

W. SCHEURMANN.
CENTRIFUGAL PUMP.
APPLICATION FILED DEC. 29, 1910.

1,049,407.

Patented Jan. 7, 1913.

Fig. 1.

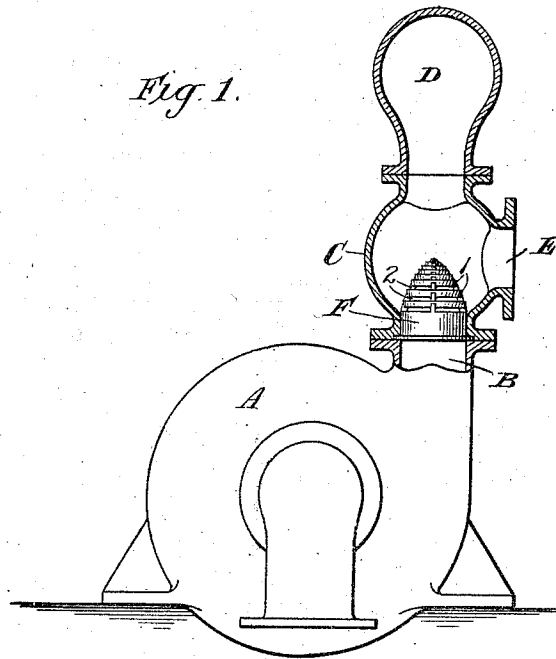


Fig. 2.

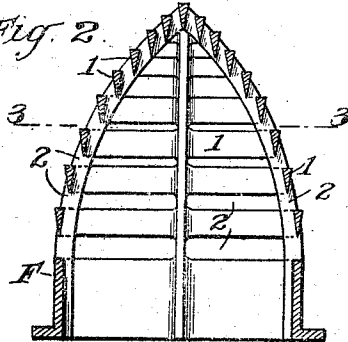


Fig. 3.

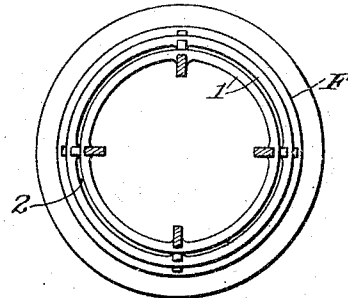
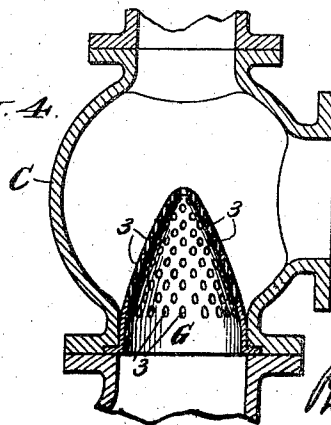


Fig. 4.



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UNITED STATES PATENT OFFICE.

WALTER SCHEURMANN, OF NEWARK-UPON-TRENT, ENGLAND, ASSIGNOR TO HENRY R. WORTHINGTON, A CORPORATION OF NEW JERSEY.

CENTRIFUGAL PUMP.

1,049,407.

Specification of Letters Patent.

Patented Jan. 7, 1913.

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To all whom it may concern:

Be it known that I, WALTER SCHEURMANN, a citizen of the Republic of Switzerland, residing at Newark-upon-Trent, England, have invented certain new and useful Improvements in Centrifugal Pumps, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

10 This invention relates to certain improvements in centrifugal pumps, and is intended especially to secure greater efficiency when such pumps are used for fire or similar service, in which a stream is to be thrown.

15 It is well known that centrifugal pumps, although otherwise better adapted for fire service than reciprocating pumps, do not throw as good a stream as the latter, but the jet soon breaks and is shorter and less effective. This, probably, is explained by the

20 rotary movement of the water in discharge, which tends to make the jet from the fire nozzle spread out, so as to be subjected to a larger air resistance, and break. I avoid this difficulty by arranging on the discharge

25 side of the pump a diaphragm with small openings through which the water is forced, so that the water passes through a large number of small passages at comparatively

30 low velocity, and the tendency to spreading is taken out or reduced. The water leaving these passages preferably enters a comparatively large chamber and for the purpose of still further steadying the flow, an air

35 chamber or cushion is preferably added. The invention includes, however, the use of a diaphragm, with or without the enlarged chamber or air cushion. The diaphragm preferably is conical in form, with passages

40 substantially parallel to the discharge flow, but the invention includes diaphragms of other suitable forms.

In the accompanying drawings forming a part of this specification, preferred forms of constructions embodying the invention are shown for the purpose of illustration, and these constructions will now be described in detail and the features forming the invention specifically pointed out in the

50 claims.

In the drawings:—Figure 1 is a sectional elevation of a centrifugal pump embodying the invention; Fig. 2 is a detail view on an enlarged scale of the diaphragm of Fig. 1;

55 Fig. 3 is a horizontal section on the line 3 of

Fig. 2. Fig. 4 is a view similar to Fig. 2 showing another form of diaphragm.

Referring to said drawings, A is a centrifugal pump having the discharge B, on which is an enlarged chamber C with air 60 chamber D thereon, from which enlarged chamber C the liquid passes through outlet E to the fire nozzle or other jet device. Between the discharge B and enlarged chamber C is placed a diaphragm F, 65 shown as a hollow cone, with its base toward the discharge B, so as to secure the total area of discharge openings desired, and this, in the construction shown in Figs. 1 to 3, is formed of a series of 70 rings 1 having slots between them forming small passages through which the liquid passes from the discharge B to chamber C. These rings are preferably set edge- 75 wise vertically, so as to form passages substantially parallel with the discharge flow, and taper downward to an edge, this form interfering less with the flow of liquid, while securing the desired result. Other forms of diaphragms and passages may be 80 used, however, as for instance, the perforated diaphragm G shown in Fig. 4, with openings 3 through the diaphragm, preferably formed parallel with the discharge flow, as shown. 85

It is to be understood that the invention is not limited to the exact form or arrangement of parts shown, but that these may be modified within the invention defined by the 90 claims.

What is claimed is:—

1. The combination with a centrifugal pump, of a diaphragm on the discharge side of the pump provided with small openings through which the liquid passes, and a discharge passage beyond said openings, substantially as and for the purpose described. 95

2. The combination with a centrifugal pump, of a conical diaphragm on the discharge side of the pump provided with 100 small openings through which the liquid passes, and a discharge passage beyond said openings, substantially as and for the purpose described.

3. The combination with a centrifugal 105 pump, of a conical diaphragm on the discharge side of the pump formed of a series of rings set edgewise to the discharge flow to form a series of narrow slots through which the liquid passes, and a discharge 110

passage beyond said slots, substantially as and for the purpose described.

4. The combination with a centrifugal pump, of a diaphragm on the discharge side of the pump provided with small openings through which the liquid passes, an enlarged chamber outside the diaphragm, and a discharge passage beyond said openings, substantially as and for the purpose described.

5. The combination with a centrifugal pump, of a diaphragm on the discharge side of the pump provided with small openings

through which the liquid passes, an enlarged chamber outside the diaphragm, a discharge passage beyond said openings, and an air chamber on the discharge outside the diaphragm, substantially as and for the purpose described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WALTER SCHEURMANN.

Witnesses:

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