W. TRINKS.

FOOT VALVE AND STRAINER MECHANISM.

APPLICATION FILED MAR. 3, 1916.

1,191,628.

Patented July 18, 1916.

Fig. 1.

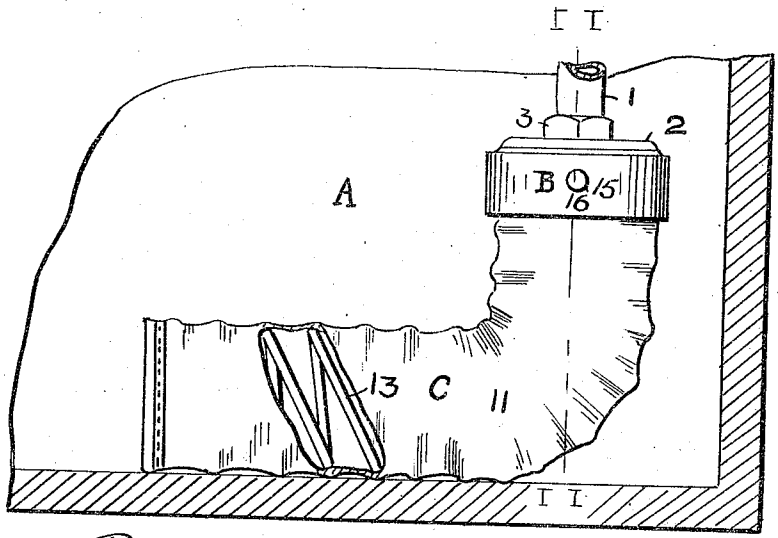


Fig. 2

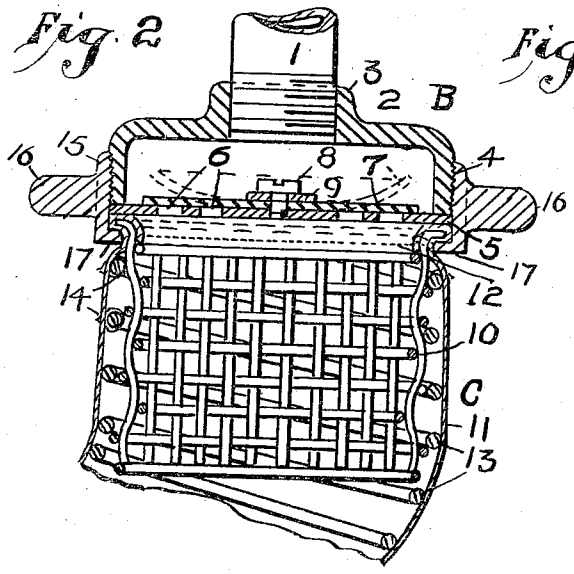
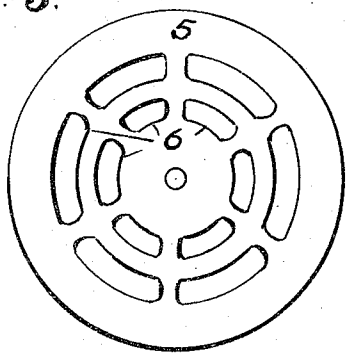


Fig. 3.



WITNESS

INVENTOR

Willibald Trinks,
by Edward A. Lawrence,
his Attorney.

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UNITED STATES PATENT OFFICE.

WILLIBALD TRINKS, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO NATIONAL BRUSH WASHING MACHINE COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF DELAWARE.

FOOT-VALVE AND STRAINER MECHANISM.

1,191,628. Specification of Letters Patent. **Patented July 18, 1916.**

Application filed March 3, 1916. Serial No. 81,824.

To all whom it may concern:

Be it known that I, WILLIBALD TRINKS, a citizen of the United States, and residing in the city of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented or discovered new and useful Improvements in Foot-Valve and Strainer Mechanism, of which the following is a specification.

My invention consists of a new and improved foot-valve and strainer mechanism for pumps.

More particularly, my invention is intended for use in connection with washing machines wherein the water is pumped from the tub during the operation of the machine and discharged on the garments being washed.

Lint, dirt, buttons, pins and other material are present in the tub water, and, if such be afforded access to the foot valve and the pumping mechanism, injury to the valve or pump, clogging of the same, and impaired efficiency and complete stoppage may result. In such cases the mechanism must be taken down, cleansed, repaired and put together again, requiring the services of an expert workman and involving the stoppage of the washing machine. These difficulties I overcome by the use of my improved foot-valve and strainer mechanism, which assures a constant and sufficient supply of water, free from injurious material, to the pump; which may be readily removed for cleansing and as readily replaced; which is easy to repair and open to inspection, and which may with equal success be used in connection with deep and shallow tubs of large or small capacity.

In the accompanying drawings, Figure 1 is a side elevation showing my improved foot-valve and strainer mechanism mounted on the intake of a pump, a laundry tub being shown in broken vertical section; Fig. 2 is an enlarged vertical section of the foot-valve and the discharge end of the strainer, and Fig. 3 is a plan view of the valve plate.

The following is a detailed description of the drawings.

A represents a laundry tub or other receptacle.

1 is the intake of a pump, which latter with the washing machine is omitted as not forming a part of the present invention.

B is the foot-valve mounted on the end of pipe 1, and C is the strainer mounted on said foot-valve. The foot-valve comprises a head 2 having a contracted neck 3 internally threaded to be screwed onto the end of pipe 1. The larger diameter of the head 2 is provided with external threads 4.

5 is the valve plate or proper contour to fit up against the lower edge of the head 2 and provided with a plurality of ports or perforations 6.

7 is a flap-valve of rubber or some other flexible material having its center fixed to the center of the inner face of plate 5 as by the screw 8 and washer 9. When the pump is idle or the suction is interrupted, the valve 7 lies flat on the plate 5 and closes the ports 6, but the pump suction raises said valve, as shown in dotted lines in Fig. 2, and opens said ports for the passage of water into the pump.

10 is an open ended cage, through the sides of which the water is free to pass. I prefer to form said cage of woven wire, as shown. The upper or inner end of said cage is outwardly flared to substantially the same diameter as that of the plate 5 so that said cage may fit tightly up against said plate, as shown, when the mechanism is assembled.

11 is a relatively long cylindrical bag of muslin or other fabric, having its outer end closed and its inner end encircling the cage 10 and doubled over the flared edge of the same. The bag is secured to said cage in any convenient manner, as by the thread 12 sewed through the cage and the doubled material of the bag.

13 is a spring wire helix having its one end sewed or otherwise secured to the bag near its open end, as by the threads 14, and extending within said bag as shown to the bottom of the latter.

15 is a union, preferably provided with short radial handles 16 to aid in screwing and unscrewing it. Said union is provided also with internal threads for engaging the threads 4 of the head 2, and an internal bottom flange 17 which engages the flaring top edge of the cage 10 and the plate 5, thus clamping the bag, cage and valve plate tightly to the head 2. By removing the union, the bag and cage may be removed from place and the valve taken out for inspection or repairs.

The strainer is flexible, owing to the ac-

tion of the helix, so that, when, as in Fig. 1, a relatively shallow tub is used, the outer portion of the strainer may be laid or extended laterally along the bottom of the tub without impairing its intake powers. Where lack of space forbids the full extension of the strainer, the helix permits the strainer to be partially collapsed into a smaller compass.

Where a deep tub is used, the strainer may hang vertically from the foot-valve.

The incompressible cage 10 prevents the total collapse of the strainer, which would be disastrous to the pump, and thus insures a supply of water to the foot-valve at all times.

The bag may be readily dismounted from the foot-valve by the removal of the union and held under a water faucet for the cleansing of the pores of the fabric by a reversed flow of water. The foot valve is readily opened for inspection, cleansing or repairs, as may be necessary.

The structure is inexpensive, contains no parts which readily wear out or get out of repair, and the services of a skilled mechanic are not required in the installation or care of the mechanism.

What I desire to claim is—

1. A strainer for the intake of a pump comprising a fabric bag secured by its throat to said intake and provided with an incompressible discharge end portion, the remainder of said bag being compressible, for the purpose described.

2. A strainer for the intake of a pump comprising a fabric bag secured by its throat to said intake, and means for holding the discharge end portion of said bag extended for the proper entrance of water to said intake, the remainder of said bag being laterally flexible, for the purpose described.

3. A strainer for the intake of a pump comprising a fabric bag secured by its throat to said intake, and means for holding the discharge end portion of said bag extended for the proper passage of water to said intake, the remainder of said bag being flexible and compressible, for the purpose described.

4. A strainer for the intake of a pump comprising a fabric bag secured by its throat to said intake, means for holding the discharge end of said bag extended for the proper entrance of water to said intake, and means for holding the body of said bag resiliently extended and laterally flexible.

5. A foot-valve and strainer structure for a pump comprising a valve mechanism, a strainer bag attached to the intake side of said mechanism, and a spring helix mounted in said bag to extend the latter.

6. A foot-valve and strainer structure for a pump comprising a valve mechanism, a strainer bag attached to the intake side of said mechanism, and a rigid metal cage in the discharge end portion of said bag to hold the same extended for the proper entrance of water to said valve.

7. A foot-valve and strainer structure for a pump comprising a valve mechanism, a strainer bag attached to the intake side of said mechanism, a rigid metal cage in the discharge end portion of said bag to hold the same extended for the proper entrance of water to said valve, and a spring helix mounted in said bag to extend the latter.

8. A foot-valve and strainer structure for a pump comprising a valve mechanism, a strainer bag, and a union removably securing said valve mechanism and said bag to the intake of the pump.

9. A foot-valve and strainer structure comprising a head adapted to be secured to the intake of a pump, a flap valve mechanism, a strainer bag, and a union clamping said valve mechanism and said strainer bag to said head.

10. A foot-valve and strainer structure comprising a head adapted to be secured to the intake of a pump, a valve mechanism, a metal cage, a strainer bag in whose discharge end said cage is mounted, and a union adapted to be screwed onto said head to hold said valve mechanism, said bag and said cage attached thereto.

11. A foot-valve and strainer structure comprising a head adapted to be secured to the intake of a pump and provided with external screw threads, a valve mechanism adapted to be held against said head, a strainer bag adapted to be held against said valve mechanism, and a union provided with internal threads to engage the threads on said head and an inturned bottom flange to engage said valve mechanism and said bag and clamp them to said head.

12. A foot-valve and strainer structure comprising a head adapted to be secured to the intake of a pump and provided with external screw threads, a valve mechanism adapted to be secured to said head, a metal cage fitting against the outer face of said valve mechanism, a fabric strainer bag mounted on said cage, and a coupler having internal threads to engage the threads on said head and having an inturned bottom flange adapted to engage said valve mechanism and said cage to clamp them to said head.

Signed at Pittsburgh, Penna., this 18th day of February, 1916.

WILLIBALD TRINKS.

Witness:
JOHN C. BURREY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."