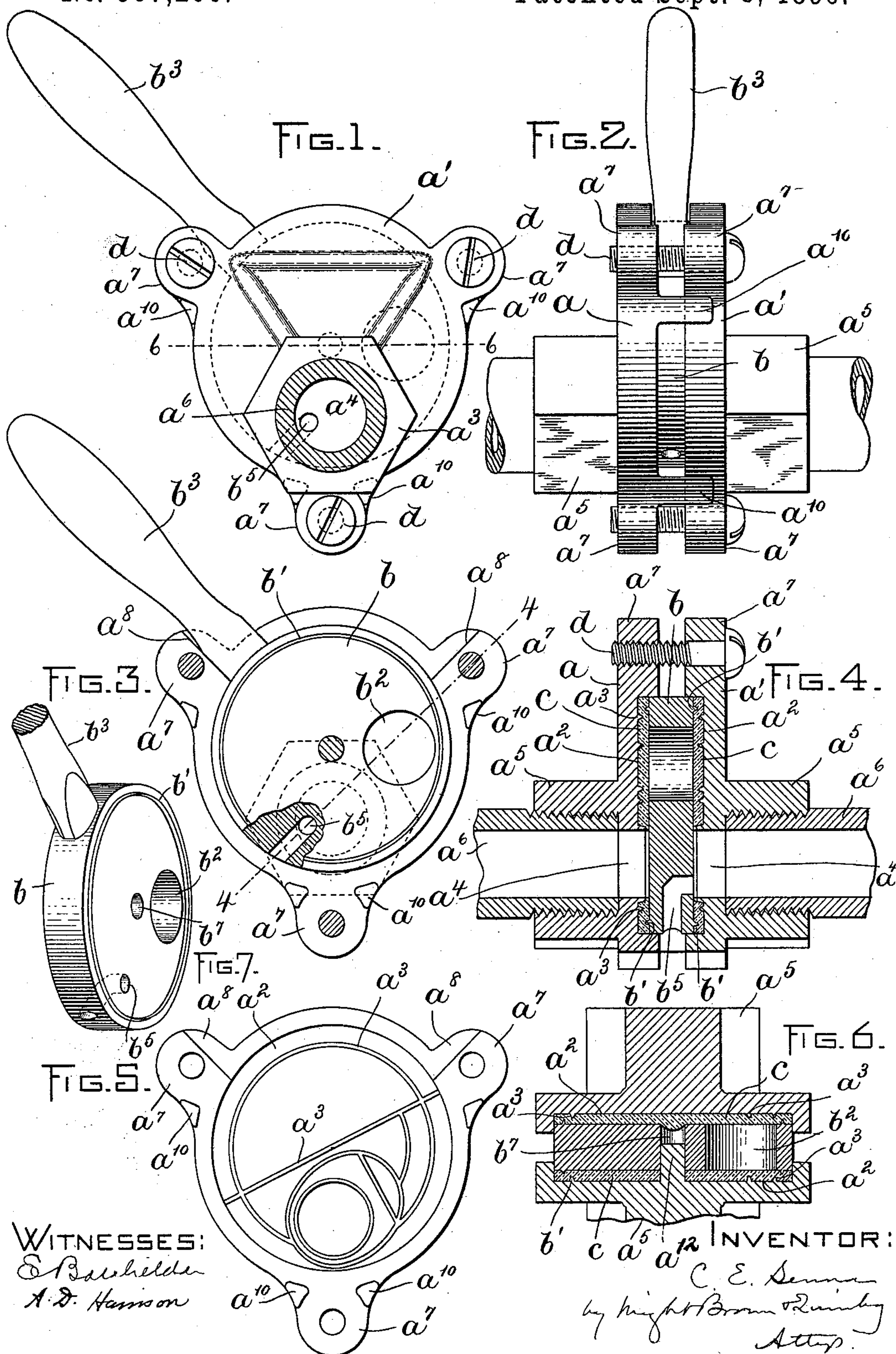


C. E. SENNA.  
SHUT-OFF VALVE.

Patented Sept. 8, 1896.





# UNITED STATES PATENT OFFICE.

CHARLES E. SENNA, OF BOSTON, MASSACHUSETTS.

## SHUT-OFF VALVE.

SPECIFICATION forming part of Letters Patent No. 567,200, dated September 8, 1896.

Application filed October 30, 1895. Serial No. 567,365. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES E. SENNA, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Shut-Off Valves, of which the following is a specification.

This invention has for its object to provide a simple, durable, and effective shut-off valve affording a straight passage to permit the use of a thaw-out iron, and adapted to be used also as a drip-valve.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side view of my improved shut-off valve. Fig. 2 represents an edge view of the same. Fig. 3 represents a view similar to Fig. 1, one of the plates or casing members being removed and the disk or valve shown partly in section. Fig. 4 represents a section on line 4 4 of Fig. 3. Fig. 5 represents a view of the inner side of one of the casing members. Fig. 6 represents a section on line 6 6 of Fig. 1. Fig. 7 represents a perspective view of the disk or valve.

The same letters of reference indicate the same parts in all the figures.

My improved shut-off valve is composed of three general parts, namely, two plates or casing members  $a$   $a'$  and a disk or valve  $b$ , interposed between the said casing members and adapted to oscillate, the inner sides of the casing members being provided with circular seats, which closely fit the sides of said disk. Each of the casing members has in its inner side a circular orifice  $a^2$ , which receives a compressible disk or valve-seat proper,  $c$ , said disk being of leather or other suitable material and having a thickness less than the depth of the recess  $a^2$ , so that not only the said disks, but also the edges of the periphery of the valve  $b$ , are received in said recesses and are guided thereby. The surface of the recess  $a^2$  is provided with raised ribs  $a^3$ , which are formed to indent the seat  $c$  and thus prevent water from finding its way between the seat  $c$  and the casing member on which it bears; portions of said ribs being irregularly arranged or non-concentric in such manner as to prevent the seat from

turning on the casing member, the general arrangement of the ribs being such that they form a wall surrounding the ports, hereinafter described, extending through the casing members, so that they form water-tight joints entirely surrounding said ports and preventing the water from working its way outwardly from said ports between the casing members and the seats. Each of the casing members has a port  $a^4$ , said ports being arranged at one side of the centers of the seats  $c$ , or, in other words, eccentrically to said seats, and being in line with each other, as shown in Fig. 4. Internally-threaded bosses or nipples  $a^5$ , formed on the casing members, surround the ports  $a^4$  and extend outwardly from the casing members for connection with pipes  $a^6$ . The casing members are provided on their peripheries with ears  $a^7$ , the ears on the member  $a$  being screw-threaded to engage connecting-screws  $d$ , whereby the casing members are adjustably connected and caused to bear with any desired degree of pressure upon the sides of the disk  $b$ .

The disk  $b$  is formed to closely fit the recesses  $a^2$  and the seats  $c$ , and is provided on its sides with annular indenting-ribs  $b'$ , which indent the seats  $c$  near the margins thereof and cooperate with said seats in forming water-tight joints. The disk has a port  $b^2$  extending through it and a handle  $b^3$  projecting from its periphery between the casing members, said handle being adapted to oscillate with the disk between the shoulders  $a^8$ , formed on the inner sides of the casing members. When the disk and handle are at one extreme of their movement, the port  $b^2$  coincides with the ports  $a^4$  of the casing, the valve being thus opened. When the disk is at the other extreme of its movement, the port  $b^2$  is separated from the ports  $a^4$ , as shown in Fig. 4.

When it is desired to use the device as a drip-valve, the disk is provided with a drip-passage  $b^5$ , extending from one side of the disk to the periphery thereof, and arranged so that when the disk is in its closed position the passage will coincide with one of the ports  $a^4$  and will discharge through the periphery of the disk between the casing members, as shown in Fig. 4. The drip-passage is arranged at such distance from the port  $b^2$  that when



the valve is in a position about midway between the two extremes of its movement it will entirely close the conduit, both the port  $b^2$  and the drip-passage being entirely disconnected from said conduit. The plate  $a$  is provided with fingers  $a^{10}$ , which bear upon the periphery of the plate  $a'$  and upon the ears  $a^7$  on said plate in such manner as to prevent independent rotation of either plate, the said fingers and ears interlocking for this purpose. The fingers are intended to cooperate with the screws  $d$  for the purpose above stated, thus preventing the strain that may be exerted when a pipe is being screwed into one of the nipples  $a^5$  from being sustained entirely by the screws. I prefer to provide one of the plates with a stud  $a^{12}$ , Fig. 6, projecting into an orifice  $b^7$  in the center of the disk  $b$ . It will be seen that the plates  $a$   $a'$  are separated from each other, so that their inward movement is limited only by the disk  $b$ . Hence said plates can be pressed with any desired degree of force against the disk, so that wear of the seats and of the disk can be readily compensated for from time to time, as may be found desirable. The construction is simple and effective, and affords a straight passage for the insertion of a thawing-tool.

I claim—

30 1. A shut-off valve comprising two plates or casing members, each having in its inner side a recess having non-concentric seat-indenting ridges, and a compressible valve-seat inserted in said recess and of less thickness

than the depth of the recess, said members also having eccentrically-arranged ports extending through said valve-seats; a disk interposed between said members and adapted to oscillate on said seats, said disk having seat-indenting annular ridges on its sides, and an eccentrically-arranged port adapted to coincide with the ports in the casing members, the indenting-ridges of the casing members and disk being formed to surround the several ports and prevent leakage between the disk and casing members; and means for adjustably connecting the casing members outside of the periphery of the disk.

2. A shut-off valve comprising two plates having circular seats on their inner sides and having the ears  $a^7$ , ports eccentric to said seats; screws adjustably connecting the ears  $a^7$ ; projections  $a^{10}$  integral with one plate and arranged to engage the periphery of the other plate each side of the ears to cooperate with said screws in preventing independent rotation of either plate; and a disk interposed between the plates and provided with an eccentric port and with an operating lever or handle.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 23d day of October, A. D. 1895.

CHARLES E. SENNA.

Witnesses:

GEO. W. APPLETON,  
WALTER E. BAKER.