

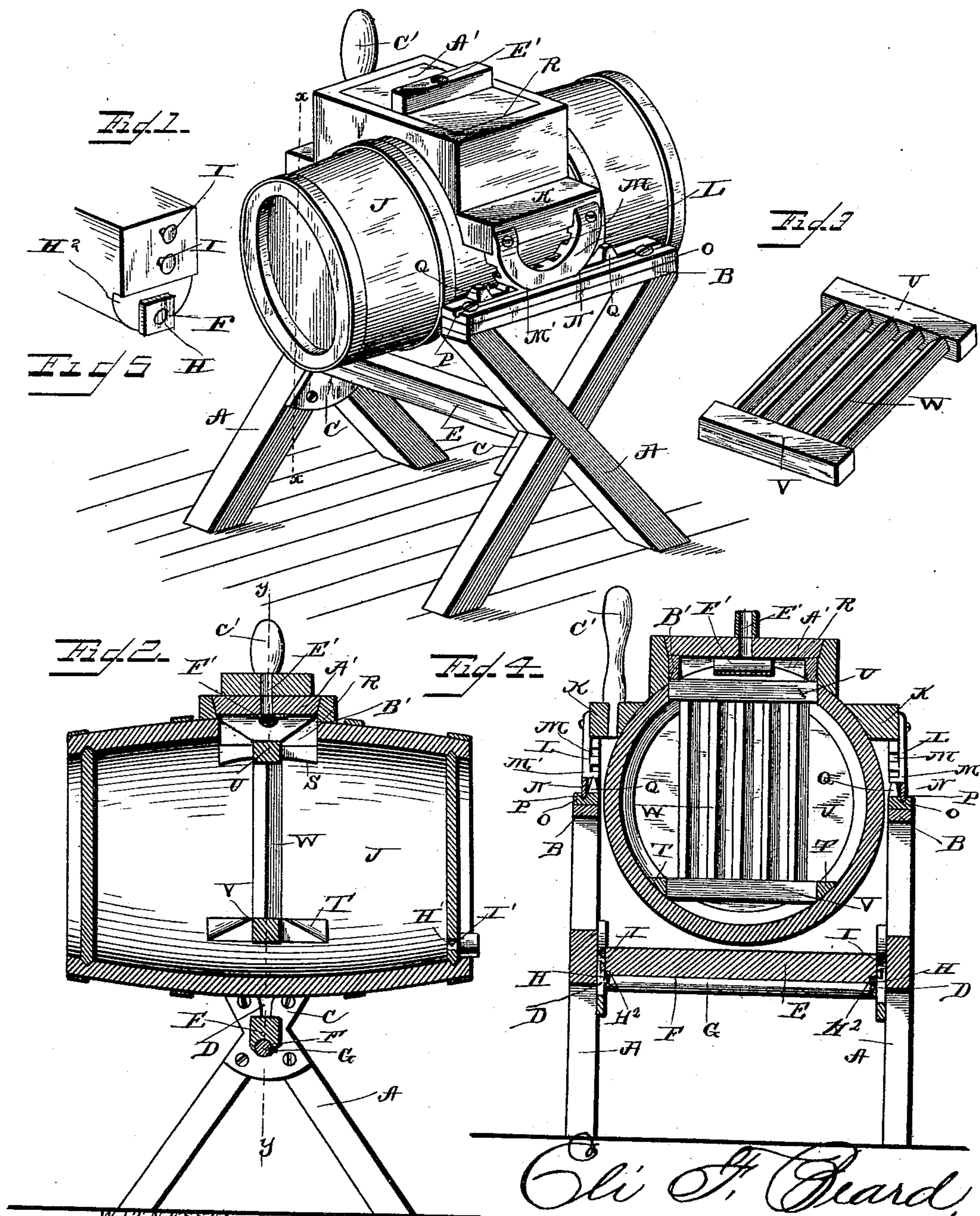
(No Model.)

E. F. BEARD.

CHURN.

No. 379,848.

Patented Mar. 20, 1888.



WITNESSES
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UNITED STATES PATENT OFFICE.

ELI F. BEARD, OF REPUBLIC, OHIO.

CHURN.

SPECIFICATION forming part of Letters Patent No. 379,848, dated March 20, 1888.

Application filed September 17, 1887. Serial No. 249,936. (No model.)

To all whom it may concern:

Be it known that I, ELI F. BEARD, a citizen of the United States, and a resident of Republic, in the county of Seneca and State of Ohio, have invented certain new and useful Improvements in Churns; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view of my new and improved churn. Fig. 2 is a longitudinal vertical sectional view of the same, taken on line *x x* of Fig. 1. Fig. 3 is a detail view of the dasher-frame. Fig. 4 is a vertical transverse sectional view taken on the plane indicated by line *y y* of Fig. 2; and Fig. 5 is a detail perspective view of the central connecting-bar, hereinafter described.

The same letters of reference indicate corresponding parts in all the figures.

My invention consists in the new and improved construction, arrangement, and combination of parts of a churn in which the fulcrum of the vessel or barrel in which the milk is contained is continually changing as the weight of the milk passes from one end to the other of the churn-barrel in which it is contained, so as to utilize the weight of the milk and cream itself in the operation of the churn, thereby saving three-fourths of the labor heretofore required in churning.

My invention will be hereinafter fully described and claimed.

Referring to the several parts by letter, I will first describe the stand or support on which I mount the churn proper for operation. This stand or supporting-frame consists of the two X-shaped end pieces A, the upper ends of the cross-pieces of each end piece being connected by the horizontal top cross-piece B, on which is secured the grooved and toothed track, which will be hereinafter described. Upon the inner side of each end piece A, at the central point where the two legs thereof cross each other, is secured a cast locking-plate, C, which is formed with the central vertical slot, D, extending from the top of the plate down beyond its center, and the inner edges of this slot, next to the end piece, are beveled to fit

and receive the heads of the stops or screws I on the ends of the center connecting-bar, E. These cast plates C are secured upon the inner sides of the end pieces by means of screws or other fastening devices.

E indicates the center connecting-bar, which is preferably formed of wood, with the longitudinal groove F formed in its bottom, as shown most clearly in the sectional view, Fig. 2 of the drawings, and in this longitudinal groove is fitted a metal rod, G, which, when the center bar, E, has been placed on it, is secured in position by screwing home the nuts H H on its threaded ends, the said nuts turning into recesses H² in the ends of the center bar, so as to leave them flush with the ends of the said bar. In each end of the said center bar are secured two headed stops or screws, I I, placed one above the other, as shown, and it will be seen that the said heads of the screws can be forced down in the vertical slots D of the locking-plates C, and the ends of the center bar will thus be secured firmly to the end pieces A, thus forming a strong and solid frame or support on which the churn proper is secured or placed in its operative position. The metal rod G serves to greatly strengthen and brace the center bar, E, as will be readily understood. It will be seen, also, that the frame or stand can be easily knocked down or taken apart for convenience in storage or shipment.

J indicates the churn barrel or vessel in which the milk is carried in churning. This vessel is constructed in the form of a barrel, as shown in the drawings, and is provided on its sides with the opposite projections, K K, to which are secured by their upper ends the curved rockers L L, on which the churn-barrel swings or rocks. These rockers are curved and cast in the form of a semicircle, and are screwed, bolted, or otherwise secured at their ends to the said side projections, K K, of the churn-barrel, so as to extend down on each side of the barrel. These curved rockers are formed each with the series of equidistant notches or spaces M, and also with the downwardly-projecting curved flange N, which is on the rocker outside of the notched rim or part M', having the same semicircular curvature as the main body of the rocker.

Upon the horizontal top pieces B of the X-

shaped end pieces A of the frame which supports the churn are secured, by bolts or otherwise, the track-bars O, each of the said track-bars being formed with the longitudinal groove P in its upper side or face, in which fits and works the downwardly-projecting flange on the outer side of the rocker of the churn-barrel, while on the inner side of the rail from this longitudinal groove are formed the series of equidistant projections or teeth Q, which are adapted to fit in the spaces or notches M in the inner part of the barrel-rockers when the barrel is placed on the stand or frame.

In the top of the barrel J is formed the opening R, through which the milk and cream are placed within the churn, and at the center of the barrel, at its top and bottom, are placed the bearings S T, which serve to hold the dasher-frame in its operative position. This dasher is formed of the parallel top and bottom cross-pieces U V, in which are secured the ends of the series of bars W, which are nearly square in cross-section, and which are secured within the end pieces U and V, with their sharp longitudinal edges to each side of the frame, as most clearly shown in Fig. 3 of the drawings. This dasher-frame is placed in position in the churn by inserting it through the top opening, R, between the bearing-blocks S and T, which serve to effectually prevent any lateral motion after the dasher has been placed in the churn, while the top opening of the barrel is closed by the lid A', the downwardly-projecting end pieces B' of which bear with their lower ends upon the top of the dasher-frame, and thus effectually prevent the said frame from working up. The edges of the lid are slightly inclined to fit the slightly-inclined sides of the top opening of the barrel, which holds the lid tightly in position and prevents it from working out as the churn is operated.

One of the side projections, K, of the churn-barrel has the handle C' secured upon it, and the churn is operated, after the milk and cream have been placed within it and the lid closed, by applying a little force to this handle, and thus swinging the barrel back and forth. By this means the vessel is thrown on an inclined plane alternately from one end to the other, thus forcing the cream through the dasher-frame by its own weight and with very little exertion on the part of the operator, from the fact that the fulcrum at the bottom of the rockers changes from one end to the other in accordance with the change of weight

within the churn-barrel, the weight of the cream itself thus assisting greatly in swinging or operating the churn, as will be readily understood, thereby saving three-fourths the labor usually required in churning.

It will be seen that the semicircular flanges N of the rockers will turn readily and easily in the longitudinal grooves P of the track-bars O, while the teeth Q, fitting alternately in the notches or spaces M as the rockers turn, prevent the rockers from slipping on the track-bars as the churn is operated. Experience has shown that butter will be produced from milk or cream in a much shorter time by placing and constructing the dasher-frame as here shown and set forth.

The lid of the churn is formed with the vertical opening E', which extends up through the center of its handle, as shown in Fig. 2, this opening being for the escape of gas or air from the interior of the churn without its being necessary to stop the operation of churning and removing the lid of the churn. The lower end of this opening is shielded by the cap F', open at both ends, but which will prevent the milk or cream from splashing out of the churn, while permitting the gas or air to escape.

The barrel is provided at the bottom of one end head with the opening H', which is closed by a plug or stop, I', which is removed to draw off the butter-milk when the churning is completed.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

The combination of a supporting-frame formed of the X-shaped end pieces, the track-bars secured upon the same and formed with longitudinal grooves, and the series of projections which are adapted to be engaged by the rockers of a churn, which rockers are provided with a downwardly-projecting flange and a series of notches, the slotted plates, the center bar formed with the longitudinal groove and having the end screws, and the strengthening-rod having the end retaining-nuts, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

ELI F. BEARD.

Witnesses:

LLOYD A. COOK,
FRED LEE.