

(No Model.)

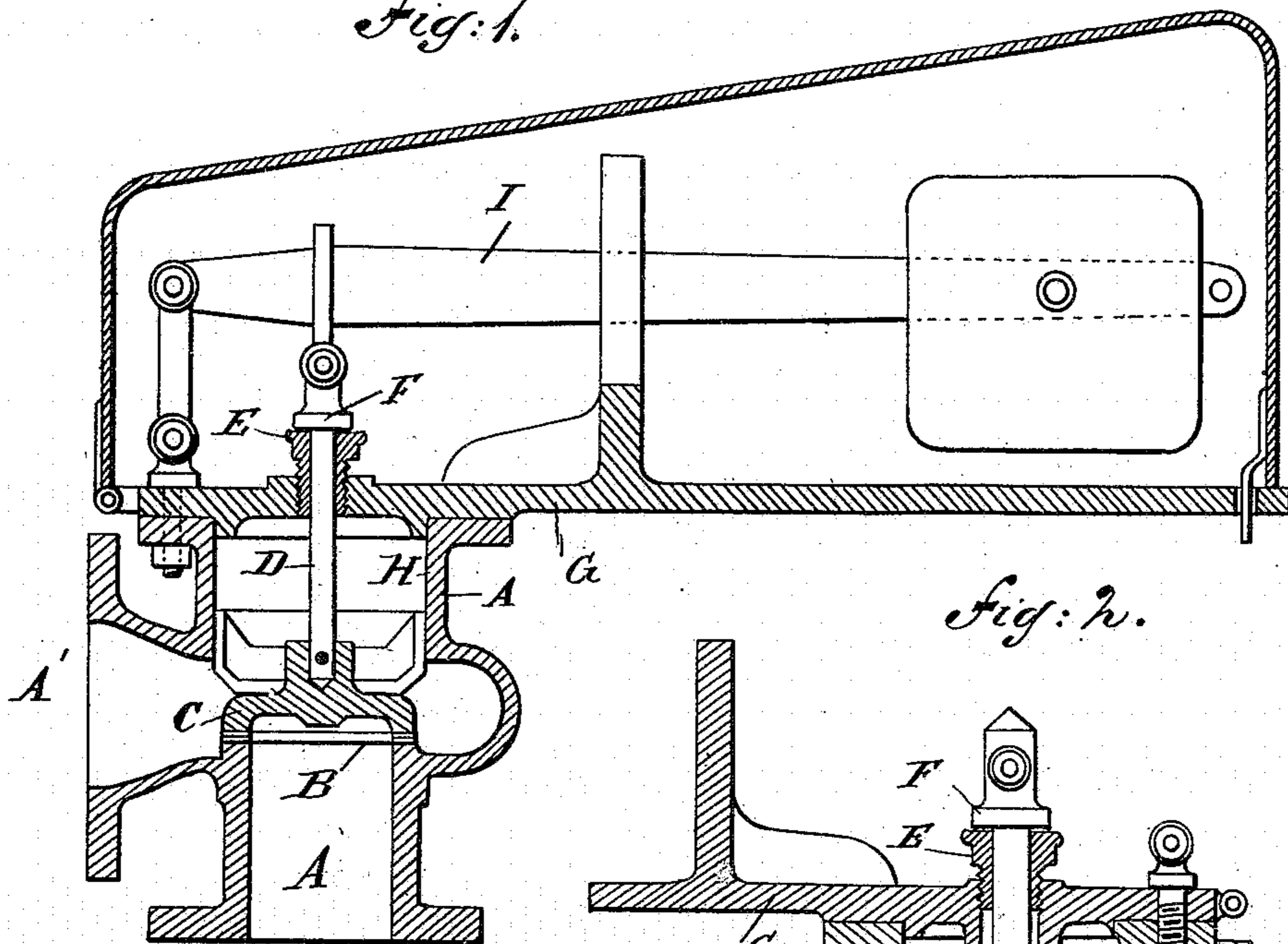
B. MEYER.

DEVICE FOR PREVENTING THE EXPLOSION OF BOILERS.

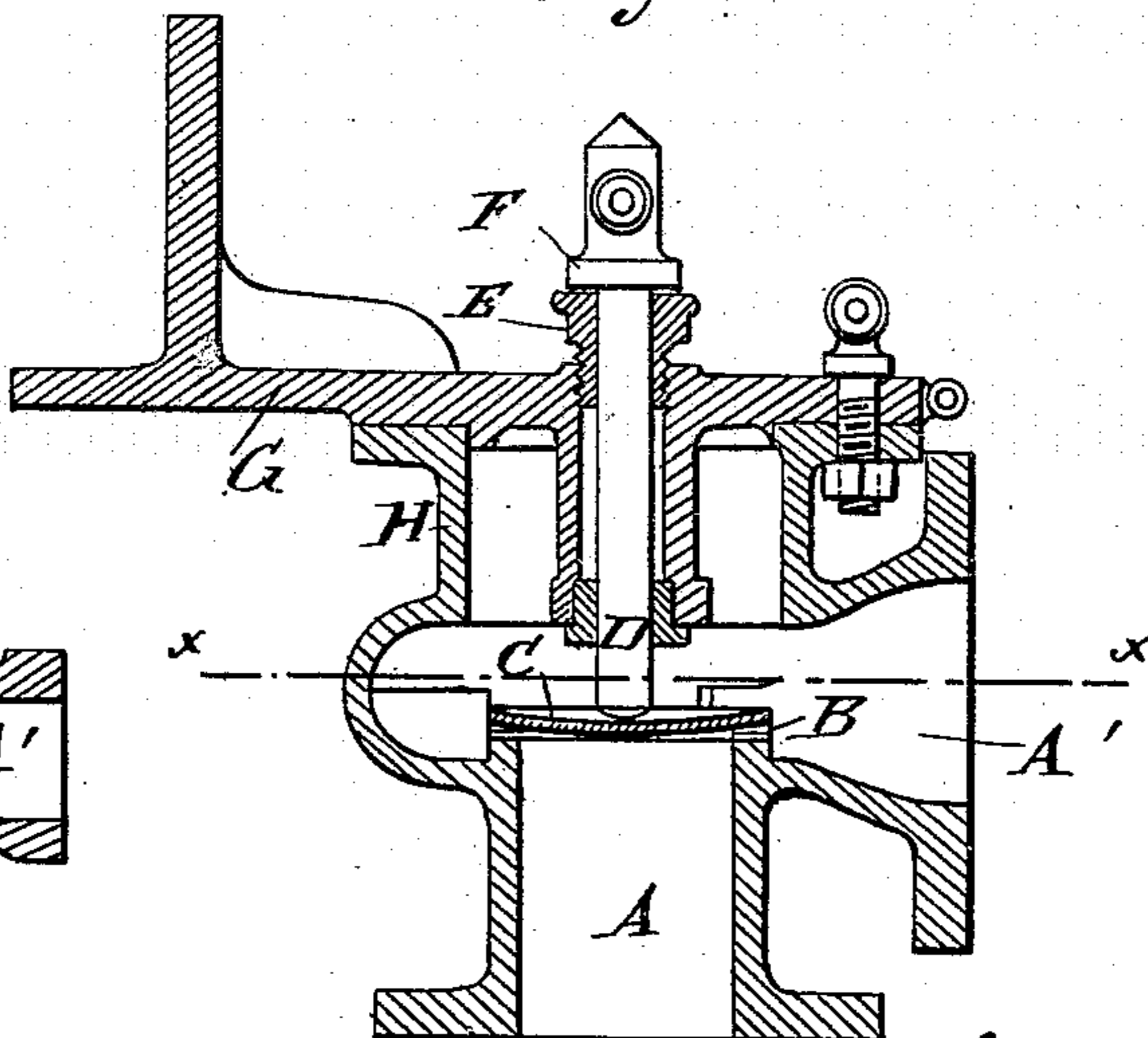
No. 370,641.

Patented Sept. 27, 1887.

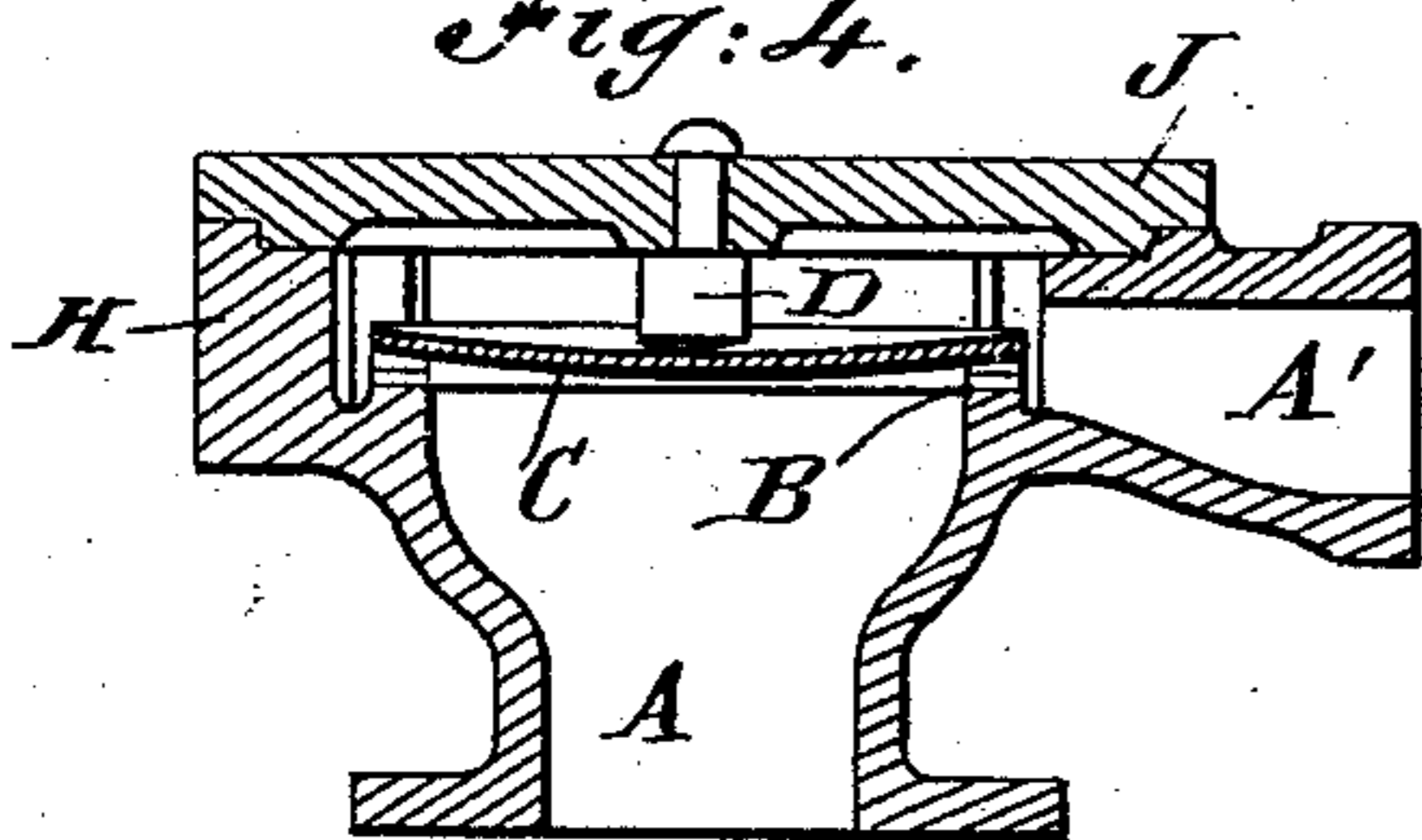
*Fig: 1.*



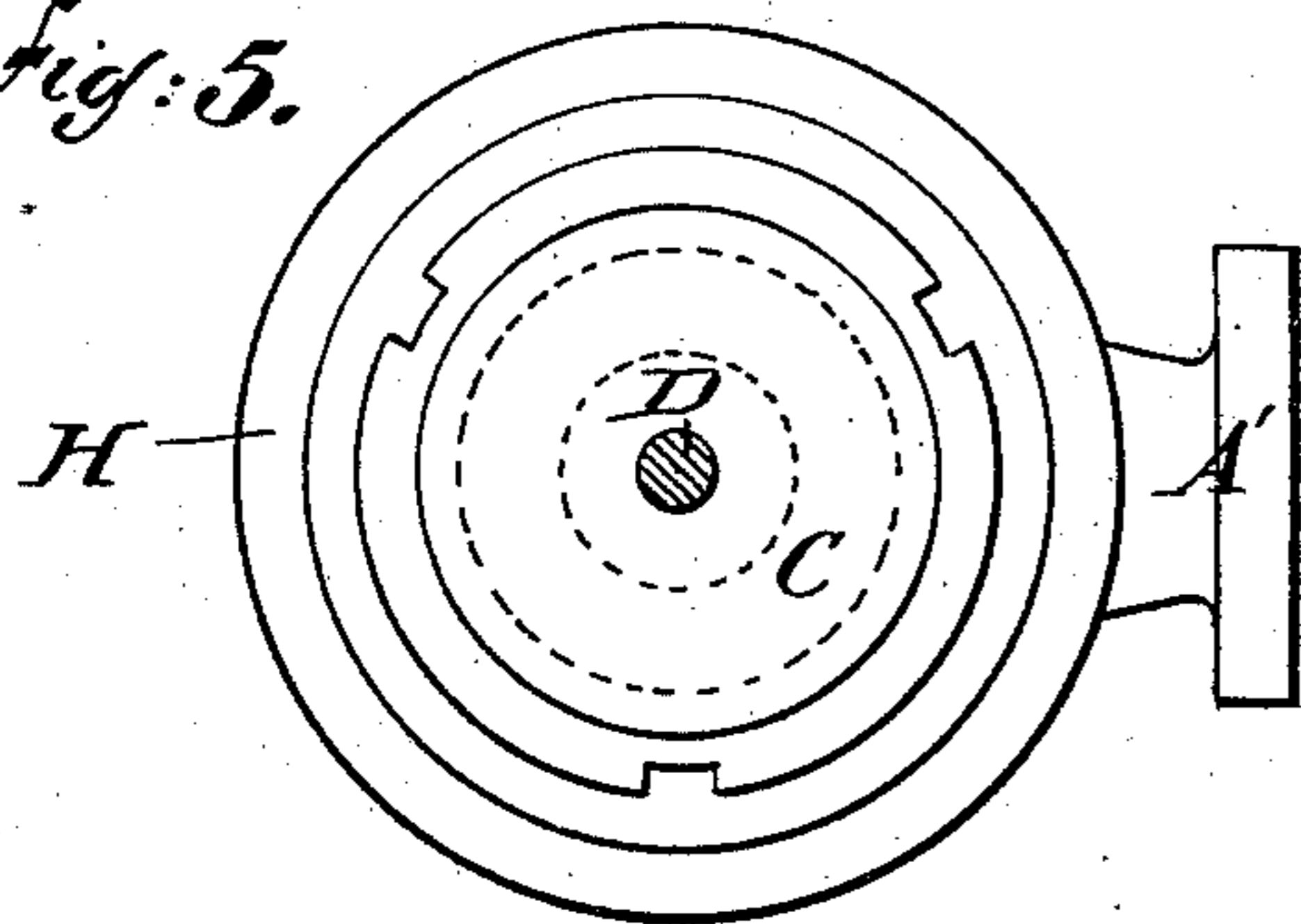
*Fig: 2.*



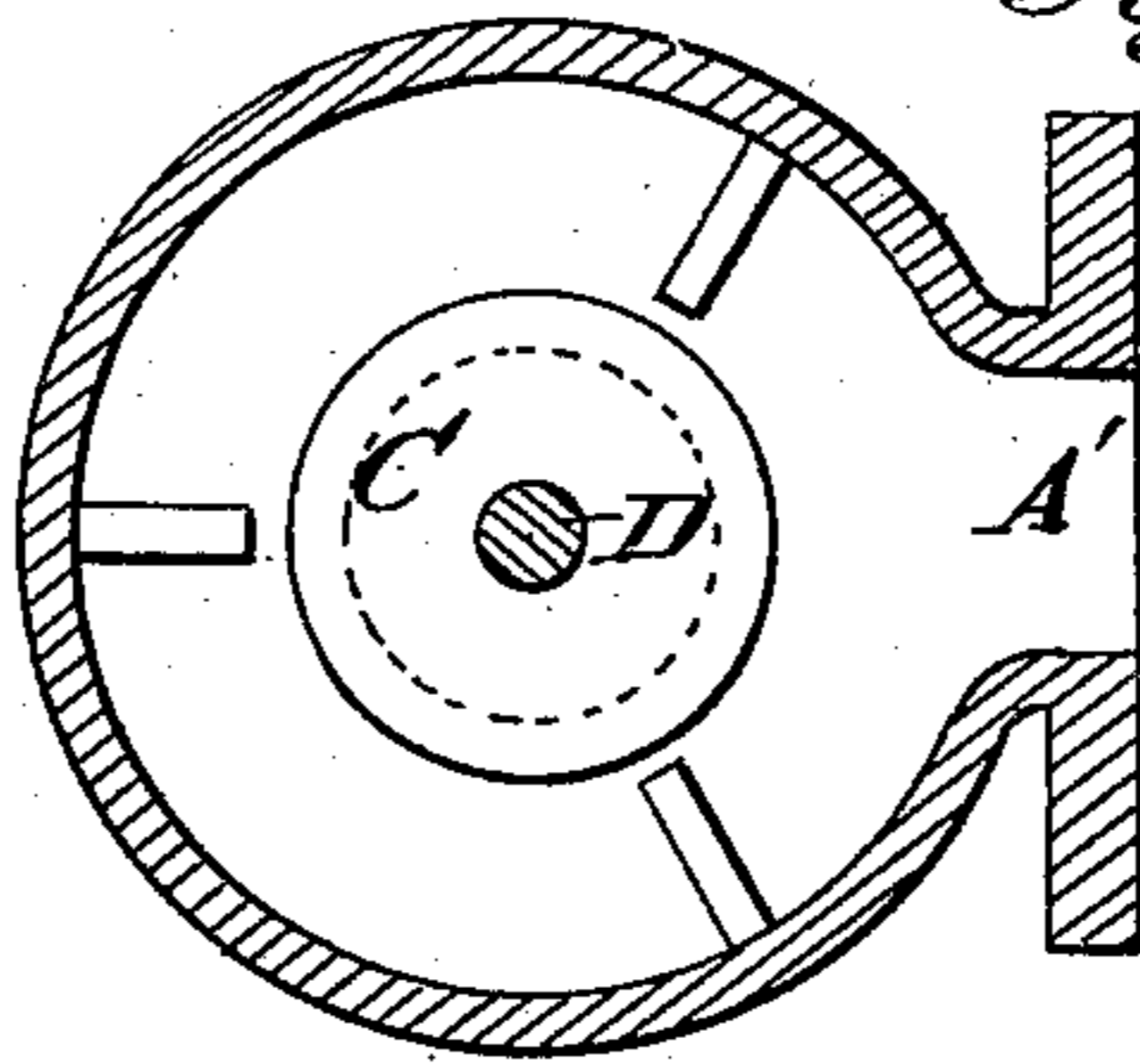
*Fig: 4.*



*Fig: 5.*



*Fig: 3.*



WITNESSES:

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# UNITED STATES PATENT OFFICE.

BENDIX MEYER, OF GLEIWITZ, PRUSSIA, GERMANY.

## DEVICE FOR PREVENTING THE EXPLOSION OF BOILERS.

SPECIFICATION forming part of Letters Patent No. 370,641, dated September 27, 1887.

Application filed March 16, 1887. Serial No. 231,137. (No model.) Patented in Norway February 4, 1887, No. 384; in Sweden February 4, 1887, No. 875; in England March 14, 1887, No. 3,849; in Belgium March 14, 1887, No. 76,695, and in Italy March 31, 1887, XLII, 351, XXI, 21,189.

*To all whom it may concern:*

Be it known that I, BENDIX MEYER, a subject of the King of Prussia, residing at Gleiwitz, Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Devices for Preventing the Explosion of Steam-Boilers, (for which I have obtained patents as follows: Great Britain, No. 3,849, dated March 14, 1887; Belgium, No. 76,695, dated March 14, 1887; Italy, No. XLII, 351, XXI, 21,189, dated March 31, 1887; Norway, No. 384, dated February 4, 1887, and in Sweden, February 4, 1887, No. 875;) 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 appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

The object of my invention is to provide a new and improved safety-valve to prevent explosions of steam-boilers.

The invention consists of a plate or cover held on a packing surrounding the outlet steam-pipe connected with the boiler, a weighted rod or stem holding the said cover or plate on the packing, and a stop to prevent the plate or cover from seating itself on the outlet-pipe after the packing is removed or thrown out by the pressure of the steam from the boiler.

The invention also consists of various parts and details, and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the views.

Figure 1 is a central sectional elevation of my improvement. Fig. 2 is a similar view of a modified form of the same. Fig. 3 is a sectional plan view of the same on the line  $x x$  of Fig. 2. Fig. 4 is a central sectional view of a modification of my improvement, and Fig. 5 is a plan view of the same with the top cover removed.

My improvement is generally used in connection with the ordinary safety-valve, and it

is especially adapted to permit a surplus pressure of steam to escape rapidly, so as to prevent an explosion of the boiler.

The steam-outlet pipe A is secured to the boiler and is connected with the steam-compartment of the same. At the upper edge of the pipe A is placed the packing-ring B, of suitable material, and on this packing-ring B rests a plate or cover, C, adapted to slide vertically in suitable guides. On the top of the plate or cover C rests a stem or rod, D, passing through a guide, E, and provided with a collar, F, adapted to rest on top of the said guide E when the packing B is removed. The guide E is secured to a plate, G, fastened to an extension, H, of the pipe A, which is also provided with an outlet, A'. When the packing-ring B is in the position shown in Fig. 1, then the plate or cover C rests on the same, while the collar F does not touch the guide E.

On the stem or rod D presses the weighted lever I, so that the stem D holds the packing-ring B tightly in place on the upper edge of the pipe A by the cover or plate C. The weighted lever I is set to exert on the plate or cover C a pressure which exceeds slightly the normal pressure to which the regular safety-valve is set, so that when the latter does not permit the steam to escape in sufficient quantities to prevent an explosion, then the plate C is moved upward, thus permitting the steam to escape through the outlet A', and at the same time the steam carries off the packing-ring B, thus enlarging the opening between the upper edge of the pipe A and the cover or plate C.

The collar F of the stem or rod D seats itself on the guide E, so that the plate C is held above the edge of the pipe A until all the steam has escaped from the boiler, an explosion being thus prevented.

The plate C may be rigidly secured on the stem or rod D, as shown in Fig. 1, or it may simply rest on the plate, as illustrated in Figs. 2 and 3. The stem D, instead of being connected with a weighted lever, I, as shown in Figs. 1 and 2, may be secured to a half cover, J, resting on the extension H of the pipe A.

The operation of the two modifications just described is the same as the one above referred to in Fig. 1.

Instead of exerting a pressure on the stem  
5 D by means of a weighted lever or heavy cover, as shown, I may also employ springs to perform the same duty.

Having thus fully described my invention, I claim as new and desire to secure by Letters  
10 Patent—

1. In a safety-valve, the combination, with a steam-outlet pipe connected with the boiler, of a packing-ring held on the upper edge of the said pipe, a cover or plate held on the said  
15 ring, a stem pressed on the said cover, and means, substantially as described, for limiting the motion of the said stem, as set forth.

2. In a safety-valve, the combination, with a steam-outlet pipe connected with the steam-  
20 compartment of the boiler, of a packing-ring held on the upper edge of the said outlet-pipe, a cover or plate held on the said packing-ring,

a stem pressed on the said cover, and a stop secured to the said stem for limiting the downward motion of the said stem, substantially as  
25 described.

3. In a safety-valve, the combination, with a steam-outlet pipe connected with the steam-compartment of the boiler, of a packing-ring held on the upper edge of the said pipe, a  
30 cover or plate held on the said packing-ring, a stem pressed on the said cover, a guide through which the said stem passes, a collar fastened on the said stem to limit its downward motion, and means, as described, for ex-  
35 erting pressure on the said stem, substantially as shown and described.

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

BENDIX MEYER.

Witnesses:

B. SCHNACKENBURG,  
JOS. HERTRAMPF.