

No. 754,200.

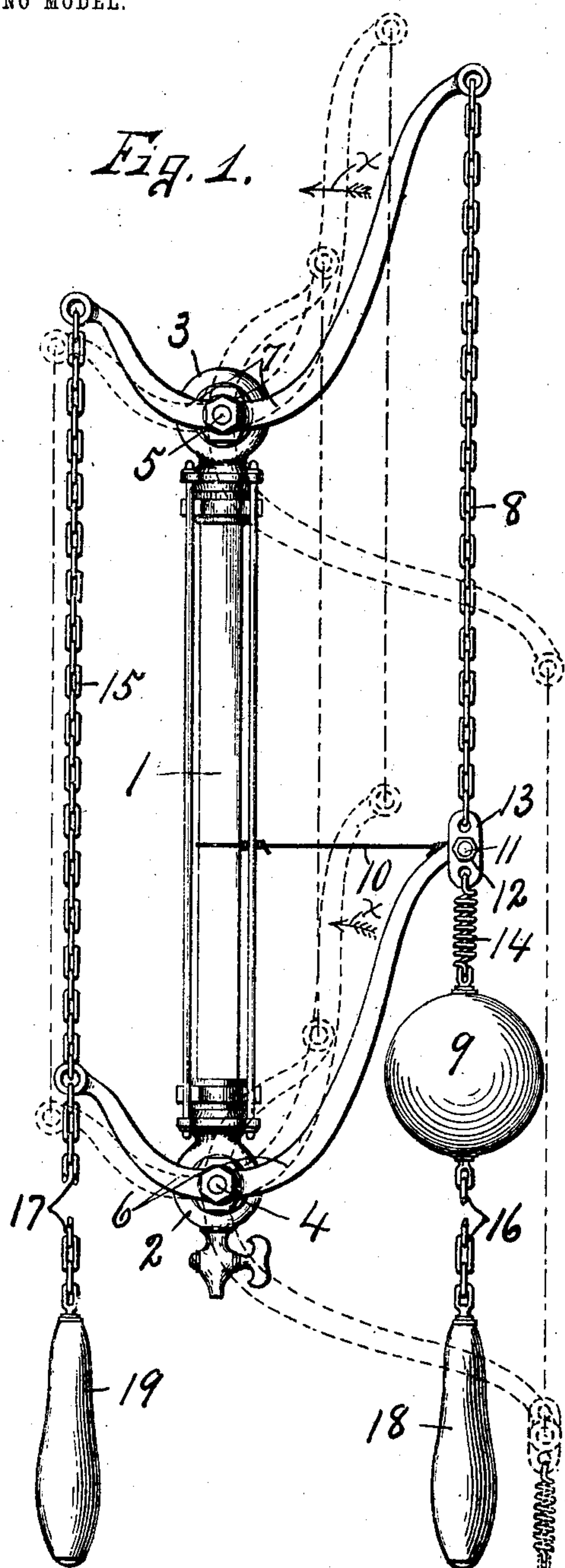
PATENTED MAR. 8, 1904.

J. H. CUNINGHAM.

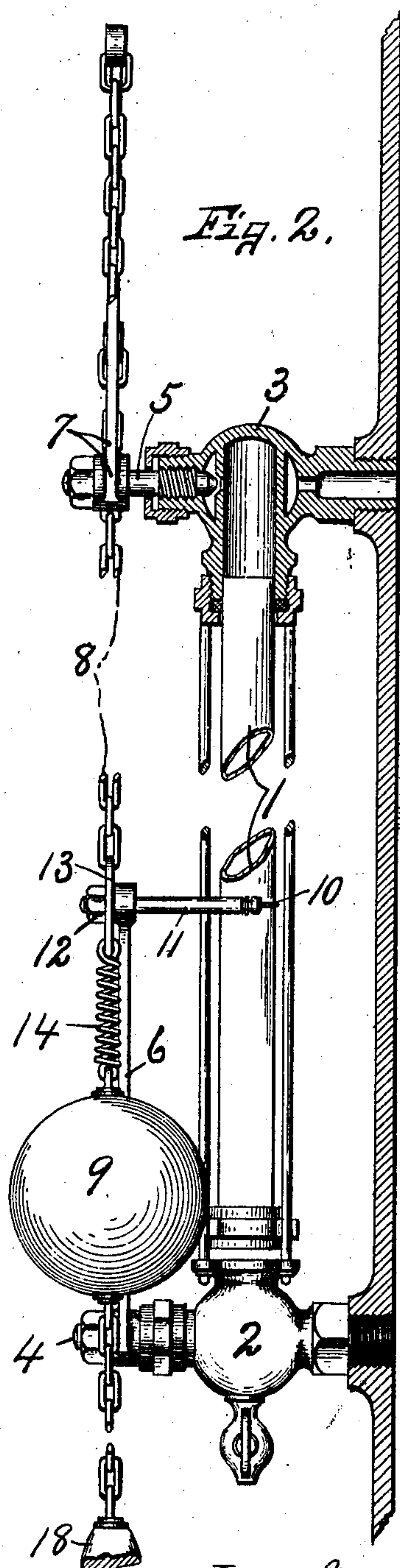
AUTOMATIC CUT-OFF FOR WATER GAGES.

APPLICATION FILED AUG. 17, 1903.

NO MODEL.



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AUTOMATIC CUT-OFF FOR WATER-GAGES.

SPECIFICATION forming part of Letters Patent No. 754,200, dated March 8, 1904.

Application filed August 17, 1903. Serial No. 169,759. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. CUNINGHAM, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Automatic Cut-Offs for Water-Gages, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to improvements in automatic cut-off for water-gages, by which the steam and water valves are automatically closed simultaneously with the breaking of the water-glass. It is well known that these water-glasses are necessarily placed in exposed positions and frequently break by accident, either from high pressure or from other causes, and that when this happens it is almost impossible for the engineer or fireman to close the valves without liability of being scalded.

The object of my invention therefore, is to provide a simple and practical means for automatically closing these valves when the glass breaks, and this means preferably consists of weighted levers which are mounted directly upon the valve-stems and are held in their normal open positions by a detent which connects one of the levers directly to the glass.

Another object is to arrange these levers so that the valves may be simultaneously "tried" or occasionally operated to keep the valves in working order without interfering with the detent.

In the drawings, Figure 1 is a front elevation of a water-gage, showing my invention applied thereto and in operative position. Fig. 2 is a side elevation of the device seen in Fig. 1, showing the upper valve in section.

Similar reference characters indicate corresponding parts in both views.

In order to demonstrate the practicability of my invention, I have shown a water glass or gage 1, which is operatively connected in the usual manner to lower and upper valve-casings 2 and 3, in which are movable suitable valves having outwardly-projecting valve-stems 4 and 5, said valve-casings being secured in the usual manner to the shell of the boiler or other chamber above and beneath the water-line, although it is evident that these glass

gages may be used in other relations, if desired. Secured to the outer ends of these valve-stems 4 and 5 are levers 6 and 7 of the first kind—that is, the intermediate portions of these levers are rigidly secured to said valve-stems and are substantially identical in construction and are therefore interchangeable. The opposite arms of each of these levers extend laterally and upwardly from the valve-stems, those at one side of the stem being longer than the arms at the opposite sides of the stem to afford an increased leverage. The outer ends of these longer arms are connected by a chain or cable 8, and a weight 9 is suspended from the outer end of the lower arm, or rather from the lower end of the chain 8. These arms or levers are held in their normal operative positions by a suitable detent 10, which in this instance consists of a wire for holding the valves in their normal open positions, one end of the wire or detent being attached to the central portion of the glass 1 and the other end is secured to a stud 11, which projects inwardly from the free end of the long arm of the lower lever 6. It will be observed that the outer ends of the long arms of each of these levers is provided with an eye and that one end of the stud 11 is inserted into the eye of the lever 6 and is held in position by a lock-nut 12.

The chain or cable 8 is provided with a substantially flat link or plate 13, having a central aperture which receives the adjacent end of the stud 11 and is clamped between the nut 12 and adjacent face of the lever 6, so that the lower lever may be entirely disconnected from the chain or cable 8 without removing the weight or otherwise disturbing the connection of the weight with the upper arm or lever 7, this being accomplished by simply removing the nut 12 and withdrawing the stud 11. The weight 9 is connected to the lower end of the link 13 by means of a spring 14, which serves as a yielding support for the weight to prevent any sudden jar or undue strain upon the levers or cable 8 when the weight is released and the levers come to a full stop in their closed position. The shorter arms of these levers 6 and 7 are also connected to each other by a chain or cable 15 at

the opposite sides of the stems 4 and 5, so that the valves may be opened and closed to the same degree by operating either of the chains or cables, or, in other words, by connecting both ends of the levers by cables or chains they are caused to move through equivalent arcs, and both valves, therefore, are moved simultaneously to positively close the same or to afford an equal opening.

It is desirable to frequently operate the valves to keep them in working order, and I therefore provide additional chains or cables 16 and 17 with handpieces 18 and 19, the chain or cable 16 being suspended from and connected to the weight 9, and the cable or chain 17 is connected directly to the outer end of the shorter arm in line with the cable or chain 15. It now becomes apparent that the lower water-valve is held in its normal open position through the medium of the detent 10 and lever 6 and that the upper steam-valve is also held in its normal open position by the same means, in addition to the chain or cable 15, and that if it is desired to operate the valves occasionally to keep them in working order it is simply necessary for the engineer or firemen to engage the handle 19 and draw down upon the cables 17 and 15, which in turn locks the levers 6 and 7 in the direction indicated by arrow *x*, thus drawing the weight upwardly a slight distance and causing a slack in the detent 10. In doing this it is advisable for the operator to engage the handle 18 at the same time that he draws down upon the handle 19, so that he may better control the action of the levers and weight 9 and prevent any undue strain upon the detent or glass, when the levers are permitted to return to their normal position by means of the weight 9.

In the operation of my invention should the glass 1 break from any cause the detent 10 would be released and the weight 9 will im-

mediately operate the levers 6 and 7 to close the valves connected thereto, and thereby prevent the escape of the steam and water, the weight 9 being sufficient to break or remove the broken parts of the glass if it should be broken above or beneath the point of connection with the detent. It is now apparent that the only damage which has been done is the breaking of the glass, the several parts of the apparatus remaining intact and the only work necessary to again place the device in operative position is to reinsert a new glass and to draw down upon the handle 19 or to raise the weight 9 until the valves are sufficiently open and then to attach the detent 10 to the glass, whereupon the device is ready for use.

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

1. In combination with the valves and glass of a water-gage, separate levers secured to the valve-stems, each lever extending laterally and upwardly from its stem, a weight attached to one of the levers, and a detent operatively connected to the glass and weight to hold the weight in its operative position.

2. In combination with the valves and glass of a water-gage, separate levers secured to the valve-stems and projecting laterally therefrom, separate connections between the corresponding ends of the levers, a weight attached to one of the levers, and a flexible detent having one end attached to the glass and its other end connected to the weighted end of the lever.

In witness whereof I have hereunto set my hand this 10th day of August, 1903.

JOHN H. CUNINGHAM.

Witnesses:

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