

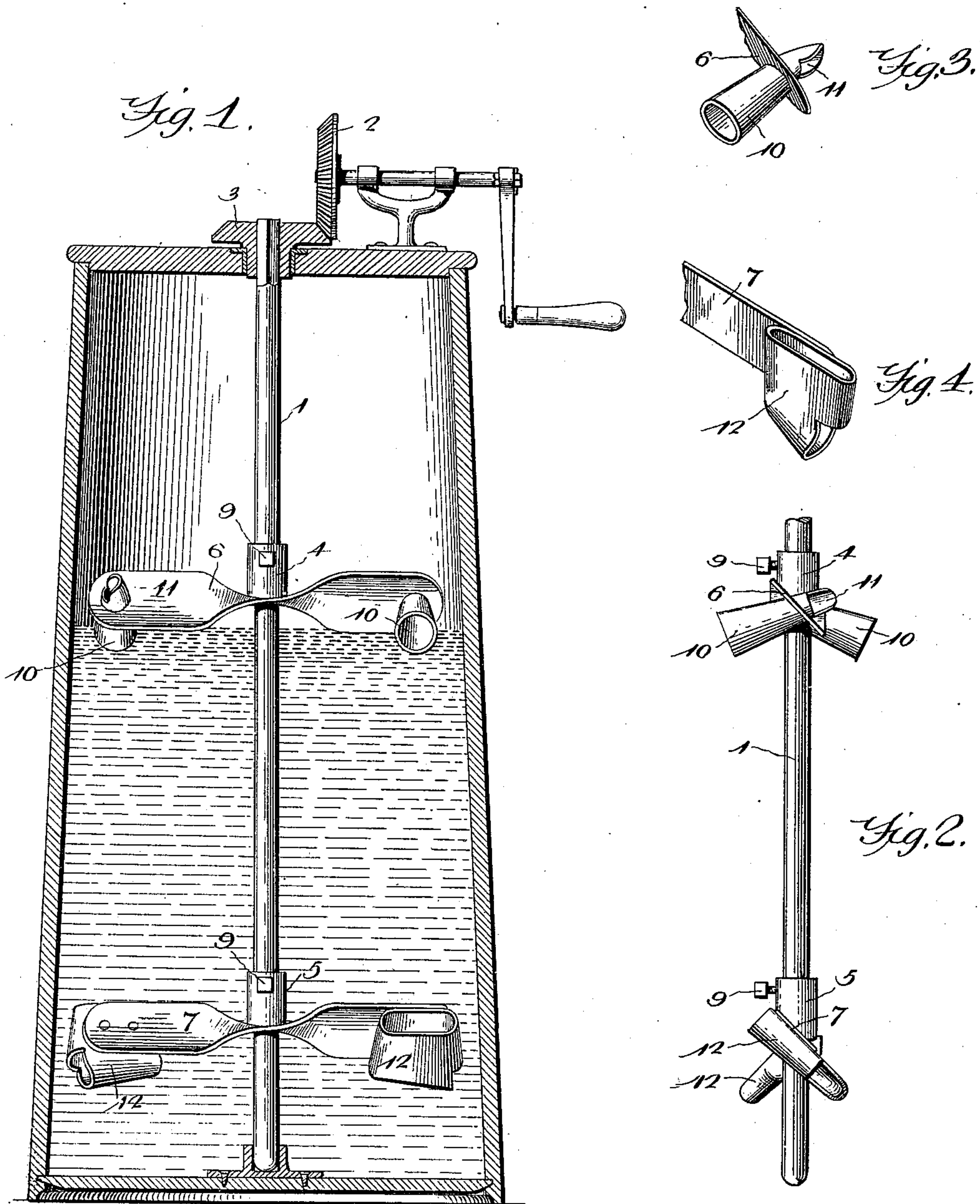
No. 614,138.

Patented Nov. 15, 1898.

S. SIMS.
CHURN DASHER.

(Application filed Apr. 4, 1898.)

(No Model.)



Witnesses

J. Graublenverwell, By *His* Attorneys.

[Signature]

Silas Sims, Inventor.

C. A. Snowles.

UNITED STATES PATENT OFFICE.

SILAS SIMS, OF HANNIBAL, MISSOURI.

CHURN-DASHER.

SPECIFICATION forming part of Letters Patent No. 614,138, dated November 15, 1898.

Application filed April 4, 1898. Serial No. 676,421. (No model.)

To all whom it may concern:

Be it known that I, SILAS SIMS, a citizen of the United States, residing at Hannibal, in the county of Marion and State of Missouri, have
5 invented a new and useful Churn-Dasher, of which the following is a specification.

My invention relates to churn-dashers, and has for its object to provide a dasher so constructed as to thoroughly agitate the contents
10 of a churn-receptacle and cause the aeration thereof, the dasher-blades being preferably employed in duplicate, operating at different depths in the churn-receptacle, and so constructed as to impel the liquid contents of the
15 receptacle in different directions.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended
20 claims.

In the drawings, Figure 1 is a view of a churn, including a dasher, constructed in accordance with my invention, the receptacle being shown in section. Fig. 2 is an edge
25 view of the dasher. Figs. 3 and 4 are detail views in perspective, respectively, of the dasher-blade deflectors.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.
30

1 designates a dasher staff or spindle, adapted to receive rotary motion by means of any suitable driving mechanism, such as the intermeshing bevel-gears 2 and 3, (illustrated
35 in Fig. 1,) the driving-gear 2 being actuated by a crank-shaft or its equivalent. The dasher-staff is of uniform cross-sectional area, and fitted thereon for axial adjustment are the hubs or sleeves 4 and 5 of upper and lower
40 dasher-blades 6 and 7. Each dasher-blade preferably includes a plurality of cross-sectionally flat arms extending radially from the hub or sleeve, said arms being inclined to a horizontal plane in order to exert a downward
45 pressure during operation upon the fluid in which they may be immersed. In practice the upper blade is arranged with the lower rear edges of its arms adjacent to the surface of the liquid contents of the churn-receptacle, but not necessarily immersed there-
50 in, whereby a downward pressure is exerted upon the air contiguous to the surface of the

liquid to force the air into the liquid and thus aerate the same. The dasher-blades are secured at the desired adjustment by means of
55 set-screws 9, carried by the hubs or sleeves.

While the body portions or arms of the dasher-blades are preferably inclined in a common direction to exert the above-described downward pressure respectively upon
60 the air and the liquid contents of the churn-receptacle, said blades preferably carry deflecting devices which respectively impel the liquid contents of the receptacle upwardly and downwardly. In the construction illus-
65 trated the upper dasher-blade is provided with downwardly and forwardly inclined and enlarged funnels 10, fitted in suitable openings near the extremities of the dasher-arms and terminating in nozzles 11, which project
70 rearwardly from the planes of the dasher-arms and are open at their rear ends and also at their outer sides, and owing to the downward inclination of said funnels it will be seen that the lower portions of the mouths
75 thereof will be immersed sufficiently to gather the liquid contents of the receptacle during the rotation of the dasher and carry the same upwardly and rearwardly and discharge it laterally in a reduced stream from the nozzles.
80 The lower dasher-blade, on the other hand, is provided at the extremities of its arms with downwardly and rearwardly inclined scoops 12, which may be flush at their front edges with the corresponding edges of the arms and
85 which extend in rear of the rear edges of the arms and are provided at their outer sides with lateral outlets to discharge liquid gathered by the scoops against the side walls of the receptacle. The rear ends of the scoops
90 are inclined rearwardly and outwardly to increase the outward deflection of the liquid gathered by the front ends of the scoops. Thus it will be seen that the upper and lower dasher-blades respectively exert a downward
95 pressure upon the air and liquid in which they operate, while the terminal deflectors of the arms respectively exert an upward and a downward pressure upon the liquid contents of the receptacle and throw such liquid
100 outwardly against the walls of the receptacle to thoroughly agitate the same and break the globules of oil.

By arranging the upper dasher as above

described and the lower dasher at a point contiguous to the bottom of the receptacle I am enabled to agitate the contents of the receptacle and at the same time aerate the milk
5 in such a manner as to hasten the separation of the butter, and thus reduce the exertion of churning to the minimum.

The object in extending the funnels of the upper dasher-blade in advance of the body
10 portion thereof will be understood from the fact that said funnels are thereby enabled to gather liquid before the downward pressure of the body portions of the arms can affect the liquid; but as said arms follow closely
15 after the inlet ends of the funnels the air is depressed by the arms into the cavities left in the surface of the liquid. The liquid is unable to close said cavities before air has been forced thereinto by the arms of the up-
20 per blade.

In practice various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the ad-
25 vantages of this invention.

Having described my invention, what I claim is—

1. A rotary churn-dasher having a plurality of blades provided with downwardly and
30 rearwardly inclined cross-sectionally flat arms, terminating in deflectors which respectively impart upward and downward pressure to the liquid contents of a churn-receptacle, substantially as specified.

35 2. A rotary churn-dasher having upper and lower blades each consisting of radially-disposed cross-sectionally flat arms, inclined to a horizontal plane to exert downward pressure, the arms of said upper and lower blades respec-
40 tively carrying funnels and scoops having

open front ends and lateral outlets, substantially as specified.

3. A rotary churn-dasher having upper and lower blades of which the body portions consist of radial arms inclined to a horizontal
45 plane to exert a downward pressure, the upper blade having its arms provided with forwardly-extending funnels inclining downwardly toward their mouths, and terminating in discharge-nozzles, and the lower blade hav-
50 ing its arms terminating in rearwardly and downwardly inclined scoops having lateral outlets, substantially as specified.

4. A churn-dasher having radial arms of cross-sectionally flat construction, for arrange-
55 ment contiguous to and above the plane of the surface of the contents of a churn-receptacle, and deflectors carried by the extremities of said arms, and each consisting of a forwardly and downwardly inclined funnel,
60 for partial immersion in the liquid contents of the churn-receptacle, and rearwardly and upwardly inclined communicating nozzles having rear and lateral outlets, substantially
65 as specified.

5. A churn-dasher having radial arms terminating in inclined scoops, open at their front ends, provided with rearwardly and outwardly inclined rear closed ends, and hav-
70 ing lateral outlets at the outer extremities of said rear closed ends, toward which liquid is deflected by the inclination of the rear ends, substantially as specified.

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

SILAS SIMS.

Witnesses:

C. H. NORTHAM,
J. C. RAIBLE.