

(No Model.)

W. C. WOLFE.

RELIEF VALVE FOR THE FEED PIPES OF STEAM BOILERS.

No. 300,824.

Patented June 24, 1884.

Fig. 1.

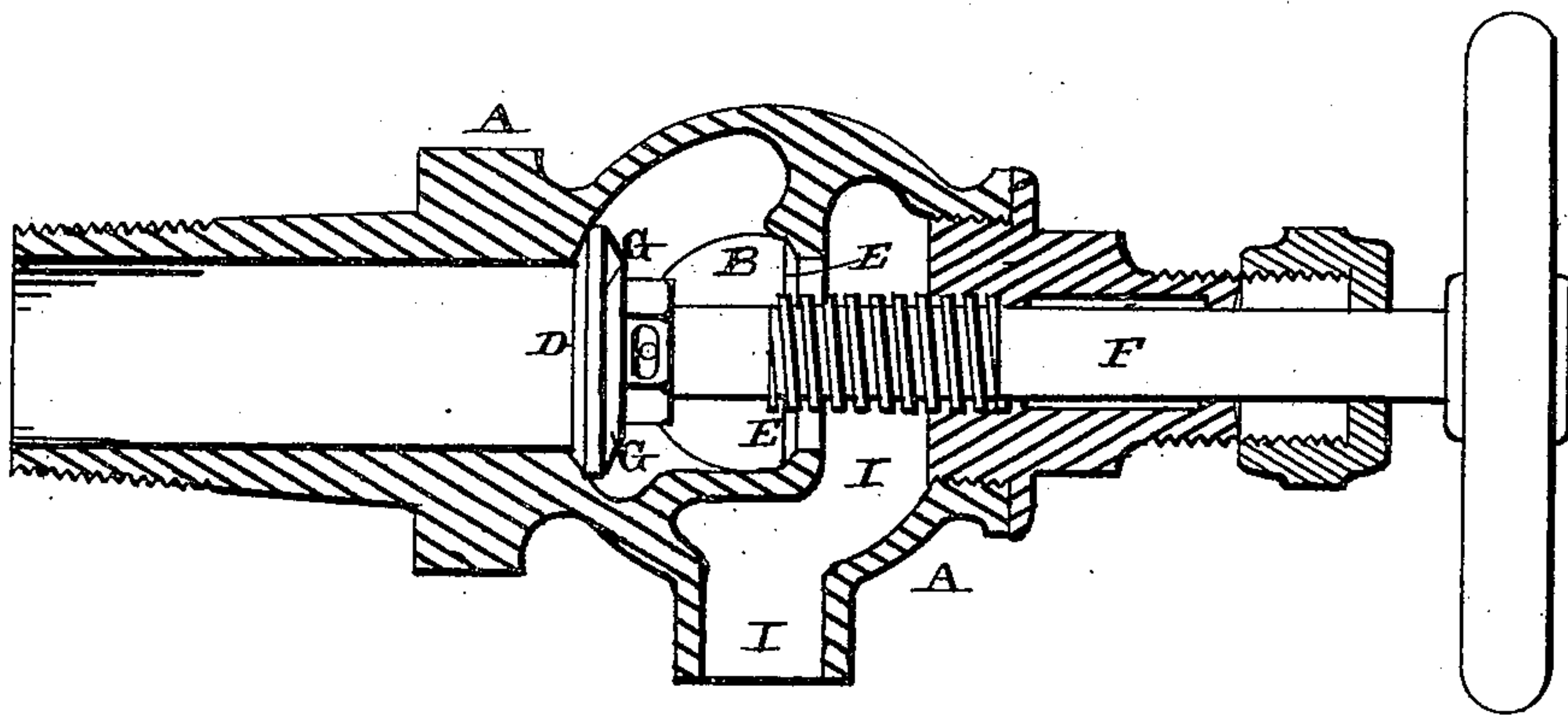


Fig. 2.

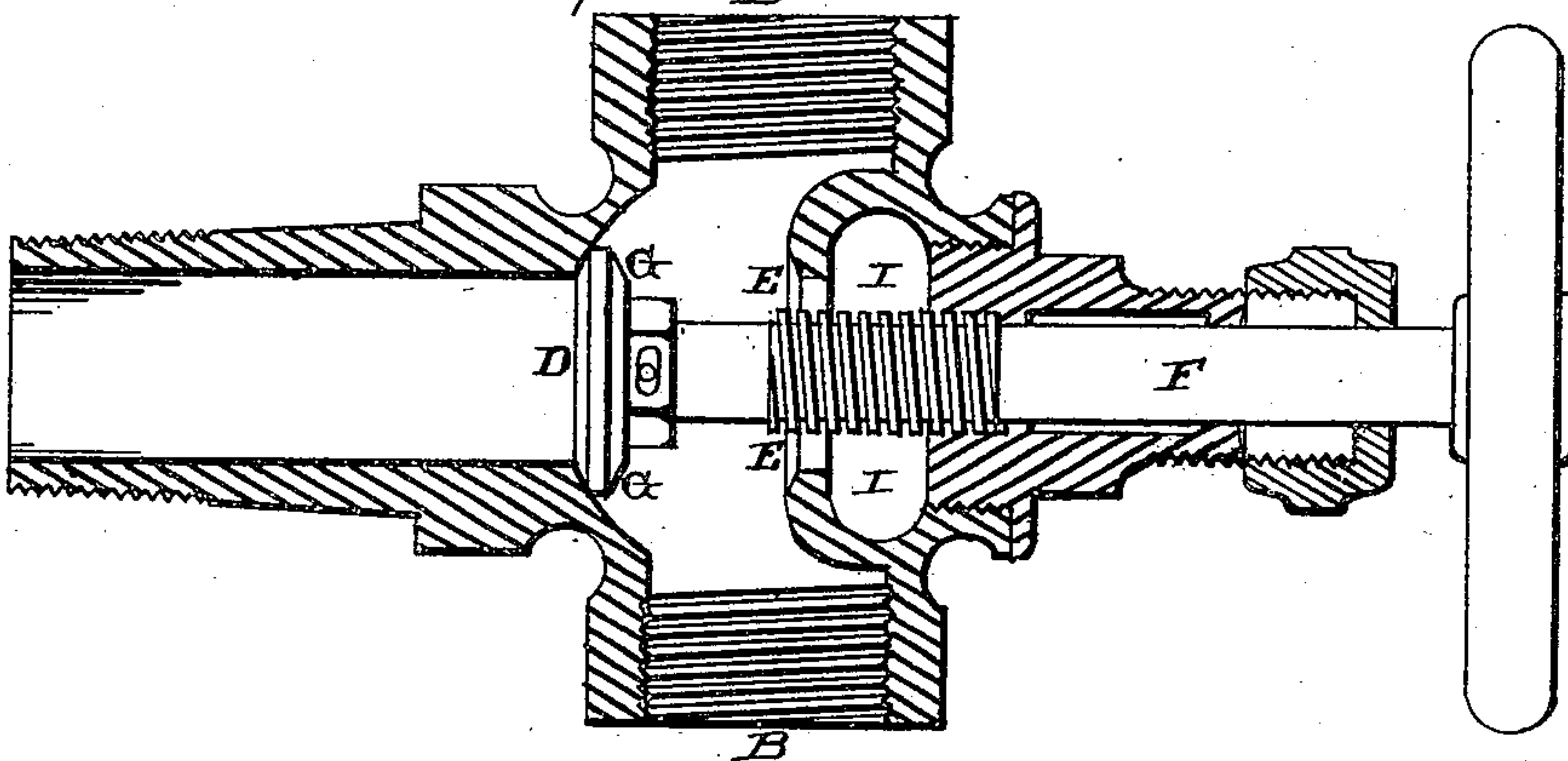
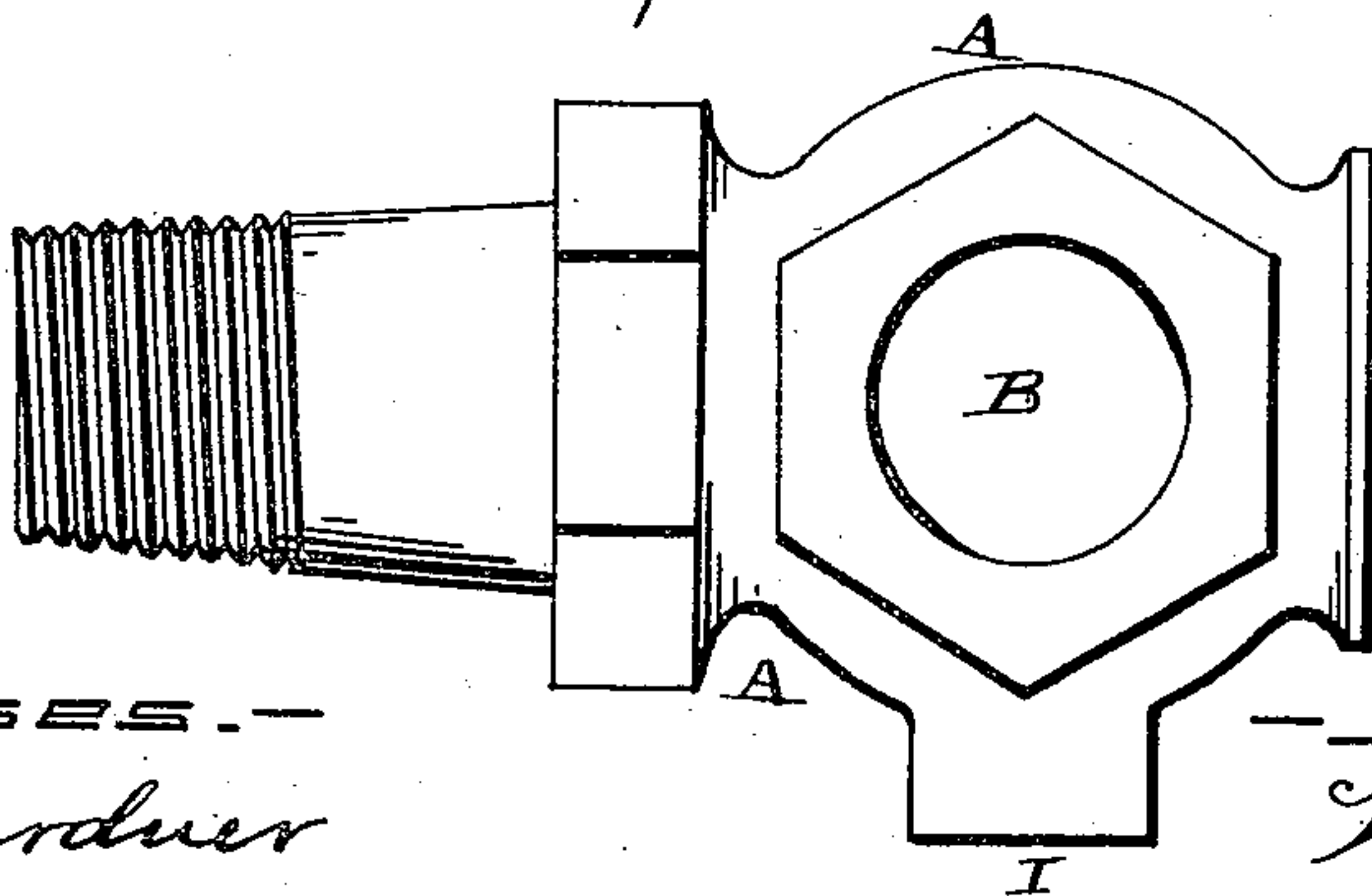


Fig. 3.



—WITNESSES—

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WILLIAM C. WOLFE, OF HAGERSTOWN, MARYLAND.

RELIEF-VALVE FOR THE FEED-PIPES OF STEAM-BOILERS.

SPECIFICATION forming part of Letters Patent No. 300,824, dated June 24, 1884.

Application filed September 4, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. WOLFE, of Hagerstown, in the county of Washington and State of Maryland, have invented certain new and useful Improvements in Relief-Valves for the Feed-Pipes of Steam-Boilers; and I 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in relief-valves for the feed-pipes of steam-boilers; and it consists in a four-way valve, which is to be placed on the feed-water pipe where it connects with the boiler, and in place of the ordinary stop-cock usually placed between the boiler and check-valves, and which is provided with passage-ways for the feed-pump and the injector, and which is provided with two valve-seats and an overflow-passage, and a valve which will fit either one of the seats, so as to either cause the water to pass into the boiler or out through the overflow, as will be more fully described hereinafter.

The object of my invention is to provide a valve through which the water is to be forced into the boiler, and which, when closed, will allow all of the water which is forced toward the boiler, either by the injector or the feed-pump, to pass out through the overflow, and thus attract the attention of the engineer to the fact that the valve has not been opened, and at the same time prevent any pressure upon the pipes or other attachments of the boiler.

Figures 1 and 2 are vertical longitudinal sections taken at right angles to each other. Fig. 3 is a detail view of the shell of the valve alone.

A represents the shell of the valve, which is provided with a screw-thread at its inner end for attachment to the boiler, and which has the two screw-threaded passage-ways B opening into it upon opposite sides. To one of these passage-ways can be connected the injector-pipe, and to the other the pipe which leads from the feed-pump, both pipes being provided with suitable check-valves to allow

the water to be forced toward the valve, but not from the valve outward. Formed in this valve are the two seats D E, which are just opposite to each other and at right angles to the two passages B. Passing endwise through the outer end of the shell A is the valve-stem F, to the inner end of which is fastened, either rigidly or loosely, by means of a pin, the valve G. This valve is passed through one of the passage-ways, then the stem is forced inward through it, and then the pin is driven through the slot in the side of the valve, so as to secure the two together. This valve, as its screw-threaded stem is made to move back and forth, is made to come in contact with the seat D, for the purpose of cutting off further supply of water into the boiler, and in contact with the seat E, for the purpose of opening the passage-way into the boiler. When the valve is upon the seat D, as no water can enter the boiler, it is forced out through the seat E and through the overflow-passage I, either upon the ground or into a receptacle placed to receive it. When the valve is resting upon the seat E, this overflow-passage is closed, and the water, which is forced inward either by the pump or the injector, passes directly through the seat D into the boiler. This valve is to be placed in the feed-water pipe where it connects with the boiler, and in place of the ordinary stop-cock usually placed between the boiler and the check-valve. This valve is intended to shut off the water and pressure of the boiler from the feed-pipe and check-valves, in order to prevent the water freezing in winter-time and injuring the parts, and to permit examination or repairs to the pipes or valves, when necessary, while steam-pressure is in the boiler. Owing to the construction of the valve above described, it is impossible to close the passage of the feed-water from the pump to the boiler without opening at the same time an overflow-passage, which permits the water to escape, thus preventing the bursting of the pump or pipe by the accumulation of pressure while the pump is in operation and delivery to the boiler is closed, or the bursting of the pipes by freezing in cold weather. Should the engine and pump be started without first opening the valve or pas-

sage to the boiler, the water will be discharged through the overflow and readily attract the engineer's attention to the fact that the valve has not been opened. Hot water can readily
5 be drawn from the boiler through this valve when desired, for it is only necessary to move the valve a suitable distance from either of the seats, when the water in the boiler will at once pass out through the overflow; or water from
10 the pump or injector can be discharged and conducted to any desired point by means of a hose attached to the overflow.

Having thus described my invention, I claim—

- 15 1. A valve provided with two seats, D and E, which are in a line with each other, an overflow-passage, I, which has its inner end arranged over the seat E, in combination with

a valve which will fit either one of the seats D E, and thus close either the entrance into
20 the boiler or the overflow-passage, substantially as shown.

2. A valve having a passage-way connecting with a boiler, and a passage-way for connection with an injector, and a passage-way
25 for connection with a feed-pump, an overflow-passage, an endwise-moving valve-stem, and a valve connected thereto by means of a pin, substantially as specified.

In testimony whereof I affix my signature
30 in presence of two witnesses.

WILLIAM C. WOLFE.

Witnesses:

F. A. LEHMANN,
J. W. GARNER.