

(No Model.)

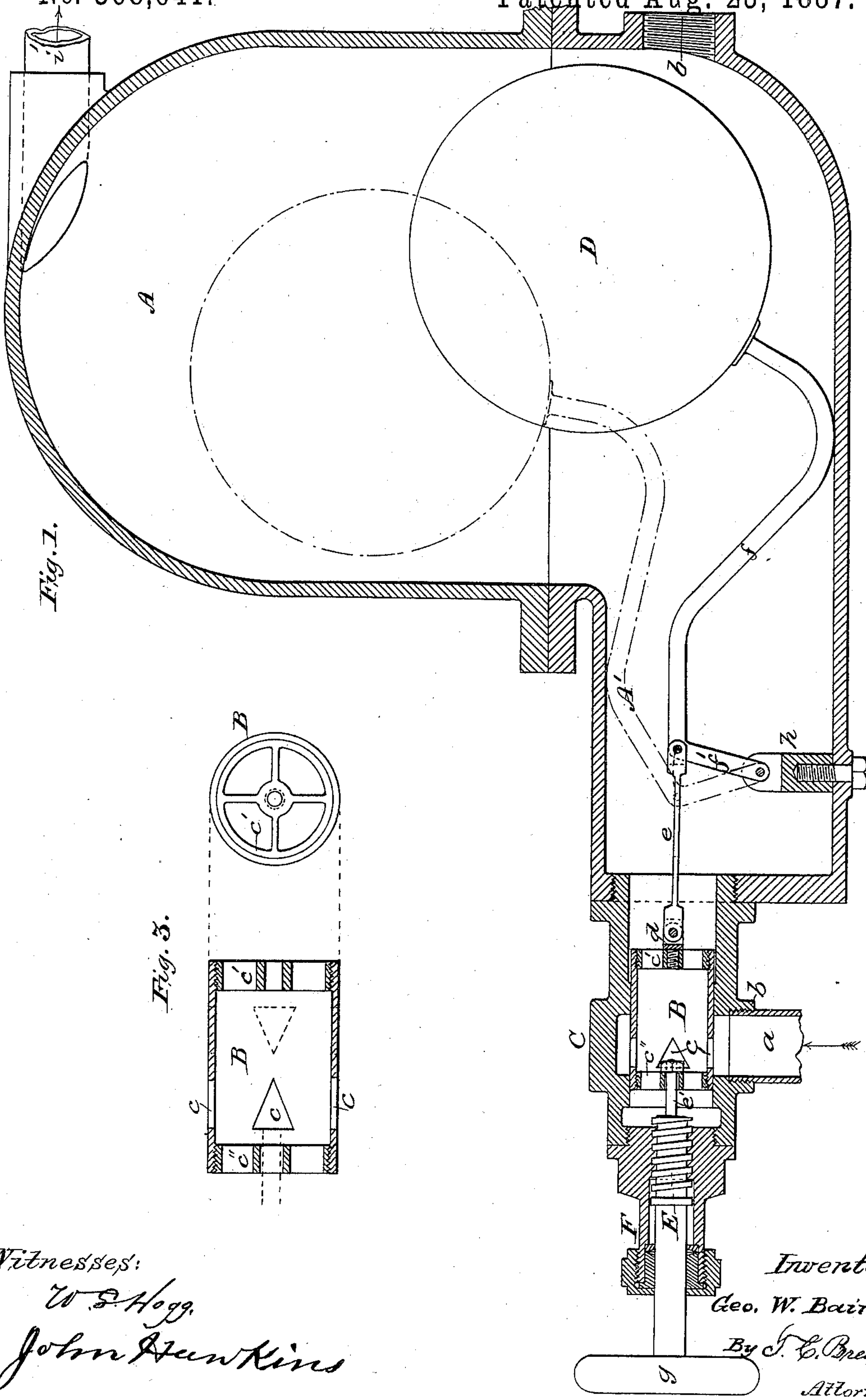
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G. W. BAIRD.

INTERCHANGEABLE BOILER FEED AND STEAM TRAP.

No. 368,641.

Patented Aug. 23, 1887.



Witnesses:

W. S. Hogg,  
John Hawkins

Inventor:

Geo. W. Baird,

By J. C. Brecht,  
Attorney.

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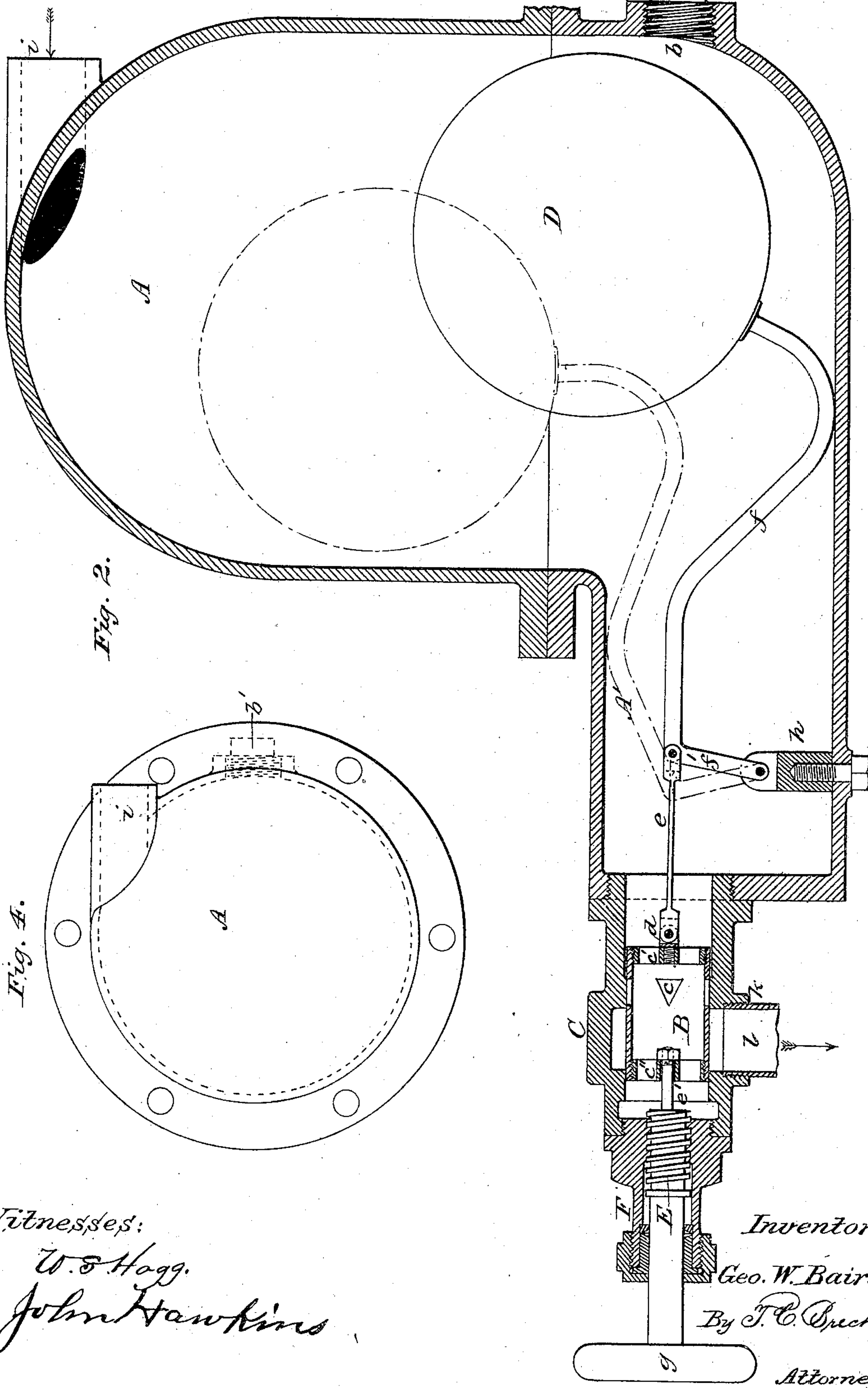
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Attorney.



# UNITED STATES PATENT OFFICE.

GEORGE W. BAIRD, OF UNITED STATES NAVY.

## INTERCHANGEABLE BOILER-FEED AND STEAM-TRAP.

SPECIFICATION forming part of Letters Patent No. 368,641, dated August 23, 1887.

Application filed March 3, 1887. Serial No. 229,531. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. BAIRD, passed assistant engineer, United States Navy, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Interchangeable Boiler-Feeds and Steam-Traps; and I do hereby declare the following to be a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in interchangeable boiler-feeds and steam-traps; and the object is to produce an apparatus or device by which the feed-water can be regularly and uniformly fed to boilers; also, to provide means by which the valve employed is prevented from sticking in its seat, (which, as is well known to those skilled in the art, often occurs with those now in general use;) also, to produce a boiler-feeding apparatus which is readily convertible into a steam-trap; furthermore, to prevent the float employed to operate the valve from coming in contact with the side or bottom of the reservoir containing the water, and thereby becoming injured and then inoperative; and, finally, to simplify the construction of the entire apparatus, as well as its operation.

To this end the invention consists in the construction of certain details and arrangement of parts of an interchangeable boiler-feed and steam-trap, as will be more fully described hereinafter, and specifically pointed out in the claims, reference being had to the accompanying drawings and the letters of reference marked thereon.

Like letters indicate similar parts in the different figures of the drawings, in which—

Figure 1 represents a vertical longitudinal section of the improved boiler-feed, showing the valve open. Fig. 2 is a similar view of the apparatus for use as a steam-trap, with the valve closed. Fig. 3 shows detail views of the valve detached, showing the openings in dotted lines, for use as a steam-trap. Fig. 4 is a plan of the reservoir.

In the drawings, A represents a suitable reservoir or receiving-vessel of any suitable size and shape, having a branch or side exten-

sion, A', to which the case C, containing the valve B, is secured. The valve B is of cylindrical form and arranged to move horizontally in the casing, and it is provided with a suitable number of ports, *c*, of triangular, circular, or other shape. Into one end is screwed a spider, *c'*, into which a forked bolt, *d*, is secured, to which a rod, *e*, is attached and connected by a forked end with a bent rod or lever, *f*, secured to a hollow metal float, D, by means of which the valve is operated as it rises and falls with the water. The lever *f* is bent in such manner that it will come in contact with the bottom or the side of the reservoir and prevent the float touching said reservoir. In the opposite end of the valve B is placed another spider, *c''*, provided with a hole, through which the reduced end *e'* of a screw, E, loosely passes and secured in place by a nut, so that said valve can freely move backward and forward over the reduced end *e'*. The stem of the screw E passes through a stuffing-box, F, and serves to operate the valve, whenever desired, by means of small wheel *g* on the end of said stem. The rod or lever *f* may be round or flat, as desired, and is provided with an arm, *f'*, which is pivoted to a forked lug, *h*, secured or cast to the bottom of the reservoir. The upper part of the reservoir is made detachable, being provided with flanges to bolt it to the lower part, so that the float and its connections are accessible. The inlet-pipe *a* for the feed-water is in this instance secured to a lug or boss on the valve-casing C, and the outlet-pipe *b* in a lug or boss on the reservoir A, while the pipe *i'* connects with the steam-space in the boiler.

In case the apparatus is to be used as a steam-trap, the valve B is reversed—i. e., the ports are placed at the opposite end—the spider *c'* is arranged in the place of the spider *c''*, and the connections to the float and screw made, as shown in Fig. 2. The inlet-pipe for the steam is then connected to the upper part of the reservoir, as at *i*, and the outlet-pipe *l* for the condensed water to the lug *k* on the valve-casing C. The inlet-pipe is preferably placed at one side and tangentially to prevent the steam from striking against the float, and thereby acting on the valve in the casing. The outlet-pipe *b* is in this case closed by a screw-



plug, *b'*, which can be readily removed when the apparatus is to be used as a boiler-feed.

It will be readily understood that any of the bosses, lugs, or pipes can be placed in any position desired, and accordingly as required.

Having thus described my invention, what I claim is—

1. An interchangeable boiler-feed and steam-trap having a cylindrical valve provided with reversible spiders for connection with a float in the reservoir and a screw at its opposite end, substantially as specified.

2. A cylindrical valve having interchangeable spiders and connected at one end to a float in a reservoir and at the other to a screw passing through a stuffing-box on the valve-casing and operated by a hand-wheel and serving as a boiler-feed or a steam trap, substantially as herein set forth.

3. In a boiler-feed or steam-trap, a cylindrical valve connected at one end to a float in a reservoir and loosely at the other end to an operating-screw passing through a stuffing-box in the valve-casing, all as specified.

4. In a boiler-feed or steam-trap, a reversible cylindrical valve arranged in a casing secured to a reservoir and operated by a float and intermediate connections, in combination with an operating-screw having a reduced

end to which the valve is loosely connected, as and for the purpose set forth.

5. The combination of a cylindrical valve having reversible spider-heads horizontally placed in a casing and connected to a float in a reservoir and to an operating-screw, so as to move loosely over the reduced end of said screw, all as specified.

6. A boiler-feed and steam-strap having a float-chamber provided with the nozzle *i'* for the steam, arranged tangentially to the upper part of said float-chamber to prevent the steam acting against the float, substantially as and for the purpose herein specified.

7. The combination of a reservoir, *A*, to which the casing *C*, containing the cylindrical valve *B*, is secured, said valve having openings *e' e''* and operated by a float, *D*, and intermediate connections, with a screw, *E*, having reduced end *e'*, and operated by a hand-wheel, *g*, all arranged as and for the purpose specified.

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

GEO. W. BAIRD.

Witnesses:

W. S. HOGG,  
JOHN HAWKINS.