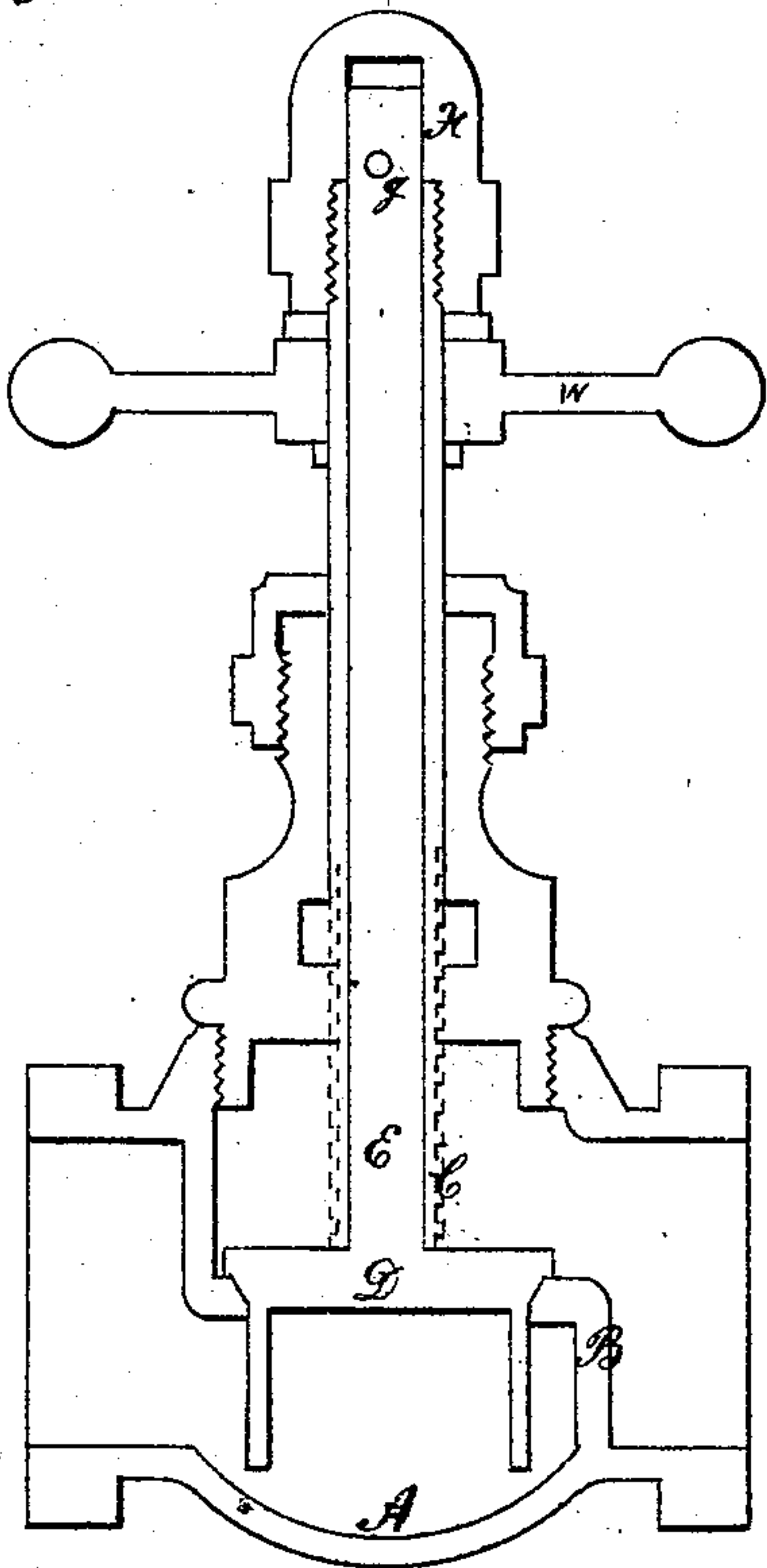


J. MORRISON.  
Check-Valves.

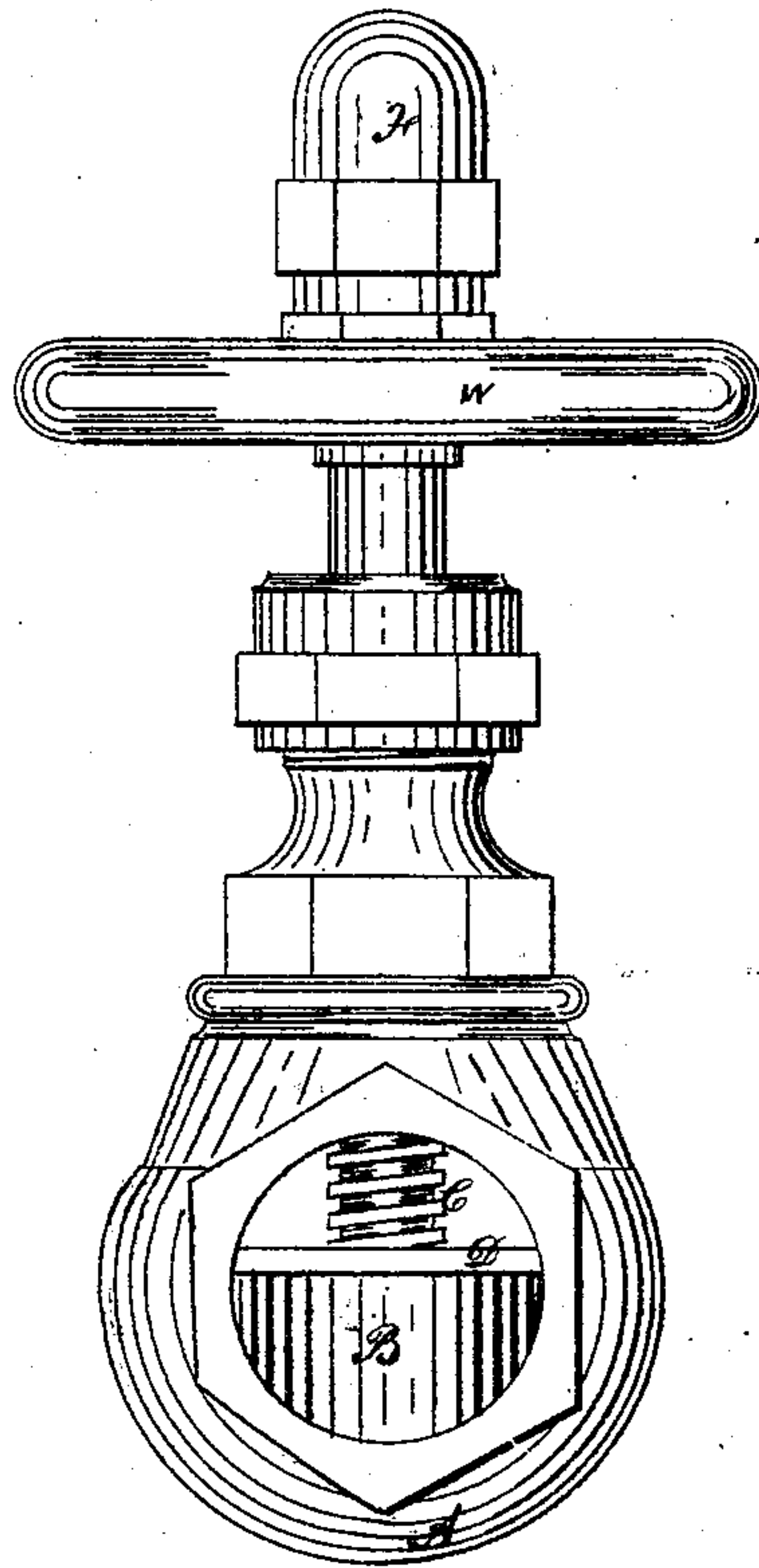
No. 151,712.

Patented June 9, 1874.

*Fig. 1.*  
Longitudinal Sectional Elevation



*Fig. 2.*  
End Elevation



Witnesses

*Henry Penick.*  
*William Gill*

Inventor

*James Morrison*



# UNITED STATES PATENT OFFICE.

JAMES MORRISON, OF TORONTO, CANADA.

## IMPROVEMENT IN CHECK-VALVES.

Specification forming part of Letters Patent No. **151,712**, dated June 9, 1874; application filed February 21, 1874.

*To all whom it may concern:*

Be it known that I, JAMES MORRISON, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, brass-founder, have invented new and useful Improvements in Check-Valves; and I do hereby declare that the following is a full, clear, and accurate description thereof, whereby others skilled in the art might make and use the same, reference being had to the accompanying drawings forming a part of this specification.

This invention relates to the ordinary globe-valve, and to the ordinary check-valve—that is, it can be used as occasion may require as a globe-valve—but it relates more especially to the check-valve, upon which valve it is an improvement of considerable importance, when used in connection with the feeding apparatus of steam-boilers. The feeding apparatus of steam-boilers, herein referred to, consists, generally, of a feed-pump, which forces the water into the steam-boiler through a pipe, commonly called the feed-pipe, which pipe is provided with a check-valve, placed somewhere between the pump and the steam-boiler, which check-valve rises and falls with every stroke of the force-pump. It does frequently happen, however, that the check-valve sticks up and does not fall on the seat, although it may be of good workmanship. This occurs from various causes, and, when it does stick up, the water rushes back from the boiler and prevents the proper action of the pump; and, in such cases, the check-valve has to be examined by taking off the cover and doing what is found necessary in order to liberate the valve. This cannot be done without much difficulty, and frequently much delay, unless there is also a separate valve placed in the aforesaid pipe, viz., a globe-valve, and this somewhere between the aforesaid check-valve and the boiler, which globe-valve, in such cases, would be closed down to prevent the water rushing back from the boiler while the check-valve was being put in working condition. My combined adjustable check and globe valve is for the purpose of overcoming this difficulty, as it answers the purpose both as a check and a globe valve, and will be less

expensive than the two separate valves. My improved valve, however, is desirable in all feed-pipes, even when there is a separate globe-valve, as it sometimes happens that the globe-valve also gets out of order, when the sole dependence is again on the check-valve; hence the necessity of having a valve that is thoroughly reliable, and that can be adjusted without difficulty and without delay.

In the accompanying drawings, the same letters of reference indicate the same parts in all the views, and also in the following specification.

Figure 1 is a longitudinal sectional elevation, in which the several parts of the valve are distinctly seen, and will be readily understood.

A is the chamber of the valve. B is the valve-seat; C, the adjusting-stem, which is operated by the hand-wheel W. D is the valve; E, the valve-stem; F, the cap on top of adjusting-stem C.

Fig. 2 is an end elevation, showing most of the parts designated in Fig. 1, with the exception of the valve-stem E.

Returning to Fig. 1, it will be seen that the adjusting-stem C is operated, as aforesaid, by the hand-wheel W, and is shown close down on the back of valve D. In turning the hand-wheel W backward, the adjusting-stem C is moved up from the back of the valve D, by which it is liberated and left free to act, and will now act as a check-valve, and while so acting, should the valve D get fast and cease to act as a check-valve, it can be moved down, so as to bear slightly on the seat, by means of the adjusting-stem C; and, by unscrewing the cap F, the stem C can be turned round until the valve is loose. The cap F is then replaced and the stem C raised up, as before, by the wheel W. The valve D will now be perfectly free and in working condition, the adjustment having been made without difficulty, and also without delay. When used as a globe-valve, a pin, g, is inserted in stem E on top of stem C. The cap F constitutes an important feature of my construction, as it prevents the escape of water and steam; and there is no stuffing to prevent the stem and valve from rising and falling in the action of the parts as

a check-valve. The construction, therefore, necessarily differs from that required for merely grinding the valve.

Having thus described my invention, I claim—

The combination of the chamber A, valve-seat B, adjusting-stem C, with hand-wheel W,

valve D, stem E, and cap F, substantially as shown and described, and for the purposes hereinbefore set forth.

JAMES MORRISON.

Witnesses:

HENRY NEVILLE,  
WILLIAM GILL.