

UNITED STATES PATENT OFFICE.

JAMES FLATTERY, OF BROOKLYN, NEW YORK.

FAUCET.

Specification of Letters Patent No. 29,263, dated July 24, 1860.

To all whom it may concern:

Be it known that I, JAMES FLATTERY, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Faucet; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Figure 1, is a central, vertical section of the faucet, represented with its valve closed by the pressure of water from the pipe; Fig. 2, a corresponding view of the faucet, represented with the valve opened by its own weight, when the pressure from within is taken away; Fig. 3, a top view of the flexible diaphragm valve-holder; Fig. 4, a bottom view of the valve.

Like letters designate corresponding parts in all the figures.

The faucet is intended as an improvement on those faucets which are self-closing and self-opening by pressure from within or without, and which are, also, used as draw-cocks. The special objects which it fulfills, besides that of a draw-cock, are, first, to protect from collapse, boilers and other closed vessels connected with water-pipes, on cutting off the pressure of the main from the pipes, or otherwise rendering the pipes liable to having a vacuum formed in them; and, second, to serve as a self-opening, or air-supplying, faucet, for drawing off the water from service pipes, in houses, when liable to be frozen, or on other occasions.

A valve C, is employed, closing upward against a valve-seat *b*, which separates the inner passage, or chamber, A, from the exit passage, or spout, B. The valve has a vertical stem *e*, which is secured to the center of a flexible disk, or diaphragm, D, of india-rubber, or other suitable substance, possessing the requisite flexibility, and not liable to injury by either hot or cold water, to which it should be impervious. This diaphragm is secured in place by screwing a cap E, tightly down upon its edges, all around, as shown in the drawings, thus leaving the middle portion free to bend upward or downward, as may be required. The situation of the diaphragm should be such, in relation to the valve C, that when said valve is closed, it will be hollowed upward, as shown in Fig. 1; and when the valve is opened, it will be hollowed downward, as shown in Fig. 2.

In the top of the cap-piece E, a spigot handle G, is inserted, by a screw-thread, so that, by screwing it downward, it will bear upon the screw, or knob, *d* which secures the diaphragm to the valve stem, and opens the valve, as indicated by red lines in Fig. 2; and when the handle is screwed upward, the pressure of the water from the pipe closes the valve. Thus, it will be seen that the spigot handle, by which the valve is opened for drawing water, is entirely detached from the valve, so that the valve is free to close by the pressure of the water from within, or to open, by its own weight, when the pressure is removed, or a vacuum begins to be produced. The diaphragm D, not only serves to sustain the valve, and to keep it in place, so as to avoid all friction, but serves also as a complete packing and partition, to prevent the faucet's leaking through the top. This arrangement of the valve produces the most perfect action of the faucet in all circumstances. Being entirely disconnected from the spigot handle, it is perfectly free to be closed by the water; and to open infallibly, by its own weight, the moment the pressure within becomes less than that without. Being supported thus by the flexible diaphragm, its action is exceedingly delicate and sensitive, so that there is never any danger of accidents happening by collapse, from a vacuum being formed. Thus, when, by cutting off the pressure from the main, and the withdrawal of a portion of the water in pipes thus cut off, if the height of a boiler, or other closed vessel, is greater than that of a column of water supported by atmospheric pressure, said boiler or vessel is very liable to collapse, which the use of this faucet in the pipe, boiler, or vessel, completely obviates, by opening, at the moment that, or a little before, the outward pressure ceases. Again, in cold climates, it is frequently necessary, or desirable, to drain the water from the service pipes, in cold nights especially; in which case, by the use of this faucet, on simply cutting off the pipes from the main, and drawing off the water at a single spigot, (say in the cellar,) all the water above will flow out, this improved faucet at once opening, on the reduction of the pressure, and supplying air to take the place of the water in the pipes. This is a great convenience, in obviating the necessity of opening, sometimes, several faucets for the purpose. To

this end, it is necessary that no spring, nor other support, shall be under the valve. Since, also, the inner passage A, is made somewhat larger than the exit passage B, 5 and since the water, as it passes up through the valve seat, is first projected nearly vertically upward, the action of the water, in closing the valve, is exceedingly prompt and unerring, the pressure being, at first, 10 exerted both against the bottom of the valve and of the diaphragm D, both thereby acting together to close the valve. So perfect is this action, that there is never the slightest dripping of water from the faucet after 15 the spigot handle is raised from the valve. While thus the action of the water is so effectual always to close the valve quickly, there never can be any considerable shock from a too sudden closing of the valve, since 20 the spigot handle G, is raised by turning in a screw thread, and that can never be sudden enough to produce a shock liable to burst the faucet or pipe.

I am aware that self-closing and self-

opening faucets have before been used, serving, at the same time, as draw-cocks, thus being intended for safety faucets. But all (so far as I am aware,) have had such defects as to render them impracticable. The improved features, by which I obviate the 30 defects heretofore existing, and which I believe to be my own invention, are as follows:—

What I claim as my invention and desire to secure by Letters Patent is— 35

Suspending the valve vertically beneath the valve seat solely by the flexible disk, or diaphragm, D, substantially as described, when said valve is completely detached 40 from, and acting independently of, the spigot handle G, in the manner and for the purposes herein specified.

The above specification, duly signed and witnessed this 12th day of June, 1860.

JAMES FLATTERY.

Witnesses:

EDW. F. BROWN,

R. F. OSGOOD.