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Boiler-Feed Regulator, Low-water Alarm, and Steam Trap.

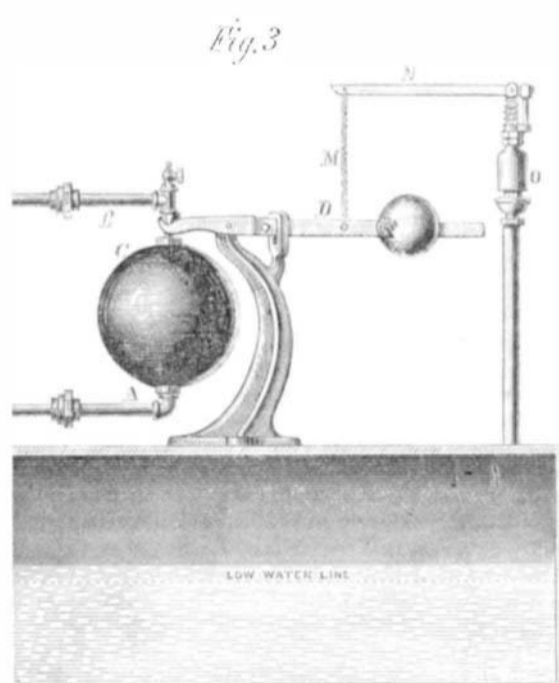
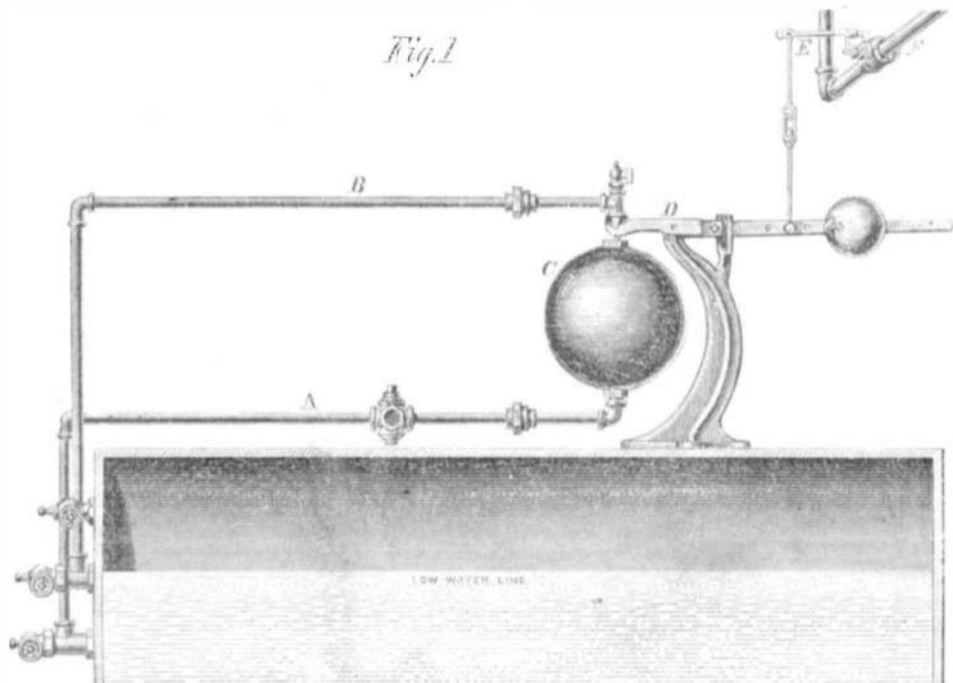
It is needless to preface our description of the instruments shown in our engravings by any remarks upon the value of boiler-feed regulators or low-water alarms. Our readers have had their attention so often called to this subject that they are fully prepared to appreciate its importance.

The instruments we illustrate and describe have been tested, and found to be very sensitive and quick in their action.

and being connected with a bell-crank lever, E, operates through it to close or partially close a valve in the steam pipe, F, which supplies the pump, thereby checking the action of the pump and stopping the flow of water into the boiler. As soon, however, as the water in the boiler lowers through evaporation so that the end of the pipe, B, is uncovered, steam enters this pipe, and the water in the globe, C, descends by its own gravity to the boiler. The counterpoise on the lever, D, now overbalances the weight of the

flexibility will admit of the slight motion required. In practice they are found not to interfere in the least with the desired sensitiveness of the instrument.

Fig. 2 shows the operation of a modification of the same device, so as by means of an electric alarm to give notice of low water in a boiler. In this case, when the water falls below the pipe, B—called in this instance the “alarm pipe”—the globe rising closes the circuit maker and breaker, G, of the galvanic battery, K. The electric current now passes



BERRYMAN'S BOILER-FEED REGULATOR.

At the Fair of the American Institute, where they are now on exhibition, they attract much attention and favorable comment from engineers.

The construction of these instruments is based upon one general principle—that is, the action of gravity upon a counterpoised hollow sphere, the weight of which, together with its contents and that of the counterpoise, is made to oscillate a lever, according to the varying weight of the contents of the sphere, which may be water, water and steam, or steam alone, as will be seen by the description appended.

Fig. 1 shows the boiler-feed regulator. In this form of the instrument, pipes, A and B, connect the interior of the globe, C, with the interior of the boiler; the end of the pipe, A, called the discharge pipe, descending below the low-water

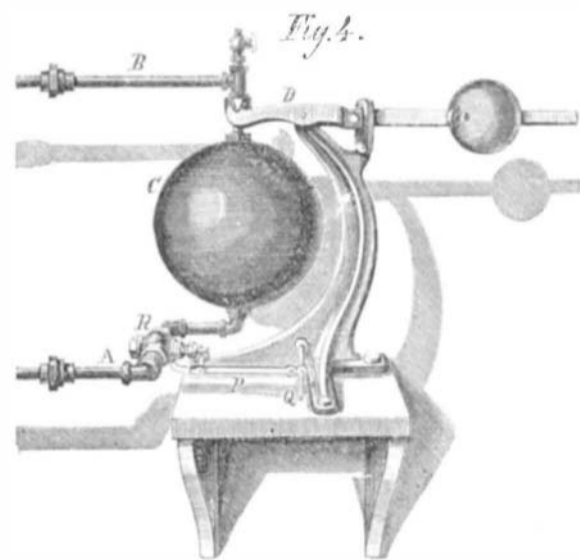
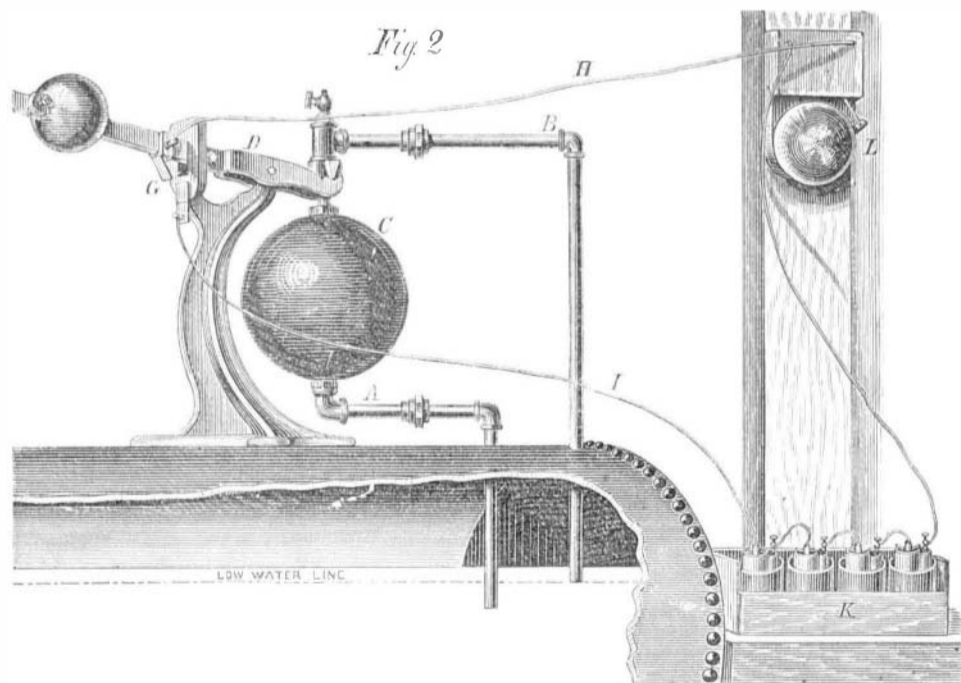
globe. The lever oscillates to the original position operating through the bell-crank, E, to open the valve in the pipe, F, letting steam into the steam cylinder of the pump, and setting the latter into action to supply water to the boiler again.

As soon as the water now rises to close the mouth of the pipe, B, steam no longer enters this pipe. The steam in the globe, C, condenses, and the pressure of steam in the boiler again forces water up the pipes filling the globe, which again descending cuts off steam from the pump and checks the supply of water to the boiler. In this way the supply of water is constantly regulated within certain limits depending altogether upon the position of the counterpoise on the lever, D, which may be set so that the globe will descend when only partially filled with water, if desired.

through the wires, H and I, setting in motion the electric alarm, L, which continues to sound until water is supplied to the boiler sufficient to raise the level enough to close the mouth of the alarm pipe, B.

Fig. 3 shows another modification whereby a whistle, O, is sounded by the opening of its valve through the medium of the chain, M, and the valve lever, N. This occurs whenever the water falls below the mouth of the pipe, B, and continues until the water rises again to its proper level.

Fig. 4 shows the application of the same device to a steam trap. In this case the globe, C, is filled (or partially filled, according as the instrument is adjusted) with water condensed from steam in its passage through pipes, etc. As soon as the water accumulates to the prescribed quantity the globe descends, moving the bell-crank valve lever, P, pivoted on the pin, Q, and opens a valve, R, in the discharge pipe, A, allowing the water to flow out. As soon as the water has escaped, the globe rises, and closes the valve, R, until such



BERRYMAN'S LOW-WATER ALARM.

line and that of the pipe, B, descending to this line. It is evident if the air contained in the pipes and globe, C, be allowed to escape through a pet-cock in the top of the globe, and the boiler be filled to the proper level, that, as soon as steam is raised in the boiler, water will be forced up along the pipes, A and B, by the accumulating pressure of steam and fill the globe, C.

The globe, C, is suspended on one end of a counterpoised lever, D, playing on knife edges like a scale beam. As soon as the globe is weighted with water its weight overbalances the counterpoise on the lever, D, and the latter makes an os-

We have seen this and the other instruments described below in actual work, and are much pleased with the sensitiveness and the promptness of their action. They require no attention after the first adjustment, except perhaps to blow out dirt, which may in some instances accumulate in the pipes and globes, this is done through three-way cocks in the pipe, A, provided for that purpose.

It might at first seem that the pipes, A and B, would oppose the motion of the counterpoised lever and its appurtenances, but when it is said that these pipes are six feet long and only one half an inch in diameter, it will be seen that their

time as a further accumulation has been made. As we have said, all of these instruments are in full operation at the present Fair of the American Institute. Many of them are in use in various parts of the country, and we have been shown many testimonials from engineers who have tried them, speaking in high terms of their reliability and efficiency.

For further information, address R. M. Pratt, Treasurer, Berryman Regulator & Alarm Co., Hartford, Conn.

DYSPEPTICS should never eat fruit except at meal time, and then not to excess.