

A. YOUNT.

Water Regulators, Indicators, and Low Water-Alarms.  
No. 155,784.

Patented Oct. 6, 1874.

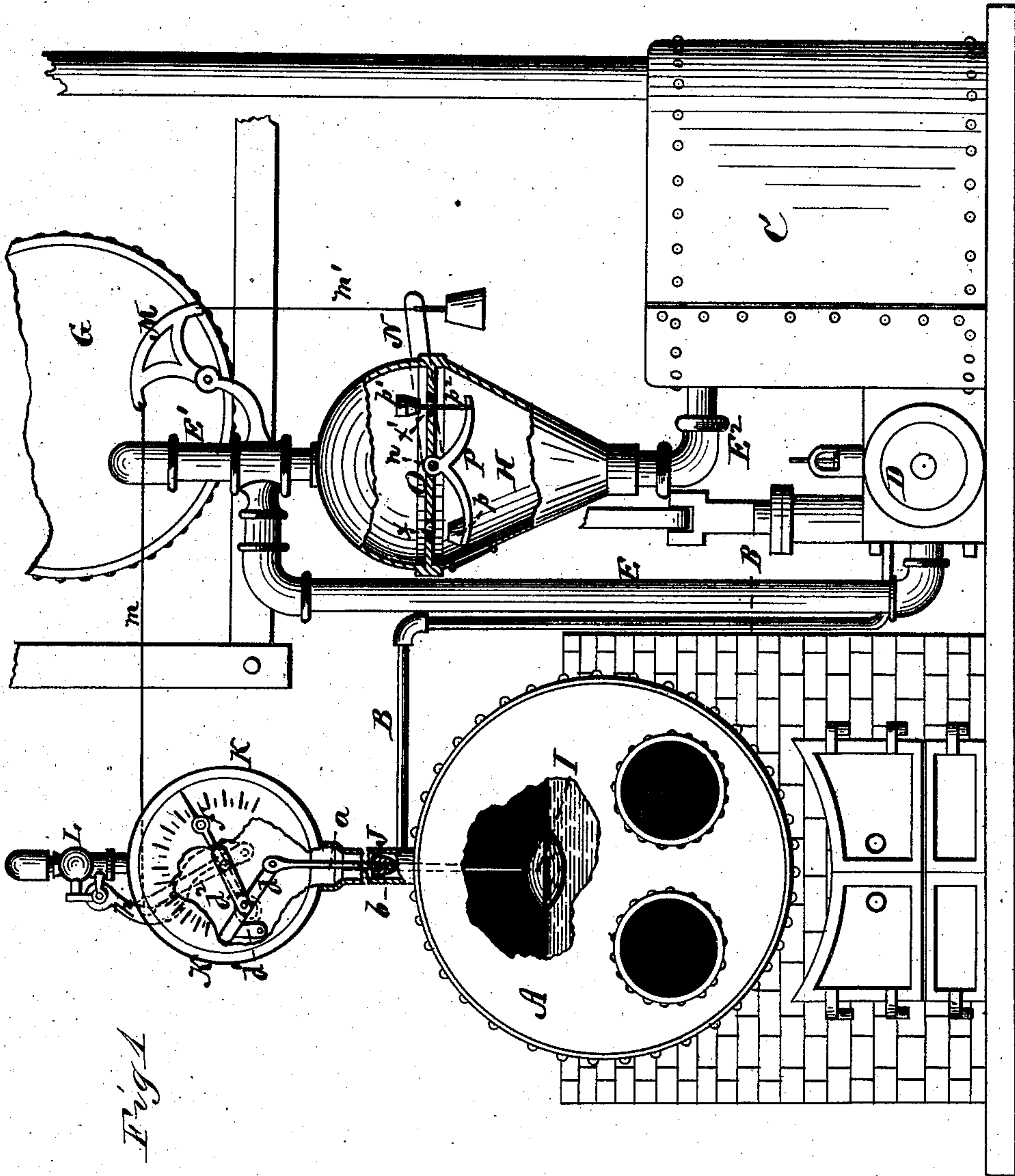


Fig 1

WITNESSES.

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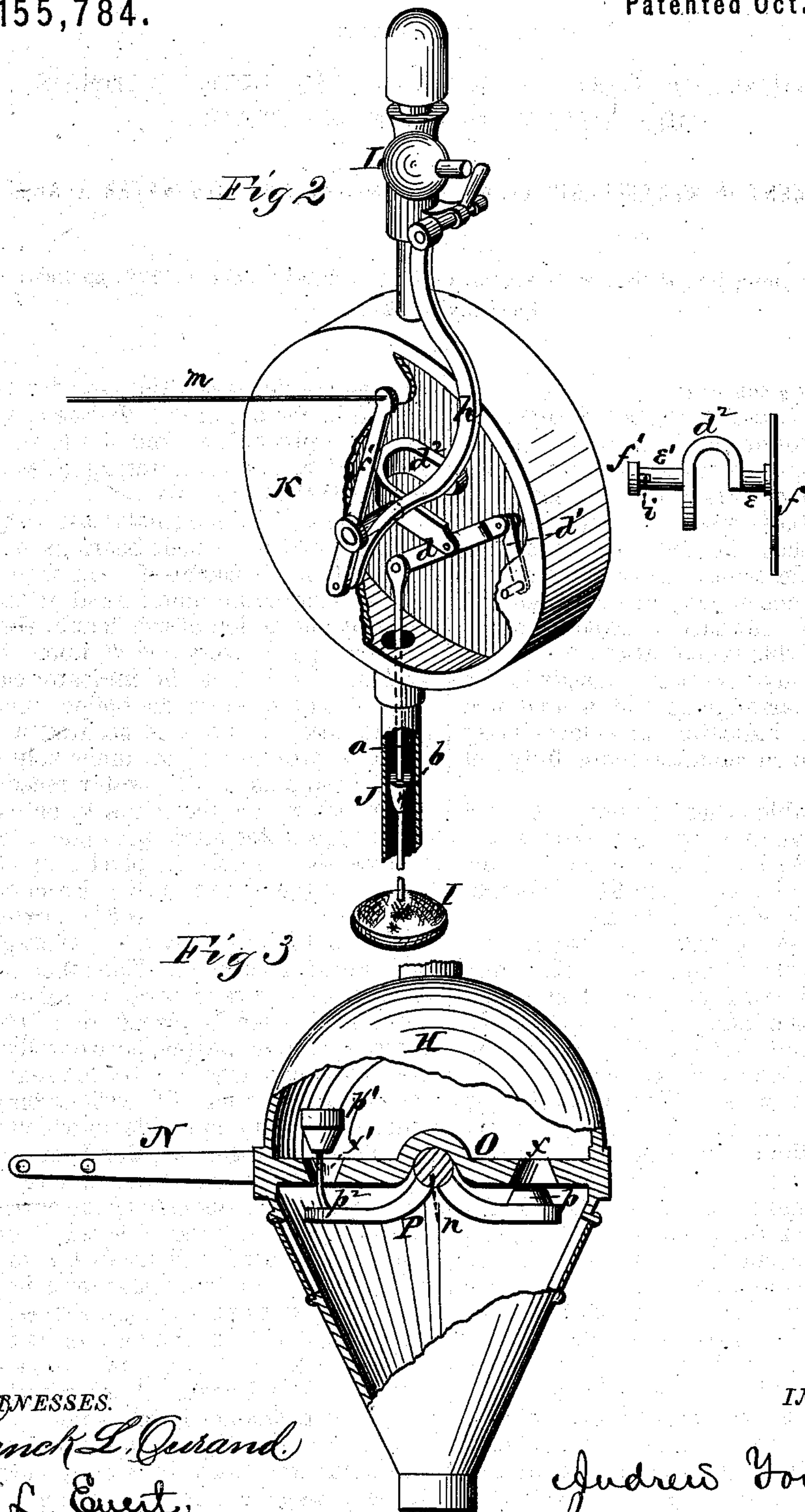
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Andrew Goulet.  
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# UNITED STATES PATENT OFFICE.

ANDREW YOUNT, OF KOKOMO, INDIANA, ASSIGNOR TO HIMSELF AND  
JOHN CHANDLER, OF SAME PLACE.

## IMPROVEMENT IN WATER-REGULATORS, INDICATORS, AND LOW-WATER ALARMS.

Specification forming part of Letters Patent No. **155,784**, dated October 6, 1874; application filed  
February 13, 1874.

*To all whom it may concern:*

Be it known that I, ANDREW YOUNT, of Kokomo, in the county of Howard and in the State of Indiana, have invented certain new and useful Improvements in Water-Regulator, Indicator, and Low-Water Alarm; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a combined water-regulator, indicator, and low-water alarm, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a side elevation, partly in section, of a boiler with pump, heater, and tank embodying my invention. Fig. 2 is a perspective view of the indicator, part in section, to show the interior thereof. Fig. 3 is an enlarged section of the water-regulator.

A represents a steam-boiler, connected by a pipe, B, with a heater, C, which pipe connects the top of the boiler with the bottom of the heater. D is a cold-water pump for pumping cold water into an elevated tank, G, the water passing from the pump through a pipe, E, into a pipe, E<sup>1</sup>, and from thence into the tank. To the lower end of the pipe E<sup>1</sup>, below the entrance of the pipe E, is attached the water-regulator H, constructed substantially in the form shown in Figs. 1 and 3, and its lower end connected by a pipe, E<sup>2</sup>, with the heater C, at or near the top thereof. Within the boiler A is a float, I, from which extends a rod, a, vertically upward through a pipe, J, into an indicator-casing, K. The rod a is made in two sections, united together by means of a suitable coupling, b, so that to attach the float to the indicating mechanism it will not be necessary to get inside of the boiler. The upper end of the float-rod a is pivoted to the end of a lever, d, the other end of which is pivoted to one end of a short lever, d<sup>1</sup>. The

other end of this lever d<sup>1</sup> is pivoted to or on a pin or stud in the casing K. To the center of the lever d is pivoted one end of a lever, d<sup>2</sup>, which is curved, as shown, in semicircular form, and provided with journals e e' upon a line with each other. These journals pass, respectively, through, and have their bearings in, the front and back of the casing K. On the front journal e is secured an index hand or finger, f, to show by the action of the float I, through the medium of the levers d d<sup>1</sup> d<sup>2</sup>, upon the graduated or dial face of the indicator-casing, the state of the water in the boiler. On the end of the rear journal e' is secured a lever, f', which is provided on its inner side with pins i i. These pins, as the water recedes in the boiler below low-water mark, or as it rises above high-water mark, act upon a lever, h, to operate the whistle L, placed upon and attached to the indicator K. From one end of the lever f' a wire or cord, m, extends to a curved or L-shaped lever, M, arranged above the water-regulator H. The other end of this lever is, by a wire or cord, m', connected with a weighted lever, N, placed upon the end of a shaft, n, which passes horizontally through the water-regulator H. In this regulator is a horizontal partition, O, with a longitudinal concavity in its under side, in which the shaft n is placed. In the partition O are two valve-seats, x and x', one from the top and the other from the under side of the partition. On the shaft n is secured a lever, P, one end of which is provided with a valve, p, to fit in the valve-seat x, and the other end is provided with an upward-projecting stem, p<sup>2</sup>, carrying the valve p<sup>1</sup> to fit in the valve-seat x'.

The operation of this machine is as follows: The tank G and heater C being both full, and the requisite amount in the boiler A, the pump D is not in operation. As the water sinks in the boiler, the float, by the connections described, raises the lever N, opening both valves p p<sup>1</sup>, and allowing water from the tank to pass into the heater, and from the heater it passes through the pipe B into the boiler, and as the water and float rise in the boiler, the lever N falls by its weight, closing the valves p p<sup>1</sup>, and so on, perfectly regulating the flow of water from the tank to the heater and the boiler.



The valves  $p$  and  $p^1$ , being arranged one above and the other below the partition  $O$ , are perfectly balanced and kept closed by the pressure of water from above.

By the arrangement of the levers  $d$   $d^1$   $d^2$ , the float-rod  $a$  is allowed to move vertically up and down, without any motion to either side, which admits of using a pipe or stem,  $J$ , for the indicator smaller than is usually done.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The levers  $d$  and  $d^1$ , and bent lever  $d^2$ , having journals  $e$   $e'$ , in combination with the rod  $a$ , float  $I$ , and finger  $f$ , as and for the purposes herein set forth.

2. The combination of the supply-tank  $G$ , heater  $C$ , interposed regulator  $H$ , with partition  $O$ , balanced lever  $P$ , with valves  $p$   $p^1$ , weighted lever  $N$ , connecting-wires  $m'$   $m$ , elbow-lever  $M$ , lever  $f'$ , indicator-shaft rod  $a$ , and float  $I$  in the boiler  $A$ , all constructed substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 24th day of January, 1874.

ANDREW YOUNT.

Witnesses:

WM. KIRKPATRICK,

J. D. JOHNSON.