

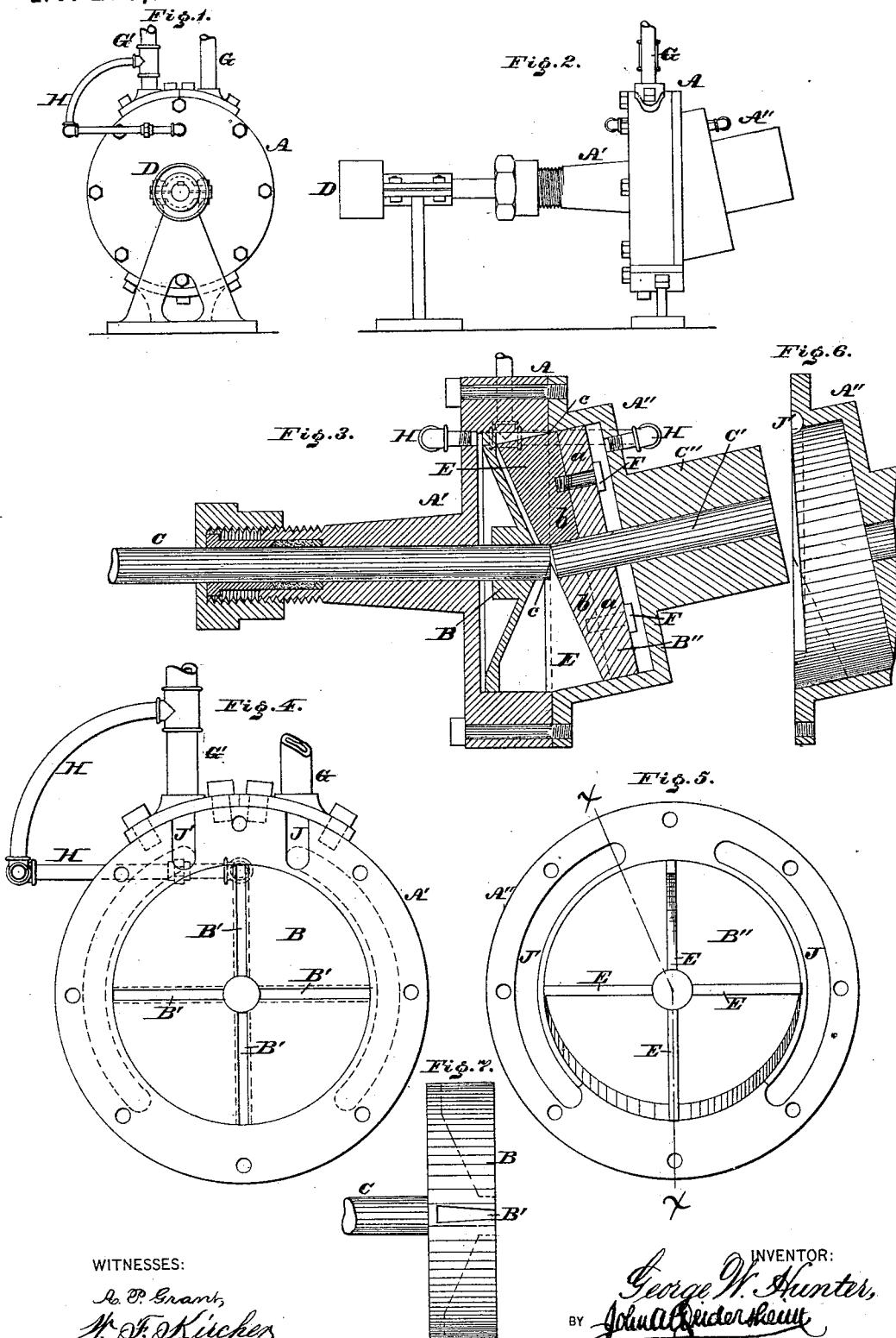
(No Model.)

G. W. HUNTER.

ROTARY PUMP.

No. 273,737.

Patented Mar. 13, 1883.



# UNITED STATES PATENT OFFICE.

GEORGE W. HUNTER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF  
TWO-THIRDS TO A. R. BÖCKIUS AND A. REX, BOTH OF SAME PLACE.

## ROTARY PUMP.

SPECIFICATION forming part of Letters Patent No. 273,737, dated March 18, 1883.

Application filed May 27, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. HUNTER, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Rotary Pumps, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a side elevation of the rotary pump embodying my invention. Fig. 2 is a front elevation thereof. Fig. 3 is a longitudinal section thereof enlarged. Figs. 4 and 5 are views of the interior thereof. Fig. 6 is a section in line  $x x$ , Fig. 5. Fig. 7 is a side elevation of one of the rotary heads.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists of a rotary pump, which is of simple and inexpensive construction and effective in operation.

Referring to the drawings, A represents a casing or housing, which is properly supported and formed of two parts, A' A'', firmly bolted together.

B represents a rotary head of cylindrical form, which is fitted within the part A' of the casing and keyed or otherwise firmly connected to the shaft C, the outer end of the latter carrying a suitable driving-pulley, D. In the head B are radial slots B', in the present case four in number, and shown widening or wedge shape from the face of the head backward. The above-described shape of the slots lessens the friction between their walls and the wings or pistons hereinafter described.

The portion A'' of the casing A has within it a rotary head, B'', which is partly of cylindrical form, as at a, in order to get a cylindrical bearing for said head in the cylindrical part of the casing, and partly conical, as at b, to form the abutment c. The head B'' revolves freely on a shaft, C', which is keyed or otherwise firmly secured to a boss, C'', projecting from the part A'' of the casing, said shaft and boss extending at an inclination, the same as said part A'' extends at an inclination from its connecting-flange.

Securely fastened to the head B'' are wings or pistons E—in the present case four in num-

ber—which are adapted to enter the slots or openings B' of the head B, and are of trapezoidal form, the pistons being driven into the head, and furthermore secured by screws F.

G represents the suction-pipe, and G' the discharge-pipe, of the pump.

Power is applied to the pulley D of the shaft C, and the head B revolves. By means of the wings or pistons E the rotary head B'' is also carried around with the head B, it being seen that the pistons alternately enter and leave the radial slots B', and one element of the conical portion b of the head B'' is always in firm contact with the face of the rotary head B, making what may be termed the "line of impact" or the "abutment" c c, Fig. 3.

The suction-port J and discharge-port J' are circumferential grooves on the inner face of either part or both parts of the casing A at the place where the two parts are in contact.

It will be seen that when the shaft C is rotated by the pulley D a vacuum is produced at the suction-pipe, and the fluid to be pumped is drawn into the casing. The pistons carry the fluid so drawn ahead of them and force it out of the discharge-pipe G', the work being accomplished with ease and power.

Connected with the discharge-pipe G' of the pump is a smaller pipe, H, one branch of each of which runs through the respective parts of the casing to the back of the rotary heads B B''. It will be seen that some of the fluid forced out of the casing into the discharge-pipe G' enters the pipe H, and then presses against the rear or back of the heads B B'', whereby the latter are always kept tight and in good working contact.

It is evident that the pump is readily adapted to work as a rotary engine by admitting steam into the pipe G' and allowing it to exhaust through the other pipe, G, or vice versa. In this case steam also enters the pipe H and serves to hold the heads B B'' in proper contact, as previously stated.

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

1. The casing A and slotted head B, in combination with an opposite inclined head hav-

ing a conical portion, and pistons which project from the face of said conical portion, are rigidly connected therewith, and work in and out of the slots in said head, substantially as set forth.

5 2. The casing A, in combination with the head B, provided with wedge-shaped radial slots, and an inclined head provided with pistons which enter said slots, substantially as and for the purpose set forth.

10 3. The pistons, in combination with the head B' and head B'', said pistons being driven in-

to the head, and furthermore secured thereto by screws, and working in wedge-shaped slots of the opposite head, substantially as and for the purpose set forth.

15 4. The casing and heads, in combination with the discharge-pipe G' and the pipe H, leading to the back of said heads, substantially as and for the purpose set forth.

GEO. W. HUNTER.

Witnesses:

JOHN A. WIEDERSHEIM,  
W. F. KIRCHER.