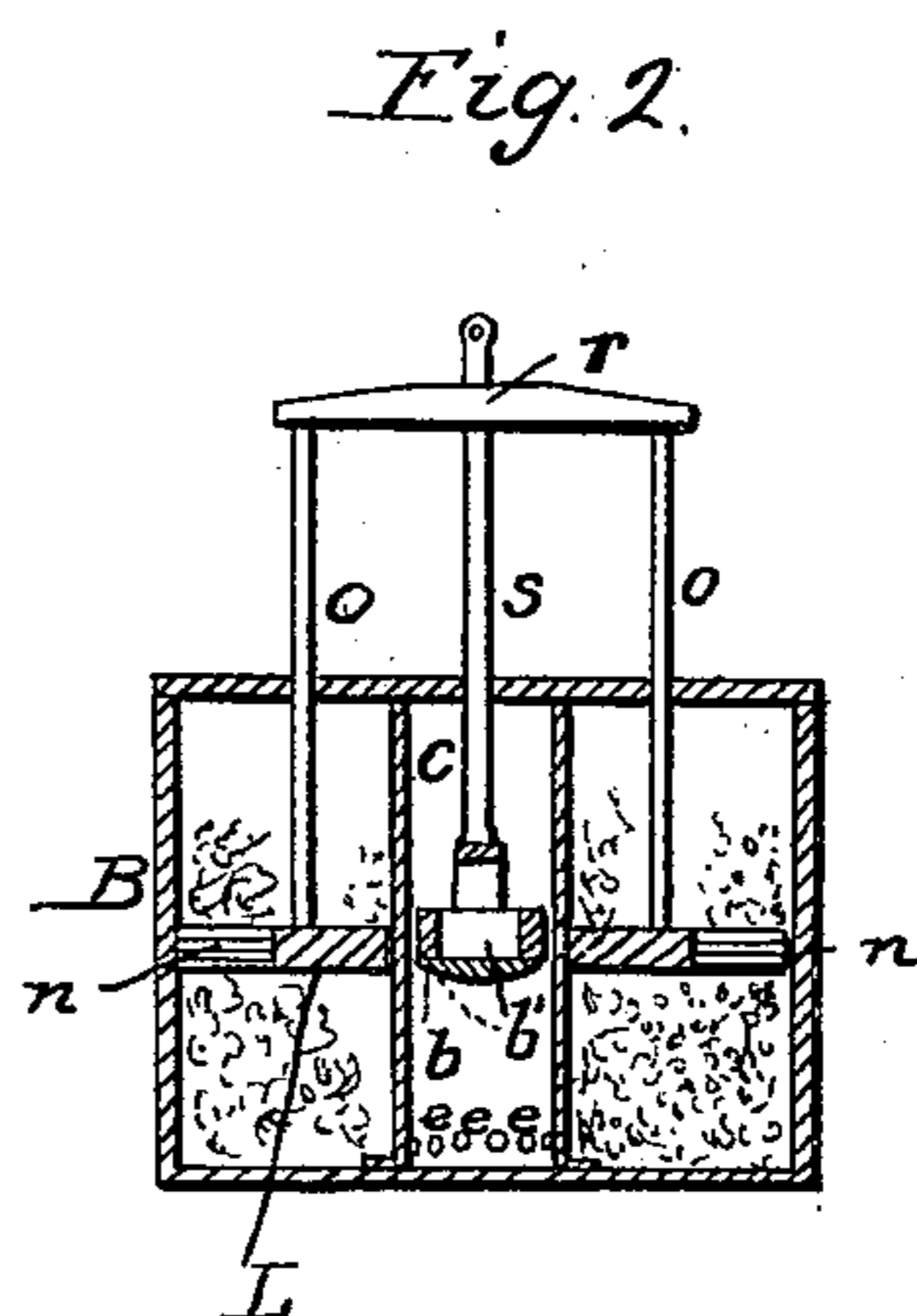
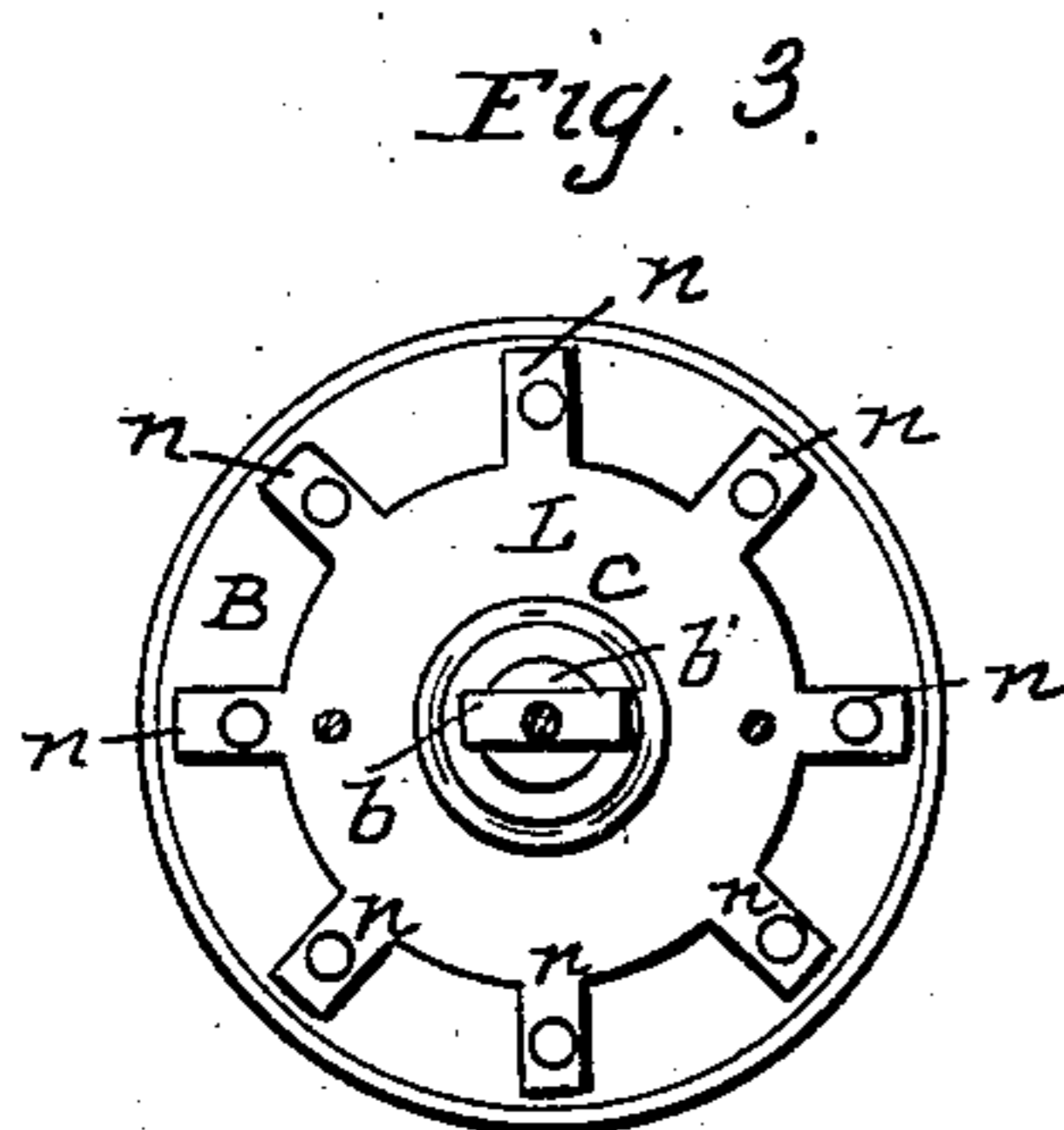
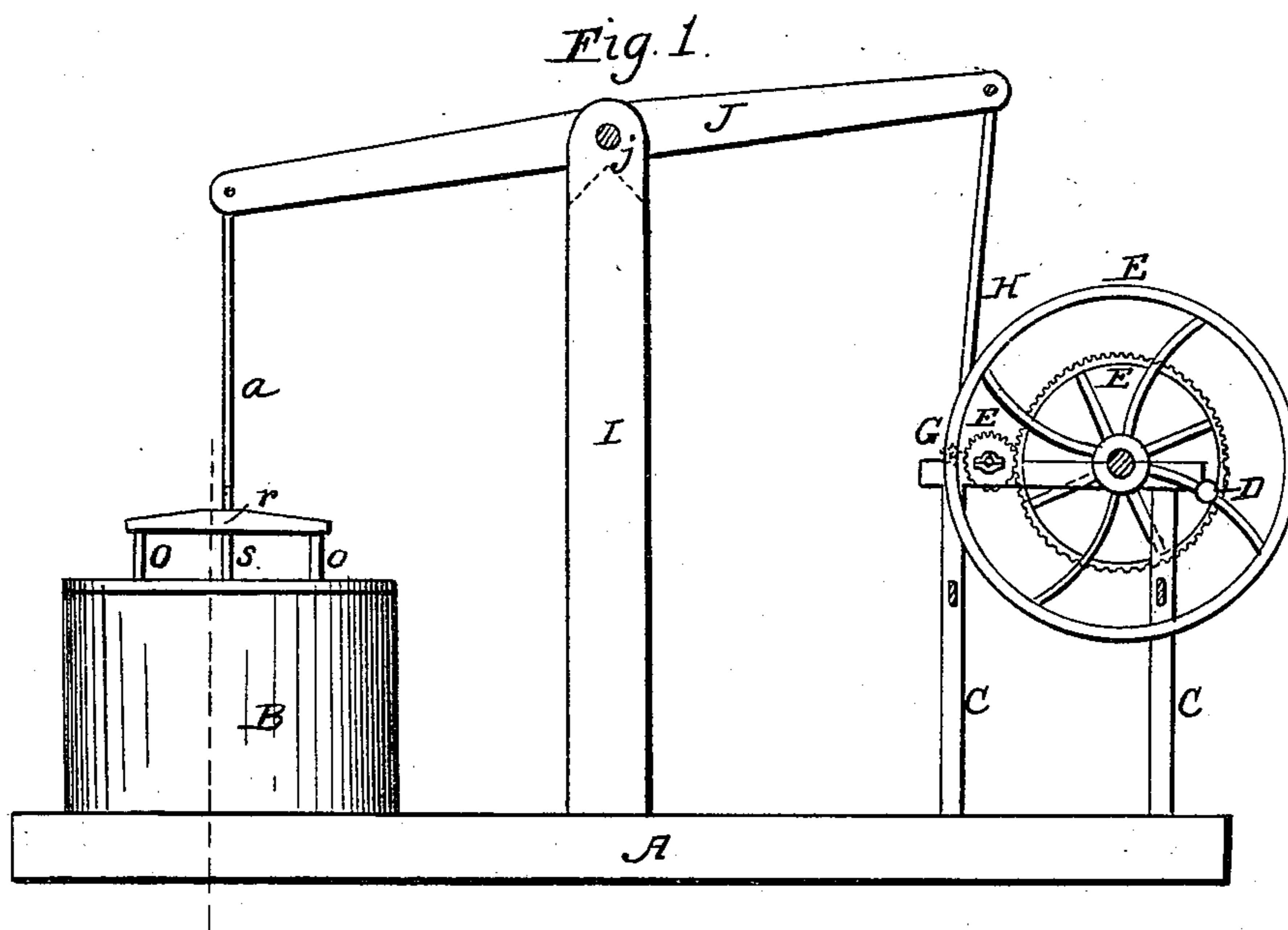


S. BALLARD.

Churn.

No. 5,567.

Patented May 16, 1848.



UNITED STATES PATENT OFFICE.

STEPHEN BALLARD, OF MEIGS CREEK, OHIO.

ATMOSPHERIC CHURN.

Specification of Letters Patent No. 5,567, dated May 16, 1848.

To all whom it may concern:

Be it known that I, STEPHEN BALLARD, of Meigs Creek, in the county of Morgan and State of Ohio, have invented a new and useful Improvement in Churns, of which the following is a full, clear, and exact description, reference being had to the annexed drawings of the same, making part of this specification, in which—

Figure 1 is a side elevation showing the several parts of the machine in connection, Fig. 2 is a vertical section through the churn taken in the line 1, 1, of Fig. 1; Fig. 3 is a top view of the churn the lid being removed to show its interior.

The same letters indicate the same parts in all the figures.

The nature of my invention and improvement consists, in combining an air pump with the reciprocating dasher of the common upright tub or barrel churn, for the purpose of churning cream by forcing a current of air through it at the same time that it is agitated by the dasher, the machine being actuated by manual, dog, water, or other power.

In the accompanying drawings a platform (A) made of plank supports the churn and the machinery for actuating it. The churn (B) is secured to one end of the platform in any suitable manner and on the opposite end of a post or frame (C C) is erected to support the winch (D), cog wheels (E E), balance wheel (F), crank (G), and pitman (H); between the frame (C) and the churn a standard (I) of suitable height is erected to support a working beam (J) which turns on a pin (j) passed through the forks of the upper end of the standard (I) between which forks said beam is placed, the working beam (J) is connected with the actuating power by means of the pitman (H), crank (G), balance wheel (F) and cog wheels (E E) and communicates motion by its opposite end to the pump piston and dasher through the piston rod (a) with which it is connected by a joint pin.

In a position concentric with the center of the churn the pump cylinder (c) is secured to the bottom by a button, screw, or other means which will admit of its ready removal when that becomes necessary. The lower end of the cylinder is closed by a tight bottom and around the outside of the

lower edge of the sides a series of valves (e e) are placed which open outward. Within the cylinder a bucket or piston (b) is fitted in the manner of a common pump, but with the valve (b') of the piston opening downward, in order that when the piston rises the air may pass down through it into the lower part of the cylinder to be forced out through the valves (e e e e) around the bottom of the cylinder into the surrounding cream when the piston is depressed.

The dasher (L) is annular in its form, having a number of radial arms (n n n) projecting from its outer edge, it is connected by means of two opposite rods (o o) with the crosshead (r) which is firmly secured upon the piston rod (s) so that when the piston is raised or lowered, a corresponding motion is communicated to the dasher, the diameter of the opening in the center of the dasher is such as to admit of its passing over the exterior of the pump cylinder and working freely thereon.

The operation of the machine is obvious. The operator turns the wrench or hand crank which puts the several wheels and the working beam in motion, communicating to the piston and dasher a vertical alternating movement, the down stroke forcing the air from the pump into the cream through which it ascends in bubbles, acting mechanically to produce agitation, and chemically by imparting its oxygen to acidify the cream, which, together with the thorough agitation produced by the dasher will separate the butter from the cream in an incredibly short space of time and with comparatively little labor for the purpose of more conveniently gathering the particles of butter into one lump the pump may be removed during the latter portion of the operation, and in this case the piston would form the central portion of the dasher.

The several parts of the churn may be constructed of such materials and arranged in such a manner as may be deemed most suitable or expedient. A more minute and specific description of the several parts might have been given, but, being devices simple in themselves and well understood by mechanics generally such a course was thought unnecessary.

Having fully described the construction

and operation of my improved churn, what I claim therein as new, and desire to secure by Letters Patent, is—

5 The combination of the reciprocating annular dasher and air pump with the tub or barrel to contain the cream the same being constructed, arranged and operated, as herein set forth.

In testimony whereof I have hereunto signed my name in presence of two subscribing witnesses.

STEPHEN BALLARD.

Witnesses:

JACKSON CLINTON MURDOCK,
MARTIN VAN BUREN MURDOCK.