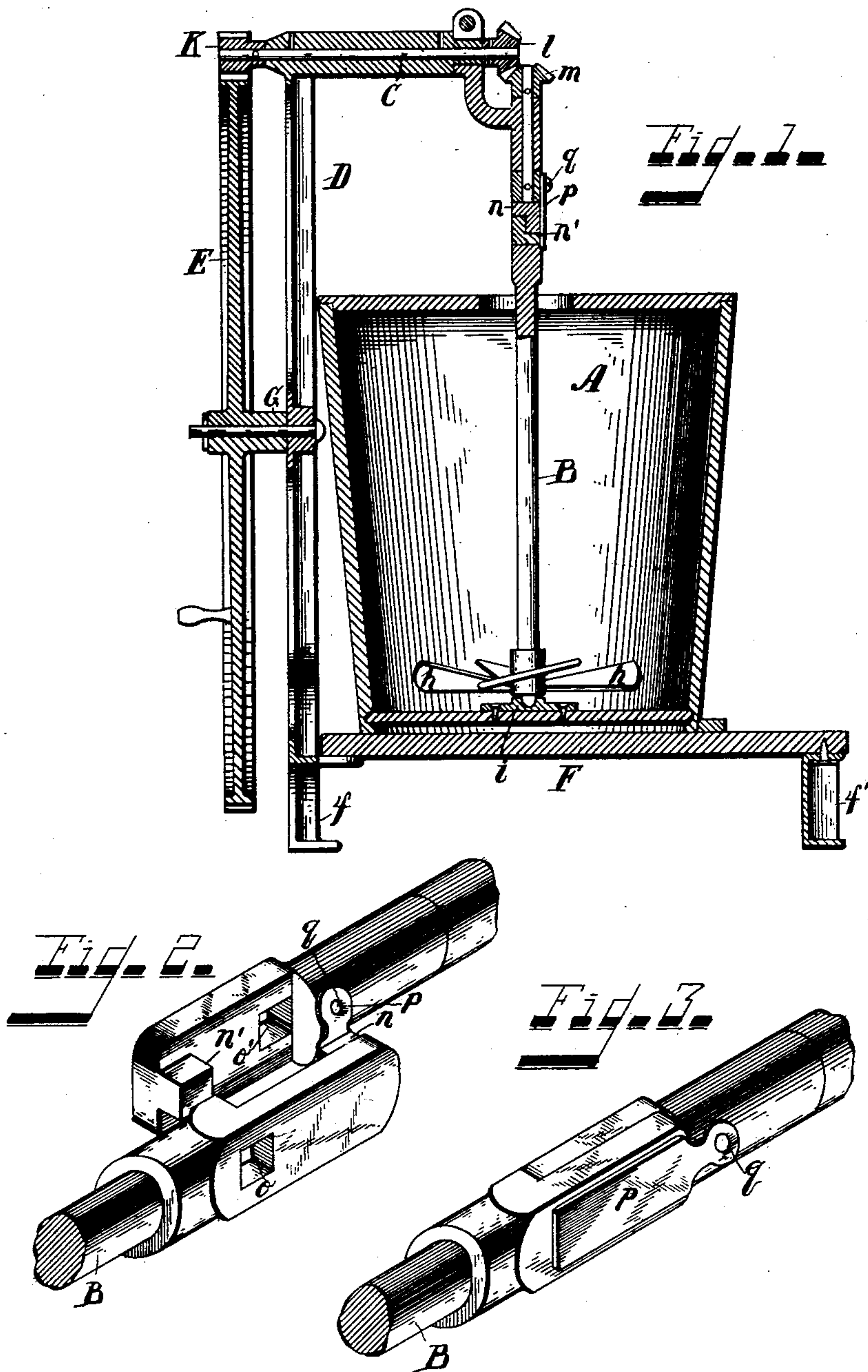


(No Model.)

F. W. ALDEN.
CHURN.

No. 593,317.

Patented Nov. 9, 1897.



Witnesses

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UNITED STATES PATENT OFFICE.

FRANK W. ALDEN, OF CINCINNATI, OHIO, ASSIGNOR TO THE QUEEN BUTTER MAKER COMPANY, OF SAME PLACE.

CHURN.

SPECIFICATION forming part of Letters Patent No. 593,317, dated November 9, 1897.

Application filed September 17, 1896. Renewed October 13, 1897. Serial No. 655,079. (No model.)

To all whom it may concern:

Be it known that I, FRANK W. ALDEN, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Churns, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

The objects of my invention are to provide an improved device for the violent agitation of the particles of cream and milk whereby the butter-globules thereof are speedily broken up, thereby permitting the particles of butter to cohere. I attain these objects by the mechanism illustrated in the accompanying drawings, of which—

Figure 1 is a transverse vertical section of my device. Fig. 2 is a detailed view of the means of locking the two pieces of the vertical shaft together, showing the parts separated. Fig. 3 shows the two parts of said shaft locked together.

My invention consists of an agitator made up of a number of blades *h*, arranged spirally on the principle of a screw, suitably attached to and radiating from the lower portion of a central vertical shaft B, to which the power is applied. The lower end of the shaft is preferably projected below the blades and made somewhat pointed to rest in a depression in a step *i*, placed in the bottom of the vessel A, which contains the cream and milk.

The shaft B may be operated by any well-known means, but I prefer to operate it by hand by means of the large wheel E, provided with cogs intermeshing with the cogs of the cog-wheel K, operating the shaft C, which at the other end is provided with the beveled gear cog-wheel *l*, intermeshing with a like wheel *m*, attached to the upper end of the vertical shaft B. It will be readily seen that by revolving the large wheel E, which is made of large diameter as compared with the wheels K, *l*, and *m*, the shaft B, and therefore the blades *h*, will be given a very rapid rotary motion, which will violently agitate the cream and milk. The shaft B is made of two pieces, so that the lower end and the blades attached thereto may be conveniently

removed for cleaning or other purposes and replaced. I prefer to attach the two parts of said shaft by the locking device shown in Figs. 2 and 3. On one end of each of said pieces are tenons *n n'*, of such size and shape as to closely fit into the corresponding holes or mortises *o o'* in the other, so as to form a removably rigid attachment. The parts are held in this locked position by means of a key *p*, which I prefer to make of a metal strap hinged above to the shaft by means of a rivet or screw *q*.

The vessel A is supported on a base F, supported by legs *f f'*, from which base and support arises the vertical portion of the frame D for supporting the entire operating mechanism journaled thereon.

Having described my invention, what I desire to secure by Letters Patent is—

1. In a churn, the combination of the vessel, A, to contain the cream, the shaft, B, therein, consisting of separable parts which are joined together by means of tenons, *n, n'* on one end of each of said parts of such size and shape as to closely fit into the corresponding holes or mortises, *o, o'*, in the other, a key *p*, to hold said parts in that locked position, and the blades, *h* rigidly attached to the lower portion of said shaft and means for giving said shaft rotary motion, substantially as shown and described.

2. In a churn, the combination of the vessel A, the shaft B therein, consisting of separable parts removably joined together by means of tenons, *n, n'* on one end of each of said parts of such size and shape as to closely fit into the corresponding holes or mortises, *o, o'* in the other, a key to hold said parts in that locked position, the blades, *h*, the gear-wheels, *m, l* and K, the shaft, C, the wheel E, the axle, G, the vertical portion of the frame, D, supporting the whole mechanism for operating the agitator, the base, F supporting the vessel, A, and the indented step, *i*, all substantially as shown and described.

FRANK W. ALDEN.

Witnesses:

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