

No. 741,627.

PATENTED OCT. 20, 1903.

G. F. CONNER.  
PUMP.

APPLICATION FILED JAN. 7, 1903.

NO MODEL.

Fig 1.

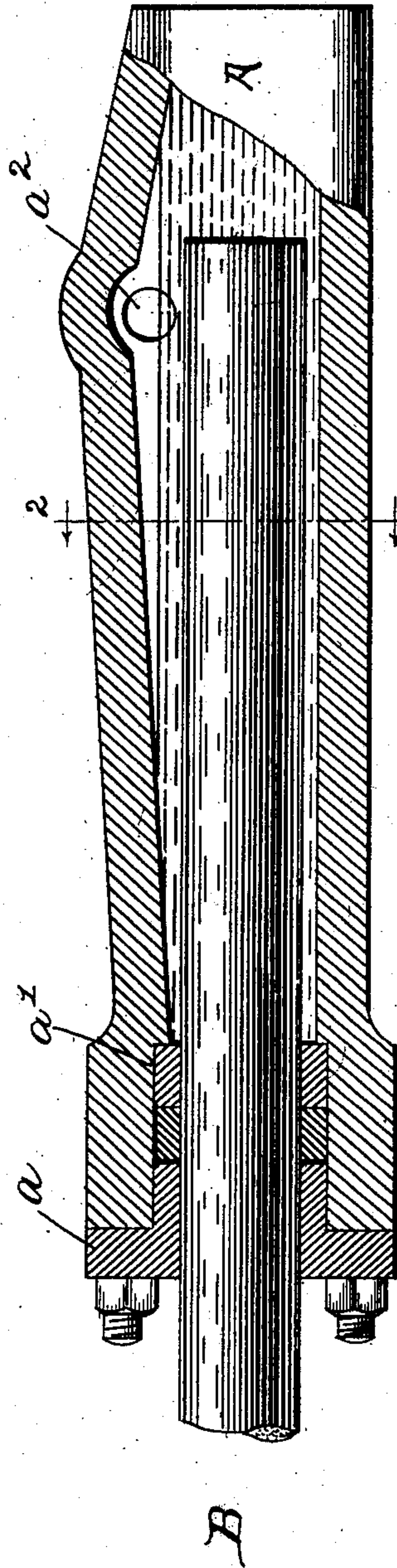
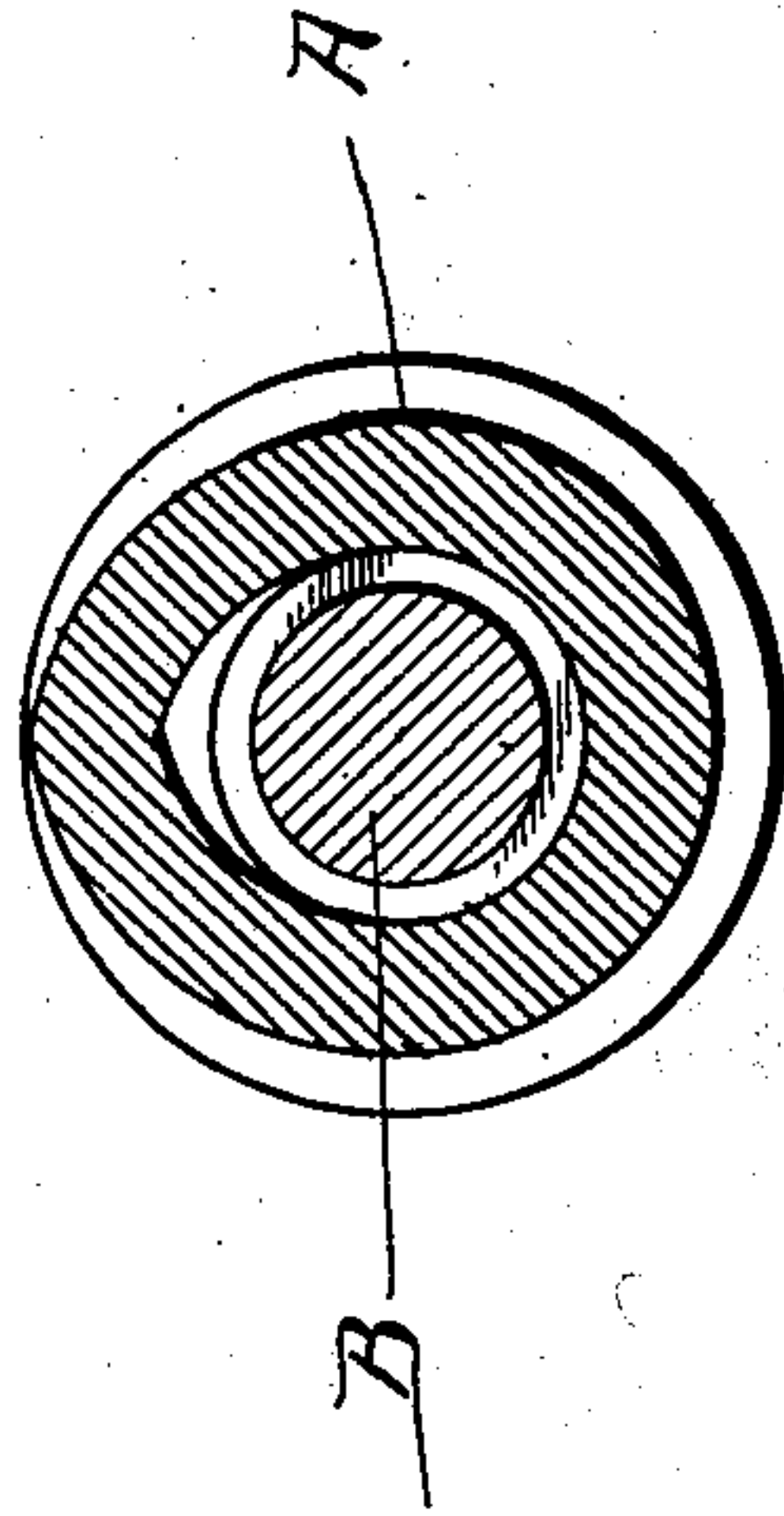


Fig 2.



Witnesses:

*D. C. Purdy.*

*G. N. Mustard*

*George F. Conner.*

*Inventor.*

*by Clement R. Stickney*

*Attorney.*



# UNITED STATES PATENT OFFICE.

GEORGE F. CONNER, OF PORT HURON, MICHIGAN.

## PUMP.

SPECIFICATION forming part of Letters Patent No. 741,627, dated October 20, 1903.

Original application filed May 15, 1902, Serial No. 107,426. Divided and this application filed January 7, 1903. Serial No. 138,085. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE F. CONNER, a citizen of the United States of America, and a resident of the city of Port Huron, in the county of St. Clair and State of Michigan, have invented new and useful Improvements in Pumps, of which the following is a full, clear, and exact specification.

This invention relates to pumps, and especially to the type referred to in my application, Serial No. 107,426, for feed-water heaters, filed May 15, 1902, of which this is a divisional application.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

Referring to the drawings, Figure 1 is a view, partly in elevation and partly in section, showing the barrel and piston of a pump embodying the principal features of the invention. Fig. 2 is a view in cross-section on line 2-2 of Fig. 1.

Referring to the drawings, A represents a pump-barrel, provided at one end with a stuffing-box *a* and packing-ring *a'* of any preferred design, in which reciprocates a solid piston B. Said cylinder is normally disposed in a practically horizontal position; but when in use with a portable engine it is frequently inclined at quite a sharp angle. The piston B is cylindrical, but the bore of the pump-barrel is shaped in cross-section, preferably, as indicated, so as to provide for an air-space above the piston of such a contour, preferably, that its greatest height will be attained at a point where the discharge-port *a''* is situated. Obviously any arrangement may be used which will obtain the result. As shown herein, the vertical diameter of the pump-bore is gradually increased in length from either end of the cylinder until the discharge-port is reached. Here the vertical diameter reaches its maximum, and a gland or upward swelling in the cylinder itself carries the wall at this point still farther away from the piston. The exhaust-port is situated near the top of the chamber or duct. As a result of this construction any air which may enter the pump-cylinder rises into this space above the piston and readily escapes through the dis-

charge-pipe of the pump without interfering in any manner with the vacuum of the pump—that is to say, by the collection of the air in this upper chamber and its constant passage therethrough at each outstroke of the pump the degree of exhaust in the barrel is practically constant, the displacement of the piston being always the same, as it is always entirely immersed at the end of its outstroke. As a result the water is forced out of the pump at a constant head and the tilting of the cylinder due to the passing of the engine over a rough or hilly road does not affect the pump working, as the piston displacement is constant even under varying positions of the pump itself.

It will be understood, of course, that any arrangement of ducts or passages may be used which would collect the air at the upper part of the cylinder and lead it to the exhaust-port of the pump.

The actuating parts of the piston may be of any desired design.

The arrangement herein shown, while preferable, may be varied without departing from the spirit of the invention, and I do not limit myself to any particular form of construction except as set forth in the claims.

I claim as my invention—

1. A pump having a cylinder provided with an air-gathering recess opening into said cylinder, said recess extending from end to end of the cylinder, and an exhaust-port leading from said recess.
2. A pump having an approximately horizontal cylinder provided with a channel extending from end to end of the cylinder along its inner face above the piston, and a single exhaust-port leading from said channel to without the cylinder.
3. A pump having an approximately horizontal cylinder, a single exhaust-port leading therefrom and an air-gathering recess extending along the inner face of said cylinder above the travel of the piston, whose height increases from either end of the cylinder to the exhaust-port into which it discharges.
4. A pump having an approximately horizontal cylinder, a piston reciprocable therein, a single exhaust-port leading therefrom, and

a recess in the cylinder-face extending from end to end of the cylinder discharging into said exhaust-port.

- 5 5. A pump having an approximately horizontal cylinder, a piston reciprocable therein, a single exhaust-port leading therefrom, the vertical diameter of said cylinder increasing from either end of the cylinder until the exhaust-port is reached, said enlarged portion

forming an air-gathering recess above the line 10 of travel of the piston.

In testimony whereof I have signed my name in the presence of two subscribing witnesses.

GEORGE F. CONNER.

Witnesses:

D. E. PURDY,  
C. R. STICKNEY.