C. M. RIDDLE.
Churn-Power.

No. 197,978. Patented Dec. 11, 1877.

Fig. 1.

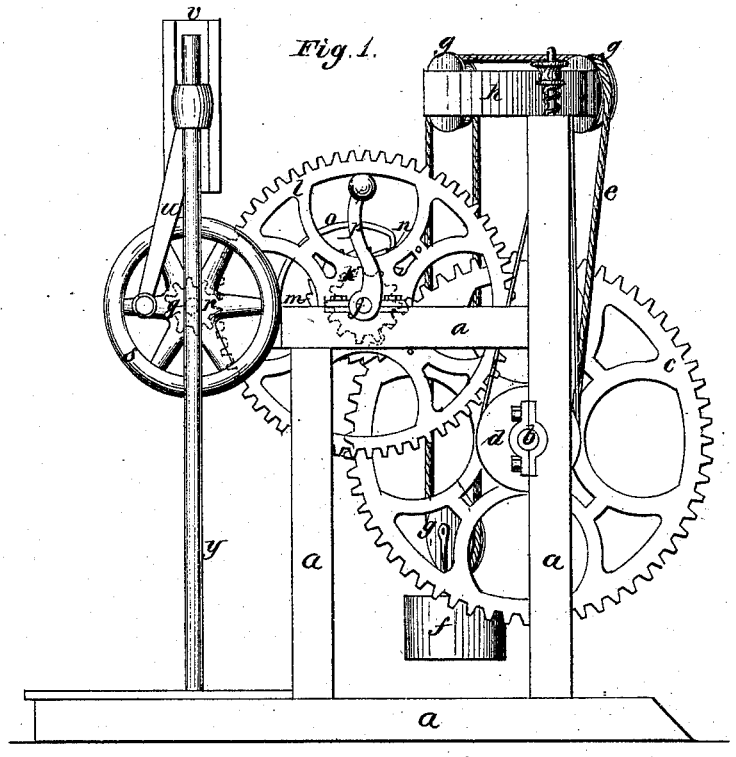


Fig. 2.

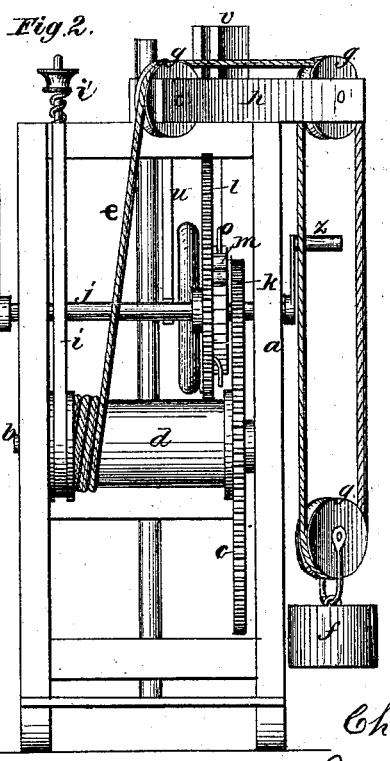


Fig. 3.

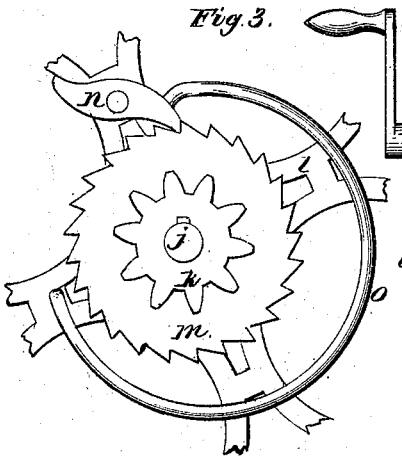
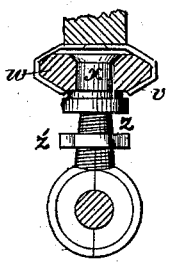


Fig. 4.



Witnesses.
A. McMurdy
Charles M. Roberts

Inventor.
Charles M Riddle
Per O D Lewis his atty.

UNITED STATES PATENT OFFICE.

CHARLES M. RIDDLE, OF VENANGO COUNTY, PENNSYLVANIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO I. R. RIDDLE.

IMPROVEMENT IN CHURN-POWERS.

Specification forming part of Letters Patent No. **197,978**, dated December 11, 1877; application filed July 27, 1876.

To all whom it may concern:

Be it known that I, CHARLES M. RIDDLE, of Venango county and State of Pennsylvania, have invented a new and useful Improvement in Churn-Powers; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming a part of this specification.

Figure 1 is a side view; Fig. 2, an end view; and Figs. 3 and 4, enlarged sectional views of parts of the machine.

My invention consists in a novel combination and arrangement of mechanism for operating the plunger, and also in an improved device for admitting of a ready change of the length of the plunger, all as hereinafter more specifically described and claimed.

The frame or support of this mechanism consists of an arrangement of base and standard bars *a a*, secured by either bolts or cross-pieces, in any suitable way, upon a shaft, *b*. Within the frame is mounted a drum, *d*, upon which is wound the cord *e*, connecting with the weight. A large gear-wheel, *c*, is also mounted upon the same shaft, for the purpose of communicating motion, through an arrangement of gearing, to the plunger when the said drum is rotated by the descent of the weight.

The cord *e* passes from the drum over a series of pulley-wheels, *g g*, which are arranged upon a cross-bar pivoted to the top of the frame, and connects at its end with a weight, *f*, which, as it descends, will unwind the cord from the drum, and thus operate the mechanism.

Upon a shaft, *j*, is a loosely-mounted gear-wheel, *l*, and also a gear-wheel, *k*, and ratchet-wheel *m*, these two last wheels being rigidly secured to the shaft.

The shaft is furnished with a suitable crank-handle, and the gear-wheel *k* is arranged to mesh with wheel *c*, so that when the crank is operated and the wheels *r* and *m* are rotated in one direction, the loose wheel will remain stationary, while the wheel *c* and drum *d* will be rotated and the cord wound upon the latter, so as to raise the weight. As soon as the handle of the shaft *j* is released, the weight will commence to descend, and the motion of the wheels *c k* will then be reversed. This will also cause the wheel *l* to rotate by reason of a spring-pawl, *n*, upon the same, which, in the first-described operation, slipped loosely over the ratchet-wheel, but which will now engage therewith in the way usual with such mechanism. By this means motion is communicated to the plunger through a gear-wheel, *r*, upon the shaft *q* of the fly-wheel *s*.

The plunger *y* is supported and guided in its movement by means of a horizontally-arranged arm, which connects with the fly-wheel through the medium of a crank-rod, *u*. This arm is constructed with a block or cross-head, *w*, which works within a vertically-arranged guide, *v*. This guide or way consists of a suitably-grooved piece secured to a standard of the main frame.

In order to vary the stroke of the plunger when desired, I provide a means very simple, and quite as effective as any heretofore devised for such purpose.

To this end I make the arm slightly tapering, its smallest portion being next to the cross-head, and provide it with a screw-thread, as at *z*, and with a nut, *z'*, arranged to work upon the same. The arm is also split from its end or eye, so that as the nut is worked forward or backward the jaws of the said eye will either securely embrace or lessen their hold upon the rod, as the case may be.

What I claim is—

1. In a mechanism for operating churn-plungers, the herein-described arrangement of a loosely-mounted gear-wheel, *l*, operating the fly-wheel and plunger, and provided with a spring-pawl, *n*, the ratchet with which said pawl engages, and the gear-wheel *k*, for transmitting motion to and from the drum *d* and wheel *c*, being also mounted upon the same shaft, the said parts being all constructed as herein shown and described, and alternately operated by the crank-handle and by the weight *f*, substantially as specified.

2. In a mechanism for operating churn-plungers, the arm *x*, formed with a taper and screw-thread, as described, and adapted, by means of its split, to embrace the plunger when the nut *z'* is tightened up, the said arm being arranged to work within the vertical way *v*, and connected with the fly-wheel by a crank-rod, substantially as set forth.

CHARLES M. RIDDLE.

Witnesses:

OLIVER B. CROSS,

R. J. PHIPPS.