No. 725,949. PATENTED APR. 21, 1903.

J. FOGG.

SIPHON.

APPLICATION FILED OCT. 3, 1902.

NO MODEL.

Fig. 3.

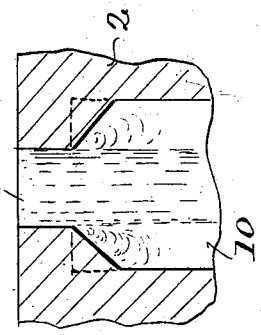
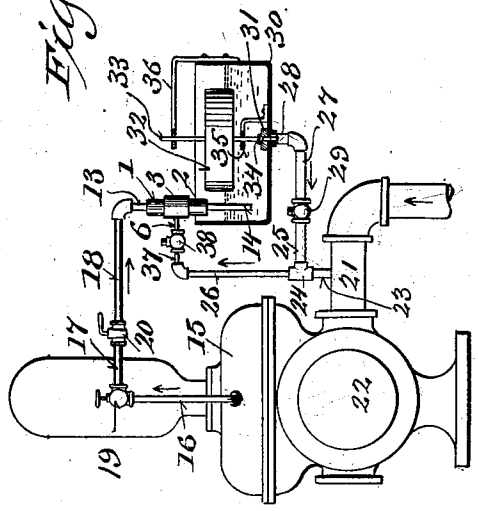


Fig. 4.



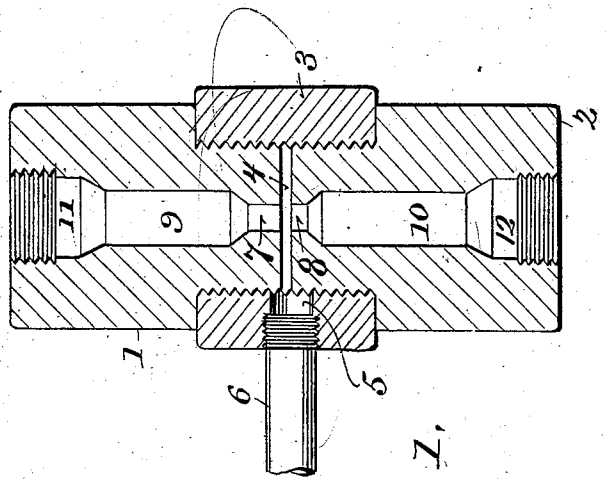


Fig. 1.

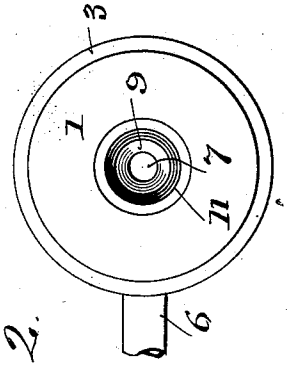


Fig. 2.

Witnesses:
Geo. W. Young,
B. C. Roloff

Inventor
John Fogg.
By H. G. Underwood
Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN FOGG, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO MARGARET FOGG, OF MILWAUKEE, WISCONSIN.

SIPHON.

SPECIFICATION forming part of Letters Patent No. 725,949, dated April 21, 1903.

Application filed October 3, 1902. Serial No. 125,772. (No model.)

To all whom it may concern:

Be it known that I, JOHN FOGG, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Siphons; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has especial reference to a siphon used in connection with the induction pipes of steam-pumps and condensing-engines for the purpose of extracting the air from the water before it enters the pump or engine, although not necessarily confined to such use; and it consists in certain peculiarities of construction and combination of parts, as will be fully set forth hereinafter in connection with the accompanying drawings and subsequently claimed.

In the said drawings, Figure 1 is a central vertical sectional view of my improved siphon. Fig. 2 is a plan view thereof. Fig. 3 is a detail sectional view of part of said siphon drawn to an enlarged scale. Fig. 4 is a view, partly in elevation and partly in section, illustrating my device as applied to a steam-pump.

Referring by numerals to the drawings, 1 indicates the upper part, and 2 the lower part, of my said siphon, formed, preferably, of brass, the adjacent ends of the two parts being exteriorly reduced in diameter and shouldered and screw-threaded for union by means of an interiorly-screw-threaded collar 3, and when the said parts are thus assembled the described shoulders on the inner ends of the parts 1 and 2, coming against the upper and lower faces of said collar 3, keep the extreme inner ends of the said parts 1 and 2 from contact, thereby providing the space 4 between them. The collar 3 is further provided with a lateral bore 5 in line with said space 4, the outer end of said bore being interiorly screw-threaded to receive the end of pipe 6, as hereinafter explained. The parts 1 and 2 are each formed with central longitudinal bores therethrough of varying diameters, it being essential that the adjacent inner ends of said bores should be of less diameter than the balance of the bores, these reduced portions being shown at 7 and 8 in Fig. 1 and the main portions of the bores at 9 and 10, and in the illustration given the outer ends of said bores (marked 11 and 12) are shown enlarged and threaded for the reception of the adjacent ends of pipes 13 and 14, as will be fully set forth hereinafter.

Referring now to Fig. 4, I have therein illustrated a portion of a steam-pump to which my siphon is applied. 15 designates the valve-chamber of said pump of ordinary construction, and 16 a pipe leading therefrom, the continuation of said pipe being shown in sections (marked 17, 18, and 13) coupled together, and the last section 13 leading into the tapped opening 11 in the upper end of the part 1 of the siphon, and there being an angle-valve 19 at the junction of sections 16 and 17 of said pipe and a reducing-cock 20 at the junction of pipe-sections 17 and 18. 21 indicates the induction-pipe, leading from the source of water-supply to the water-cylinder 22 of the pump, and rising from pipe 21 is a short pipe 23, connected by coupling 24 to a horizontal pipe 25 of the same diameter as that of pipe 23 and to vertical pipe 26 of one-half the diameter of said pipe 23. Pipe 25 is continued in sections 27 28, coupled together, there being a globe-valve 29 at the junction of sections 25 and 27 and the end section 28 rising vertically and being connected to an open vat 30, supported by said pipe-section 28. Above the point of connection of pipe-section 28 and vat 30 the latter is provided with a valve-seat 31 and a float 32, fast on a vertical rod 33, the lower end of this float-rod being formed into a valve 34, normally resting on the valve-seat 31 and closing the passage to pipe-section 28, there being guides 35 36 secured to the vat 30 to insure the vertical movement of the float-rod 33. Vertical pipe 26 at its upper end is coupled to a horizontal pipe-section 37, of which the hereinbefore-named pipe 6 is a continuation, there being a check-valve 38 at the junction of said pipe-sections 37 and 6, and the said pipe-sections 37 and 6 being of half the diameter of pipe 26 and of pipe 14, which latter leads from the part 2 of the siphon down into the vat 30.

In the operation of my device as the pump begins to work the air in the same and in the pipes leading to the pump is withdrawn, form-

ing a vacuum, and the water follows, this water being somewhat mixed with air in the beginning, and in the event of there being any leakage in the said pipes there will always be more or less air drawn in with the water, and it is the principal object of my invention to get rid of this air, so that only water freed therefrom will be carried through and discharged by said pump. As the water from pipe 21 enters the water-cylinder 22 and is forced by the piston therein up into the valve-chamber 15 it is driven up into the pipe 16, whose lower end is open to said valve-chamber, and through the continuations 17 18 13 of said pipe 16 down through the siphon 1 2 and discharge-pipe 14 into the open vat 30, the passage of this water through the reduced bore 7 8 of the siphon forming a vacuum around the descending column of water just below the line of the contracted bore 8, the water as it reaches the bore 10 of increased diameter spreading out and whirling around therein, as indicated in Fig. 3, this action serving to contract the diameter of the water column passing through the part 8 of the siphon-bore, leaving space all around said water column between same and the wall of said bore 8, thereby extending the vacuum up to this point and in the space 4 between the opposed inner ends of the parts 1 and 2 of the siphon, and this vacuum serves to draw up any air in pipe 21, through the pipe-sections 23, 26, 37, and 6, into said space 4, and the water column through said siphon carries the air down through the bore in part 2 of the siphon and through pipe 14 into the vat 30, this air escaping from the water in said vat out through the open top of the vat, and as said vat gradually fills with water the float 32 rises, carrying the float-rod 33 with it, and thus lifting the valve 34 at bottom of said float-rod from the valve-seat 31 and permitting the water (free from air) in said vat to flow through the pipe-sections 28, 27, 25, and 23 back to the pipe 21 and thence into the pump.

While I generally prefer the beveled shoulder between the parts 8 and 10 of the bore in part 2 of the siphon, I may make a square shoulder at this point, as indicated by dotted lines in Fig. 3, the action in the formation of the vacuum here being the same in either instance.

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

A siphon for use in connection with the induction-pipes of steam-pumps, condensing-engines, and the like, consisting of a pair of longitudinally-bored parts united by a collar, with a space left between the inner adjacent ends of said parts, and with a lateral bore through said collar in line and communicating with said space, and the adjacent inner ends of the said longitudinal bores being of less diameter than the balance of the bores in the said connected parts.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

JOHN FOGG.

Witnesses:
H. G. UNDERWOOD,
BERNARD C. ROLOFF.