b* is moved in the slot *c* it is brought successively in metallic contact with said contact-strips, and through them with the metallic strip *d*.

G is a galvanic battery, and H I are two electric bells of different sounds. The pivot *a* connects by a wire, 10, with one pole of the battery, and from the other pole of the battery extends a wire, 11, to one end of the helix of

the electro-magnet *h* of the bell H, and the other end of this helix connects by a wire, 12, with the metallic strip *d*. From the wire 11 extends a wire, 13, to one end of the helix *i* of the bell I, and the other end of this helix connects by a wire, 14, with the metallic strip *e*.

The case A is secured to the tank or vessel J, so that when the level of the liquid in the tank is low the float B assumes the position shown in full lines, and when the level of the liquid is high the float is brought into the position shown in dotted lines. As the liquid sinks down, and just before it reaches its low mark, the roller *b* is brought successively in contact with the strips *f*, and whenever contact is made with one of these strips a circuit is closed through the electro-magnet *i* of bell I, and this bell gives one stroke, so that the attention of the person in charge is called to the fact that the liquid in the tank is low. As the level of the liquid in the tank rises, and after the roller *b* has passed the contact-strips *f*, it comes into contact with the strip *g*, and a circuit is closed through the electro-magnet *h* of the bell H, so that this bell gives one stroke. When the roller *b* passes the two strips *g'*, the bell H gives two strokes, and when the roller passes the three strips *g''*, the bell gives three strokes. By these means the depth of the liquid can be indicated, if the strips *g g' g''* are so placed that each of them corresponds to a certain depth—for instance, the strips *g* may be so placed that the bell H gives one stroke when the depth of the liquid in the tank is three feet, the strips *g'* may correspond to a depth of four feet, the strips *g''* to a depth of five feet, and the strips *g'''* to a depth of six feet, the latter being the high-water mark. As the roller *b* passes the strips *g'''*, the bell gives a series of strokes, so as to call the attention of the person in charge to the fact that the liquid in the tank has reached its high-water mark.

It will be readily seen from this description that my liquid-gage may be used to indicate at a distance the level of the water in a tank situated on the roof of a building, so that the person having charge of the pump situated in the basement of the building will be cognizant of the level of the water in the tank; but my liquid-gage can be used with advantage in all cases where it is desirable to indicate at a distance the level of a liquid in a tank, vessel,

cistern, or well. It is essential in my liquid-gage to have two bells giving different sounds, one bell being used to indicate the low-water mark and the other the high-water mark.

5 What I claim as new, and desire to secure by Letters Patent, is—

10 1. The combination of the case A, having a segmental slot, *c*, the pivoted swinging arm C, carrying a float, B, and provided with a contact-arm, E, having a roller, *b*, to travel in the segmental slot, two insulated contact-points, one for low and the other for high water, two electric bells, a battery, and electrical connections, substantially as described.

15 2. The combination of the hard rubber or other non-conducting case, A, having a slot, *c*, a moving contact-arm, E, having a roller, *b*, to travel in the slot, a float, B, connected with and controlling the position of the contact-arm and its roller, two contact-points in-

20 sulated from each other by the case, one for low and the other for high water, two electric bells, a battery, and electrical connections, substantially as described.

3. The combination of a case, A, having a slot, *c*, the series of contact-points supported directly above the slot, a moving contact-arm, E, having a roller, *b*, to travel in the slot and come in contact with the aforesaid contact-points, two electric bells, a battery, and electrical connections for indicating high and low water and intermediate levels of the water, substantially as described. 30

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses. 35

JEFFREY CRON BOYLE. [L. S.]

Witnesses:

E. F. KASTENHUBER,

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