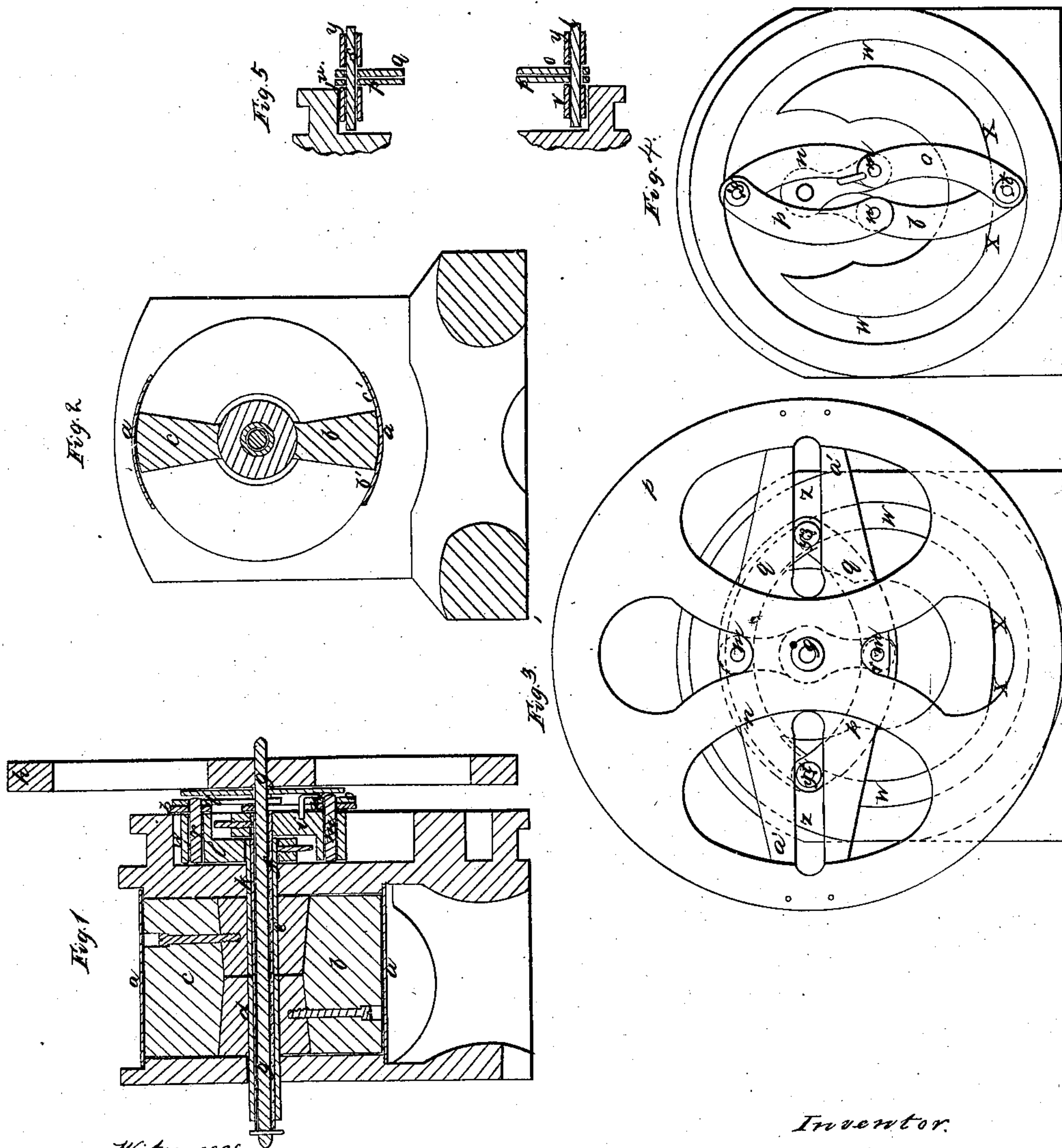


J. A. Bazin, Rotary Pump.

N^o 15,274.

Patented July 8, 1856.



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JAMES A. BAZIN, OF CANTON, MASSACHUSETTS.

ROTARY PUMP.

Specification of Letters Patent No. 15,274, dated July 8, 1856.

To all whom it may concern:

Be it known that I, JAMES A. BAZIN, of Canton, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Rotary Pumps, and that the following description, taken in connection with the accompanying drawings hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvements, by which my invention may be distinguished from others of a similar class, together with such parts as I claim and desire to have secured to me by Letters Patent.

The figures of the accompanying plate of drawings represent my improvements.

Figure 1, is a central vertical section of my improved pump, Fig. 2, is a central transverse vertical section of the same, Fig. 3, is a front elevation and Fig. 4, a similar view with the fly wheel removed and showing the parts in a different position, Fig. 5 is a view of the friction rolls &c. in detail.

In my improved rotary pump one piston or bucket is held stationary while the other is moving, and the most essential feature of my invention consists in a novel arrangement of devices for producing these alternate motions of the pistons.

A rotary pump operating in this manner, that is one piston remaining stationary while the other is expelling the water, has been found to be very effective, but in those that have heretofore been made on this principle, difficulties have occurred in so producing the requisite motions of the pistons as to prevent them from moving with a great deal of friction or else the pump from leaking. By my improvements the pistons are made to move in the desired manner and with very little friction, while at the same time there is no possibility of leakage.

a a in the drawings represents the cylinder of a rotary pump which is shown as partly removed in order that the operation of the parts may be more clearly seen. Two pistons *b* and *c* are employed attached to independent shafts, the piston *b* being screwed to the shaft *d* and the piston *c* to the shaft *e*. The shaft *d* is attached to a hollow sleeve *f f*, which revolves around the main center shaft *g g* to which the fly wheel *h* is attached. The hollow sleeve *f f*

extends through the center of the shaft *e* of the piston *b* and is fastened to a short crank *i*. The shaft *e* of the piston *c* is secured to a short hollow sleeve *k* which revolves around the sleeve *f f*, but extends no farther than the shaft *d* as shown in Fig. 1. This sleeve *k* is attached to a crank *l* placed behind the crank *i* both cranks turning on a common center *g g*. To the end of the crank *i*, are attached by a pivot joint *m*, the toggle arms *n, o*, and to the end of the crank *l*, similar arms *p, q* by a joint *r*, the ends of each set of arms meeting in pivot joints *s, t* common to both sets, thus forming four toggle arms *n, o, p, q*, hinged or pivoted together at four points *m, r, s, t*. The pivots *s, t*, have attached to them friction rolls *u, v* Fig. 5. In the front plate of the cylinder is formed a circular or nearly circular groove *w w* described not from the center *g* of the cranks, but from point *r* Fig. 3 of the toggle arms *p q*. The portion *x x* of the groove *w w* is described from the center *g* of the two cranks. On the ends of the pivots *s, t*, are placed friction rolls *y, y* which fit into a long slot *z z* of a plate *a' a'* secured to the fly wheel. From this it will be seen that by revolving the fly wheel, (the parts being in the position shown in Fig. 3), the toggle arms will move in the circle of the groove *w w* turning on the pivot *r* as a center and thereby revolving the crank *l* and consequently its piston *c*, the other crank *i* remaining stationary until one of the friction rolls *u, v* has entered the portion *x x* of the groove *w w*, and the two cranks, and consequently their pistons, have been brought together into the position shown in Fig. 4, when, as the portion *x x* of the groove *w w* is described from the common journal *g* of the cranks as a center, the two cranks and pistons will move together through the groove *x x*, until one of the friction rolls *u v*, has entered the groove *w w*, when the crank *i* and its piston *b* will revolve in the same manner, as did the crank *l* and piston *c*, turning upon the pivot *m* as a center which now occupies the position previously occupied by the pivot *r*. The crank *i* will be revolved until it comes around to the crank *l* when the two cranks and their pistons will move together through the groove *x x* as in the first instance. The eduction and induction ports *b' c'* are shown in Fig. 2.

From the foregoing description it will be seen that by a peculiar arrangement of mechanical devices the two pistons are made to revolve alternately, one remaining stationary while the other moves.

By causing one piston to remain fixed, it acts as a head or resistance to the water which is being forced out through the education port *a'*, by the other piston. The two pistons it will be evident must be moved for a short distance together, in order that the piston which has last completed its circuit may be carried far enough along to open the education port for the discharge of the water, immediately before the other piston commences to move.

Having thus described my improvements I shall state my claims as follows:

What I claim as my invention and desire to have secured to me by Letters Patent, is,— 20

The means employed for moving the two pistons alternately, the same consisting of the toggle arms attached to the cranks of the pistons and operating in the circular grooves *w w*, *x x*, in such a manner as to hold one crank and its piston stationary while the other crank and its piston are moving, as set forth. 25

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Witnesses:

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