H. BELL.

Centrifugal-Churn.

No. 221,717. Patented Nov. 18, 1879.

Fig. 1

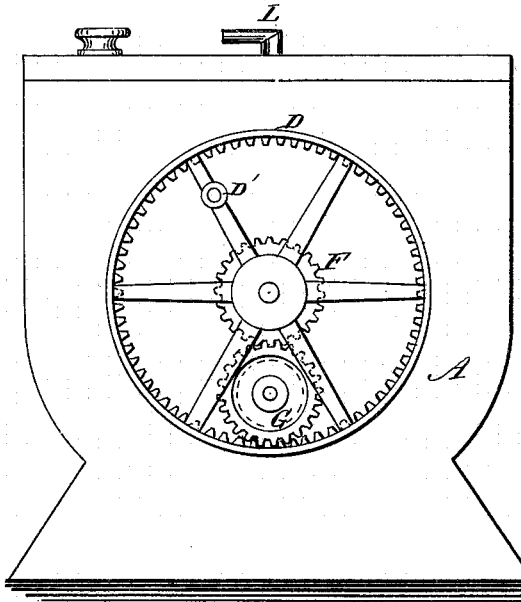


Fig. 2

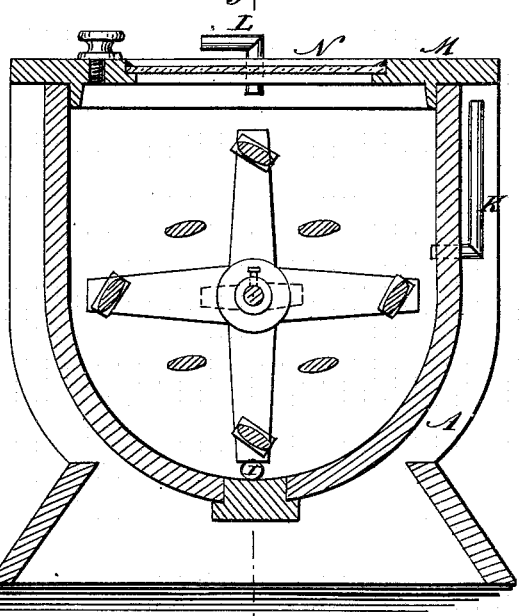


Fig. 3

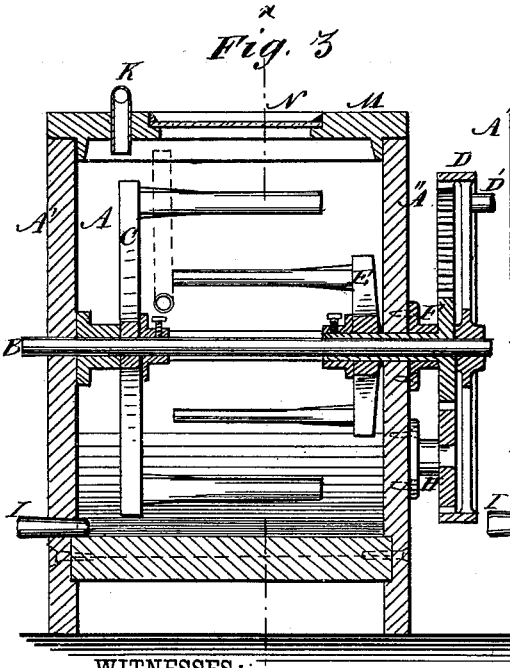
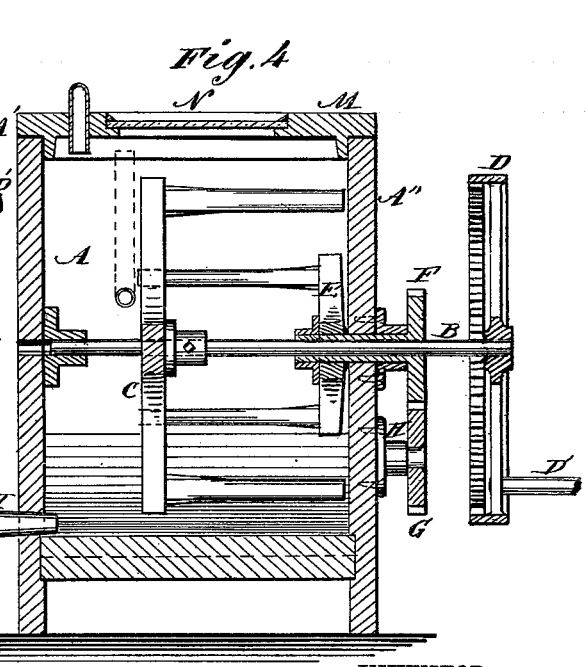


Fig. 4



WITNESSES:

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UNITED STATES PATENT OFFICE.

HENRY BELL, OF McGREGOR, IOWA.

IMPROVEMENT IN CENTRIFUGAL CHURNS.

Specification forming part of Letters Patent No. **221,717**, dated November 18, 1879; application filed February 25, 1879.

To all whom it may concern:

Be it known that I, HENRY BELL, of McGregor, in the county of Clayton and State of Iowa, have invented a new and Improved Centrifugal Churn, of which the following is a specification.

Figure 1 is a side elevation. Fig. 2 is a vertical section on line *x x*, Fig. 3. Fig. 3 is a vertical section on line *y y*, showing the paddles in gear. Fig. 4 is a vertical section on line *y y*, showing the paddles out of gear.

Similar letters of reference indicate corresponding parts.

The object of this invention is to provide a churn simpler in construction and of superior efficiency to any now in use—one that will more quickly and thoroughly gather the butter from the cream than will any other.

The churn consists of a curved-bottom box, A, through the sides A′ A″ of which the shaft B passes. Rigidly mounted on the shaft is the dasher C and the gear-wheel D, turned by means of its handle D′.

The dasher E is rigidly mounted on the sleeve portion of the cog-wheel F, which is loose on the shaft B and projects through the side A″.

The gear-wheel G is loose on the projecting stud H, and is in gear with the gear-wheel D and the cog-wheel F, so that when in operation and in gear the dashers C and E revolve in opposite directions.

I is a plug, to be removed to permit the outflow of the buttermilk. K is a stand-tube, by which the height of the cream in the churn may be determined, and L is a ventilating-tube.

During the process of churning air passes into the churn through one and out of the other of these tubes freely, supplying oxygen to facilitate the chemical reaction and hasten the production of the butter.

I am aware that other centrifugal churns have been designed which possess some features in common with mine, and my attention has been especially called to the device of W. H. Pennock, patented May 24, 1870; but on examination it will be found that his dashers or paddles only agitate the cream, while my dashers are so arranged that the cream is dashed by the outermost dasher, C, to the innermost one, E, and back again, so that the globules are more quickly broken than they can be by his or any other churn; also, his dashers revolve at the same speed, while my inner dasher revolves much faster—three times faster, or thereabout—than the outer one, thus insuring a quick beating of the globules and a certainty that every one will be broken, so that from a given quantity and quality of cream my churn will produce the larger amount of butter. Further, my churn has a larger number of paddles (each dasher is composed of four arms and four paddles) than has Pennock's, so that more work or quicker work can be done; and my churn successfully operates on as small a quantity as one quart of cream, while three gallons are necessary to start his with.

It will readily be seen, then, that in my churn the cream is driven back and forth by the dashers until all the sacks or globules are broken and all the butter made up that the cream contains. After the butter comes the dashers are thrown out of gear by pulling out the shaft B and its attachments C and D, as shown in Fig. 4. Instantly the dashers cease to revolve in opposite directions and run in the same direction, and by this means the butter is gathered together for removal. This is another novel feature not possessed by any other churn with which I am acquainted.

When the butter is gathered by this means the plug I is removed and the buttermilk permitted to flow off. The dashers are then put into gear again and a few revolutions given to them, by which means the milk left in the butter is effectually removed, so that not a particle remains. The result is a first-class article of butter. The butter is worked, gathered, and salted, all within the churn, without any handling.

The churn is provided with a removable cover, M, that has a transparent sheet of glass, N, secured in it.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The sliding shaft B, provided with the cog-wheel D and the dasher C, in combination with the dasher E and the churn-body, whereby provision is made for throwing the wheel D out of gear with the cog-wheel G and causing the arms of the dasher C to interlock with those of the dasher E, so as to cause both to revolve together, substantially as and for the purpose set forth.

HENRY BELL.

Witnesses:
ROBERT QUIGLEY,
E. DOUGLASS.