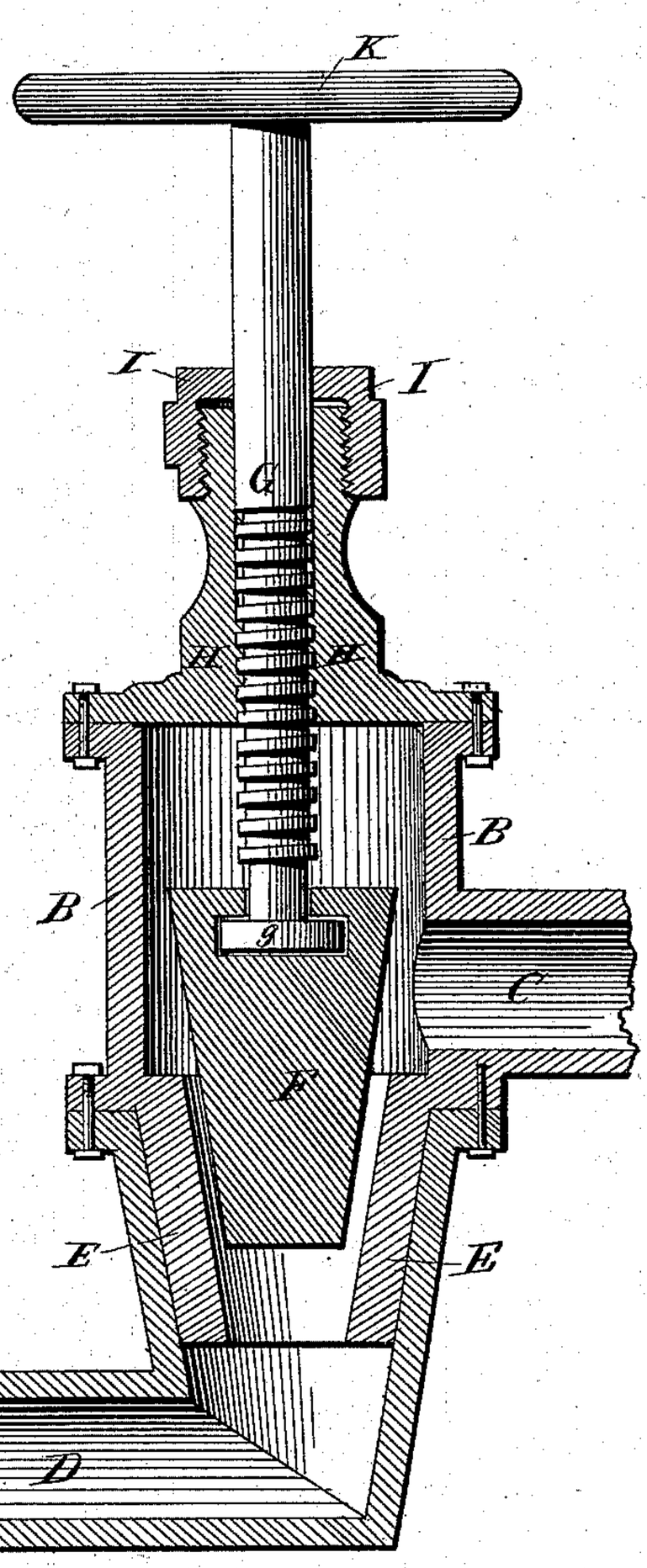
(No Model.)

A. RAPPOLD.

STOP VALVE.

No. 293,355. Patented Feb. 12, 1884.



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UNITED STATES PATENT OFFICE.

ALBERT RAPPOLD, OF TITUSVILLE, PENNSYLVANIA.

STOP-VALVE.

SPECIFICATION forming part of Letters Patent No. 293,355, dated February 12, 1884.

Application filed December 26, 1882. (No model.)

To all whom it may concern:

Be it known that I, ALBERT RAPPOLD, a citizen of the United States, residing at Titusville, in the county of Crawford and State of Pennsylvania, have invented a new and Improved Stop-Valve, of which the following is a specification.

My invention is more particularly adapted for pipes used in conveying sulphuric acid or similar corrosive substances, since all the exposed parts can be made of lead or other soft metal not affected by the acid; but it is useful in stop-valves for use in any kind of liquid, and an improvement on the valves now in use.

The mechanism is illustrated in the accompanying drawing, which shows a vertical section of my valve through the center with the valve partially closed.

A represents the valve-chamber; B, walls of same; C, inlet-pipe; D, discharge-pipe; E, valve-seat; F, valve; G, valve-stem; H, neck of valve-chamber; I, packing-box; K, handle or winch. The valve F is made the frustum of a cone inverted, the valve-seat E being made conical to receive the valve F. The valve F is made to engage with the button *g* on the lower end of the valve-stem G, which button is circular, allowing of a free rotary motion of the valve-stem G independently of the valve F; but the valve F is raised or lowered with the valve-stem G, this being operated by a screw-thread on the stem engaging with a corresponding thread on the inside of the neck H of the valve-chamber, or in any other similar or ordinary manner. The valve F and valve-seat E are made of lead or some similar soft metal, as also may be the walls B of the valve-chamber. The valve and valve-seat being of soft metal, if any slight obstruction becomes lodged between the valve and seat, the pressure upon the valve will indent the obstruction into the metal, and allow the aperture to be entirely closed. The valve-seat being upon the exterior walls of the chamber, it can be supported, as necessary, upon the outside by a firmer metal.

The operation is simple and explains itself. By the rotating of the valve-stem G by means of the handle or winch K, the valve F is forced down into the valve-seat E, when the aperture is fully closed and all passage of fluid is stopped. While in this position, the pressure of fluid through the inlet-pipe C presses the valve into place, packs it, and prevents it from leaking. By reversing the operation on the valve-stem, the valve F is raised more or less as required, and the fluid passes, as indicated by the arrows in the drawing.

One practical advantage ascertained to be derived from the use of lead as a metal for the valve and valve-seat for stop-valves used in pipes for conveying sulphuric acid is this: With other metals, when the valves remain closed for some time, a hard crust or coating forms, which is difficult to break, sometimes the valve being broken in the effort to open it. With lead the action of the acid lubricates the surfaces, and prevents any such crust from forming to prevent the action of the valve.

I make no claim for the manner of raising and lowering the valve F by means of the valve-stem G in the manner illustrated, that being an old device.

What I claim as my invention is—

As an improved article of manufacture, a stop-cock valve especially adapted for corrosive substances, and comprising a valve-chamber, A, formed of lead or equivalent soft metal, and consisting of the walls B and the conical valve seat E, formed integral with the walls B, and forming the bottom of the valve-chamber, the cap-piece H, the operating-stem G, the conical valve-plug F, corresponding to the seat E, and likewise formed of lead or an equivalent soft metal, whereby should particles become lodged between the plug and seat they will be compressed into the soft metal, and not prevent closing of the valve, and the discharge-pipe D, having a conical throat that encircles the soft-metal seat E and protects and strengthens the same from damage from the outside, substantially as set forth.

ALBERT RAPPOLD.

Witnesses:
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