

No. 780,903.

PATENTED JAN. 24, 1905.

M. MoLAIN.
CHECK VALVE.

APPLICATION FILED AUG. 6, 1903.

Fig. 1.

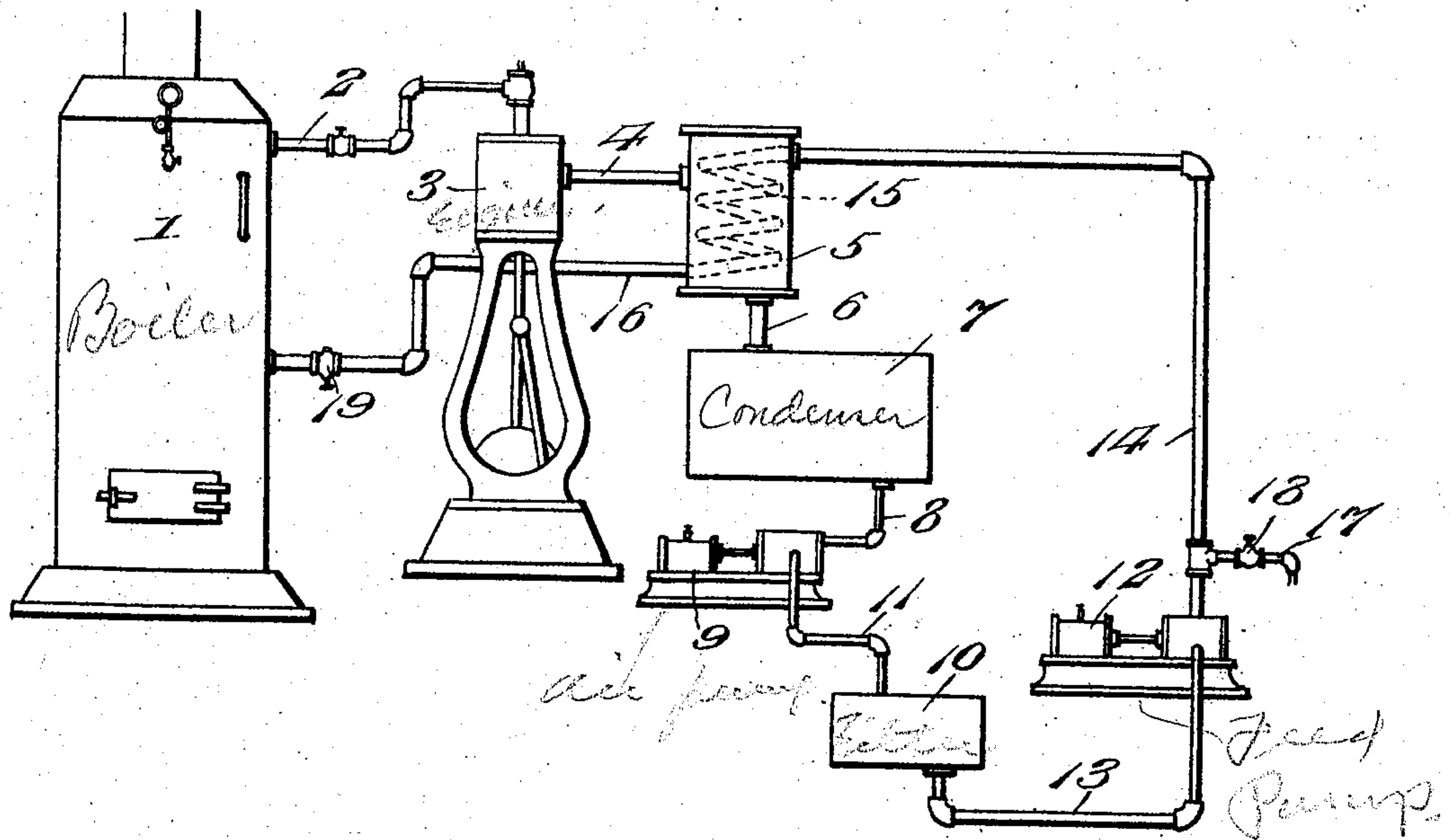
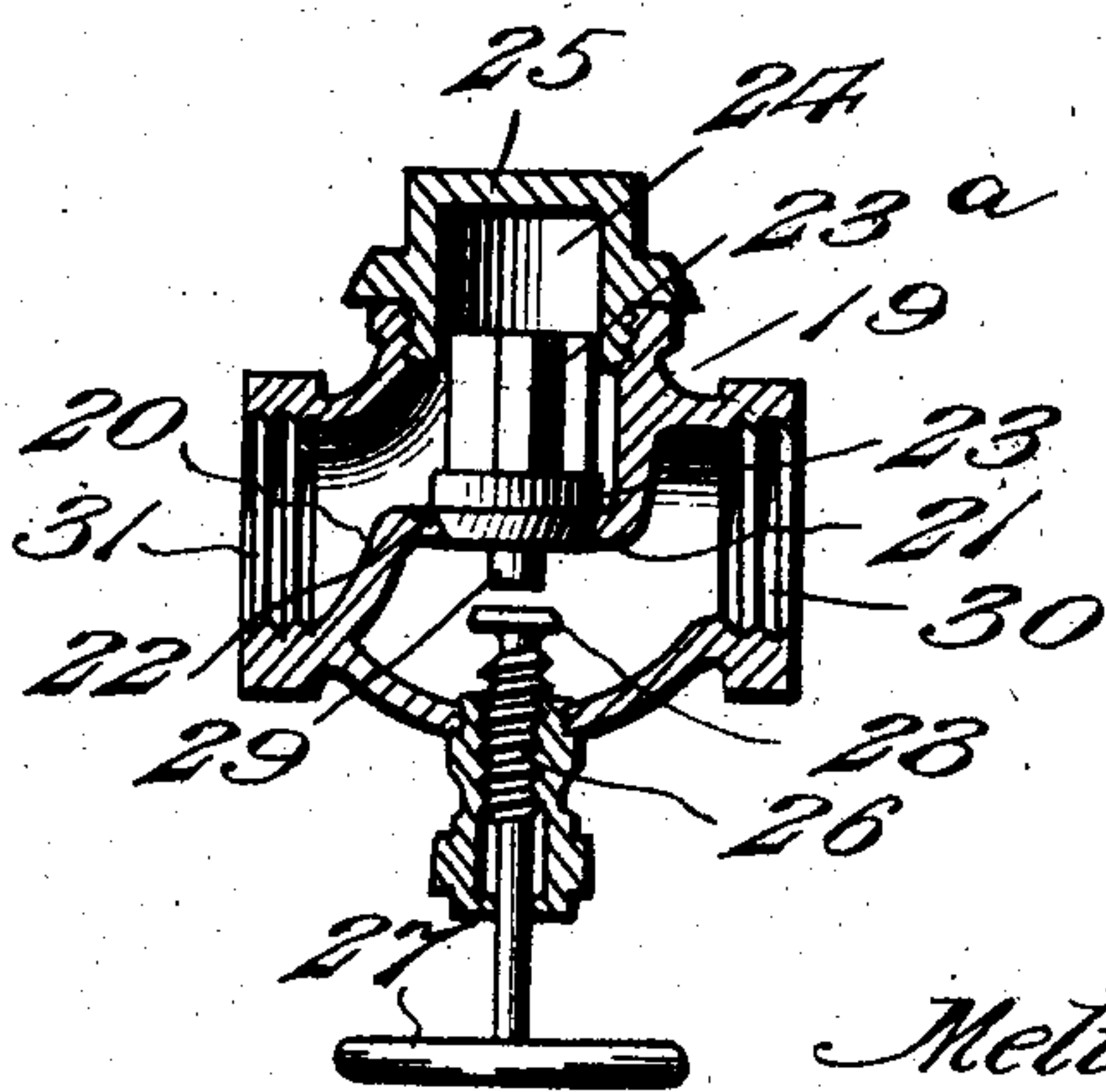


Fig. 2.



Witnesses

Witnesses
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UNITED STATES PATENT OFFICE.

MELVIN McLAIN, OF PEMAQUID BEACH, MAINE.

CHECK-VALVE.

SPECIFICATION forming part of Letters Patent No. 780,903, dated January 24, 1905.

Application filed April 6, 1903, Serial No. 168,539.

To all whom it may concern:

Be it known that I, MELVIN McLAIN, a citizen of the United States, residing at Pemaquid Beach, in the county of Lincoln and State of Maine, have invented new and useful Improvements in Water-Feeds for Boilers, of which the following is a specification.

My invention relates to new and useful improvements in water-feed apparatus for steam-boilers; and its object is to provide a valve which is normally closed so as to prevent the return of water after having been discharged into the boiler, but which has means whereby it may be opened so as to permit steam to pass into the feed-pipe, and thereby clean the same of all accumulations of oil, &c., which may be deposited therein.

With the above and other objects in view the invention consists in the novel construction and combination of parts hereinafter more fully described and claimed, and illustrated in the accompanying drawings, showing the preferred form of my invention, and in which—

Figure 1 is a diagrammatical view showing a boiler and engine and the parts connected thereto, and Fig. 2 is an enlarged section through the check-valve used in connection therewith.

Referring to the figures by numerals of reference, 1 is a boiler having a steam-pipe 2 extending therefrom and opening into an engine 3. An exhaust-pipe 4 extends from the engine and opens into a casing 5, communicating through a pipe 6 with a condenser 7. Pipe 8 connects the condenser with an air-pump 9, which serves to force the condensed water into a filter-box 10 through a pipe 11. A feed-pump 12 is connected by means of a pipe 13 with the filter-box 10 and by means of a pipe 14 with a feed-coil 15, arranged within the casing 5. A pipe 16 extends from the feed-coil to the boiler 1 and has a valve therein which is of novel construction, such as will be hereinafter more fully described. A relief-pipe 17 opens into the pipe 14 and has a relief-valve 18 therein. The check-valve in pipe 16 is shown in section in Fig. 2 and comprises a casing 19, having a partition 20 therein provided with a horizontal inter-

mediate portion 21, within which is a passage 22, which is normally closed by a tapered valve 23, formed of any suitable material and having upwardly-extending wings 23^a, which are adapted to move upward into a recess 24. This recess is formed within a cap 25, which is adapted to be screwed into the top of the casing 19. A screw-threaded stem 26 is arranged within the bottom of the casing 19, and the outer end thereof is provided with a hand-wheel 27, whereby it can be readily rotated. A head 28 is formed at the inner end of the stem and is in vertical alignment with a lug 29, which extends downward from the center of the valve 23. Internally-threaded inlets 30 and 31, respectively, are arranged within the ends of the casing 19 at opposite sides of partition 20, and the feed-pipe 16 is secured within inlet 30, while the inlet 31 is preferably connected to the boiler 1 by means of a short pipe-section. A by-pass 32 opens into the pipe 16 at opposite sides of the check-valve and is preferably provided with a valve 33, as shown.

When steam has been exhausted from the engine 3, it passes into the casing 5 and condenser 7. The pump 9 then forces the water into filter 10, from which it is drawn by the feed-pump 12. This pump also serves to force the water through the feed-coil 15 and pipe 16. The pressure of the water will, as is obvious, raise the valve 23 from its seat, and said water can freely flow into the boiler, but cannot flow backward from the boiler through the valve. It has been found that where apparatus of the character above described is employed a large quantity of grease, &c., accumulates within the pipes and retards the free passage of the water to the boiler. By employing a check-valve such as described by me the accumulations within the pipe may be removed by turning the stem 26 so as to bring head 28 into contact with the lug 29, thereby unseating the valve 23. The relief-valve 18 is then opened, and steam is then free to flow outward through the pipe 16 and will scald the inner surfaces of the said pipe and the other parts connected therewith and will wash foreign substances out through the pipe 17.

In the foregoing description I have shown

the preferred form of my invention; but I do not limit myself thereto, as I am aware that modifications may be made therein without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve the right to make such changes and alterations as may fairly fall within the scope of my invention.

Having thus described the invention, what is claimed as new is—

The combination with a boiler, an engine, a feed-coil and means for conducting steam from the engine to the coil and condensing the same; of a feed-pipe connecting the feed-coil and boiler and having a valve therein comprising a casing, a cap secured thereon and

having a recess therein, a partition within the valve having an aperture therein in alinement with the recess, a valve normally seated by gravity within the aperture, wings extending from the valve and projecting into the recess, a lug upon the valve, a screw-threaded stem revolubly mounted within the casing, a head thereon adapted to contact with the lug, and means for rotating the stem.

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

MELVIN McLAIN.

Witnesses:

A. R. CORNELL,
MARTIN S. KNIPE.