

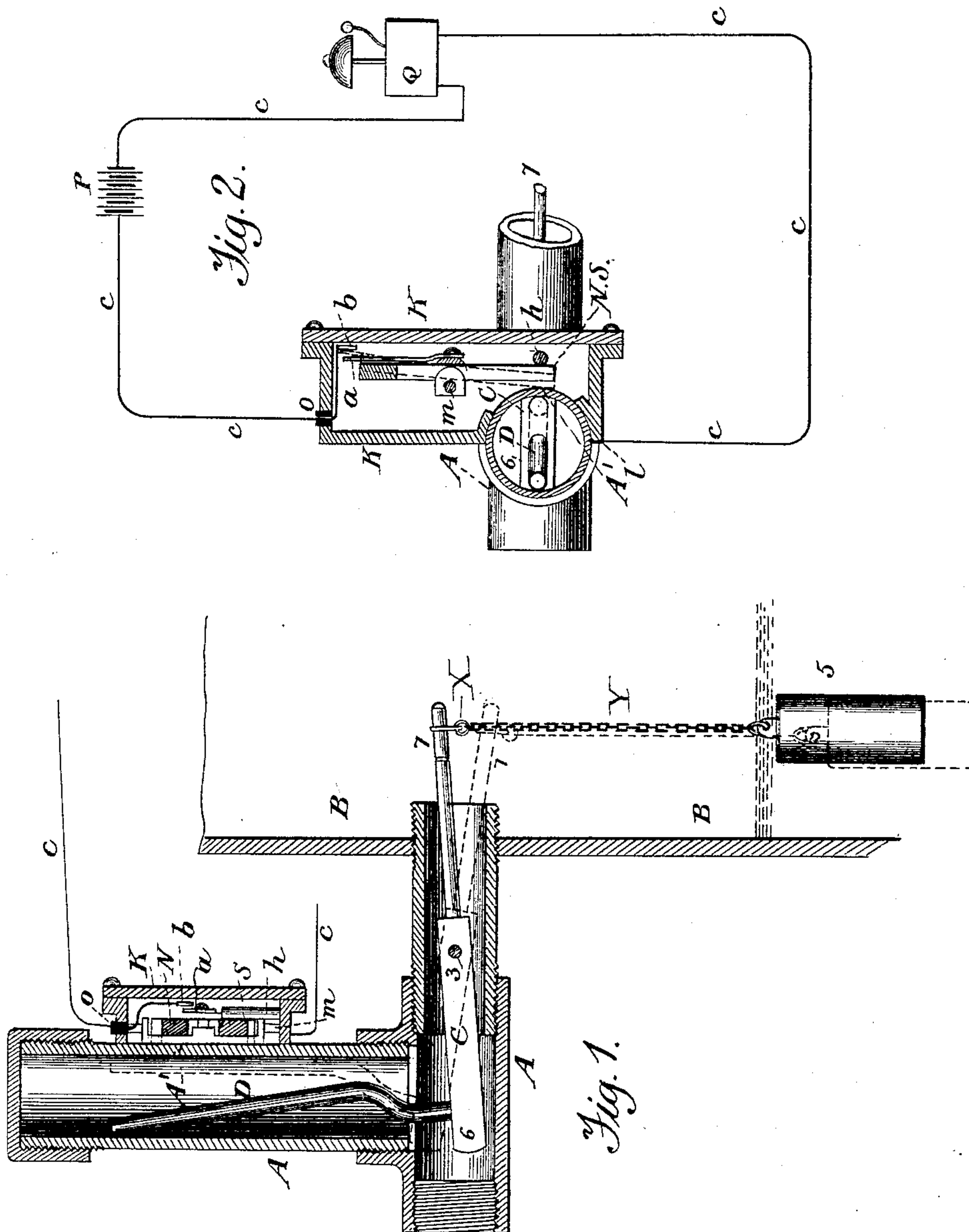
(No Model.)

J. J. GHEGAN.

BOILER ALARM.

No. 383,946.

Patented June 5, 1888.



Witnesses,  
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# UNITED STATES PATENT OFFICE.

JOHN J. GHEGAN, OF NEWARK, NEW JERSEY.

## BOILER-ALARM.

SPECIFICATION forming part of Letters Patent No. 333,946, dated June 5, 1888.

Application filed March 5, 1888. Serial No. 266,277. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN J. GHEGAN, of Newark, in the county of Essex, State of New Jersey, have invented an Improvement in Boiler-Alarms, of which the following is a specification.

Boiler-alarms have heretofore been made by me in which a float is made use of in connection with a magnet, so that when said float is in proximity to the magnet-poles the magnetism is so influenced as to cause the deflection of a circuit-closing device in which is a battery or alarm, and this is made use of to indicate either high or low water in the boiler. Reference is hereby made to Letters Patent No. 355,875, granted to me January 11, 1887, for an apparatus of this kind. In introducing this apparatus I have found difficulty in obtaining a float that will resist the change of pressure and temperature without any risk of injury.

My present invention is for the purpose of obviating the difficulty arising from ordinary floats becoming water-logged and thereby losing their buoyancy, and to accomplish this I use a counter-balance in combination with a gravitating body, which may or may not be buoyant itself.

In the drawings, Figure 1 is a vertical section representing my said improvement as applied to a boiler, and Fig. 2 is a plan of the same with the case in section.

The case or holder A is connected to the boiler B or other suitable reservoir in any desired manner. This case A is represented as extending outward from the boiler or other reservoir B, and contains a balanced or vibratory bar, C, pivoted at 3, the upright arm D of which is provided with magnetic material. The other arm, 7, extends into the reservoir normally above the water-level, and is provided with a gravitating body, 5, attached thereto by a chain, Y, and swivel X, or other suitable means. The end 6 of the vibratory bar C, carrying the magnetic arm D, is the heavier, and serves to counterbalance the gravitating body 5, attached to the opposite end, 7. The arm D is not necessarily itself a magnet, but is simply composed of or provided with metal susceptible of influencing a permanent magnet, N S, located outside the casing A.

The gravitating body 5 may be of any desired

form or material, provided that its weight in proportion to that of the counter-balance is such that it will outweigh or be outweighed thereby, according to the height of the water. 55

N S represent a magnet pivoted at M within an auxiliary casing, K, attached to the outside of casing A, and provided with an electrical contact-point, *a*, arranged to close the circuit *c* through the terminal *b* when the magnet is attracted by arm D. The wire which goes to the battery P passes through and is insulated at *o* from the auxiliary casing K. The other wire leading from the bell Q back to the magnet connects with the casing A at the point 1. That part, A', of casings A and K which intervenes between the magnetic arm B and poles of the magnets N S is composed of non-magnetic material. 60

*h* is a limiting-stop, also composed of non-magnetic material. 70

The casings A and K, with the exception of the non-magnetic portion A', may be of magnetic material.

When the water in the boiler is at its normal level, the counterbalancing end 6 outweighs the gravitating body 5 and holds the vibratory bar and magnetic arm in the position shown in full lines in Fig. 1. In this position the magnetic arm D is too far removed from the magnet-poles N S to overcome the attraction of the auxiliary casing, which keeps the magnet drawn against the back-stop *h*, thereby holding the circuit open at the points *a b*, as shown more clearly in Fig. 2. As the gravitating body loses the support of the water by the latter receding therefrom, its weight on the vibratory arm increases, and when this weight becomes greater than that of the counter-balance it moves the latter to the position shown in dotted lines, bringing the magnetic arm D in such close proximity to the magnet-poles N S that the aforesaid attraction of the magnetic casing K is overcome and the magnet moves toward the arm D, thereby closing the electric circuit at *a b* (see dotted lines) and operating the bell or any suitable electric device contained in the circuit. As the water rises to the proper level, the reverse operation takes place and the movable parts return to the position shown in full lines. 75 80 85 90 95 100

Having thus described my invention, what I

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

1. In water-level alarms, the combination of  
5 a vibratory bar provided with a gravitating  
body and a counter-balance carrying magnetic  
material, with a liquid-reservoir, electric alarm  
circuit, and magnetic-circuit controller, sub-  
stantially as described.

2. In water-level alarms, a fluid-reservoir  
10 containing a gravitating body, in combination  
with a counter-balance and magnetic-circuit  
controller, substantially as described.

3. In a boiler-alarm, the combination of a  
fluid-reservoir, a movable balance located  
15 within a casing having a non-magnetic portion,  
a magnetic-circuit controller, a gravitating  
body connected with said balance, and an  
alarm-circuit, substantially as described.

4. The combination, in a boiler-alarm, of an  
electric circuit and a magnetic-circuit con- 20  
troller, with a movable balance located within  
the casing, one arm of said balance being of  
magnetic material and the other provided with  
a gravitating body, that portion of the casing  
intervening between said arm and the mag- 25  
netic pole being of non-magnetic material,  
substantially as described.

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

JOHN J. GHEGAN.

Witnesses:

O. F. CONLON,  
JAMES A. BERRY.