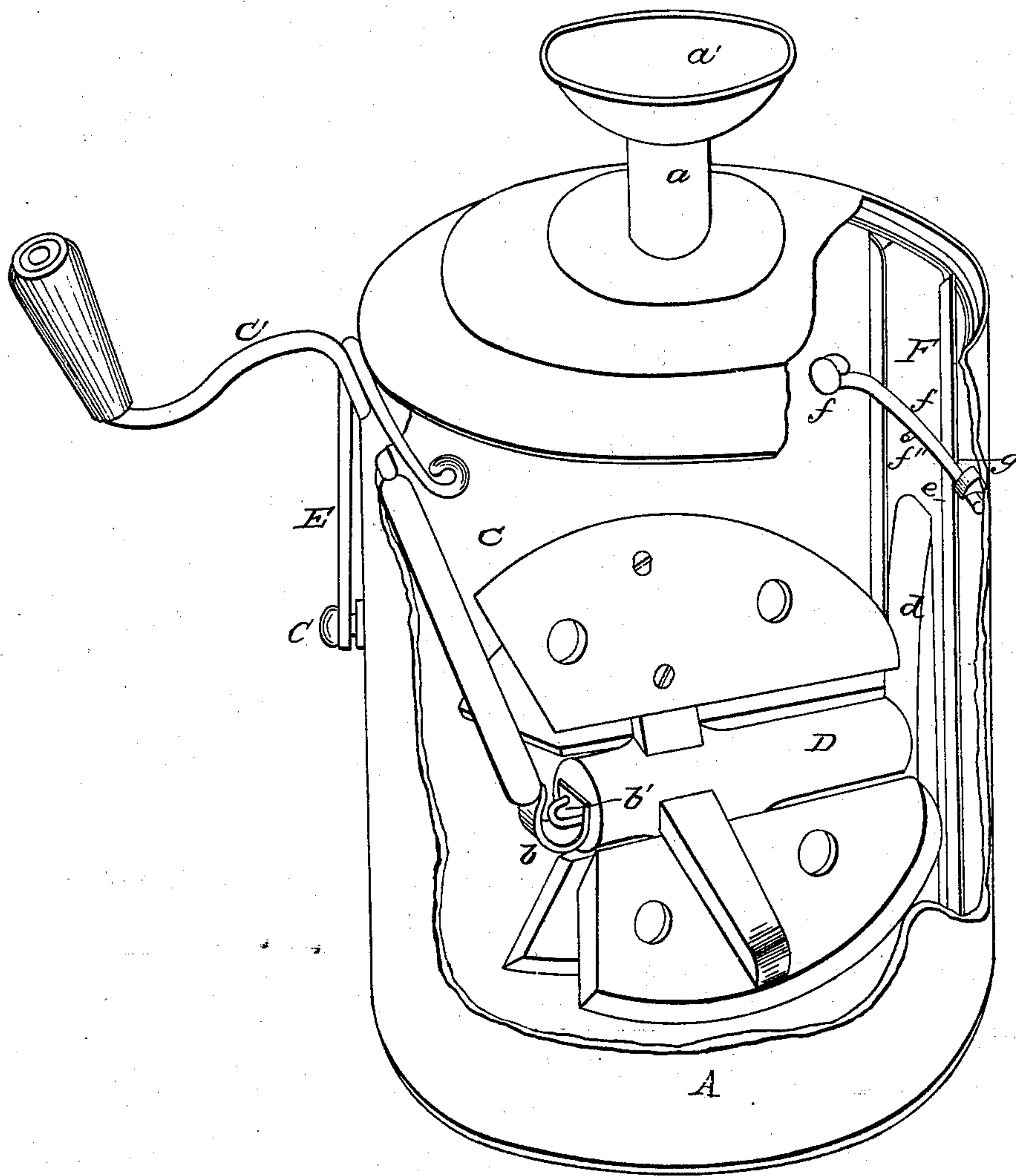


J. BOYERS.

Churn.

No. 55,996.

Patented July 3, 1866.



Witnesses
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UNITED STATES PATENT OFFICE.

JACOB BOYERS, OF ORRVILLE, OHIO.

IMPROVEMENT IN CHURNS.

Specification forming part of Letters Patent No. 55,996, dated July 3, 1866.

To all whom it may concern:

Be it known that I, JACOB BOYERS, of Orrville, Wayne county, State of Ohio, have invented a new and useful Improvement in Churns; and I do hereby declare the following description and accompanying drawing are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvements without further invention or experiment.

The nature of my invention and improvements consists in the peculiar operation of the dasher by means of motion being communicated therewith in an oblique or nearly rectilinear manner through an oblique arrangement of a shaft connecting in a peculiar manner with the horizontal arrangement of the dasher-shaft by means of a curved plate and staples or hooks, the two shafts thus connected, when operating, producing an oblique rotary motion, which, as will be seen hereinafter, is simple and novel in its form of construction and operation. The vessel or churn A, in which the two shafts thus arranged operates, is represented by a perspective view in the figure of the drawing, the greater or front portion of it being broken out to give an interior view of the operations of the same.

The churn is constructed of tin or other metal or material of a circular form and of a suitable size, having the lid or cover B thereon constructed with an air-tube, *a*, for the admission of atmospheric air therein, on the top of which tube there is a dish, *a'*, to receive and catch the drops of the fluid that may be spattered up through the tube during the process of making the butter, the sloping sides of the dish returning it to the mouth of the tube and thence into the churn again.

C is the shaft. It is arranged in an oblique or angular manner from the top edge of the side of the vessel, and is let into a small groove or slot made from the top sufficiently to give it a proper axial bearing therein. The greater portion of this shaft is made of wood, having a rod properly inserted therein or through at one end, which rod terminates into a crank form, with a handle, *C'*, attached thereto to operate the same. The shaft may be made entirely of metal, if deemed desirable. The

connection between this and the dasher-shaft D, which is arranged horizontally, as herein mentioned, is made by means of a curved plate, *b*, in one end of which two holes are made, and a staple, *b'*, passed through them and driven into the ends of the dasher-shaft. In the other end of this plate two more holes are likewise made and a staple passed through them and driven into the end of the oblique shaft, as in the other.

E is a flexible and spring rod, one end of which is attached a little below the axis of the rod of the oblique shaft by a pivot, *c*. The other end or part is bent at right angles to the other, so that when placed over the oblique shaft-rod, it, being in the apex or corner of the angle thereof, is prevented from slipping out of its axis.

The dasher-shaft has its axial bearing on a rod, which is attached to a suitably-curved or other formed bridge-plate, *d*, constructed on a movable slide-plate, F. The rod extends from the bridge-plate through the center of the shaft and nearly the entire length thereof, sufficiently to give it the proper support in its revolution thereon. The slide-plate is made to slide in strips *e e*, attached to the sides of the churn, and extend from the top to the bottom of the same.

To keep the slide in place to prevent its slipping up in any way by reason of the operation of the dasher in its connection therewith, a flexible rod, *f*, is attached to a pin, *f'*, near the top of the churn and a little beyond the side of the strip. It is placed transversely across the slide and over a pin, *f''*, attached thereto, which rod is held by a hook or catch piece, *g*, secured to the side of the churn opposite to the pin, and while in this position secures the object above stated.

Operation: The simple turning of the crank-handle imparts a horizontal rotary motion to the dasher from an oblique or nearly rectilinear one of the oblique shaft, as has been described, the lid having been removed and the cream or milk first poured into the churn, after which the lid is replaced again.

The advantages of this oblique horizontal arrangement of the two shafts over those churns of a circular form in which straight shafts are used diagonally arranged from one

point to the other are, in reference to their axial points or bearings and using the dasher-boards to a better advantage in the process of butter-making, in being able, as will be observed, to arrange them in a better and more simple and convenient manner than on a straight shaft operating entirely in an oblique or diagonal way, so as to have them work effectively in a circular form of churn.

The axial points or bearings of a straight shaft, operating in the manner above described, are such that the shaft will work out of them when in operation, and thus prove a source of annoyance in replacing it again, whereas by means of the flexible and spring rod, as arranged and applied, the entire arrangement of the two shafts operates with facility, unattended with any trouble as far as their axial points are concerned.

When it is desired to remove the butter from the churn or clean the same and its appurtenances therein, it is done by releasing the flexible rod from the rod of the oblique shaft and releasing the other one from the slide-plate, and by taking hold of the oblique shaft and the pin on the slide and pulling it up the whole is entirely removed.

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

1. The oblique shaft C, as arranged in its connection with the dasher-shaft D, by means of the curved plate *b* and staples *b'*, to give an oblique or nearly rectilinear rotary motion when operating, substantially in the manner and for the purpose herein set forth.

2. The retention of the rod of the oblique shaft C in its axis by the flexible rod E and pivot *c*, as arranged and applied substantially in the manner and for the purpose as herein set forth.

3. The movable slide-plate F, strips *ee*, and bridge-plate *d*, in its connection with the dasher-shaft B, as arranged substantially in the manner and for the purpose as herein set forth.

4. The flexible rod *f*, pin *f'*, and catch *g*, for retaining the slide-plate F when in operation, substantially in the manner as arranged and for the purpose as herein set forth.

5. The dish *a'* and air-tube *a*, as arranged, in combination with the lid B, substantially in the manner and for the purpose as herein set forth.

JACOB BOYERS.

Witnesses:

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