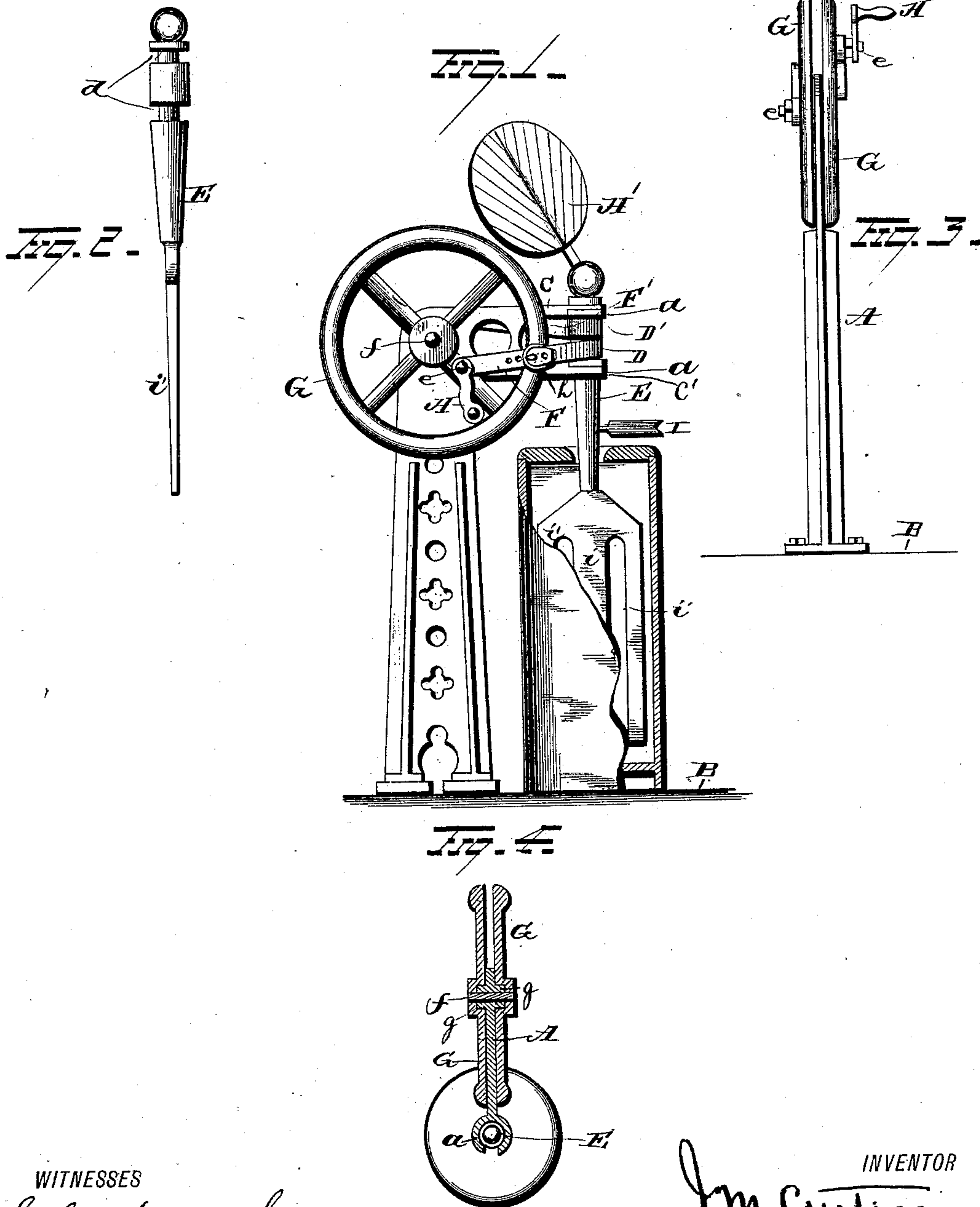


(No Model.)

J. M. & W. H. CURTICE.  
CHURN.

No. 296,932.

Patented Apr. 15, 1884.



WITNESSES

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# UNITED STATES PATENT OFFICE.

JESSE M. CURTICE AND WILLIAM H. CURTICE, OF LOUISVILLE, KY.

## CHURN.

SPECIFICATION forming part of Letters Patent No. 296,932, dated April 15, 1884.

Application filed June 7, 1883. (No model.)

*To all whom it may concern:*

Be it known that we, JESSE M. CURTICE and WILLIAM H. CURTICE, of Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Churns; and we 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.

Our invention relates to an improvement in churns, the object of the same being to provide a device that will combine simplicity and economy in construction with durability and efficiency in use; and with these ends in view our invention consists of 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 side elevation of our churn, partly in section. Fig. 2 is an edge view of the dasher. Fig. 3 is a view in end elevation of the standard and balance or fly wheel, and Fig. 4 is a horizontal sectional view taken through the axis of the balance-wheels.

A represents a standard or base made of any suitable material to insure cheapness and lightness in manufacture, rigidly secured to a suitable base, B.

The upper end of the standard is provided with two horizontal arms, C C', cast integral with the standard A, or made separate therefrom and secured thereto in a substantial manner. These arms are situated in the same vertical plane, and each is provided at its outer end with a half-bearing, *a*, in which the upper end of the dasher is journaled, and in which it is revolved by the belts D D'.

The dasher E, which has an oscillating motion transmitted to it through the belts D D', is provided near its upper end with the annular grooves *d*, which latter register with the half-bearings *a* and hold the dasher in proper position. That portion of the dasher between the annular grooves *d* forms the drum, to which one end of the straps F F' are secured, while the opposite ends of the said straps are carried rearwardly and are secured to the wrist-pins or cranks *e* of the wheels G. One of the said wrist-pins or cranks, on the handle side of the machine, is made sufficiently long

to enable the handle H to be secured thereto outside of the belt or straps, so as not to interfere therewith. It will be noticed that the position of these points of attachment of the belts to their respective balance-wheels must be in diametrical opposite directions from the wheels' centers to obtain the oscillating motion of the dasher referred to above. The balance-wheels G are preferably made thin, and are adapted to run close up against the sides of the standard A, which latter is also reduced in thickness, if necessary, to permit the wheels to rest in close proximity to each other. These wheels are rigidly secured to the small shaft *f*, which latter is journaled in the standard-bearing for the shaft *f*. The standard A is provided with the enlarged bearings *g*, on the opposite sides thereof, through the center of which the shaft *f* passes. These bearings enter corresponding recesses on the inner sides of the wheels, and besides forming a bearing for the shaft, also offer an additional support or bearing for the wheels. The object in having the balance-wheels run close together is that the points to which the belts are secured may not be farther apart than the diameter of the drum on the dasher, on which the straps or belts wrap themselves as the balance-wheels are rotated, thereby causing the dasher to move regularly and evenly, and also for preventing the straps from rubbing against the rims of the balance-wheels.

The balance-wheels G, as before stated, are situated on opposite sides of the standard A, and are adapted to revolve simultaneously, so as to oscillate the churn-dasher, around which the outer ends of the straps are partly wound. Either or both of these wheels are provided with a handle for operating the dasher, and the said handle or handles are attached to the wheel or wheels in the same plane that the straps are attached thereto, but to the outside of the said straps, so as not to interfere with the operation of the machine.

To enable the parts to be readily taken apart—that is to say, to enable the dasher to be readily removed from the standard for the purpose of cleaning the same—we have constructed each strap of two separate pieces and connected the pieces by means of the



buckles *h*. As the straps hold the dasher in its bearing, it is evident that by loosening the straps the dasher will be free to be withdrawn. Again, by making each strap of two separate parts and connecting them by buckles or otherwise, we are enabled to readily adjust the parts, to compensate for any stretching the straps are subjected to without any delay or trouble. These straps may be of leather, woven fabric, or thin sheet metal; or, in lieu of straps, we may use cords or wire.

The dasher *E* is provided at its upper end with a fan, *H'*, and a fly-brush, *I*, adapted, respectively, to cool the operator and keep the flies from the churn. This dasher, together with the drum, is preferably made from a single piece of wood, as it enables it to be more readily cleaned. The lower portion of the dasher, which moves within the churn, is made tapering from top to bottom, as shown in Fig. 2, so as to enable the dasher to be removed from the churn without withdrawing any butter with it, and consists of the central or main arm, *i*, and the two side arms, *i'*. The central arm is considerably wider than the two side arms, and as the dasher is rapidly oscillated this central arm forms an air-channel space vertically through the milk, which assists materially in the liberation of the cream from the globules of milk.

The operation of the device is as follows: Milk is poured into the churn-body, and the latter placed in position. The dasher is then secured to the horizontal arms of the standard and the straps buckled together. By rotating the two balance-wheels, which also act as driving-wheels, the dasher-shaft is rapidly oscillated, which has the effect of causing the

milk to be forced around the churn in one direction and then back again. The arms of the dasher are thus brought against the globules of milk with sufficient force to most effectually break them and liberate the cream therefrom.

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

1. The combination, with two horizontal arms having half-bearings at their outer ends, of a dasher-shaft having grooves adapted to register with the half-bearings, and an intermediate drum, wheels journaled to the standard, and two straps, the opposite ends of which are respectively connected to the wheels and to the drum of the dasher-shaft, substantially as described.

2. The combination, with the standard, horizontal arms having bearings at their outer ends, and two drive-wheels journaled to the standard, of a dasher-shaft and sectional straps connecting the dasher-shaft and drive-wheel, substantially as described.

3. The combination, with the standard *A*, having arms *C C'*, the bearings *g*, and shaft *f*, of the wheels *G*, dasher-shaft *E*, and straps connecting the wheels and dasher-shaft, substantially as described.

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

JESSE M. CURTICE.  
WM. H. CURTICE.

Witnesses:

SOLON CURTICE,  
J. R. SHAW.