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W. L. MORRIS.

GAGE COCK.

APPLICATION FILED APR. 2, 1903.

NO MODEL.

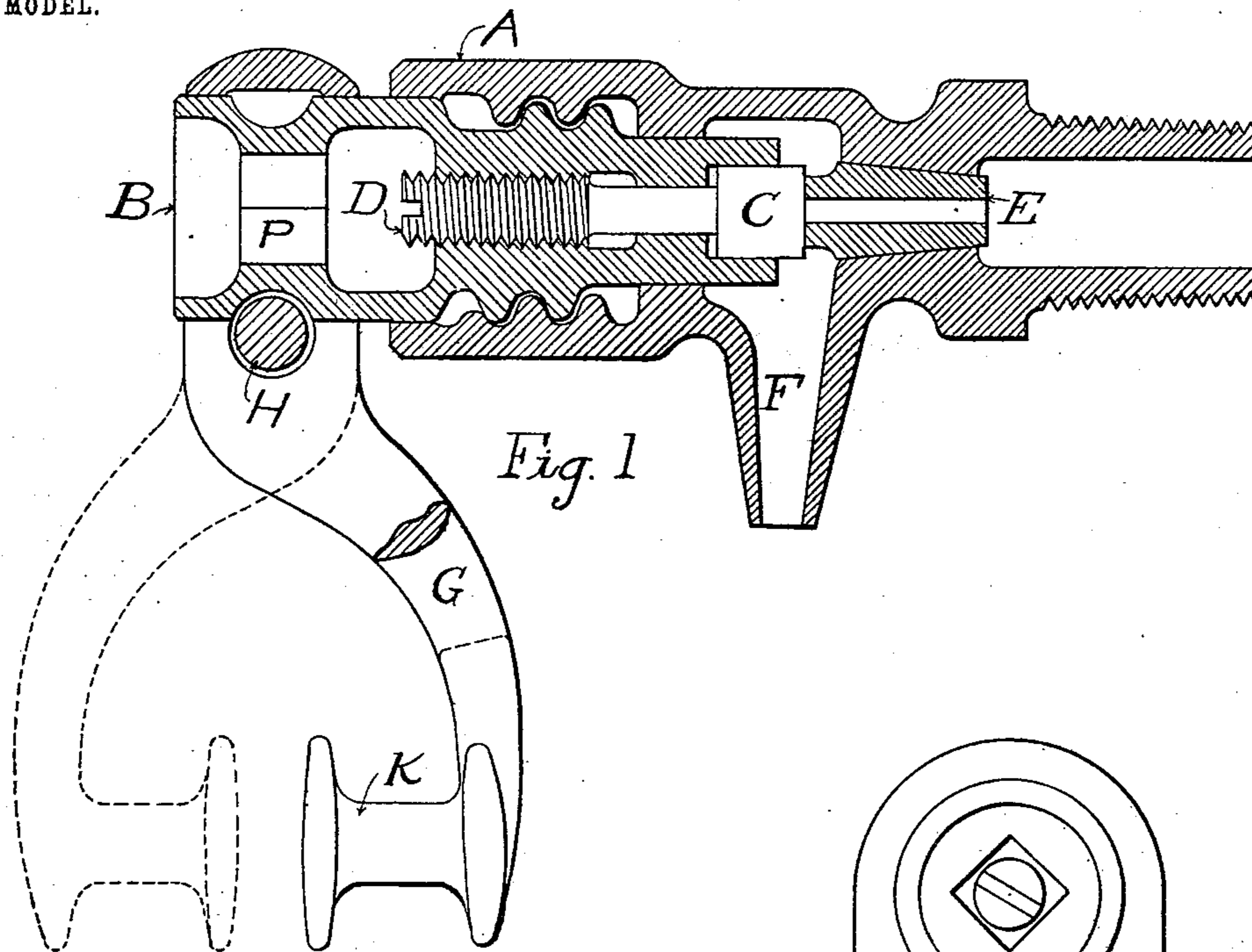


Fig. 1

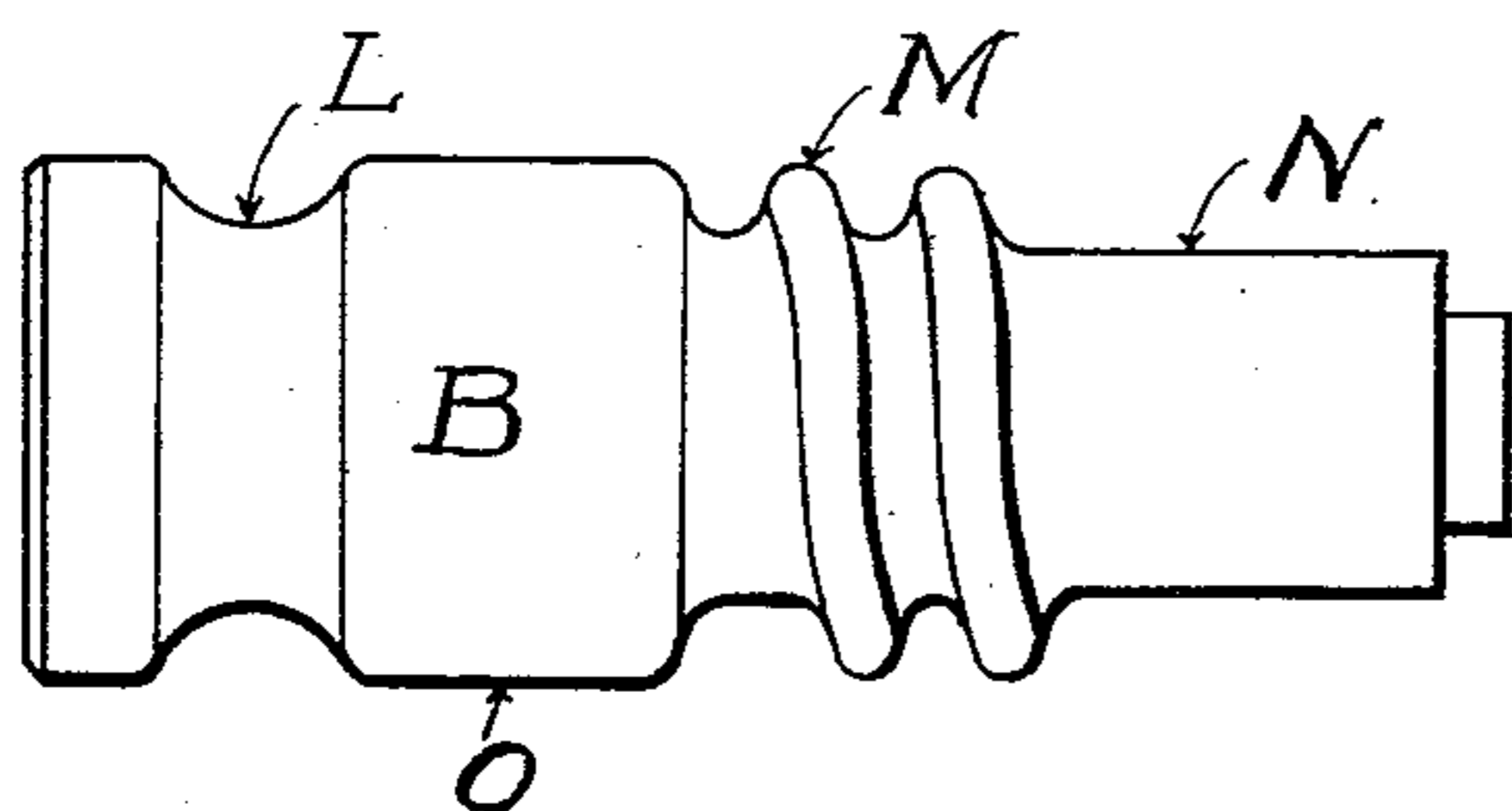


Fig. 3.

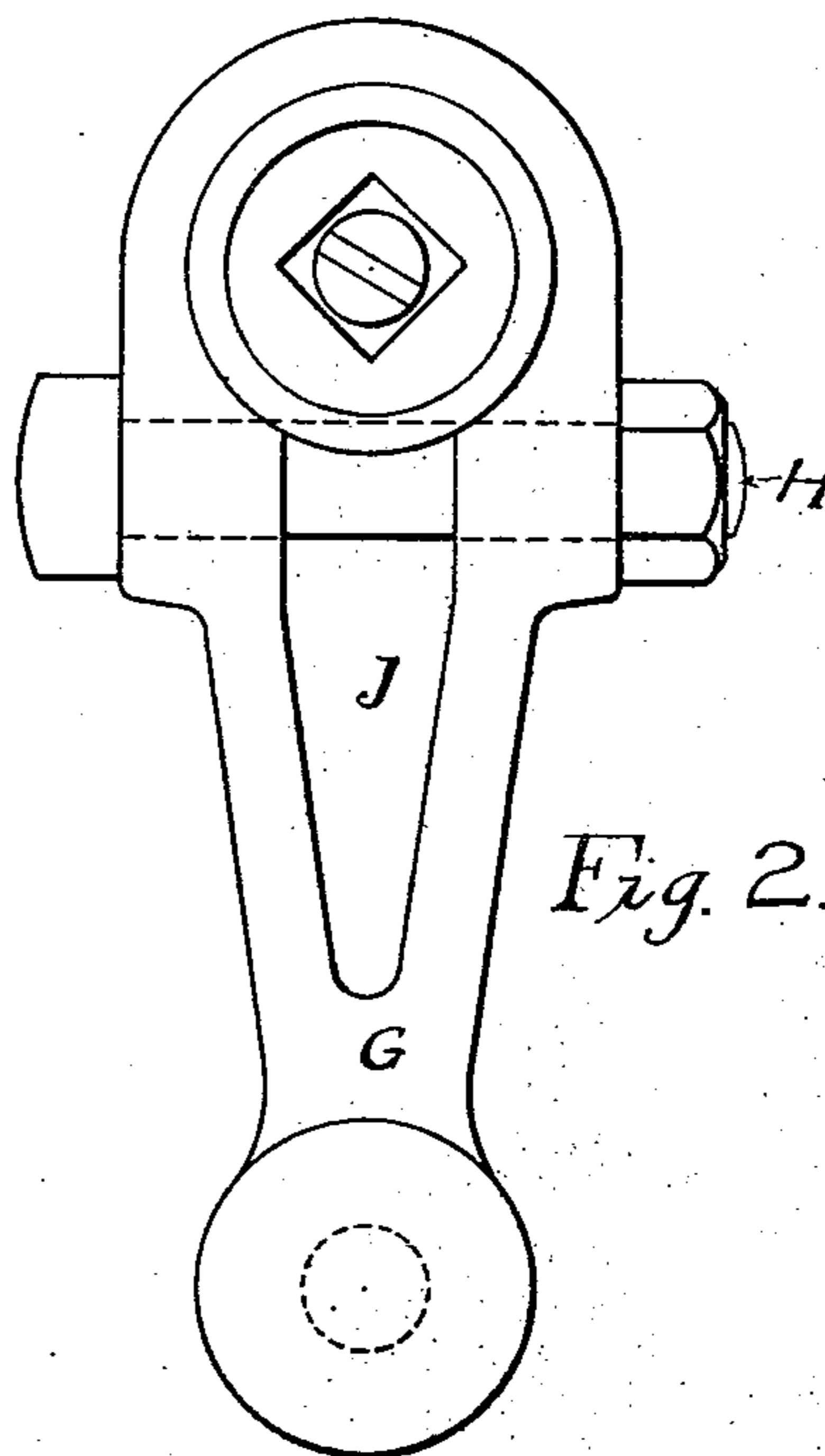


Fig. 2.

WITNESSES:

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# UNITED STATES PATENT OFFICE.

WILLIAM L. MORRIS, OF BATAVIA, ILLINOIS.

## GAGE-COCK.

SPECIFICATION forming part of Letters Patent No. 750,881, dated February 2, 1904.

Application filed April 2, 1903. Serial No. 150,681. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM L. MORRIS, a citizen of the United States, and a resident of Batavia, county of Kane, and State of Illinois, have invented a new and useful Improvement in Gage-Cocks, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to gage-cocks, and particularly to such cocks as are used on boilers and commonly known as "try-cocks," the object of said invention being to produce simply, economically, and efficiently a cock of such character.

Said improved cock consists of means hereinafter fully described, and specifically pointed out in the claims.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings, Figure 1 represents a longitudinal section of the gage-cock. Fig. 2 represents an end view of the same. Fig. 3 represents an elevation of the center screw-plug.

My improved cock is designed for the purpose of determining the level of water in boilers by allowing the cock to blow through the nozzle, such cocks being generally used three upon a boiler, set at different heights, the highest at the maximum height to which the water should be allowed to rise, the lowest at the minimum practicable height of the water, and the other intermediate of these two. Said improved cock is designed to be operated by hand and not by steam or by pressure.

A valve-body A is threaded at one end, whereby it may be attached to the boiler or water-column. Working within this threaded portion is a center screw-plug B, provided with a valve-face on its axial line, as shown in elevation in Fig. 3. Said plug B is provided with a soft-metal plug C and adjusting-screw D. In the axial line of the threaded body A

is a valve-seat E, firmly fastened in said body and capable of receiving the soft plug C. Clamped to the plug B by means of bolt H and the slit J in the lever, Fig. 2, is a lever G for rotating the plug. When the cock is placed out of reach, said lever may be operated by any suitable means, such as a hand-rod capable of engaging the spool-piece K, attached to the end of the lever. Said spool-piece is attached to one side of the center line in order that when using two or more cocks the levers may pass each other without interference. Said lever G is reversible and is ordinarily capable of being rotated ninety degrees. Such rotation of the lever will cause the soft plug C to leave the seat one-quarter of the pitch of the screw M upon the plug B. It is preferable to cast the thread M on the center plug B and its corresponding thread in body A, inasmuch as it is well to raise the plug C well off the seat E, and such proper raise cannot be obtained without a coarse thread, and a thread of the proper coarseness cannot be well machined. The plug B is constructed to enable the use of loosely-fitting threads M, which will at the same time perfectly guide the plug, so that the soft plug C will always seat upon the seat E in the same position. The small end of the plug (designated by the letter N) is slightly smaller than is the smallest diameter of the thread in the body A in order to clear the same, and the largest diameter of the plug (designated by the letter O) is slightly larger than the largest diameter of the screw M in order that the screw may pass through it. Faces N and O are kept in perfect alinement by fitting neatly in body A.

The groove L in the center plug B prevents the lever G from being shifted out of position endwise upon the plug. At the outside end of the plug there is a square hole P, to which a wrench can be applied after the plug C has been worn shorter and it is necessary to raise the lever G back to its original position. The set-screw D may be used to force the plug C out of the plug B, if found desirable, and in that case it would not be necessary to have plug B and lever G in two separate and adjustable pieces. The snout F is for the discharge of steam or water when the cock is open.

In operating my improved gage-cock lever G is turned upwardly through an angle of ninety degrees either by hand or when necessary by a hand-rod and the spool end of the lever at K, which opens the valve. To close the valve, the lever is pulled back to its original position, the cock being thereby closed with considerable force and rendered perfectly tight.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any one of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention—

1. In a gage-cock, the combination of a body provided with a valve-seat, a member having loose screw-threaded engagement with said body, provided with a valve-plug movable toward and from said seat, and having a plurality of guiding-faces closely contacting said body, and means for effecting the movement of said plug.

2. In a gage-cock, the combination of a body provided with a valve-seat, a member having loose screw-threaded engagement with said body, provided with a valve-plug movable toward and from said seat, and having a plurality of guiding-faces closely contacting said body, means on the axis of said plug for effecting its movement, and means independent of the screw for guiding the plug toward and from said seat.

3. In a gage-cock, the combination of a body provided with a valve-seat, a member having loose screw-threaded engagement with said body, provided with a valve-plug movable toward and from said seat, and having a plurality of guiding-faces closely contacting said body, means for effecting the movement of said plug, means for securing such latter means to the plug, and means independent of the screw for guiding the plug toward and from said seat.

4. In a gage-cock, the combination of a body provided with a valve-seat, a member having loose screw-threaded engagement with said body, provided with a valve-plug movable toward and from said seat, and having a plurality of guiding-faces closely contacting said body, rotating means on the axis of said plug for effecting its movement, a separate seating-face attached to and coaxial with the axis of said plug, and means for adjusting said seating-face to its desired position.

5. In a gage-cock, the combination of a body

provided with a valve-seat, a member having loose screw-threaded engagement with said body, provided with a valve-plug movable toward and from said seat, and having a plurality of guiding-faces of varying diameters closely contacting said body, and means for effecting the movement of said plug.

6. In a gage-cock, the combination of a body provided with a valve-seat, a member having loose screw-threaded engagement with said body, provided with a valve-plug movable toward and from said seat, and having a plurality of guiding-faces of varying diameters closely contacting said body, means for effecting the movement of said plug, means for securing such latter means to the plug, and means independent of the screw for guiding the plug toward and from said seat.

7. In a gage-cock, the combination of a body provided with a valve-seat, a member having loose screw-threaded engagement with said body, provided with a valve-plug movable toward and from said seat, and having a plurality of guiding-faces of varying diameters closely contacting said body, rotating means on the axis of said plug for effecting its movement, a separate seating-face attached to and coaxial with the axis of said plug, and means for adjusting said seating-face to its desired position.

8. In a gage-cock, the combination of a body provided with a valve-seat, a member having loose screw-threaded engagement with said body, provided with a valve-plug movable toward and from said seat, and having two guiding-faces closely contacting said body, one of said faces being slightly smaller than the smallest diameter of the screw and the other of said faces being slightly larger than the largest diameter of said screw, and means for effecting the movement of said plug.

9. In a gage-cock, the combination of a body provided with a valve-seat, a member having loose screw-threaded engagement with said body, provided with a valve-plug movable toward and from said seat, and having two guiding-faces closely contacting said body, one of said faces being slightly smaller than the smallest diameter of the screw and the other of said faces being slightly larger than the largest diameter of said screw, means on the axis of said plug for effecting its movement, and means independent of the screw for guiding the plug toward and from said seat.

Signed by me this 28th day of March, 1903.

WILLIAM L. MORRIS.

Attest:

KATHERINE O'CONNOR,  
L. M. DAVIS.