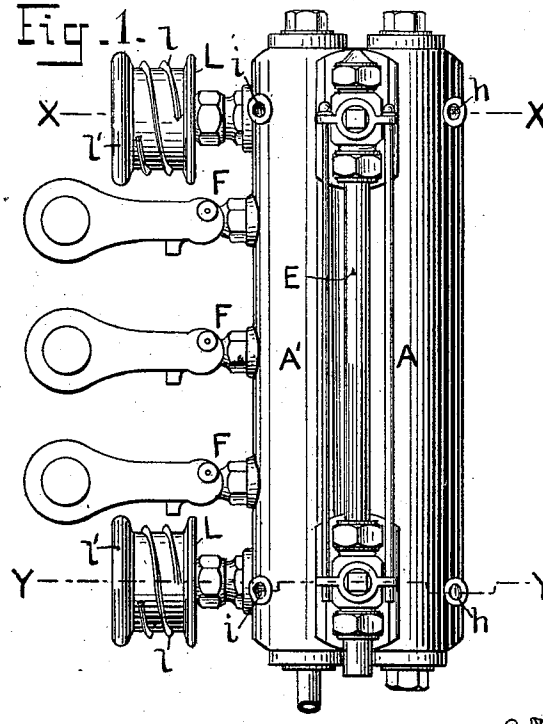
(No Model.)

M. W. SEWALL.

WATER GAGE.

No. 538,796. Patented May 7, 1895.

Fig. 1.



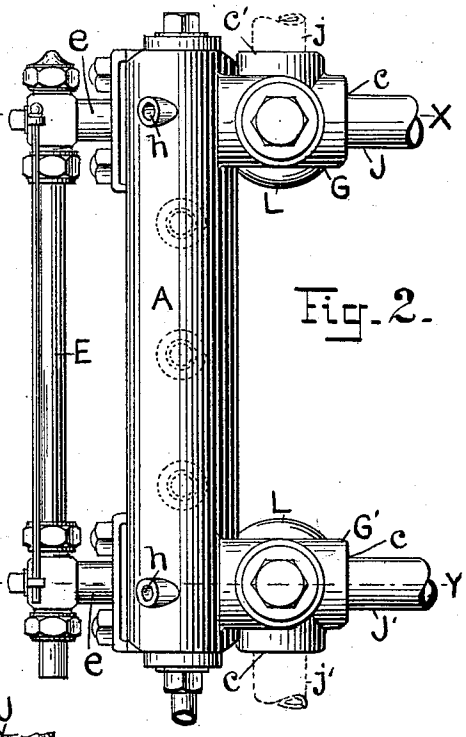
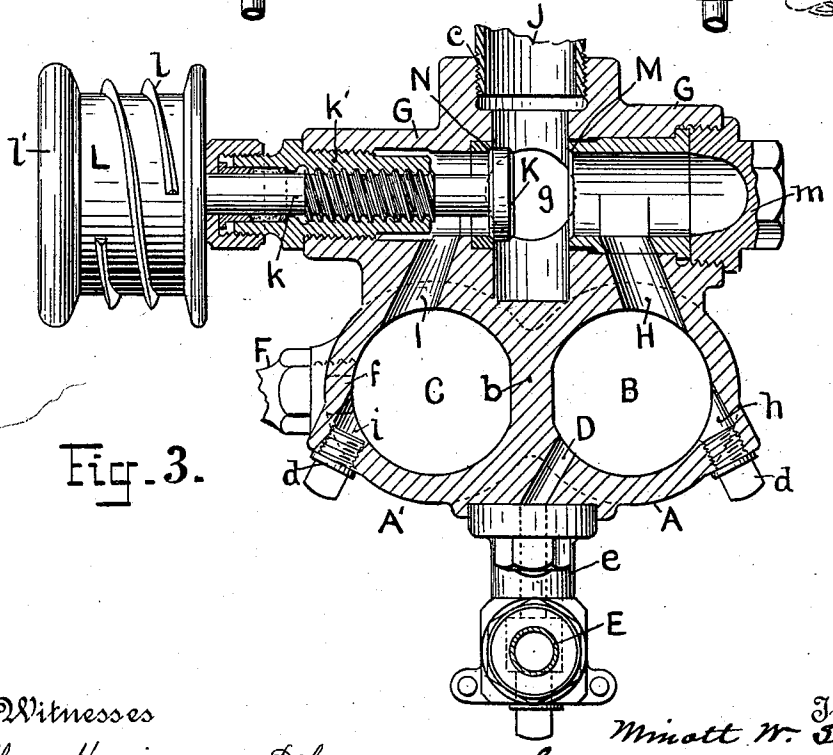


Fig. 2.

Fig. 3.



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MINOTT W. SEWALL, OF NEW YORK, N. Y.

WATER-GAGE.

SPECIFICATION forming part of Letters Patent No. 538,796, dated May 7, 1895.

Application filed May 26, 1894. Serial No. 512,517. (No model.)

To all whom it may concern:

Be it known that I, MINOTT W. SEWALL, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Water-Gages for Steam-Generators, of which the following is a specification.

This invention relates to means for conveniently connecting a water-glass and a series of gage-cocks to a steam-generating apparatus in such manner that communication with the glass can be shut off when it needs repair, or is to be removed for any reason, and the cocks be left in full connection for duty; or the cocks be shut off and the glass be left in connection.

To this end, the invention consists in a double or two-chambered water-column, which is adapted to receive the water-glass and the gage-cocks, is arranged to be connected with the generator, and is provided with suitable valves to govern the inlet of steam and water to the respective chambers.

It also consists in so constructing the column that two valves, one at the top and the other at the bottom will open both chambers in the column, and will shut off either, at will; and further consists in certain features of construction and arrangement, all as hereinafter described and claimed.

In the accompanying drawings, Figure 1 represents a front view of the preferred form of column, with the water-glass and gage-cocks in place thereon. Fig. 2 shows a side view of the same, with pipe connections to the generator. Fig. 3 represents, on a larger scale, a horizontal section of the same on line X X, it being understood that a similar section on the line Y Y will show the same construction.

A A′ denote the preferred form of double or twin water-column, which has two vertical compartments or chambers, B, C. For convenience, and to reduce expense, the column is preferably cast or formed in one piece. It is, also, preferably of the same design and construction both at the top and bottom, in order that it may be applied either end up, so that the gage-cocks and valve-wheels may be upon the right or the left hand of the column after it is in place, as may be the most desirable.

From one of the vertical chambers, as B, outlet-ducts D, near the top and bottom, lead to the front so as to communicate with the nipples, *e*, *e*, of the water-glass, E, which is bolted upon or attached to the column in any preferred manner. The series of gage-cocks, F, F, F, are threaded into outlets, *f*, in the column, so as to communicate with the chamber, C, which is separated from the chamber, B, by a partition, *b*, extending the full length of the column.

Upon its rear face, the column is provided with bosses or projections, G, G′, which are made hollow to form valve-chambers, *g*, from each of which, outlet-ducts, H, I, lead into the chambers, B, C, respectively. On their rear faces, the bosses have inlets, *c*, to receive horizontal pipes, J, J′, for connecting the column with the steam-generator, and the bosses preferably have inlets, *c′*, at the top and bottom, also, so as to receive vertical, generator-connections, *j*, *j′*, (shown by dotted lines in Fig. 2,) thereby enabling horizontal or vertical connections to be made—it being understood that the vertical inlets are to be plugged if the horizontal ones be used, and vice versa.

In each of the chambers, *g*, a valve, K, is located, the spindle, *k*, of which is threaded through a plug, *k′*, and is provided on its outer end with a wheel L. Around the wheels L, hanging chains are intended to pass, in order that the wheels may be conveniently turned when in an elevated position, and the perimeters of the wheels are preferably provided with spiral ribs, *l*, between the convolutions of which the chains are wound, the ribs separating the coils of the chains. The chains may be connected at their lower ends so that a single pull will turn both of the wheels, L, and thereby operate both valves, K, simultaneously.

In order that the valves, K, may be easily seated by hand (should they be found not tight when any of the parts are to be disconnected) they may be furnished with rims, *l′*, which can be conveniently grasped for the purpose.

Two seats, M, N, are provided for each valve, K, which seats are separated by a considerable space, are located between the outlets, H, I, and are in axial alignment with the valve, K. The normal position of each valve, K, is

midway between its seats, M, N, so that steam and water enter both chambers, B, C, and thereby show in the water-glass and at the gage-cocks. When, however, it is desired to remove or to shut off the water-glass for any purpose, a closing of the valves on their seats, M, M, will effect the object, and leave the chamber, C, in full connection with the inlets from the generator; or if it be desired to shut off the gage-cocks, a closing of the valves on their seats, N, N, will produce the desired result, and leave the chamber, B, in connection with said inlets, so that at no time can the generator be without the protection of either the glass or the cocks.

The column is preferably provided with holes, *h*, *h*, and *i*, *i*, which are in alignment respectively with the several outlets, H, H, and I, I, from the valve-chambers into the chambers, B, C, so that said outlets can be cleaned by an instrument inserted through said holes, which are normally stopped by plugs, *d*, as shown in Fig. 3. Each valve-chamber, *g*, is also preferably stopped at one end by a plug, *m*, the removal of which affords access to the chamber.

If desired, two water-glasses and two sets of gage-cocks may be used, a glass and a set of cocks being in communication with the chambers, B, C, respectively. It is obvious, also, that each of the valve-chambers may be supplied with a second valve, to close upon the seat, M, and open toward the valve, K, though such an arrangement would not be so desirable as that illustrated, as there might then be danger that both valves would be accidentally closed at the same time, and both glasses and cocks be thereby shut off.

From the foregoing it will be understood that, when the valve, K, is midway between the seats, M, N, water and steam will enter both chambers, B, C; that, when the valve is closed on its seat, N, as shown in Fig. 3, entrance to the chamber, C, will be closed and the gage-cocks thereby be shut off, but the chamber, B, will be in full communication with the generator; and that, when the valve is closed upon its seat, M, entrance to the chamber, B, will be closed and the water-glass be thereby shut off, but the gage-cocks will be in communication with the generator. At no time, therefore, can both the water-glass and gage-cocks be shut off at the same time, which insures an indication at all times of the height of the water in the generator.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a water-gage, a column having two distinct water-chambers, one of which has outlets for connection with a water-glass, and the other has outlets for connection with a series of gage-cocks; two valve-chambers each having an inlet for connection with a steam-generator, and outlets into both water-chambers, and valves in said valve-chambers for opening and closing the outlets thereof, substantially as set forth.

2. In a water-gage, a column divided by a partition into two water-chambers, one of which has outlets for connection with a water-glass, and the other has outlets for connection with a series of gage-cocks; two valve-chambers on said column each of which has outlets into both water-chambers, and an inlet for connection with a steam-generator; and valves in said valve chambers for opening and closing the outlets thereof, substantially as set forth.

3. In a water-gage, two distinct water-chambers, one of which has outlets for connection with a water-glass, and the other has outlets for connection with a series of gage-cocks; two valve-chambers each having an inlet for connection with a steam-generator, and outlets into both water-chambers; two valve-seats in each valve-chamber which are located between the outlets thereof; and a single valve in each chamber adapted to close upon either seat, substantially as and for the purposes specified.

4. A water-gage having two distinct water-chambers; a water-glass connected to one of said chambers, and a series of gage-cocks to the other; two valve-chambers each having an inlet for connection with a steam-generator, and outlets into both water-chambers; valves in said valve-chambers, for opening and closing the outlets thereof, and having their spindles furnished with wheels provided with peripherical, spiral ribs, substantially as set forth.

5. A water-gage column having two distinct water-chambers, one with outlets for connection to a water-glass, and the other with outlets for connection with a series of gage-cocks; and two valve-chambers each furnished with outlets into both water-chambers, and with horizontal and vertical inlets for connection with a steam-generator, substantially as set forth.

6. A water-gage column having two distinct water-chambers, one with outlets for connection to a water-glass, and the other with outlets for connection with a series of gage-cocks; two similarly-constructed valve-chambers located respectively near the ends of the column and each furnished with outlets into both water-chambers and with an inlet for connection with a steam-generator, whereby the column may be applied, either end up, to a generator, substantially as set forth.

7. A water-gage column having two distinct water-chambers, one with outlets for connection to a water-glass, and the other with outlets for connection with a series of gage-cocks; two valve-chambers each furnished with outlets into both water-chambers and with an inlet for connection with a steam-generator; and cleaning holes in said column in alignment with the outlets from the valve-chambers, substantially as set forth.

8. A water-gage having two distinct water-chambers, one provided with outlets for connection to a water-glass, and the other with

outlets for connection with a series of gage-cocks; two valve-chambers each furnished with an inlet for connection with a steam-generator, and with two outlets into each water-chamber; and two valve-seats in each of the valve-chambers, which seats are located between the said outlets and are separated by a considerable space, whereby a single valve can engage two seats, substantially as and for the purposes specified.

9. A water-gage having two distinct water-chambers; a water-glass connected to one of said chambers, and a series of gage-cocks to the other; two valve-chambers each having an inlet for connection with a steam-generator, and outlets into both water-chambers; valves in said valve-chambers, for opening and closing the outlets thereof, and having their spindles furnished with wheels provided with hand-rims, and with peripherical, spiral ribs adapted to separate the convolutions of a chain for turning said wheels, substantially as set forth.

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