

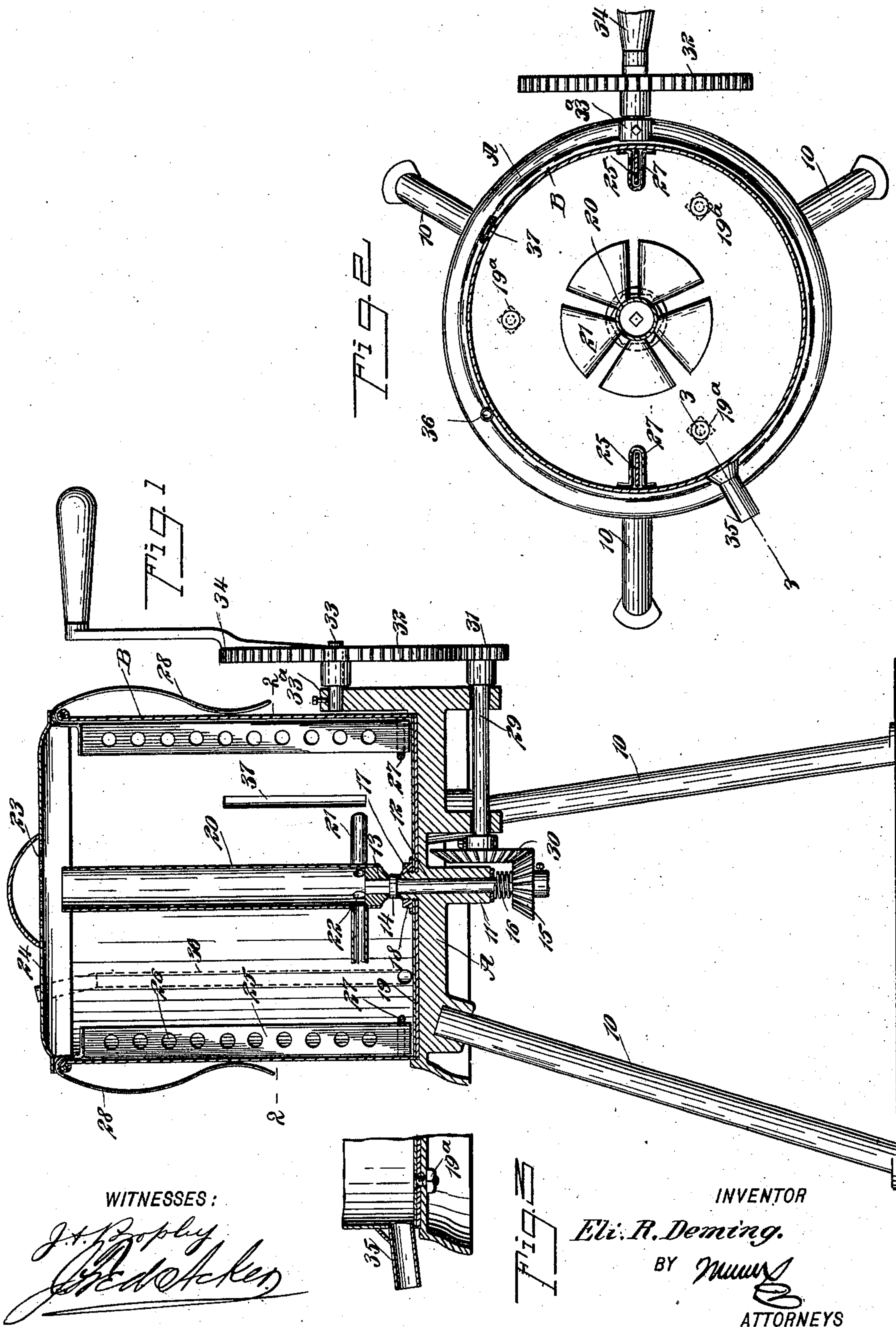
No. 687,132.

Patented Nov. 19, 1901.

E. R. DEMING.  
CHURN.

(Application filed Feb. 7, 1901.)

(No Model.)



WITNESSES:

*J. H. Dwyer*  
*W. H. Dwyer*

INVENTOR

*Eli R. Deming.*

BY *Munn & Co.*

ATTORNEYS



# UNITED STATES PATENT OFFICE.

ELI ROGERS DEMING, OF DETROIT, MICHIGAN.

## CHURN.

SPECIFICATION forming part of Letters Patent No. 687,132, dated November 19, 1901.

Application filed February 7, 1901. Serial No. 46,396. (No model.)

*To all whom it may concern:*

Be it known that I, ELI ROGERS DEMING, a citizen of the United States, and a resident of Detroit, in the county of Wayne and State of Michigan, have invented a new and Improved Churn, of which the following is a full, clear, and exact description.

The purpose of the invention is to provide a simple construction of churn, including means whereby air will be constantly supplied to cream and circulated through the same while being churned, the dash-stem and dash-blades serving as conducting mediums for the air.

A further purpose of the invention is to provide an economic and effective form of driving mechanism and to so construct the internal operative portions of the churn that they may be readily disconnected from the body of the churn and the driving mechanism, rendering it possible to clean each part of the churn which is brought in contact with the cream or liquid to be treated.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical section through the improved churn. Fig. 2 is a horizontal section taken substantially on the line 2 2 of Fig. 1, and Fig. 3 is a detail section taken practically on the line 3 3 of Fig. 2.

A base A is provided which is usually of cast metal, although any material may be employed, and the said base is also usually circular in form and is provided with sockets at intervals apart which receive legs 10. The base A is provided, also, with a central socket or sleeve 11, which extends beyond the under face of the base, and the base itself is provided with a bore which is in registry with the bore in the said sleeve. This sleeve and the bore in the base proper loosely receive a spindle 12, which spindle extends above the base and at its upper end 13 is rendered polygonal in cross-section, and a collar 14 is provided below the polygonal portion. A bevel-gear 15 is attached to the bottom por-

tion of the spindle 12 at a point below its bearing in the base and sleeve, and a spring 16 is coiled around the spindle between the gear 15 and the bearing for the spindle, as shown in Fig. 1, and this spring is adapted to normally hold the collar 14 on the spindle in engagement with an exteriorly-threaded collar 17, which is formed upon the upper face of the base A around the opening through which the spindle 12 passes.

The base A is adapted to receive the body B of the churn. The body B of the churn is shown circular in cross-section, although it may be given any desired shape and is preferably made from light sheet metal. This body B is provided with an opening in the central portion of its bottom, so that it may pass the threaded collar 17 of the base, as shown in Fig. 1, and in order that the body may rest firmly on the base and yet not vibrate to any appreciable extent a packing 19, of cardboard, paper, or the like, is placed on the base before the body of the churn is put in position, so that the body rests directly upon this packing 19, as is shown in Figs. 1 and 3. The body B is held in its position on the base by engaging with an upwardly-extending marginal flange formed upon the base and through the medium of a nut 18, which is screwed on the collar 17 and has bearing against the bottom of the body B, as is illustrated in Fig. 1.

The dash for the churn consists of a tubular stem 20 and a series of fan-like blades 21. The stem 20 is open at the top and is given a vertical position in the body, and the lower end of the stem is partially closed and provided with a polygonal opening which will snugly receive the polygonal upper portion 13 of the spindle 12, through the medium of which latter the dash is rotated. The blades 21 are fan-shaped and are hollow, being open at their peripheral portions, and the chamber thus formed in the blades is placed in communication with the chamber in the stem 20 of the dash through the medium of apertures 22, made in the latter and connecting with the former, as is also best shown in Fig. 1.

The body B is provided with a suitable cover 24, and this cover has apertures or openings 23 made therein, through which the air may pass and enter the stem of the dash, and thus be conducted to the cream while in a state of



agitation through the openings 22 in the dash-stem and through the chambers in the blades 21 of the said dash.

Brake bars or slats 25 are located opposite each other at the interior of the body B, engaging with the inner wall of said body, and these brake bars or slats are provided with series of apertures or openings 26, as is also shown in Fig. 1. The said brake-bars serve to break the current of cream to such an extent that the air supplied through the dash may commingle with said cream. The lower ends of the brake bars or slats are fitted in keepers 27, which are secured to the inner side face of the body B, near the bottom thereof, and spring-arms 28 are attached to the upper ends of the brake bars or slats, which arms pass over the upper edge of the body and down at the exterior thereof, engaging at one or more points with the outer face of the body. Thus it will be observed that the dash and the brake bars or slats are readily removable from the body and the base, and that the body itself may be quickly removed from the base and each of the parts mentioned thoroughly and quickly cleaned.

A drive-shaft 29 is journaled in suitable bearings formed on the base A, and this drive-shaft 29 carries a bevel-gear 30, which meshes with the bevel-gear 15. A plain gear 31 is secured to the outer end of the shaft 29, and this gear meshes with a large plain gear 32, mounted to turn upon a stud 33, which is secured to the base at a point above its upper surface through the medium of a suitable bracket 33<sup>a</sup> or its equivalent, as shown in Figs. 1 and 2. This larger gear 32 is provided with an attached handle 34, so that by turning the gear 32 a rapid and regular rotary motion may be imparted to the dash in the body of the churn. An offtake-pipe 35 is connected with the body at or near its bottom, and this offtake-pipe may be closed by a stopper or may be provided with a stop-cock or faucet, its object being to facilitate drawing off the liquid from the body B of the churn.

It may here be remarked that in addition to the nut 18 employed to hold the churn-body in place on its base various bolts and nuts 19<sup>a</sup> may be employed, as is shown in positive lines in Fig. 3 and in dotted lines in Fig. 2.

Usually a tube 36 is placed exteriorly upon the body B for the purpose of supplying liquid to the body when its cover is in place, and a gage-glass 37 is also provided for the body in order that the amount of liquid therein may be ascertained at a glance.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent—

1. A churn, comprising a support, a receptacle carried by the support and provided with an apertured cover, a rotary shaft mounted in the support and having an inner polygonal end extending into the receptacle, an operating mechanism for said shaft, a dash consisting of a hollow stem having an open upper end extending to within a short distance of the cover and provided with a polygonal opening in its lower end to receive the end of the rotary shaft, and radial and hollow fan-shaped blades at the lower end of the stem and communicating therewith, the blades being open at their peripheries, and oppositely-arranged apertured break-bars detachably held on the inner face of the receptacle, as set forth.

2. A churn, comprising a support, a receptacle carried by the support and provided with an apertured cover, a rotary shaft mounted in the support and having its inner end extending into the receptacle, mechanism for operating said shaft, a dash, consisting of a hollow stem secured to the said shaft and having an open upper end extending to within a short distance of the cover, and radial hollow blades secured to the lower end of the stem and communicating therewith, the blades being open at their peripheries, and oppositely-arranged apertured break-bars on the inner face of the receptacle, as set forth.

3. A churn-dash, comprising a hollow stem having an open upper end and provided with a polygonal socket or opening in its lower end to receive a driving-shaft, and radial hollow fan-shaped blades secured to the lower end of the stem and communicating therewith, the said blades being open at their peripheries as set forth.

4. In a churn, the combination with a support, and a receptacle carried by the support, of a rotary spindle mounted in the support and having an inner polygonal end extending into the receptacle, and a dash, consisting of a hollow stem having its upper end open and provided with a polygonal opening in its lower end to receive the end of the spindle, and radial hollow fan-shaped blades secured to the lower end of the stem and communicating therewith, as set forth.

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

ELI ROGERS DEMING.

Witnesses:

L. C. DEMING,  
BESSIE WATSON.