H. B. LEACH.

FAUCET.

No. 190,053. Patented April 24, 1877.

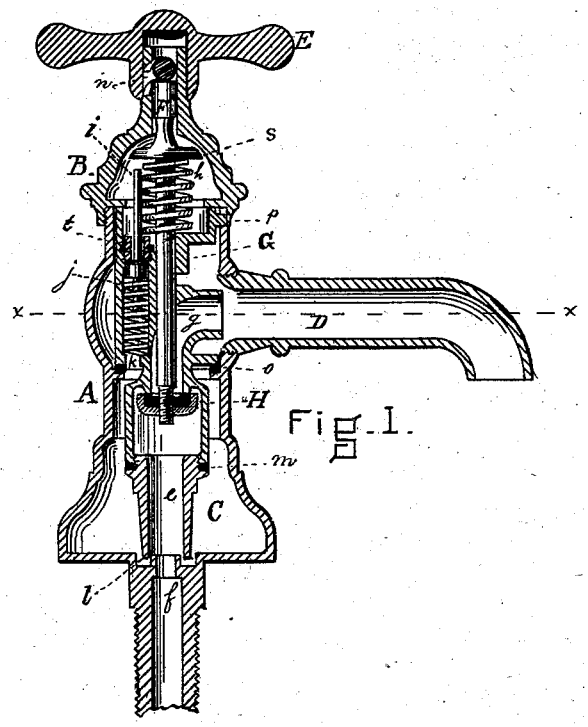

Fig. 1.

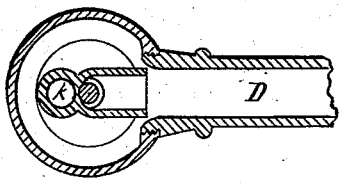

Fig. 2.

WITNESSES

Galen Coffin

Benj. A. Jenkins

INVENTOR

Henry B. Leach

UNITED STATES PATENT OFFICE.

HENRY B. LEACH, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN FAUCETS.

Specification forming part of Letters Patent No. **190,053**, dated April 24, 1877; application filed March 1, 1877.

To all whom it may concern:

Be it known that I, HENRY B. LEACH, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Faucets; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to that class of faucets in which the valve is closed by the combined action of the pressure of the water and a spring; and it consists, first, in the employment of an air-chamber constructed in such a manner that it receives a fresh supply of air every time that the water flows through the faucet.

The air acts as a cushion, and prevents the shock known as "water-hammer," caused by the sudden closing of the valve.

I produce this result by the use of a passage leading from the main inlet water-way into the air-chamber, combined with an air-supplying valve.

My invention further consists in the use of an insertible center piece, which serves as a partition in the body of the faucet, forming the top of the air-chamber. Upon this center piece I form the valve-seat for the main valve, also a space communicating with the air-chamber for the air-supplying valve. This center piece is constructed with a tube leading from the main valve-seat into the outlet-nozzle, for the purpose of exhausting the water that leaks past the valve-stem from the space above the air-chamber. This is described in Patent No. 158,593, granted to me January 12, 1875.

In the drawings, Figure 1 is a vertical section through the center of the body of the faucet and delivery-nozzle. Fig. 2 is a section on line *x x* on Fig. 1.

A is the main casing or body of the faucet. B is the cap, which has a thread upon it, that fits a corresponding thread upon the body of the faucet. C is the air-chamber; D, the delivery-nozzle. E is the key or handle, through which is a pin that works in a double-inclined slot. The action of the handle and pin moves the valve-stem downward, giving the required motion to open the valve. *e* and *f* are parts of the main inlet water-way. F is the valve-stem, upon which is the main valve H. G is the insertible center piece, which forms a partition and top of the air-chamber, and rests upon a shoulder in the body of the faucet. This joint is kept tight by a rubber packing-ring, as shown at *o*. The center piece is held firmly in its place by the cap B, which bears upon the top of it when the cap is in position. *g* is the tube leading from the valve-seat to the outlet-nozzle. H is the main valve, which is packed with rubber or any suitable substance. *h* is the spring that assists in closing the main valve.

The air-supplying valve is shown at *i*, and moves in a space shown at *k*, communicating with the air-chamber, and rests upon a seat which is screwed into the center piece, as shown at *t*. *j* is the spring that assists in closing the air-valve. *l* is a passage leading from the main inlet water-way to the air-chamber. *m* is a joint in the main inlet water-way, and is packed with a rubber ring. *n* is the pin which moves in the inclined slots *o* is the rubber ring that packs the joint between the air-chamber and the space above it.

At *p* I form a projection upon the center piece, which fits into a groove in the body of the faucet, for the purpose of preventing the center piece from turning around when putting on the cap B. *s* is a shoulder upon the valve-stem for the purpose of compressing the spring when the valve-stem is forced down.

The operation of the faucet is as follows: Upon turning the handle E, and forcing down the valve-stem F, the main valve H is opened. Having moved a short distance, the shoulder *s* on the valve-stem presses down upon and opens the air-supplying valve *i*, allowing the air to enter the air-chamber C. Upon releasing the handle E the main valve H closes suddenly by the action of the pressure of the water and the spring *h*. The air-supplying valve *i* also closes, and the water flows up into the air-chamber C through the passage *l*, but does not fill the chamber C, as a part of the space is occupied by the air, which acts as a perfect cushion, and prevents the shock or "water-

hammer," and the opening of the valve by the recoil of the water.

The water which flows through the passage *l* into the air-chamber C when the valves are closed remains in the air-chamber C until the valves are opened again, when the column of water, rushing through the water-way past the passage *l*, exhausts the water from the air-chamber C; and the air-valve *i* being open, the chamber C is filled with a fresh supply of air. The stem F fits loosely in the orifice in cap B, allowing a sufficient supply of air to enter.

I do not claim the use of an air-chamber, nor the employment of springs or inclined slots, as I am aware that such have been used. I do not confine myself to any particular arrangement of parts, as I can construct this faucet in different ways without departing from the spirit of my invention.

Instead of using the packing-ring at *m*, I can make the joint on a line with the valve-seat, and a part of the rubber ring that packs the joint can serve as a seat for the main valve. The valve in this case can be made entirely of metal. The passage *l* can be made by boring through the inlet water-way.

I do not confine myself to any particular device for giving motion to the valve-stem to open the valve. I can use a lever or a simple knob for pushing open the valve.

What I do claim, and desire to secure by Letters Patent of the United States, is—

In the air-chamber of a faucet, a passage leading from the main inlet water-way of the faucet into the air-chamber, combined with an air-supplying valve, substantially as shown and described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

HENRY B. LEACH.

Witnesses:

GALEN COFFIN,

BENJ. A. JENKINS.