No. 844,327. PATENTED FEB. 19, 1907.

T. J. CHENEY.

CHURN.

APPLICATION FILED JUNE 19, 1906.

Fig. 1.

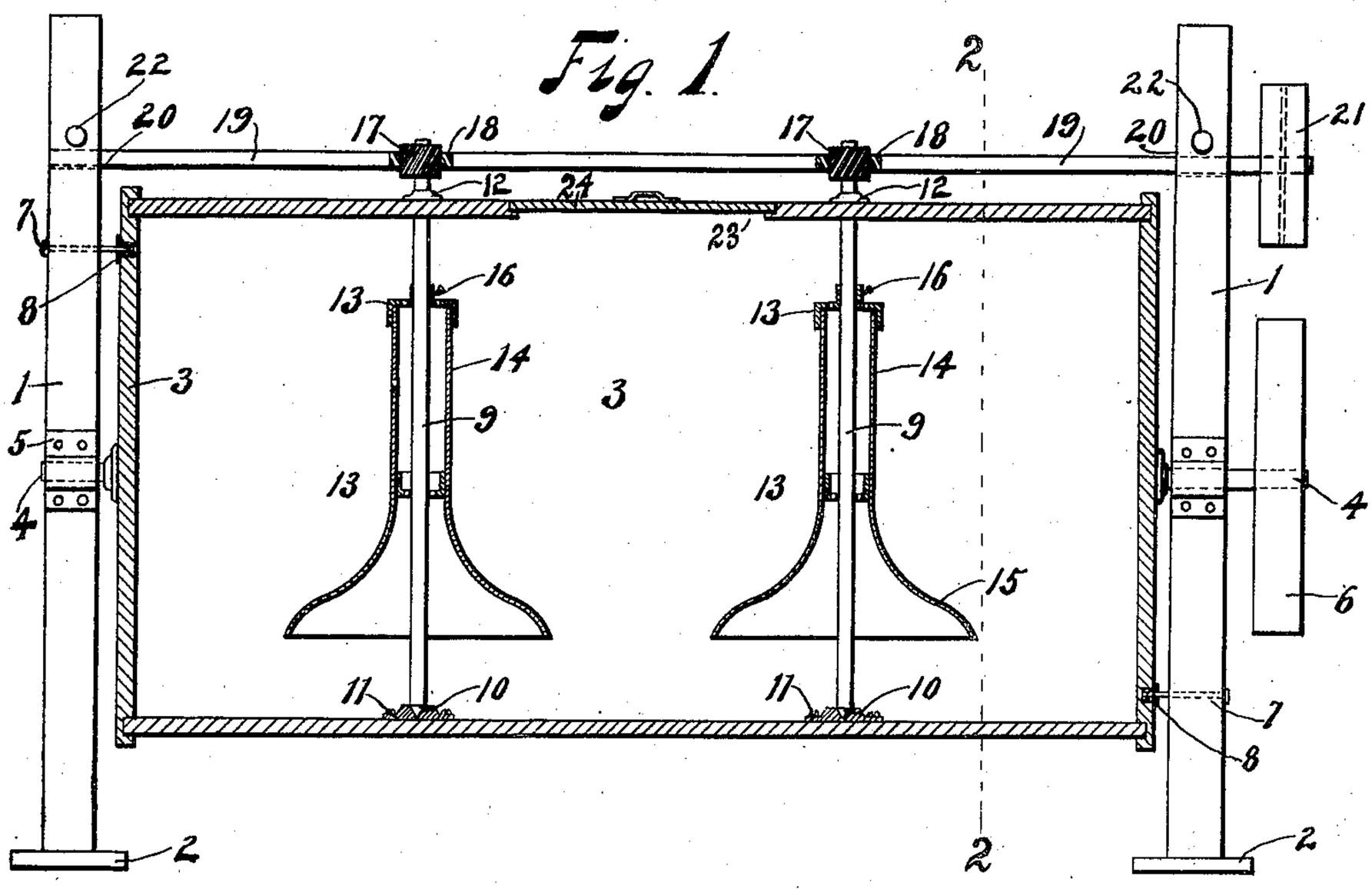


Fig. 3.

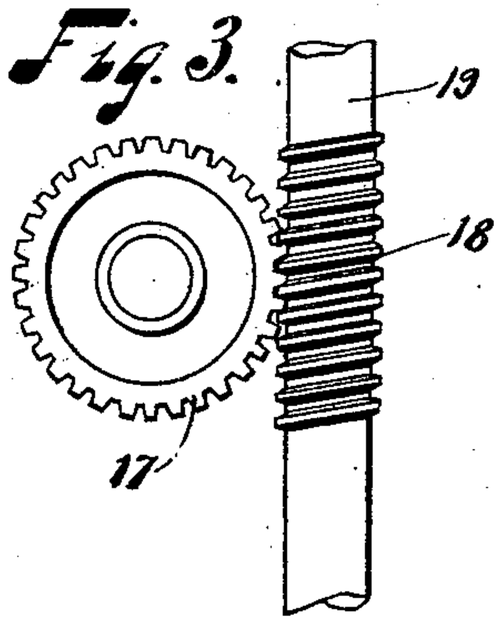
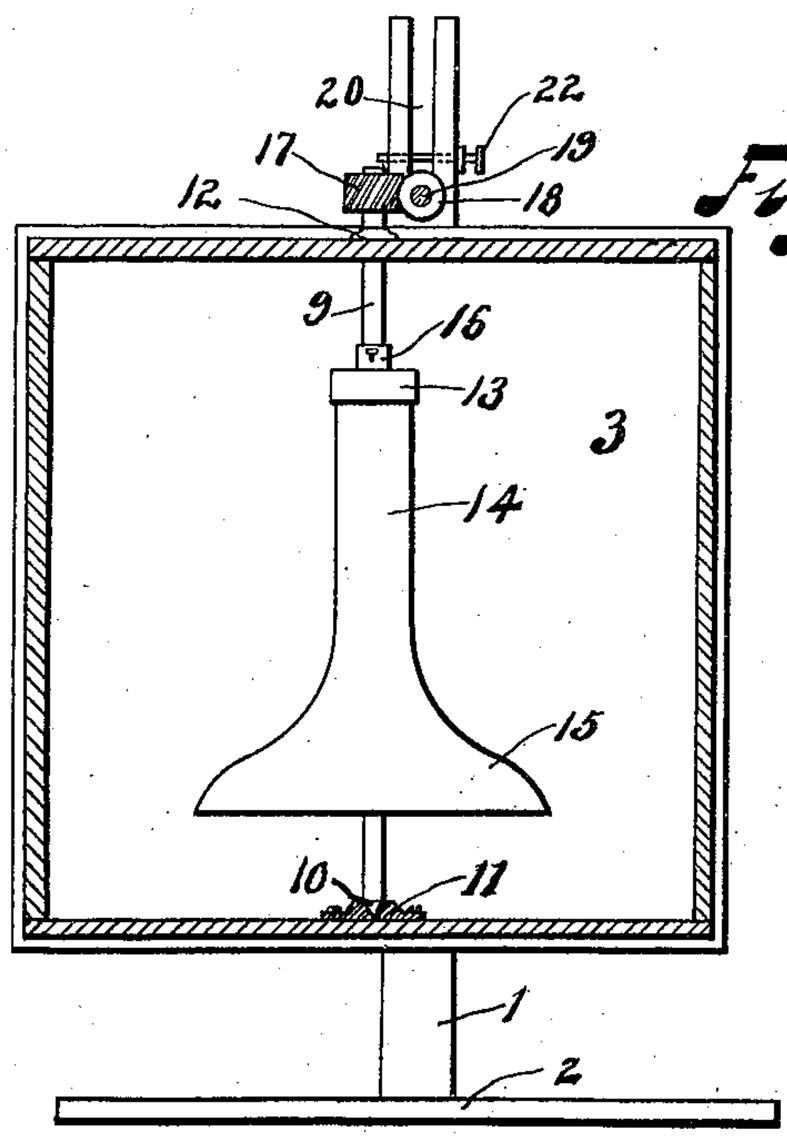


Fig. 2.



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UNITED STATES PATENT OFFICE.

THOMAS J. CHENEY, OF LODI, OHIO.

CHURN.

No. 844,327. Specification of Letters Patent. Patented Feb. 19, 1907.

Application filed June 19, 1906. Serial No. 322,381.

To all whom it may concern:

Be it known that I, THOMAS J. CHENEY, a citizen of the United States, residing at Lodi, in the county of Medina and State of Ohio, have invented certain new and useful Improvements in Power-Churns, of which the following is a specification.

My invention relates to improvements in power-churns, and particularly to that class known as "aerating-churns;" and the paramount object of the invention is to produce a generally improved device of this class which will be exceedingly simple in construction, cheap of manufacture, efficient in use, and much better adapted to its intended purposes than any other device of the same class with which I am acquainted.

Another object is to provide a churn-body or receptacle for power-churns adapted to contain two or more "combined aerators and agitators" like or similar to the combined aerator and agitator disclosed in Patent No. 805,710, issued to me November 28, 1905, and which may be readily converted into a revoluble churn-body or receptacle for working the butter by removing the aerators and agitators therefrom, whereby power may be applied directly thereto to revolve the same as desired.

With these ends in view the invention consists in the novel construction, arrangement, and combination of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims.

Referring to the accompanying drawings, forming a part of this specification, Figure 1 is a side elevation, partly in section, of the improved power-churn; Fig. 2, a sectional view taken through line 2 2, of Fig. 1; Fig. 3, an enlarged detail view of the power-gearing.

Similar characters of reference designate like parts throughout all the figures of the drawings.

The improved churn consists of two uprights or standards 1, mounted on base-plates 2, adapted to support the standards and rest upon the floor or ground.

The churn-body or receptacle 3 consists of a rectangular box, preferably of greater length than depth or width, as shown, and revolubly mounted and interposed between the standards 1 by means of trunnions 4, secured to the ends of the churn-body 3 and adapted to turn in bearings 5, secured to said standards. One of the trunnions 4 is extended and is provided with a driving-pulley 6, adapted to be driven with a belting (not shown) communicating with any suitable and convenient source of power.

The revoluble receptacle 3 is locked in position for use as a stationary churn-body by means of a pair of pins 7, passing through horizontal pin-openings in the standards 1 and taking into pin-sockets 8, secured in the ends of the revoluble receptacle.

A pair of vertically-arranged driving-shafts 9 are mounted in the receptacle 3 and are provided with conical-shaped bearings 10, adapted to rest within socket-bearings 11, secured to the bottom of the churn-body or receptacle 3, when the same is in its stationary position for churning. The driving-shafts 9 are secured in position within the churn-body by being passed through bearing-blocks 12, secured to the top of the churn-body, and through openings in spider-plates 13, secured to tubular stem portions 14 of combined aerators and agitators having enlarged outwardly-extending end portions 15. The combined aerators and agitators are carried by and sustained in proper position on the driving-shafts 9 by means of set-screws 16, adapted to engage the shafts 9 to secure the combined aerators and agitators at the desired elevation, and by these means the aerators and agitators are adapted to be properly arranged in the churn-body or receptacle to suit the quantity of cream contained within the same, so that the upper ends of the tubular stems will be the desired distance above the surface of the liquid and the enlarged outwardly-extending portions the desired depth in the liquid.

When the combined aerator and agitator is rotated, the contents of the churn-body or receptacle lying within and about the enlarged outwardly-extending end portions 15 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 stems 14 is produced. The air rushes downwardly through the tubular stems to take the place of liquid thrown outward, and the contents of the churn-body or receptacle are thereby simultaneously agitated and aerated, whereby butter is rapidly produced.

The upper ends of the driving-shafts 9 are

provided in the present instance with gear-wheels or pinions 17, meshing with worm-gears 18, carried by a horizontal driving-shaft 19, mounted near its ends in grooved bearings 20, formed in the upper ends of the standards 1. A driving-pulley 21 is mounted on one end of the driving-shaft 19 and is adapted to be driven by a belting communicating with any suitable and convenient source of power. The driving-shaft 19 is thus adapted to be lowered and raised into and out of position and connection with the gearing of the driving-shafts 9 whenever desired and may be securely held in the grooved bearings 20 by means of retaining-pins 22, passing through horizontal pin-openings just above the driving-shaft 19. When the churning of the cream has been completed and it is desired to convert the stationary churn-body or receptacle 3 into a revoluble butter-worker, the retaining-pins 22 are removed and the driving-shaft 19 is raised out of the grooved bearings 20 of the standards, thus disconnecting the worm-gears 18 from the gear-wheels or pinions 17 of the driving-shafts 9. The set-screws 16 are then loosened from the driving-shafts 9, and the latter raised and removed through the bearing-blocks 12. The combined aerators and agitators can then be removed through the door or lid-opening 23 by removing the lid 24. The buttermilk may be drawn off in the usual manner when desired, the butter salted or seasoned as desired, the lid closed and the pins 7 removed, after which a belting is placed on the driving-pulley 6 and the churn-body 3 revolved at the desired rate of speed, thereby thoroughly and properly "working" the butter within the churn-body or receptacle. When the butter has been brought to proper condition, it may be removed through the door-opening 23, the interior of the churn-body thoroughly rinsed and cleaned in the usual manner, after which the combined aerators and agitators are replaced within the churn-body and driving mechanism replaced in proper position as before.

The churn-body may be of any desired length and a series of aerators and agitators placed therein as desired.

If desired, an ordinary bevel or similar gearing may be substituted for the worm-gearing herein shown and described.

From the foregoing description, taken in connection with the accompanying drawings, the operation and advantages of my invention will be readily understood.

Having thus described my invention, without having attempted to set forth all the forms in which it may be made or all the modes of its use, I declare that what I claim, and desire to secure by Letters Patent, is—

1. A power-churn, consisting of a pair of standards suitably mounted, a churn-body mounted between said standards by means of trunnions and provided with means for holding the same in engagement with said standards, a pair of combined aerators and agitators removably mounted within said churn-body, a pair of vertically-arranged driving-shafts mounted in said churn-body and adjustably secured to said aerators and agitators, a pair of gear-wheels or pinions secured to said driving-shafts, a horizontal driving-shaft mounted above said churn-body and carrying a pair of worm-gears meshing with said gear-wheels or pinions, a pair of grooved bearings formed at the upper ends of said standards and taking over said horizontal driving-shaft, a driving-pulley mounted on said horizontal driving-shaft, and means for revolving said churn-body when said aerators and agitators have been removed therefrom.

2. A power-churn, consisting of a pair of standards carrying a revoluble churn-body, a vertically-arranged driving-shaft mounted in said churn-body and carrying an adjustably-mounted combined aerator and agitator, a gear-wheel mounted on said shaft, a socket-bearing mounted on the bottom of said receptacle and taking over the lower end of said shaft, a horizontal driving-shaft mounted in said standards and provided with a gear meshing with said gear-wheel of said shaft, means for securing said revoluble churn-body in a stationary position between said standards, a driving-pulley mounted on said horizontal driving-shaft, and means for revolving said revoluble churn-body.

3. In a power-churn, the combination with a revoluble churn-body mounted between a pair of standards, and means for securing said churn-body in a stationary position between said standards; of aerators and agitators removably and adjustably mounted within said churn-body, a horizontal driving-shaft mounted in said standards and provided with gearing adapted to revolve said aerators and agitators, and means for revolving said horizontal driving-shaft and said revoluble churn-body.

4. In a power-churn, the combination with a pair of standards, a churn-body mounted between said standards, and means for securing said churn-body thereto; of a vertically-arranged driving-shaft mounted in said churn-body and provided with a conical-shaped bearing at its lower end, a socket-bearing secured within said churn-body and taking over said conical-shaped bearing, an aerator and agitator adjustably secured to said vertically-arranged driving-shaft, a horizontal driving-shaft mounted in said standards above said churn-body, and gearing secured to said horizontal and vertical shaft whereby the latter is revolved.

5. In a churn, the combination with a pair of standards, a churn-body mounted therein by means of trunnions, a bearing-

block mounted in the top of said churn-body, and a socket-bearing mounted on the bottom of said churn-body; of a vertical driving-shaft, carrying an aerator and agitator, mounted in said bearing-block and provided with a conical-shaped bearing end taking into said socket-bearing, a gear-wheel or pinion secured to said vertical driving-shaft, and a horizontal driving-shaft mounted in said pair of standards and carrying a gearing meshing with said gear-wheel or pinion.

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

THOMAS J. CHENEY.

Witnesses:

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