

No. 668,997.

J. MILLER & F. E. HART.

Patented Feb. 26, 1901.

GAGE COCK.

(No Model.)

(Application filed May 21, 1900.)

Fig. 1.

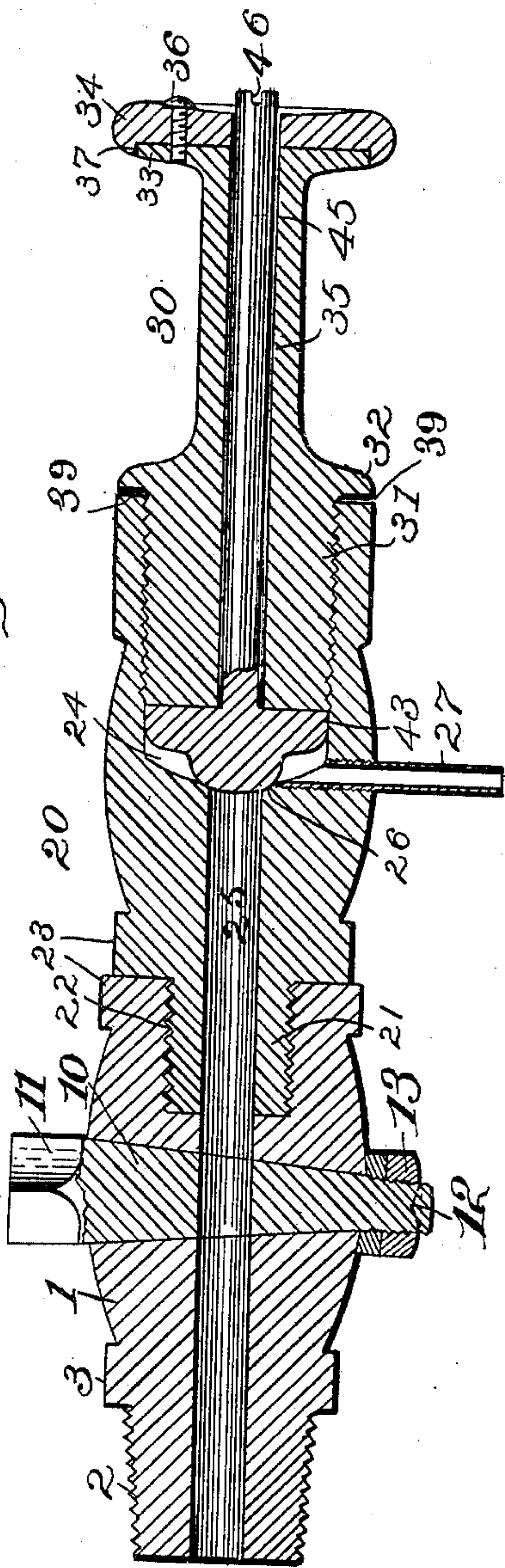
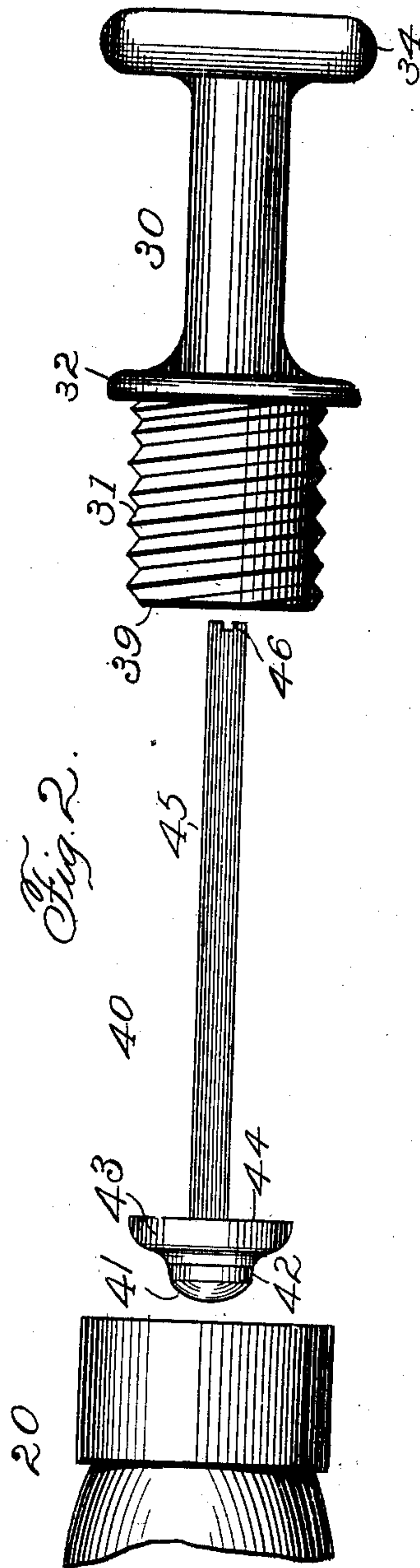


Fig. 2.



Witnesses:  
F. G. Campbell.  
W. R. Witton

Jacob Miller,  
and  
Francis E. Hart, Inventors.  
Collamer & Co.,  
Attorneys.



# UNITED STATES PATENT OFFICE.

JACOB MILLER AND FRANCIS E. HART, OF WEATHERLY, PENNSYLVANIA.

## GAGE-COCK.

SPECIFICATION forming part of Letters Patent No. 668,997, dated February 26, 1901.

Application filed May 21, 1900. Serial No. 17,499. (No model.)

*To all whom it may concern:*

Be it known that we, JACOB MILLER and FRANCIS E. HART, citizens of the United States, residing at Weatherly, in the county of Carbon and State of Pennsylvania, have invented certain new and useful Improvements in Gage-Cocks; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to steam-boilers, and more especially to the valves used in connection therewith; and the object of the same is to produce an improved gage-cock, such as ordinarily used for testing the water in the boiler.

To this end the invention consists in a gage-cock without packing, the whole being constructed as hereinafter described and claimed and as shown in the accompanying drawings, wherein—

Figure 1 is a longitudinal section of the device entire. Fig. 2 is a side elevation of two parts of the casing and the valve and stem, all slightly separated.

The casing is in three parts, of which that numbered 1 is threaded at its extremity, as at 2, and made angular at 3, adjacent thereto, so as to receive a wrench for screwing the cock into the boiler. Transversely through this part or member is bored a passage, within which fits a tapering plug 10, squared, as at 11, at one end or provided with any suitable means by which it may be turned, and threaded, as at 12, at its other end to receive a nut 13. By adjusting the latter the plug may be kept ever tight in the transverse bore through the member 1. The next member 20 has at one extremity an exteriorly-threaded nipple 21, taking into a threaded socket 22 in the adjacent end of the first member, and for the purpose of screwing these members together one or both of them may be squared or made angular, as at 23. The other end of this second member has a deep cavity 24, interiorly threaded for most of its depth, as seen in Fig. 1, and both members have an axial bore 25, which is of course continued through the plug 10, as shown. Where this bore 25 emerges into the cavity 24, it is formed into

a concave valve-seat 26, and from one side of the cavity adjacent said seat projects a spout 27, as clearly illustrated. The third member 30 has its body threaded exteriorly, as at 31, to fit the interior threads within the cavity 24. A flange 32 around the body at one end of the threads strikes the extremity of the second member 20 and prevents the body of the third member from screwing too deeply into the cavity. When the parts are first assembled and before the active face of the valve has become worn, as hereinafter described, a washer 39 may be inserted between the flange 32 and the end of the member 20. Beyond said flange the third member is made of any suitable design, and its remote end is provided with a knob 34. In the present instance we have shown the member 30 as having a head 33, and the knob 34 is provided with a recess 37, fitting over said head, these two parts being held together by screws 36. The third member and the knob are provided throughout with an axial bore 35 in true alinement with the bores through the other members.

40 designates as a whole a valve whose head 42 has a convex active face 41, adapted to seat against the concave valve-seat 26, in rear of which the body of the head is enlarged for a short distance, and in rear of which enlargement it is further enlarged, as at 43, into a disk fitting loosely within the unthreaded portion of the cavity 24 and having a flat outer face 44, adapted to rest squarely against the inner extremity 39 of the third member, as seen in Fig. 1.

45 is the stem of the valve, projecting outwardly from the center of said face 44 and of a size to slide within the bore 35. In length this stem is such that when the face 44 rests against the extremity 39, as just mentioned, the remote end of the stem protrudes slightly beyond the knob 34. This end of the stem is here shown as notched, as at 46, whereby a screw-driver may be inserted and the entire valve rotated, so as to grind its face 41 upon the valve-seat 26, thus effectually preventing leakage.

The parts are of any desired sizes, proportions, materials, and shapes, with the exception of the particular features herein noted.



When it is desired to open the cock, the member 30 is grasped (usually by its knob) and rotated slightly in the proper direction to unscrew its threaded body 31 from the cavity 24. This moves the extremity 39 away from the valve-seat 26 and the steam-pressure within the bore 25 forces the valve 40 along with the member 30, so that the steam escapes through the spout 27. The same action will result if there be water or other fluid within the bore 25. The cock is closed by a reverse movement of the member 30. During this action the extremity 39 turns upon the outer face 44 and advances meanwhile. Said face and the entire valve may turn the member 30 until the active face 41 strikes the valve-seat 26. Then the rotation of the valve will probably cease, even though the member 30 is screwed a little farther in to tighten the parts.

When the parts are closed, as seen in Fig. 1, the convex active face 41 of the valve rests upon the seat 26, the flat outer face 44 of the valve-head rests against the inner end 39 of the outer member 30, and the flange 32 of the latter rests against the outer end of the second member 20, thus avoiding leakage even without the use of any stuffing-boxes.

When it is desired to clean or repair this device, the plug 10 is turned to close the bore 25, after which both members 20 and 30 can be entirely removed and separated. It will

be rarely if ever necessary to take the first member 1 out of the boiler.

What is claimed as new is—

A gage-cock comprising three members: the first screwed into the boiler and having a transverse bore with a rotary plug therein, and a threaded socket in its outer end; the second member having a nipple screwed into said socket and being provided with a threaded cavity in its outer end, a spout opening transversely from this cavity, and an axial bore through both these members having a valve-seat where it opens into the cavity; and the third member having a threaded body taking into said cavity and provided with a flange beyond the threads and an operating-knob at its outer end, and a valve having a stem journaled in this member and a head whose active face makes contact with said valve-seat when its outer face contacts with the inner end of said third member and the flange on the latter contacts with the outer end of said second member, all substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

JACOB MILLER.  
FRANCIS E. HART.

Witnesses:

DAVID E. ZIEGENFUS,  
ANSON R. HELLER.