(No Model.)

G. F. POTTLE.

VALVE.

No. 468,305. Patented Feb. 2, 1892.

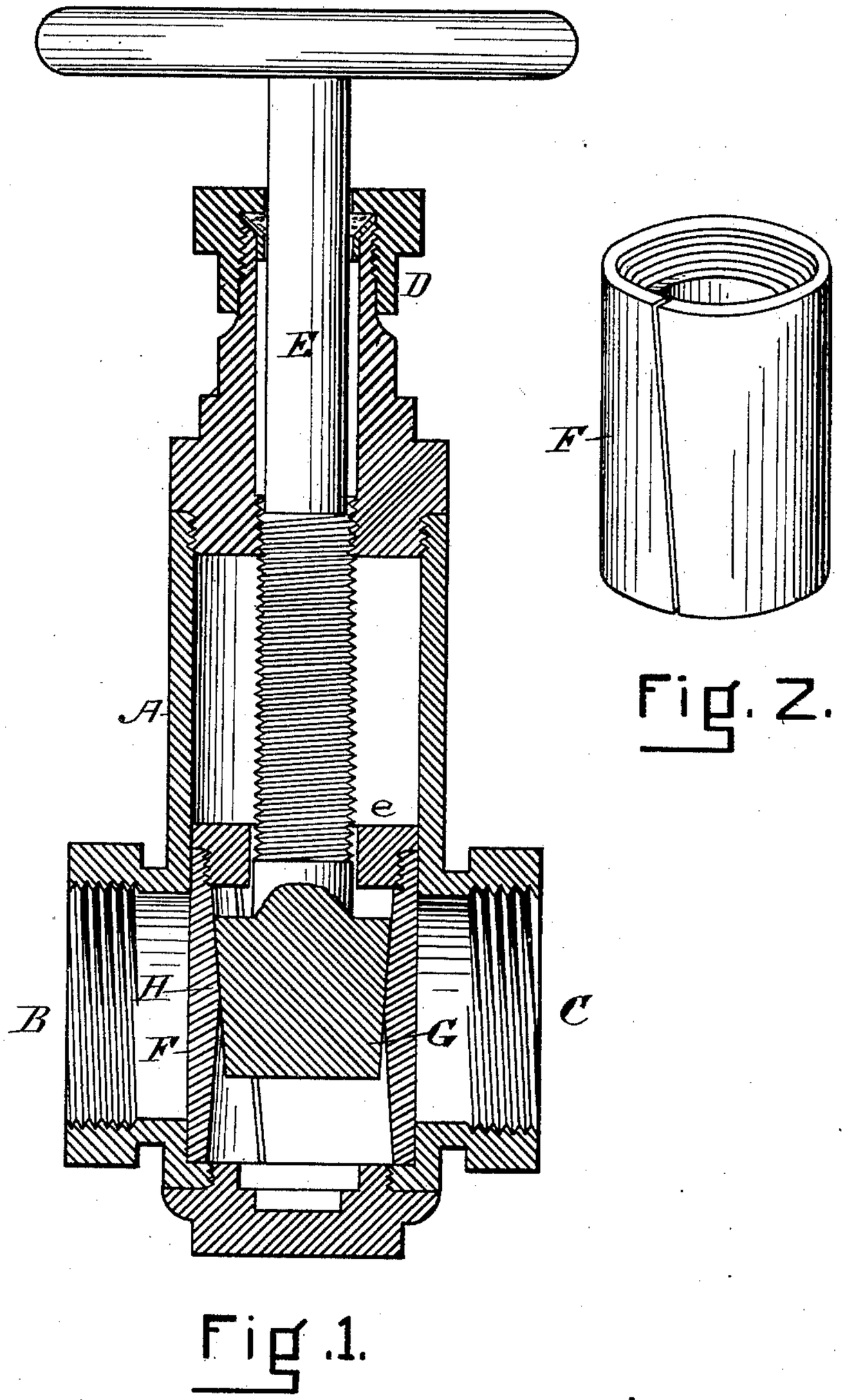

Fig. 1.

Fig. 2.

WITNESSES

John H. Taylor.

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UNITED STATES PATENT OFFICE.

GEORGE F. POTTLE, OF BOSTON, MASSACHUSETTS.

VALVE.

SPECIFICATION forming part of Letters Patent No. 468,305, dated February 2, 1892.

Application filed April 7, 1891. Serial No. 387,941. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. POTTLE, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Valves, of which the following is a specification.

My invention relates to improvements in valves for governing the flow of steam, water, and other fluids and gases; and its object is to improve the construction of such devices, whereby increase of economy in construction and efficiency in operation shall be obtained.

In the accompanying drawings I have shown at Figure 1 in vertical section a device embodying my present improvement in the form now best known to me, and at Fig. 2 a view of the valve proper.

In the drawings the valve-case is shown at A and is provided with the usual ports B and C, as well as with the usual stuffing-box D, through which passes the usual valve-stem E, provided with the usual operating-handle for opening and closing the valve.

According to my present improvement I form the valve proper of a cut ring F, having a diameter slightly less than that of the valve-chamber in which it is located and of a width greater than the diameter of the ports to be valved. The ring so constructed is suitably attached to the valve-stem E—as, for example, by a collar *e*, threaded to screw onto the ring—so that as the valve-stem is raised or lowered the valve-ring will also be raised or lowered within the case.

The cut-ring valve is made to close the ports by being expanded against them, the cutting of the ring permitting this expansion. To accomplish this result, I provide a wedge connection, one element of which G is upon the valve-stem, while the other is formed, as shown at H, upon the ring. Preferably the apex of this part of the wedge will be about midway of the ring, so as to get an even pressure of the same against the parts. By reason of this connection between the stem and valve it will be seen that when the latter has been lowered into position opposite the ports the continued turning of the handle will operate to expand the ring and make it bind more and more tightly against the walls of the case to close the ports. When this wedging action begins, there is a tendency of the ring to travel round within the case, which tends to produce a grinding fit and also to crush any sand or sediment which may come between the ring and wall of the case, and when the ring has been wedged up it will give a tight closure to the ports. Should it happen that the cut portion of the ring should come opposite one of the ports, this will not affect the successful working of the device, as the other port will still be tightly closed.

When it is desired to open the valve, the handle, being turned in the reverse direction, first unlocks the wedge, and the ring then becomes loose, and being attached to the handle may be thereby lifted up out of the water-way.

In those cases where the valve is employed for fluids or gases having a destructive action upon ordinary composition metal the exposed portions of the device, and particularly of the valve-ring, may be faced with material suitable to resist this destructive action. It will also be found in practice that by reason of the flexibility of the cut ring and its capacity of being forced with strong pressure against the ports, as well as its tendency to self-grinding when the valve is being closed, the various parts can be readily prepared in an ordinary lathe, thereby saving the expense of specially grinding the valve and seat in each instance. The width of the slot or cut in the ring should be sufficiently great to allow dirt or sediment to be carried freely through it, so that the same may not become clogged to prevent the ring from loosening when the handle is screwed up to open the passage-way.

I claim—

The combination, with a circular valve-case having a port or ports to be opened and closed, of a valve composed of a cut ring, a valve-stem, and a wedge connection between the stem and ring, one element thereof being formed upon the ring and the other upon the stem, whereby the said valve may be operated to open or close the ports, as set forth.

In testimony whereof I have hereunto subscribed my name this 1st day of April, A. D. 1891.

GEORGE F. POTTLE.

Witnesses:
JOHN H. TAYLOR,
ELLEN B. TOMLINSON,

Correction in Letters Patent No. 468,305.

It is hereby certified that Letters Patent No. 468,305, granted February 2, 1892, upon the application of George F. Pottle, Boston, Massachusetts, for an improvement in "Valves," was erroneously issued to the said Pottle as owner of said invention; that said Letters Patent should have been issued to *Jott Grant, of same place*, said Grant being assignee of the entire interest in said invention as shown by the assignments of record in this Office; and that said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 29th day of March, A. D. 1892.

[SEAL.]

CYRUS BUSSEY,
Assistant Secretary of the Interior.

Countersigned:

W. E. SIMONDS,
Commissioner of Patents.