(No Model:)

2 Sheets—Sheet 1.

M. N. WARD.

CHURN.

No. 551,422. Patented Dec. 17, 1895.

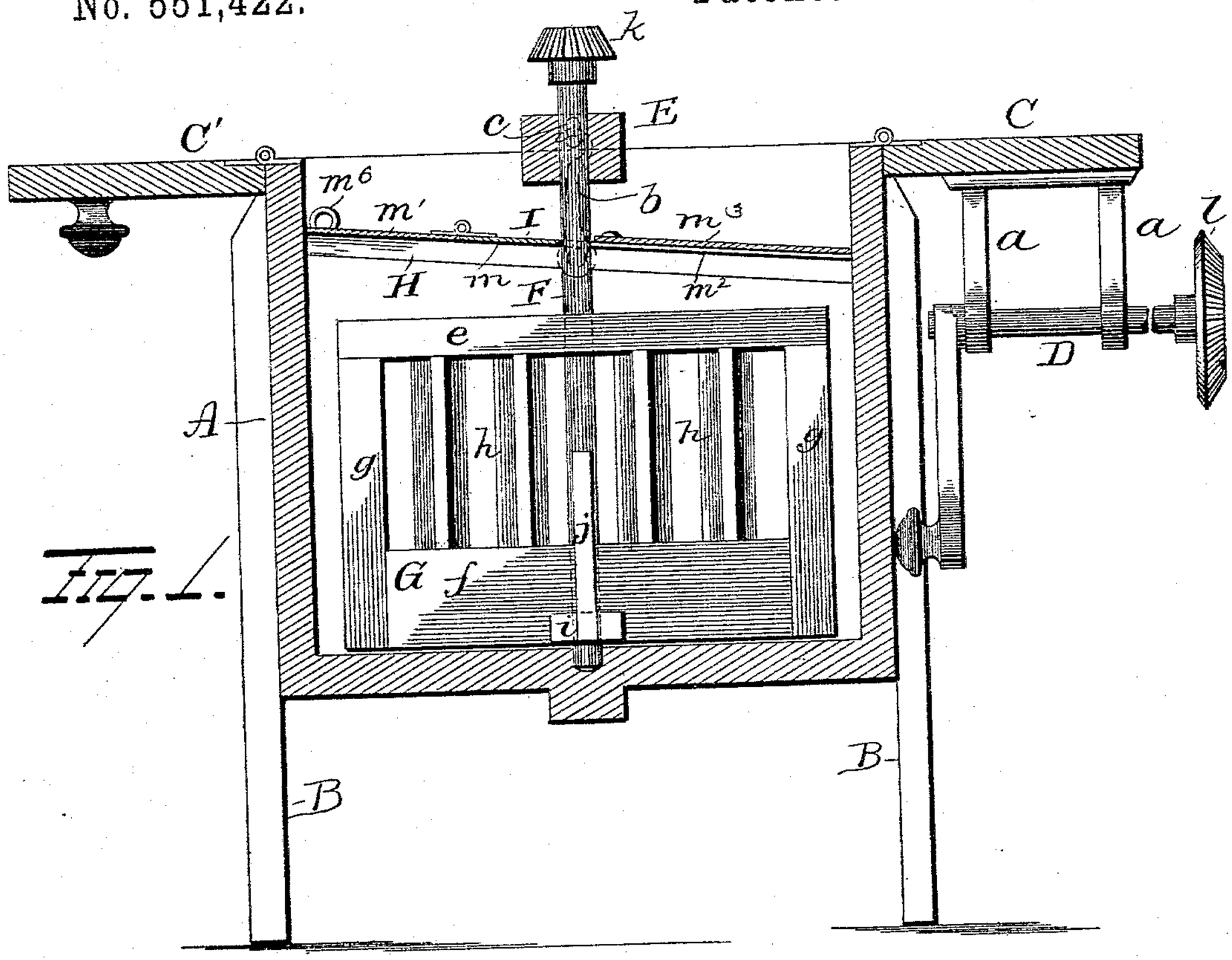

FIG. 1.

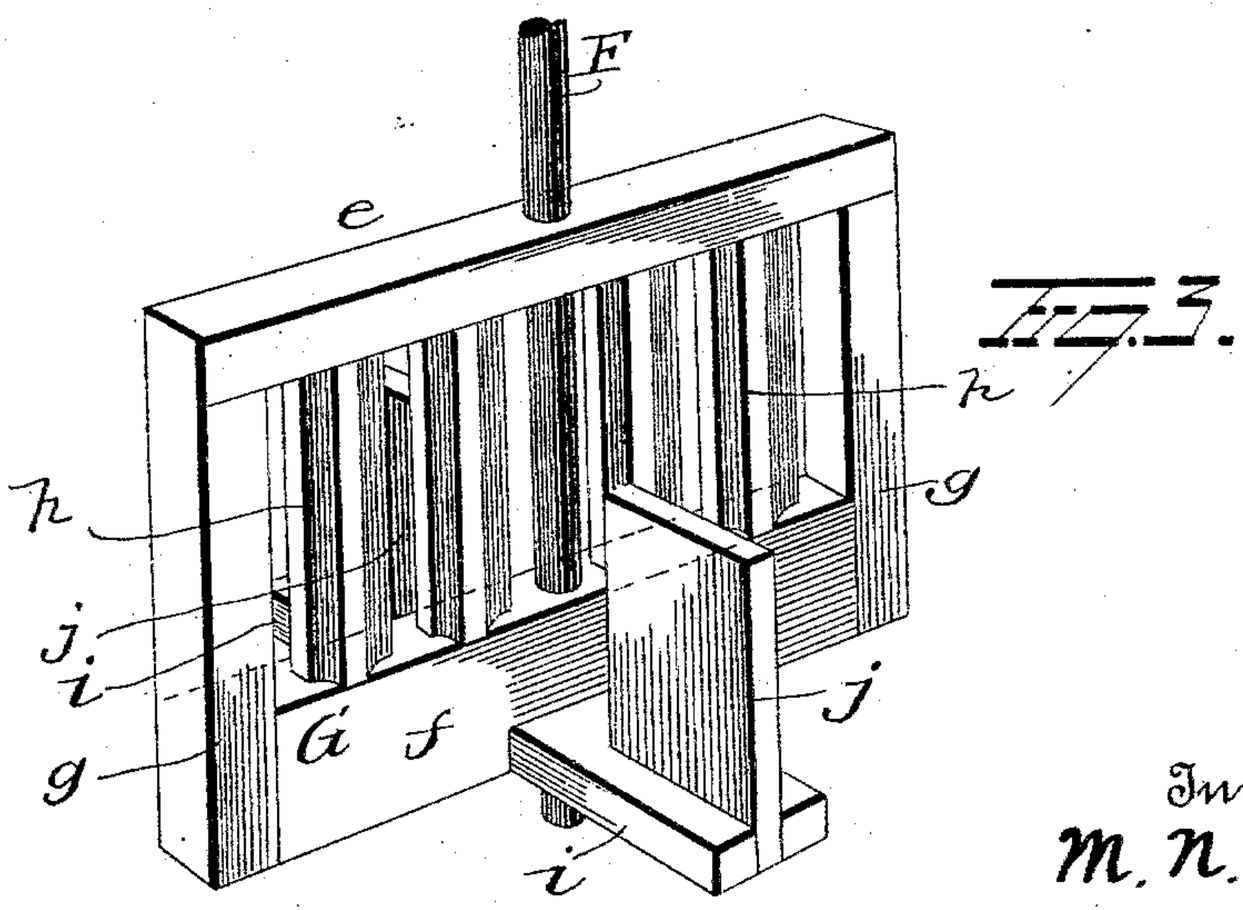

FIG. 3.

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(No Model.) 2 Sheets—Sheet 2.

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FIG. 2.

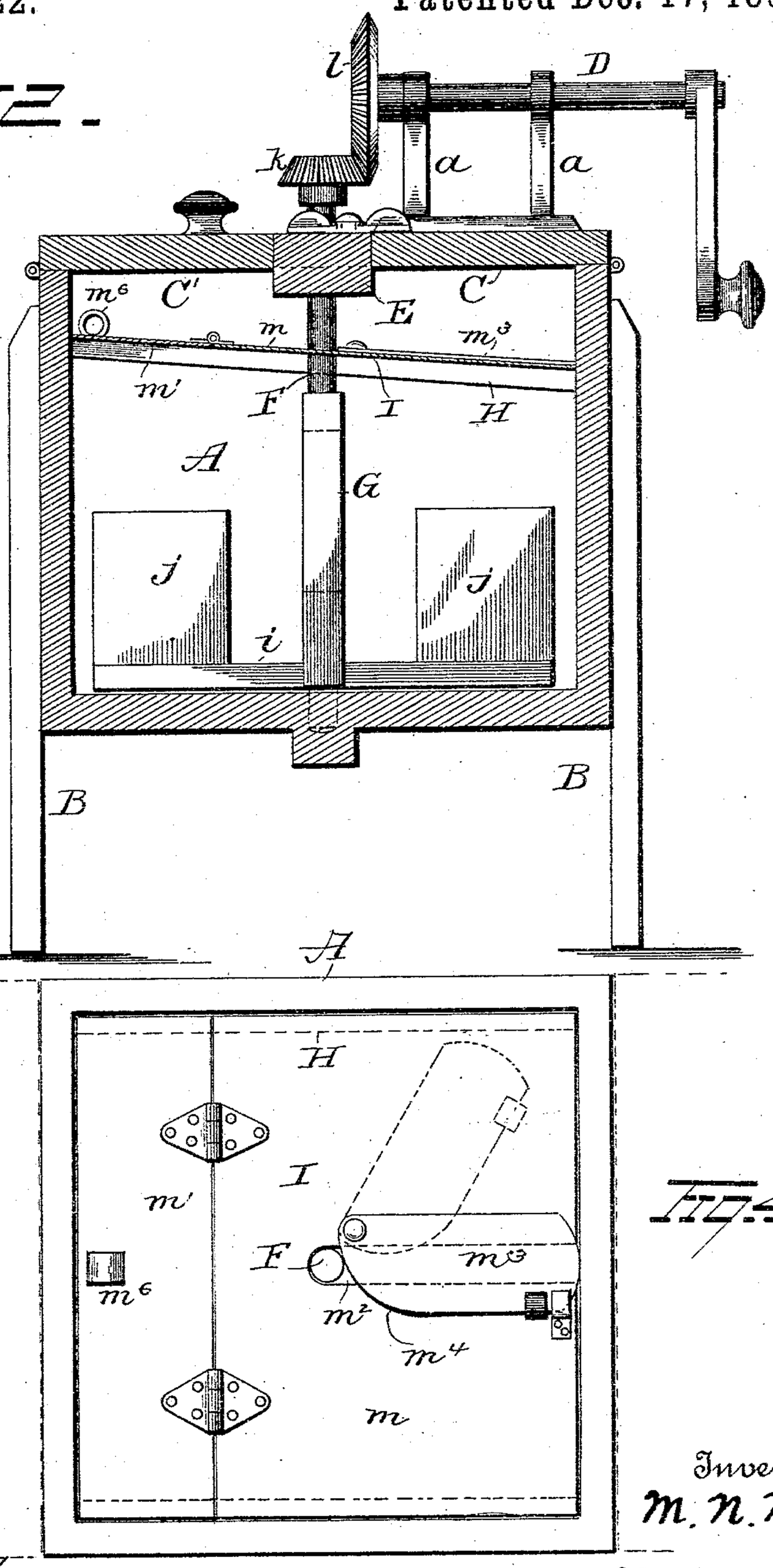

FIG. 4.

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UNITED STATES PATENT OFFICE.

MOSES N. WARD, OF AUBURN, INDIANA, ASSIGNOR TO CHARLES D. KNISELY AND EDWARD J. KUNDARD, OF SAME PLACE.

CHURN.

SPECIFICATION forming part of Letters Patent No. 551,422, dated December 17, 1895.

Application filed June 9, 1894. Serial No. 514,094. (No model.)

To all whom it may concern:

Be it known that I, MOSES N. WARD, of Auburn, in the county of De Kalb and State of Indiana, have invented certain new and useful Improvements in Churns; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in churns; and it consists in the parts and combinations of parts, as will be more fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in section of a churn embodying my invention, showing the lids in their open position. Fig. 2 is a view in transverse section showing the lids closed. Fig. 3 is a view of the dasher detached, and Fig. 4 is a view of the removable cover.

A represents the churn-body, angular in shape, and if desired may be mounted on legs B.

C C′ are the hinged lids, the former of which carries the upright bearings *a*, in which is journaled shaft D, the latter having a sliding as well as a rotary movement whereby the lid can be turned over to a horizontal position, as shown in Fig. 1, so as to form a table for the support of the butter-pan. The two lids C and C′ when closed leave an open space between them, which latter is filled by the removable strip E, held in place by the hooks *b* and eyes *c*. This strip forms a bearing for the upper end of the dasher-shaft F, the lower end of which is seated in a step or seat preferably secured within a recess in the bottom of the churn.

Secured to the dasher-shaft so as to rest well down in the churn is the dasher G, which latter consists essentially of a rectangular frame composed of upper and lower horizontal strips *e* and *f*, connected at their ends by the vertical strips *g* and provided with the intermediate blades *h*, which latter are diamond shape in cross-section. Secured to the lower strip *f* and projecting from opposite sides thereof at right angles thereto is the strip *i*, carrying at its extreme ends the flat paddles *j*. The end strips *g* and outer edges of paddles *j* are about equal distances from the dasher-shaft F and when in position in the churn-body nearly touch the sides of the latter at the centers.

The shaft is provided at its upper end with the bevel-pinion *k*, which meshes with the pinion *l* on shaft D. When the dasher is in position and the section C of lid turned to its closed position, the teeth of pinion *l* mesh with teeth of pinion *k*, and hence by rotating shaft D a rotary motion is imparted to the dasher.

H are strips secured to opposite sides of the inner face of the churn-body. These strips are inclined and form supports for the removable hinged cover I. This cover is preferably made of sheet metal in two parts *m* and *m′*, hinged together, the larger part *m* having an elongated open slot m^2 for the dasher-shaft. This slot is partly closed when the cover is in position by the pivoted plate m^3, which latter is provided with an inclined or curved edge m^4. When the cover is in place, this plate is turned to cover all that portion of the slot not occupied by the shaft F, and when it is desired to withdraw the cover for the purpose of removing the butter a pulling strain thereon forces the inclined or curved edge m^4 of the plate m^3 against the shaft F, which moves the plate to one side, thus uncovering the slot and leaving the cover I free to be withdrawn. The smaller section *m′* of the cover is provided with a knob or handle m^6, by which it can be raised to enable the contents of the churn to be inspected from time to time. By placing the cover at an inclination the cream thrown up onto the under side of same will gravitate to the lower edge and drip back into the churn.

By the above construction it will be seen that by throwing open the lids and removing the cover the center strip carrying the dasher can be removed, thus giving free access for removal of the butter.

With a churn-dasher constructed as above described combined with an angular churn-body it will be seen that as the dasher revolves the cream is cut or separated by the diamond-shaped strips causing cross-currents, and while thus agitated is thrown suddenly and with force by the paddles into a corner or angle of the churn. It then falls

back toward the center and is again met by the diamond-shaped strips and paddles and again thrown into a corner or angle and so on, thus keeping the cream in movement, which expands it and keeps it from fomenting. This violent agitation of the cream soon causes a separation of the oily globules from the other constituents of the milk, and as a result I have by comparative tests been able to produce from eight to nine ounces of butter to the gallon of cream used, more than can be recovered from the most modern dasher-churns now in use for family purposes.

Again the device without change or alteration of any kind forms an excellent butter-worker. In churning, the butter forms in four separate balls, one ball between each face of the paddle and the adjacent face of the main body of the dasher. After the butter has come it is simply necessary to draw off the buttermilk and pour in cold water, and then by turning the dasher back and forth the butter is forced between the wall of the churn and the outer ends of the dasher, thus removing the buttermilk.

It is evident that numerous slight changes and alterations might be made in the relative arrangement of parts herein shown and described without departing from the spirit and scope of my invention. Hence I would have it understood that I do not wish to restrict myself to the exact construction herein shown and described; but,

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

1. In a churn, the combination with a churn body, a cross-strip at the top thereof centrally located, and hinged tops or lids which constitute lateral supports for the strip when they are closed, one of the lids carrying operating mechanism, said operating mechanism having sliding connection with the lid by means of which arrangement it may serve as a brace for the lid when the latter is open, of a dasher consisting of a rotary shaft, a skeleton frame secured thereto, a cross strip and wings projecting therefrom, substantially as set forth.

2. The combination with an angular body, and a dasher constructed as described, of the removable inclined cover, the hinged lids, the strip forming a bearing for the dasher shaft, and dasher operating mechanism carried by one of the hinged lids, said operating mechanism having sliding connection with the lid by means of which arrangement it may serve as a brace for the lid when the latter is open, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

MOSES N. WARD.

Witnesses:
EZRA D. HARTMAN,
PRICE D. WEST.