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S. C. MURDOCH & T. H. BORLAND.

Improvement in Belt Pumps.

No. 122,274. Patented Dec. 26, 1871.

Fig 1.

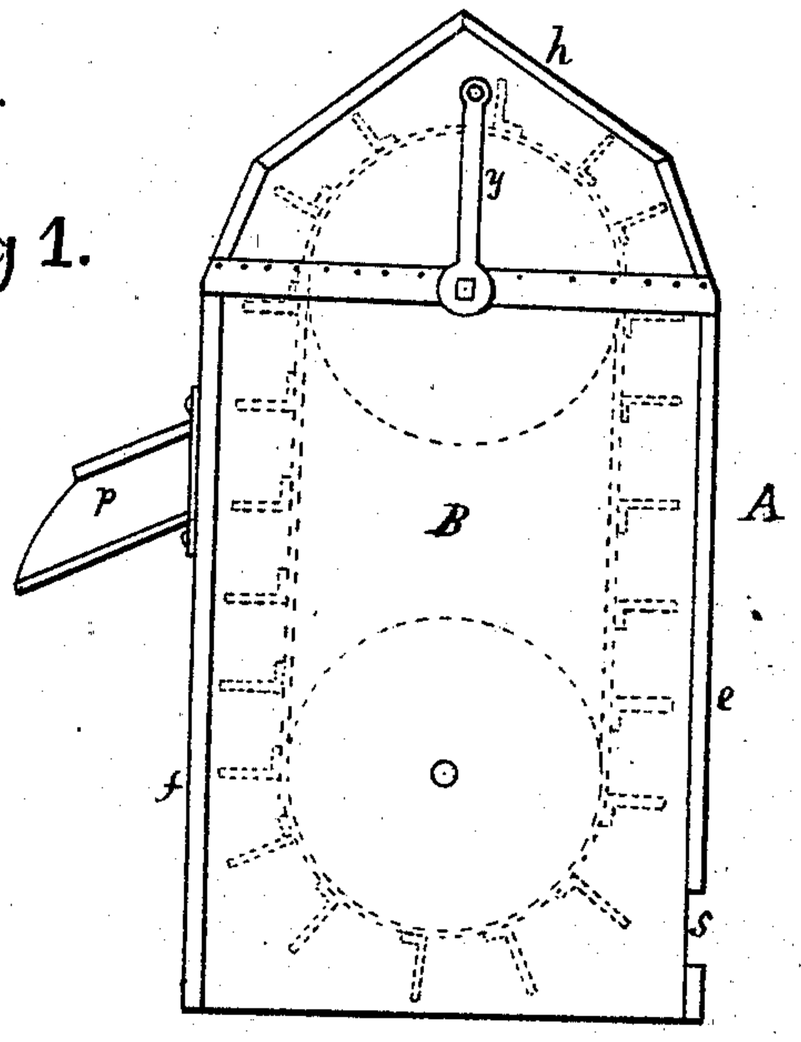


Fig 2.

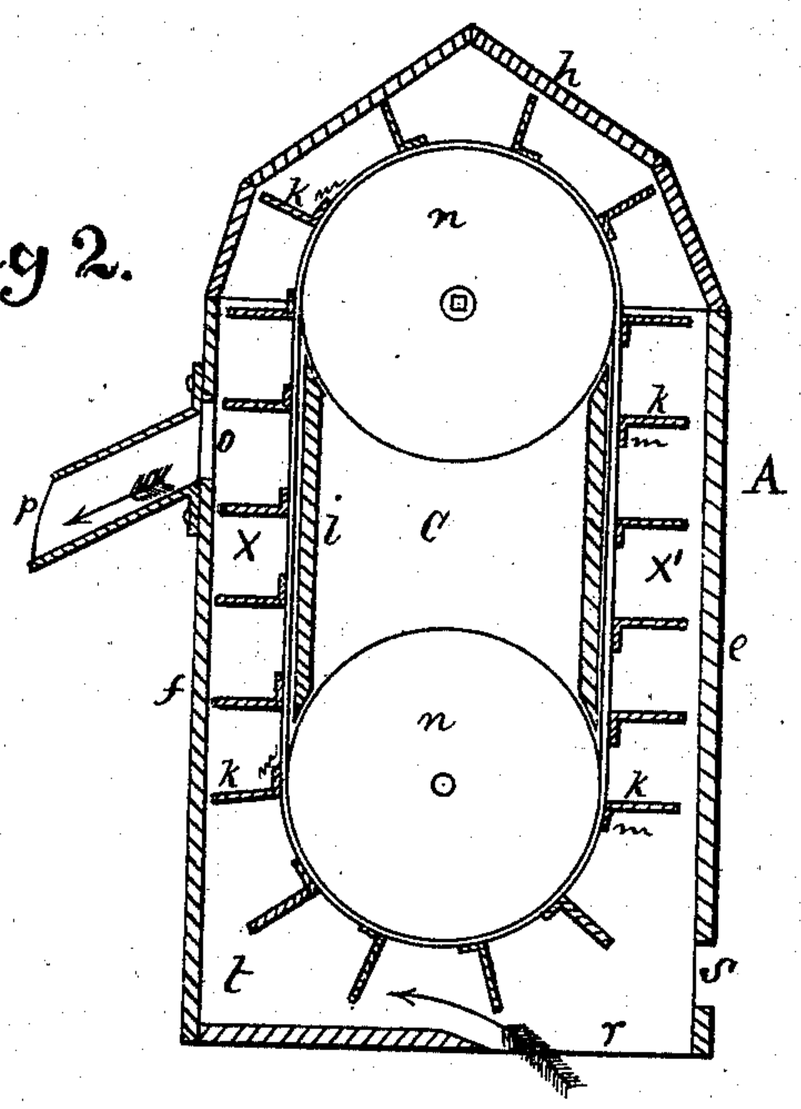
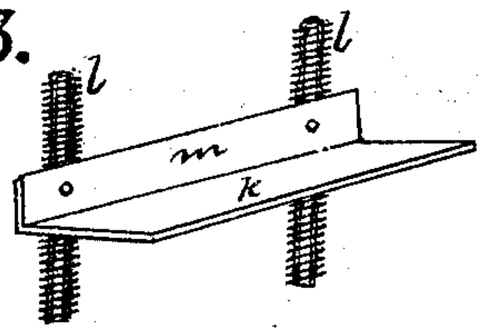


Fig 3.



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UNITED STATES PATENT OFFICE.

SAMUEL C. MURDOCH AND THOMAS H. BORLAND, OF PITTSBURG, PENN.

IMPROVEMENT IN BELT-PUMPS.

Specification forming part of Letters Patent No. 122,274, dated December 26, 1871.

To all whom it may concern:

Be it known that we, SAMUEL C. MURDOCH, and THOMAS H. BORLAND, both of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Pumps; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

The nature of our invention consists in dividing the casing of the pump into two compartments, and in combining therewith a water-lifting device, consisting of two pulleys, two wire ropes, and a series of flat disks or lifters, the whole being constructed and arranged as hereinafter described.

To enable others skilled in the art to make and use our invention, we will proceed to describe more fully its construction and operation.

In the accompanying drawing which forms part of our specification, Figure 1 is a side elevation of our improvement in pumps. Fig. 2 is a vertical section of the same. Fig. 3 is a section of the two wire ropes, and represents one of the water-lifting disks or plates attached to them.

In the accompanying drawing, A represents the casing, which consists of the side-pieces B and C, end pieces *e* and *f*, and cap or top piece *h*. The casing A is divided into two compartments by means of a partition, *i*. The compartment *x* is in size of opening, when viewed in cross-section, equal to area of one of the disks, *k*, which are secured to the wire ropes *l* by means of the flange *m*, and suitable rivets for connecting the flange *m* to the ropes. The ropes *l* move in grooves in the pulleys *n*, which are pivoted in the side pieces B and C. The upper pulley is driven by means of a crank attached to the axis of said pulley; the lower pulley acting as a guide for the ropes *l* and lifters or disks *k*. The compartment *x* is provided with a discharge opening, *o*, and spout, *p*. The casing is constructed of wood; also the pulleys; but may be constructed of other material, if so desired. The disks or lifters *k* are constructed of sheet metal, coated so as to prevent rusting. The lower end of the casing A is provided with two openings, *r* and *s*, arranged with relation to a gathering-chamber, *t*, as indicated in Fig. 2.

The operation of the pump is as follows: By turning the crank *y* it will cause the pulley to which it is connected to be rotated, which will cause the ropes to move the disks *k* up through compartment *x* and down through the compartment *x'*. The disks *k* will draw the water or other fluid into the casing A through the openings *r* and *s*, gathering it into the chamber *t*, from which it is lifted and carried up through compartment *x*, from which it flows through opening *o* into the spout *p*, from which it flows into the desired receiver, or is otherwise carried off.

The main features of our invention consist in the compartment *x*, flat flanged disks, and their operation in the pump casing with relation to the openings *r* and *s*, chamber *t*, and compartment *x*, in the operation of lifting water or other fluid.

We do not claim, broadly, the use of disks in a pump as a lifting medium, for such device is old, and has been made and arranged in many ways and forms, as in what is known as the "chain pump;" but—

What we claim as being new is—

The compartment *x*, chamber *t*, arranged with relation to the openings *r* and *s*, as shown, and used combined with the flat flanged disks *k*, all constructed, arranged, and operating with relation to each other, as herein described.

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