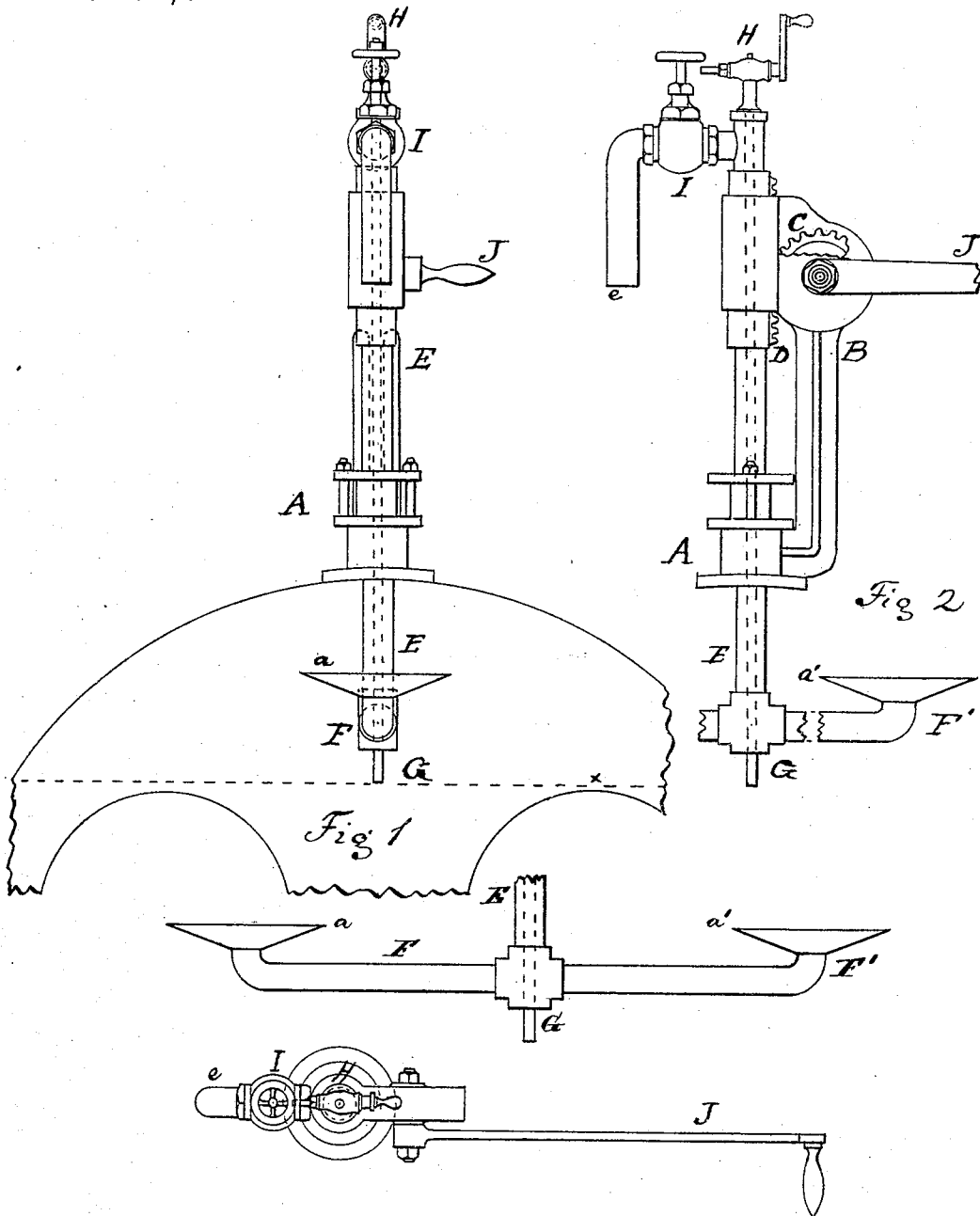


R. MONTENEGRO.

Boiler-Indicators and Blow-Offs.

No. 146,936.

Patented Jan. 27, 1874.



Witnesses
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UNITED STATES PATENT OFFICE.

RAFAEL MONTENEGRO, OF MATANZAS, CUBA.

IMPROVEMENT IN BOILER INDICATORS AND BLOW-OFFS.

Specification forming part of Letters Patent No. **146,936**, dated January 27, 1874; application filed September 19, 1873.

To all whom it may concern:

Be it known that I, RAFAEL MONTENEGRO, of Matanzas, Island of Cuba, have invented a new and Improved Boiler-Indicator and Blow-Off Combined; and do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings forming part of this specification.

My invention appertains to steam boilers or generators; and has for its object to furnish a convenient and practical apparatus for finding out the exact height of the level of the water in the boiler, and for blowing off from the surface of said water any impurities lighter than the water itself, and also the water, so as to reduce its level. To this end my invention consists in combining, with a boiler, a packing-box, pipes, valves, raising and lowering devices, and cocks, which combinations are specifically set forth at the end of this schedule.

To enable others skilled in the art to understand, make, and use my invention, I will proceed to describe it and my mode of applying it to a boiler.

Figure 1 represents a front elevation of a steam-boiler provided with my apparatus. Fig. 2 is a side elevation of the same.

A is a stuffing-box bolted on the top of the boiler, which is provided with a proper gland for packing. B is a bracket or arm, which has a support for a pinion, C, which works into a rack, D, connected with pipe E. Pipe E is provided with a pipe, F, which is attached at the lower end at right angles with pipe E, and provided with a pan or dish at each end, for the purpose of a surface-blower. Inside of pipe E is a pipe, G, which runs through the center of pipe E, and is provided with a gage-cock, H, at the top end for the purpose of trying the level of the water. I is a cock or valve attached to the top of the pipe E, which is used as a surface-blower, said pipe E being raised

or lowered by means of the crank or lever J, working in connection with pinion C and rack D, whereby the pipes E and G may be raised or lowered, as desired, for the purpose of finding the level of the water in the boiler, or for blowing off the impurities of the water that may have collected on the surface from time to time.

The operation of my apparatus is as follows: The level of the water being at the dotted line *x*, and its height unknown to persons outside of the boiler, the gage-cock H being open, steam would at first come out from the steam-space over the water. If, now, the operator move the lever J upward, the pipe E, with the pipes F and F' and the small test-pipe G, will descend, by means of the gear meshing into the rack D, until the small test-pipe G strikes the water, when the pressure of the steam will force the water up the pipe and out of the try-cock, indicating the surface of the water in the boiler by lines or figures on the pipe E; the amount of water in the boiler is readily determined. If, however, we wish to blow off the surface water or the impurities, the valve I is opened, when the upper edge of cups or pans *a a'* strike below the surface of the water, and the pressure of the steam forces the water up the pipe, out through the valve I and the pipe *e*.

Having now fully described my apparatus, what I claim, and desire to secure by Letters Patent, is—

The combination, substantially as before set forth, of the boiler packing-box, bracket-arm, lever, gear, and rack, substantially as set forth, and the blow-off pipe, valve, and inlet in the boiler for blowing off from the surface of the water, with the small test-pipe connected with it, for the purposes set forth.

RAFAEL MONTENEGRO.

Witnesses:

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