No. 675,677. Patented June 4, 1901.

T. J. SANFORD.

WATER REGULATING DEVICE.

(No Model.) (Application filed Feb. 20, 1901.)

2 Sheets—Sheet 1.

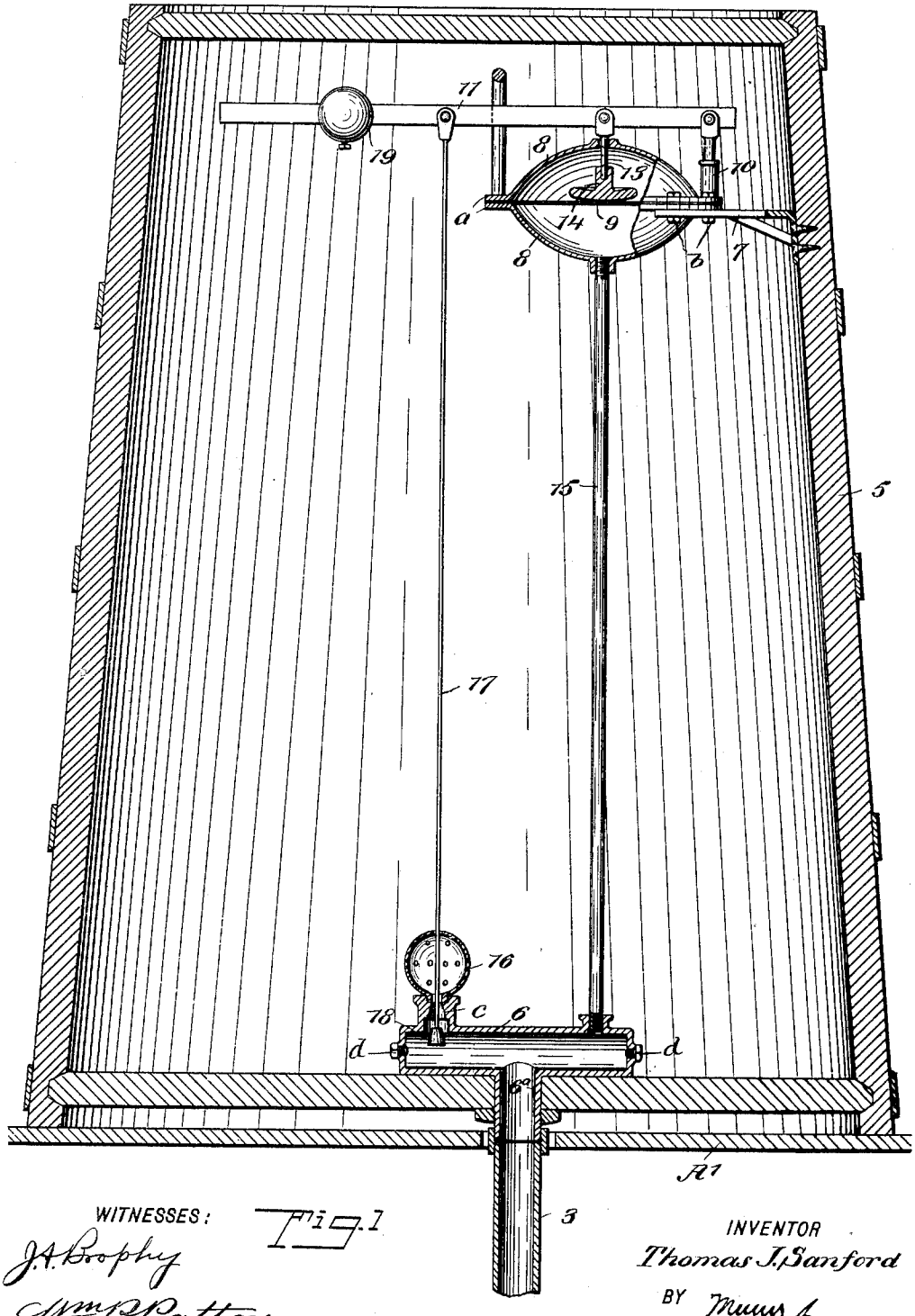


Fig. 1

WITNESSES:

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INVENTOR

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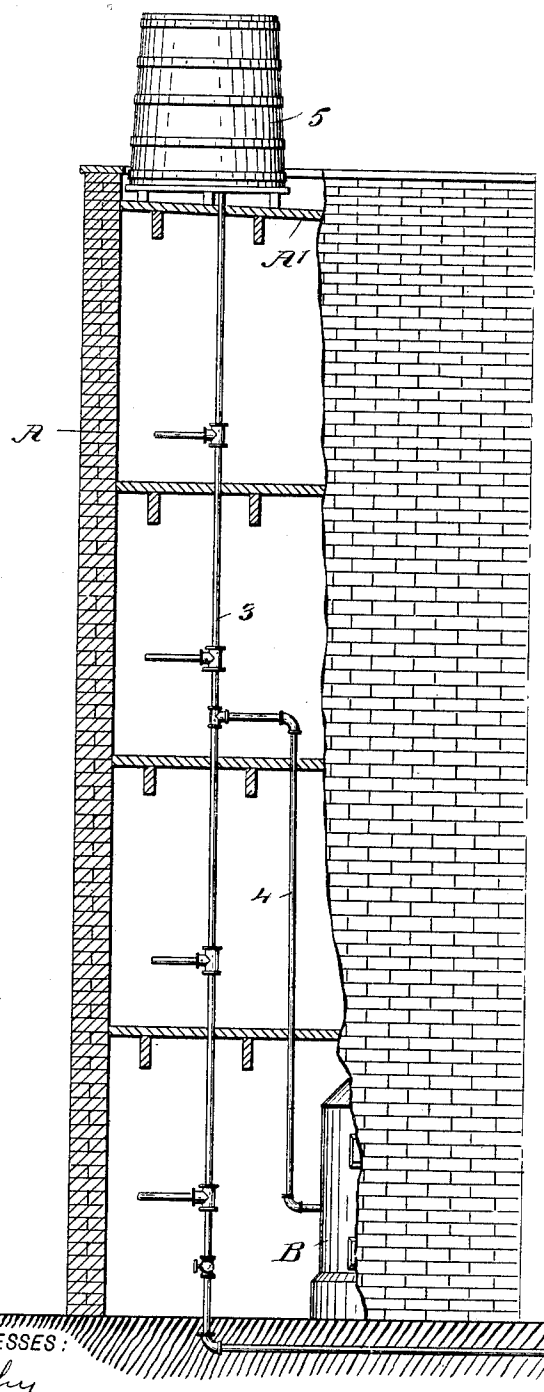


Fig. 2.

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UNITED STATES PATENT OFFICE.

THOMAS JOSEPH SANFORD, OF CHICAGO, ILLINOIS.

WATER-REGULATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 675,677, dated June 4, 1901.

Application filed February 20, 1901. Serial No. 48,077. (No model.)

To all whom it may concern:

Be it known that I, THOMAS JOSEPH SANFORD, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Water-Regulating Devices, of which the following is a full, clear, and exact description.

This invention relates to means for the regulation of water fed into an elevated tank on a building for subsequent distribution, and has for its object to provide a novel simple device of the indicated character which is readily applicable, is automatic in operation, and adapted to supply water to water-fixtures for use as required and likewise supply water to a water-heating tank that is connected with the system for water distribution.

The invention consists in the novel construction and combination of parts, as is hereinafter described, and defined in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the figures.

Figure 1 is a sectional side elevation of the invention as applied to a water-tank; and Fig. 2 is a side view, in part, of a building and the improvements shown connected with hot and cold water service pipes and a boiler in the building.

In the drawings, which show the invention and its application, A indicates a building of several stories high; B, a water-heating boiler in the lower portion of the building; 3, an upright water-service pipe leading into the building from a source of water-supply under pressure, and 4 a branch pipe connected with the main service-pipe 3 and also with the boiler, as shown in Fig. 2.

A water-holding tank 5 is located in the upper portion of the building, on a floor A′, or platform on the roof of the building, as may be preferred. Within the tank 5, near the bottom, a water-receiver 6 is held in place by the connection of the depending branch 6^a thereof with the top of the main service-pipe 3, said branch pipe or neck passing water-tight down through the bottom of the tank 5. In the upper portion of the tank 5, on a bracket 7 or like fixture that projects from the side of the tank, a water-feed controller is positioned. This feed-controller comprises an air-chamber formed of two half-sections 8, which are peripherally flanged, as at *a*, to provide means for connecting them together, and between the parts 8 8 a slightly-yielding septum 9 is held by its edge that intervenes between the flanges *a* and is clamped by said flanges and bolts *b*, that engage spaced perforations in the flanges and in the bracket 7. On the top flange *a* of the upper section 8 of the feed-controller a post 10 is erected, and a lever 11 has one end pivoted upon the post, as shown in Fig. 1. A stem 13 is extended through the top section 8 of the water-feed controller and has pivotal connection at the upper end with the lever 11, a rocker-shaped presser-foot 14 having secured engagement with the lower end of the stem and being seated upon the septum 9.

To the lower section 8 of the water-feed controller the upper end of a stand-pipe 15 is connected so as to have open communication therewith, the lower end of the stand-pipe screwing into a tapped perforation in the receiver 6, near one of its ends. Near the opposite end of the water-receiver 6 a screen 16 is mounted thereon and communicates therewith, and a valve-seat *c* is formed in the passage between the receiver and screen. At each end of the receiver 6 a removable plug *d* is screwed into a tapped perforation, these perforations affording means for cleaning out the receiver.

A valve-stem 17 is pivoted by its upper end upon the lever 11 and depends vertically therefrom, passing through a perforation in the top of the screen 16 and through the passage connecting the screen and the receiver. Upon the lower end of the valve-stem 17 a suitable valve 18 is secured, which is adapted to engage the valve-seat *c* and close the passage connecting the receiver 6 and screen 16 when the lever 11 is rocked upward. A weight-block 19 is adjustably mounted upon the lever 11 and is designed to counteract pressure applied upon the lower side of the septum 9, as will be further explained.

Assuming that the service-pipe 3 is supplied with water under pressure, it will be seen that the liquid will be forcibly introduced into the receiver 6 and thence pass out

of the same into the tank 5 through the screen 16, as the weight on the lever 11 at this time holds the valve 18 depressed from the valve-seat *c*, thereby opening a clear passage for water. Water introduced into the tank 5 produces air-pressure upon the under side of the pliable septum 9 by the simultaneous rise of water in the stand-pipe 15. The weight-block 19 having been adjusted to permit a proper quantity of water to enter the tank 5 will be lifted at the instant the predetermined height of water in the tank is reached, this elevation of the weight-block due to the upward rocking of the lever 11 being effected by air-pressure on the septum 9. As the valve 18 is raised when the lever 11 is rocked upward, said valve closes the passage for water from the receiver 6 and arrests the upward flow of water from the main service-pipe 3 into the receiver 6. The tank 5 is now charged with water to supply the main service-pipe 3, and in case the normal water-supply is temporarily cut off from any cause, so that the pressure of water is diminished in the service-pipe 3, the pressure of air upon the septum 9 will be correspondingly reduced and the valve-rod 17 will descend and remove the valve 18 from the valve-seat *c*, thereby permitting an escape of water from the tank 5 into the main service-pipe 3 and also into the branch pipe 4 for a continued supply of water to the boiler B and water-fixtures in the building A.

It is evident that by the provision of the improvement a temporary supply of water is held in the tank 5 and that said tank, by means of the improved controlling devices therein, will be filled, sealed, and then unsealed for the escape of water therefrom as may be required, the operation being automatically conducted, so that any obstruction to the regular water-supply to the main service-pipe 3 and branch pipe 4 will be instantly compensated for and accident from low water in the boiler B will be prevented.

It will furthermore be apparent that as soon as normal water-pressure in the main service-pipe 3 is established the tank 5 will be filled with water and remain in that condition until the pressure in the water-service pipe falls below the normal standard, when it will again become available as an emergency-supply.

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

1. A water-regulating device, comprising a water-tank, a water-receiver in the tank, and connected with a water-supply pipe, a stand-pipe on the water-receiver, a pressure-controlling device operated by the pressure of the water entering the tank, and an inlet-valve on the receiver and actuated by the controlling device.

2. The combination with a water-service pipe, an elevated tank, a water-receiving chamber in the tank and connected with the service-pipe, a pressure-controlling device in the upper part of the tank, a stand-pipe extending between the receiving-chamber and pressure-controlling device, to transmit water-pressure equaling that in the tank to the pressure-controller, a valve on the water-receiver, and means connected with the pressure-controller for adjusting said valve automatically for the control of water passing from the receiver into the tank.

3. In a device of the character described, the combination with a water-tank, a water-service pipe tapping the bottom of the tank, and a water-receiving chamber in the tank, connected with the water-service pipe, of a pressure-regulator device in the upper portion of the tank, comprising a sealed air-holder having a transverse septum therein, a lever pivoted near one end on the air-holder, a stem loosely secured by one end on the lever and extended into the air-holder to seat upon the septum, a valve on the water-receiving chamber, and a valve-rod extending from said valve and connected with the lever.

4. In a device of the character described, the combination with a water-tank, a water-service pipe tapping the bottom of the tank, a water-receiving chamber in the tank, connected with the water-service pipe, and a screen on the receiving-chamber, of a pressure-regulator in the upper portion of the tank, comprising a sealed air-holder, a transverse septum in the air-holder, a lever pivoted by one end on the air-holder, a stem slidable in the air-holder and seated on the septum, the outer end of said stem having loose connection with the lever, a weight adjustable on the lever, a valve-stem pivoted at one end to the lever, and a valve in the water-receiver and secured upon the lower end of the valve-stem.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOMAS JOSEPH SANFORD.

Witnesses:
ERNST MESSNER,
JAC PETRETT.