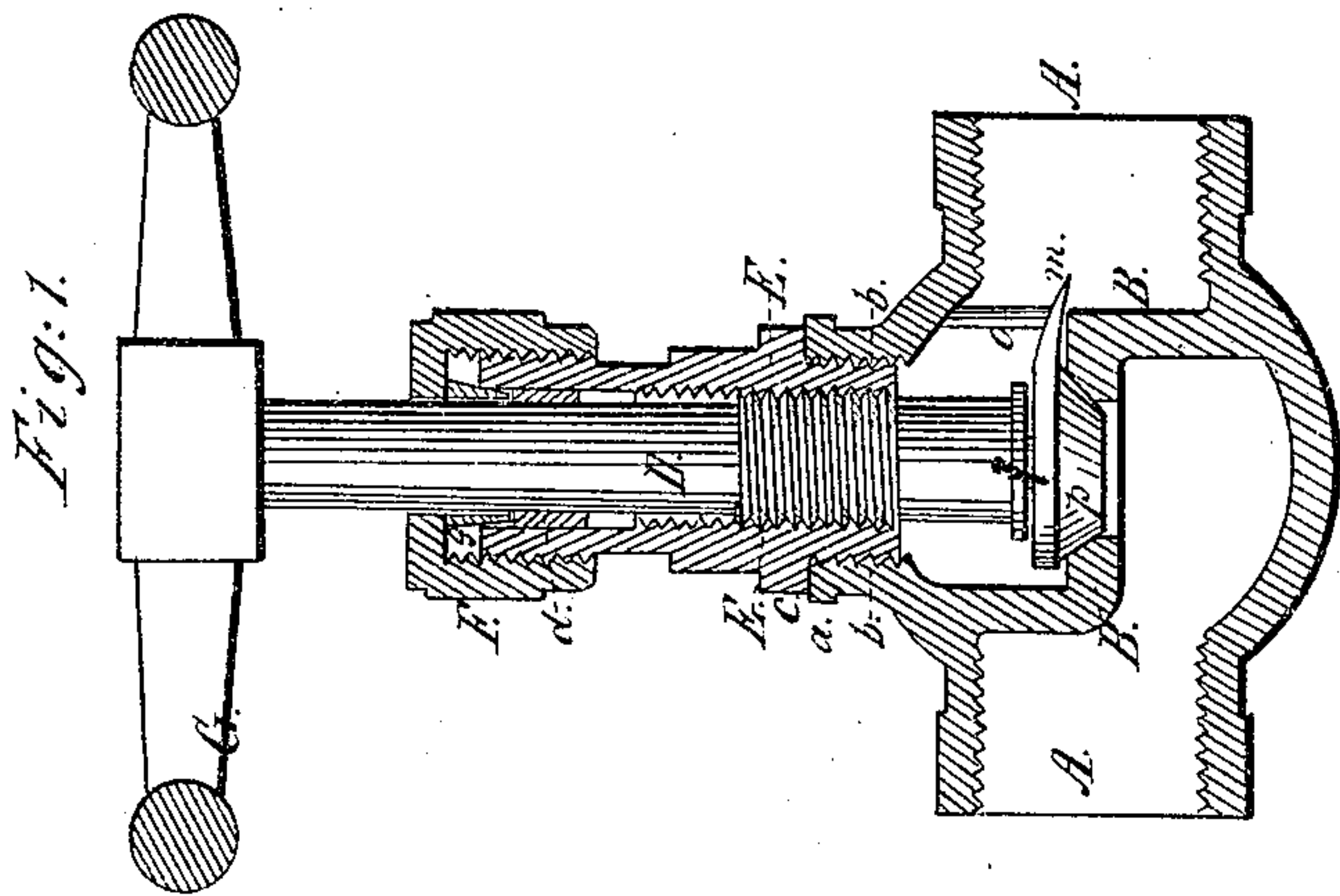
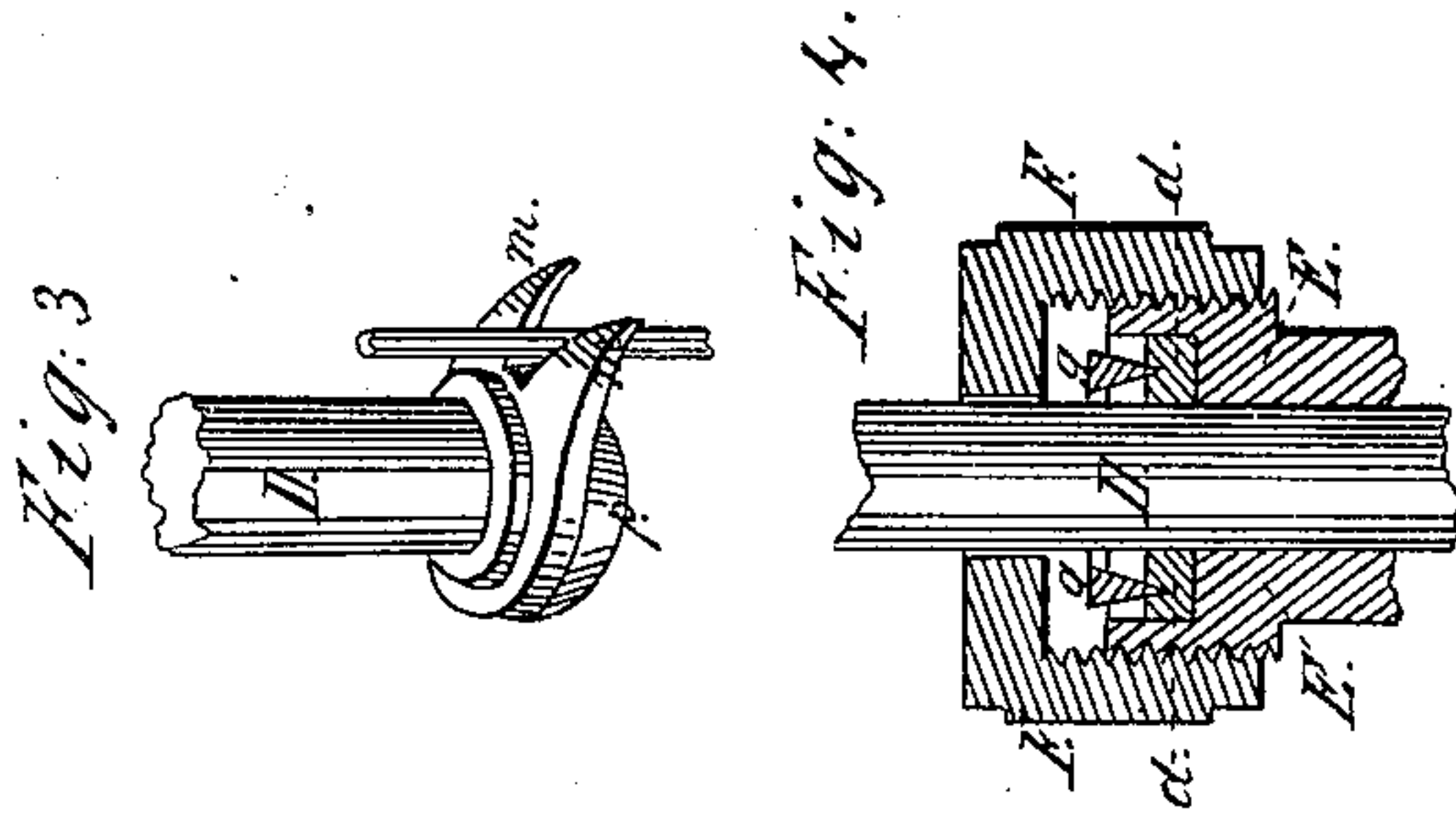
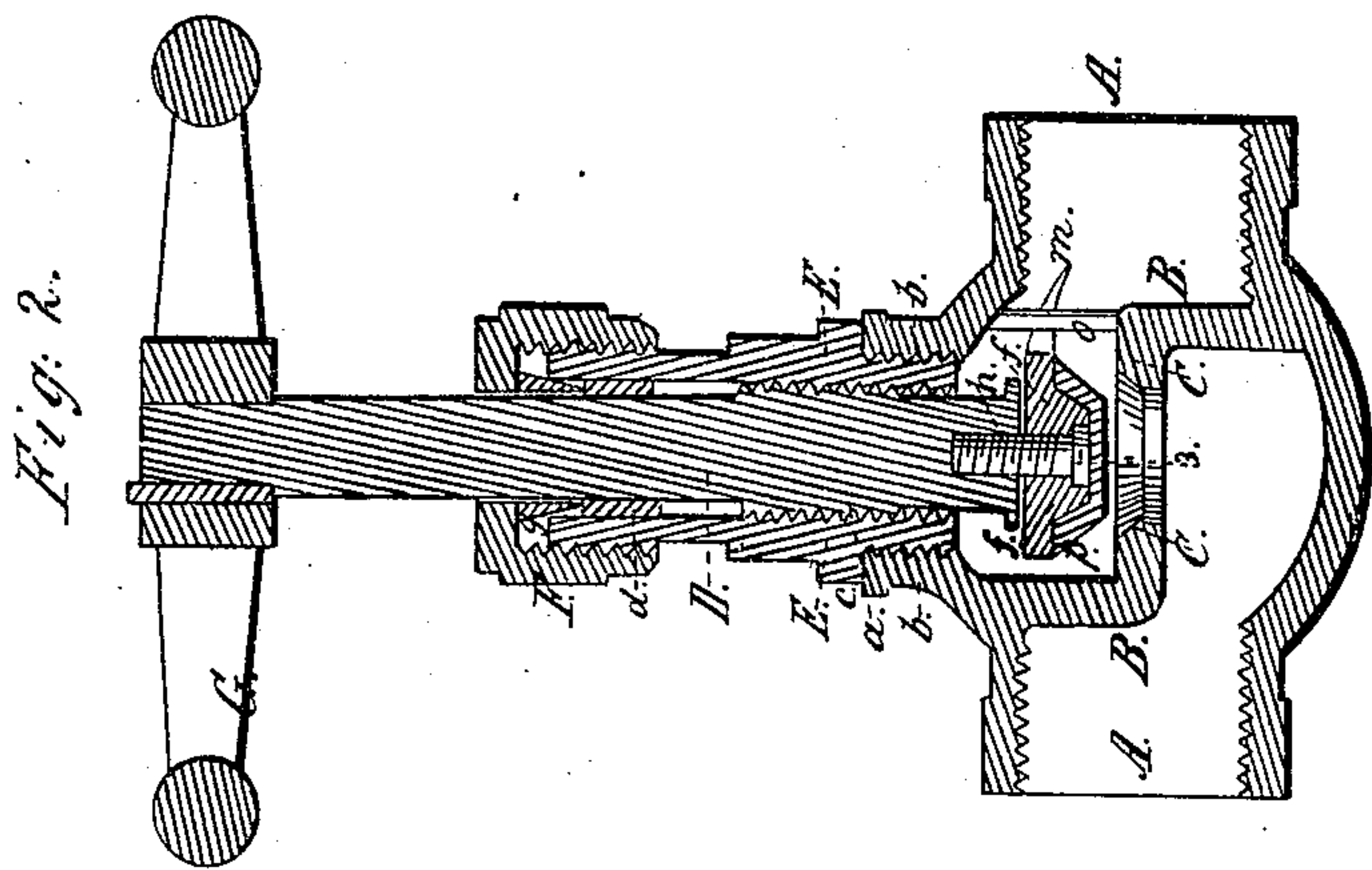


Gustavus Cypher.  
 Impt. in Stop Cocks.  
 No. 44164.      Patented Sept 13. 1864.



Witnesses.  
 John L. Kennedy.  
 John P. Kirk.

Inventor.  
 Gustavus Cypher  
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 Gutzmer & Cohen.



# UNITED STATES PATENT OFFICE.

GUSTAVUS CUPPERS, OF NEW YORK, N. Y.

## IMPROVEMENT IN STOP-COCKS.

Specification forming part of Letters Patent No. 44,164, dated September 13, 1864.

*To all whom it may concern:*

Be it known that I, GUSTAVUS CUPPERS, of the city, county, and State of New York, have invented certain new and useful Improvements in Valves for Stop-Cocks and Faucets; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1 represents a vertical central section through said stop-cock when the valve is closed. Fig. 2 represents a similar section showing the valve opened. Fig. 3 represents a detached view, hereinafter to be referred to.

The principal difficulty in the use of stop-cocks for liquids, as well as for steam, consists in keeping the valves tight, and they have for this reason to be ground or renewed frequently, which is a laborious and costly operation. By my invention the valve of the stop-cock is not as liable to become leaky as has been the case heretofore, and when leaky it can be repaired or renewed with the greatest facility and at a trifling expense.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A represents the main pipe, to which my stop-cock is applied. It is provided with a partition, B, and a valve-seat, C, similar to those used heretofore.

D represents the valve-stem, which is fitted within a sleeve, E, and can be operated therein by means of its screw-thread *a*, so as to move longitudinally to and from the valve-seat C. The sleeve E is secured to the main pipe by means of a screw, *b*, and is fitted thereto tightly by a collar, *c*. The space between the stem D and sleeve E is made steam-tight by means of an india-rubber packing, *d*, which is pressed into said space by the conical ring *g* through the action of the screw-cap F.

Thus far the construction is similar to that of the stop-cocks used heretofore; but my valve proper is essentially different. It consists in a conical piece, *f*, which is connected to the end of the stem D by means of the screw *h* in such a manner that it does not turn with the valve-stem, but is held stationary by means

of its forked ends *m*, (shown in Fig. 3,) which straddle the rod *o* within the main pipe.

*f* represents a facing of compressible material, such as lead, hard india-rubber, gutta-percha, &c. This is applied to the end of the corrugated conical piece *f*, and is pressed, by means of the valve-stem D, with great pressure against the valve-seat C, so as to assume the shape of an exact counterpart of said valve-seat, thus constituting the valve proper, which fits with almost mathematical accuracy in the valve-seat C. The compressible material of the valve is pressed into the corrugations on the surface of the piece *f*, which are shaped in such a manner as to firmly secure the compressible material thereto. As this valve does not turn in its seat, but moves rectilinearly only, its shape and working-surface will not be affected much by use, and is therefore not liable to become leaky; but should such occur, eventually the compressible material can easily be removed and renewed, or the old material can be left upon the valve, and can be again compressed against the valve seat.

For the use in steam pipes I use a metal which is compressible but not fusible under steam-heat, such as lead or some of its compositions. For the use in water-pipes or other liquids, I use hard india-rubber or other similar material which is first softened and then compressed upon the valve-seat while in a soft state. This valve can also be applied with the greatest advantage to ordinary faucets, as its construction is extremely simple, the valve very durable, and it can easily be renewed if necessary. The valve-rod D and valve are operated by means of the hand-wheel G. The packing *d* is shown in a detached view at Fig. 4. I make a cavity within the upper part of the sleeve E, and I insert into this a packing, *d*, of lead or india-rubber. On said packing *d* I place a metal ring, *g*, the sides of which converge downward to an edge, said edge resting on the packing. To make the packing tight, the screw-cap F is screwed down, whereby the edge of the ring *g* presses the packing against the stem D, and thus prevents leakage in case the screw *a* should wear down by constant use.

Having thus fully described the nature of

my invention, what I claim herein as new, and desire to secure by Letters Patent, is—

1. In combination with the revolving valve stem *D*, the stationary swivel-valve *f*, substantially as and for the purposes described.

2. In combination with the stationary swivel-valve *f*, the facing *p*, made of compressible

material, constructed and operated substantially in the manner and for the purposes described.

GUSTAVUS CUPPERS.

Witnesses:

JAMES A. MCCREA,

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