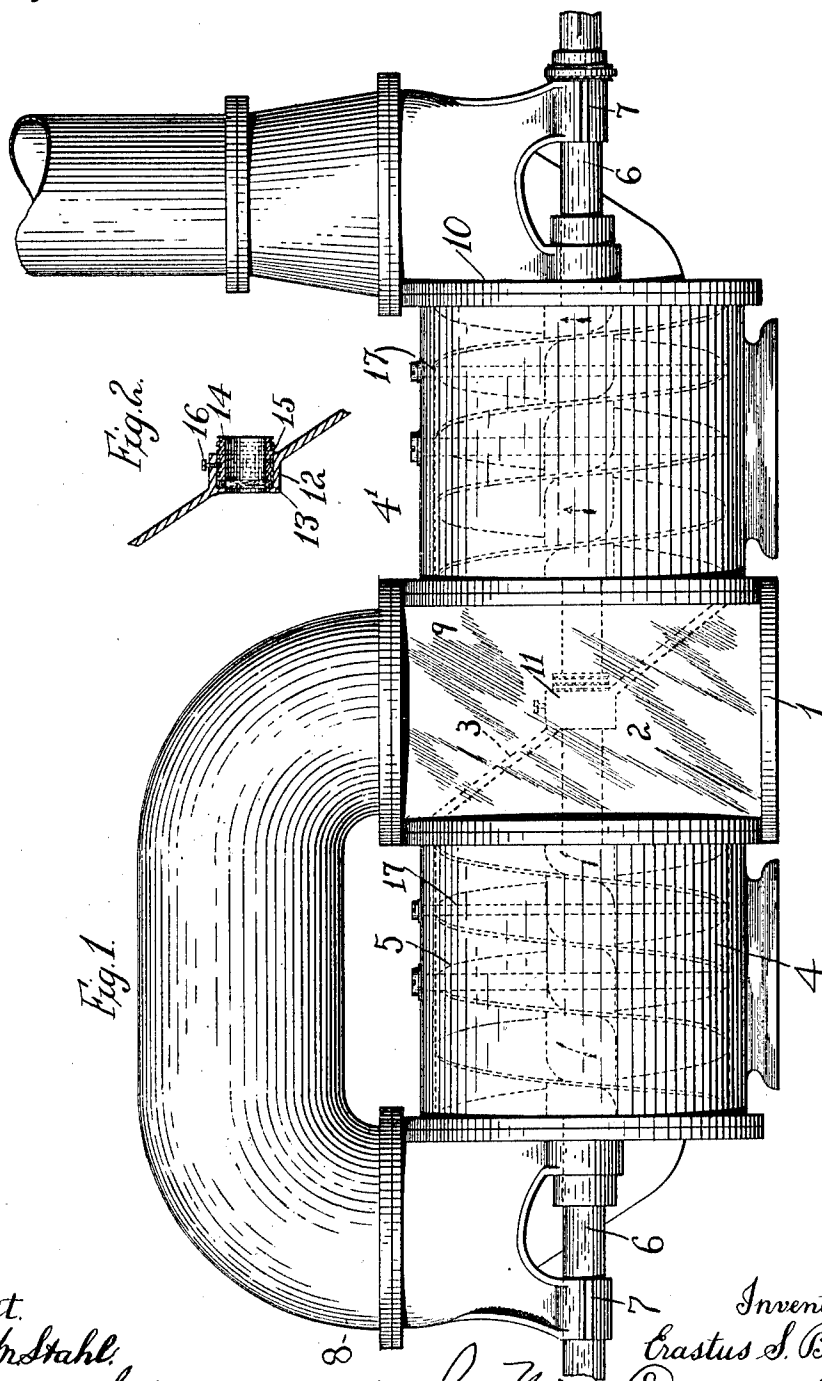


E. S. BENNETT.
SCREW PUMP.
APPLICATION FILED SEPT. 21, 1908.

1,012,504.

Patented Dec. 19, 1911.



Attest.
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UNITED STATES PATENT OFFICE.

ERASTUS S. BENNETT, OF NEW YORK, N. Y., ASSIGNOR TO CONTINENTAL ENGINEERING COMPANY, A CORPORATION OF ARIZONA TERRITORY.

SCREW-PUMP.

1,012,504.

Specification of Letters Patent.

Patented Dec. 19, 1911.

Application filed September 21, 1908. Serial No. 453,928.

To all whom it may concern:

Be it known that I, ERASTUS S. BENNETT, a citizen of the United States, residing at New York, N. Y., have invented certain new and useful Improvements in Screw-Pumps, of which the following is a specification.

My invention relates to screw pumps of the general form disclosed in Letters Patent No. 950,563, granted to me March 1, 1910.

My present invention concerns an arrangement whereby a step by step lifting or forcing action may be applied to a fluid to be pumped, and also to means whereby the end thrust of the piston shaft in its bearings may be eliminated.

The invention consists in the features and combination and arrangement of parts hereinafter described and particularly pointed out in the claim.

In the accompanying drawings,—Figure 1 is a side view in the nature of a diagram, of my improvement, Fig. 2 is a view relating to the central stuffing box for the shaft.

In these drawings, 1, indicates the inlet for the water to be forced, this being located in a central casting or frame 2 which has a partition 3 extending substantially diagonally thereof to direct the water to the first cylinder 4. This cylinder contains a screw piston 5 of substantially the same form as that illustrated in the application above referred to, and also in Letters Patent 950,564, granted to me March 1, 1910. This screw is arranged upon a shaft 6, journaled in bearings 7 outside of the cylinder and its frame work. The revolution of this screw causes the water to be drawn in through the inlet at 1 and forced out through the discharge pipe 8. This discharge pipe leads back to the central frame or casing 2 into a chamber 9 arranged on the opposite side of the diaphragm or partition 3 from the inlet chamber first mentioned. From here the water passes into a second cylinder 4', which like the first has a screw piston therein, this being fixed on the shaft 6 above mentioned. This screw piston acting upon the water forces it onward through discharge openings at 10 to be delivered to the desired point. The screw threads of the pistons in the cylinders 4—4', are reversed in respect to each other so as to secure a balancing action on the shaft 6 and prevent end thrust.

The shaft besides being journaled in the bearings 7 also passes through a stuffing box carried by the inclined partition or directing diaphragm 3. This stuffing box is formed in an enlargement 12 of the said diaphragm, it having packing at 13 and a sleeve or gland at 14, provided with circumferential grooves 15, which enable the gland to be adjusted along the shaft and to be fixed in any desired position by a set screw 16. The screw pistons are preferably combined with transverse perforated diaphragms indicated generally at 17 and arranged within the cylinders to eliminate the effect of skin friction of the blades against the water and to prevent the back drag due thereto. It will be seen that with my invention the fluid to be forced is acted upon by the forcing means at successive stages. The water forced from the first piston, having acquired a certain momentum, is led to the second piston and subjected to another forcing action at this point. Further than this, the arrangement of these screw blades produces a balancing effect and relieves the shaft of end thrust.

I claim as my invention:—

In a screw pump, a pair of cylinders in axial alinement, a shaft passing there-through having screw pistons with reversed threads of equal diameter and pitch throughout, a casing between the cylinders formed separate therefrom and attached to the ends of the cylinders, said casing having an inclined partition to direct the water to the adjacent inlet ends of the cylinders, an outlet at the opposite ends of the cylinders whereby the water is caused to pass longitudinally through the cylinders from the central casing in opposite directions, and a pipe arranged external in respect to the cylinders containing the screw pistons, and external also to the central casing, said external pipe connecting the outlet end of one cylinder with the inlet chamber of the second cylinder, substantially as described.

In testimony whereof, I affix my signature in presence of two witnesses.

ERASTUS S. BENNETT.

Witnesses:

M. L. JUSTIN,
G. H. TAYLOR.