

No. 720,513.

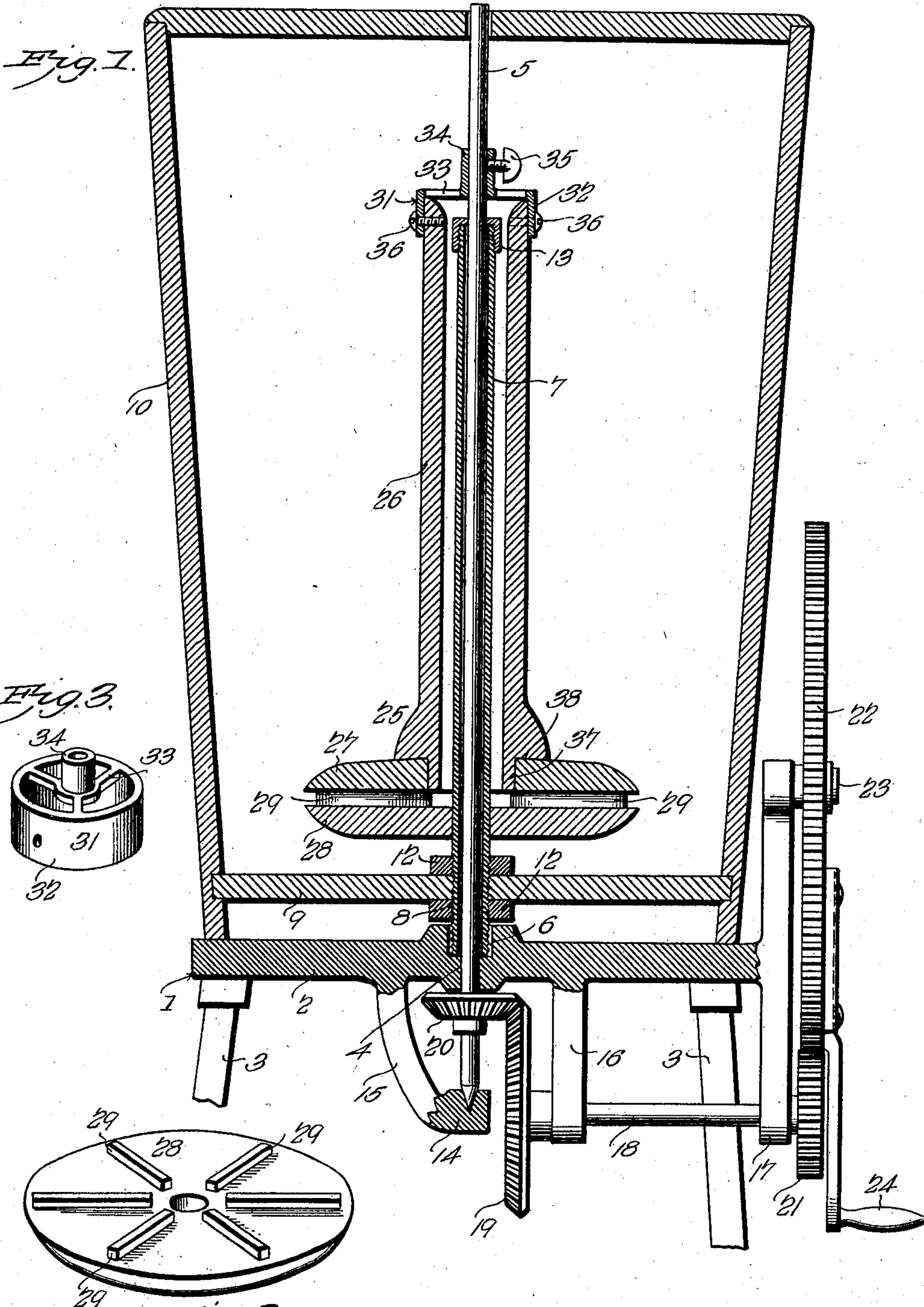
PATENTED FEB. 10, 1903.

T. J. CHENEY.

CHURN.

APPLICATION FILED DEC. 11, 1901.

NO MODEL.



Witnesses
E. J. Murat
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UNITED STATES PATENT OFFICE.

THOMAS JEFFERSON CHENEY, OF LORAIN, OHIO, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO AMERICAN BUTTER SEPARATOR COMPANY, A CORPORATION OF DELAWARE.

CHURN.

SPECIFICATION forming part of Letters Patent No. 720,513, dated February 10, 1903.

Application filed December 11, 1901. Serial No. 85,523. (No model.)

To all whom it may concern:

Be it known that I, THOMAS JEFFERSON CHENEY, a citizen of the United States, residing at Lorain, in the county of Lorain and State of Ohio, have invented a new and useful Churn, of which the following is a specification.

The invention relates to improvements in churns.

The object of the present invention is to improve the construction of churns and to enable the rotary agitator or dasher to be adjusted vertically to arrange it to suit the contents of the churn body or receptacle and to secure the greatest effect of the same.

A further object of the invention is to simplify the construction, lessen the cost, and increase the strength and durability of the same.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claim hereto appended.

In the drawings, Figure 1 is a vertical sectional view of a churn constructed in accordance with this invention. Fig. 2 is a detail perspective view of the lower section of the combined agitator and aerator. Fig. 3 is a detail perspective view of the cap for connecting the top of the combined agitator and aerator with the central shaft.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a stand or table forming a support for the churn mechanism and composed of a top 2, supported by suitable legs 3 and provided with a central bearing-opening 4 for the reception of a vertical shaft 5, and the top of the table is also provided at its upper face with an annular recess 6, formed by enlarging the upper portion of the bearing-opening and receiving the lower end of a tube 7, which surrounds the central vertical shaft 5. The tube 7, which is provided with a lower threaded portion 8, extends through and projects below the center of the bottom 9 of a churn body or receptacle 10 and fits into the recess 6. The threaded portion of the tube receives nuts 12, arranged at the upper and lower faces of the

bottom of the churn body or receptacle and firmly securing the tube to the same. The upper end of the tube is threaded to receive a cap 13, which is interiorly threaded and which is provided with an opening for the central vertical shaft. The sides of the churn-body depend below the bottom 9 and rest upon the top of the table or stand.

The lower end of the central vertical shaft is conical and is arranged in a bearing 14 of a bracket 15, formed integral with the top of the table and depending therefrom, as clearly illustrated in Fig. 1 of the drawings. The top of the table or stand is preferably constructed of metal, and it is also provided with an inner arm 16 and an outer bracket 17, consisting of upper and lower arms. The lower arm of the bracket 17 and the arm 16 are provided with suitable bearings for a horizontal shaft 18, and keyed or otherwise secured to the inner end of the latter is a vertical bevel gear-wheel 19, which meshes with a bevel-pinion 20, suitably fixed to the central vertical shaft and located at the lower face of the table. The top of the table at the bearing-opening is preferably provided with upper and lower annular bosses, as shown, and the lower boss is located above the pinion 20. The outer end of the shaft 18 is provided with a spur-pinion 21, which meshes with a vertical master-gear 22, mounted on a stub-shaft or pivot 23 of the upper arm of the bracket. The gear-wheel 22 is provided with a suitable crank-handle 24, which is preferably bolted or otherwise secured to it, as illustrated in Fig. 1 of the drawings. When the gear-wheel 22 is rotated, motion is communicated, through the gearing heretofore described, to the central vertical shaft, which is rapidly rotated.

Mounted upon the central vertical shaft is a combined agitator and aerator 25, adapted to be rotated with a minimum amount of friction and provided with a tubular stem or sleeve 26, surrounding the inner tube and spaced therefrom to provide a passage for air. The combined agitator and aerator is composed of upper and lower sections 27 and 28, consisting, preferably, of disks rounded at the peripheries to present exterior convex faces to enable the agitator and aerator to be rap-

idly rotated with a minimum amount of friction. The disks, which are provided with inner horizontal faces, are spaced apart by radial cleats or bars 29, spaced from the centers and peripheries of the disks and preferably secured to the upper face of the lower section or disk, as clearly illustrated in Fig. 2 of the drawings. The sections or disks are secured together by suitable fastening devices, and the spaces formed by the radial bars or cleats communicate with the annular space or passage surrounding the inner tube. The lower section or disk is provided with a central opening which fits snugly the inner tube, and the upper section or disk is provided with an opening of the same diameter as the bore or opening of the tubular stem. When the combined agitator and aerator is rotated, the contents of the churn-body lying within the spaces between the sections or disks are rapidly thrown outward by centrifugal force, whereby the contents of the churn body or receptacle are thoroughly and rapidly agitated, and a downdraft of air through the tubular stem is produced. The air rushes downwardly through the tubular stem to take the place of the liquid thrown outward by the disks or sections, and the contents of the churn body or receptacle are thereby simultaneously agitated and aerated, whereby butter is rapidly produced. The churn body or receptacle is provided with a cover having a central opening to receive the upper end of the central vertical shaft, which is preferably extended through the cover, as illustrated in Fig. 1 of the drawings.

In order to enable the combined aerator and agitator to be adjusted vertically to position it properly with relation to the contents of the churn body or receptacle, the tubular stem is provided with a cap 31, consisting of a sleeve 32 and a spider 33, having a sleeve or tubular portion 34, which is clamped to the shaft by a set-screw 35. The outer sleeve 32 is secured by screws 36 or other suitable fastening devices to the top of the tubular stem, and the inner sleeve or tubular portion is connected by the arms of the spider with the upper edge of the outer sleeve and is located above the same. The set-screw 35 is

adapted to engage the central shaft to secure the combined aerator and agitator at the desired elevation, and by these means the aerator and agitator is adapted to be properly arranged in the churn body or receptacle to suit the quantity of milk or cream contained within the same, so that the upper end of the tubular stem will be the desired distance above the surface of the liquid and the disks or sections the desired depth in the liquid. The tubular stem, which may be formed integral with the upper section or disk, is preferably constructed separate from the same, as illustrated in the accompanying drawings, and it is provided with a depending annular flange 37, fitting within the central opening of the upper section or disk. The lower end of the tubular stem is also enlarged to form a shoulder 38 to fit against the upper face of the upper section or disk and to receive the fastening devices for securing the upper section or disk to the stem.

What I claim is—

In a churn, the combination with a base provided on its upper side with a centrally-disposed seat, of a churn-body, a tube extending through the bottom of the body and having its lower end disposed within the seat, securing means carried by the tube above and below the bottom to hold the tube in rigid relation thereto, a dasher-shaft projecting below the base and having its upper end working in an opening in the body-cover, a cap carried by the tube to hold the shaft centered with relation thereto, a combined aerator and agitator surrounding the tube but spaced therefrom, a spider secured to the upper end of the aerator and agitator and provided with a sleeve through which the shaft projects, and clamping means carried by the sleeve to hold the aerator and agitator at the desired adjustment with relation to the bottom of the churn-body.

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

THOMAS JEFFERSON CHENEY.

Witnesses:

C. E. HOYLE,

FRANK S. APPLEMAN.