(No Model.)

H. S. CARR.

CHURN.

No. 316,007. Patented Apr. 21, 1885.

Fig. 1.

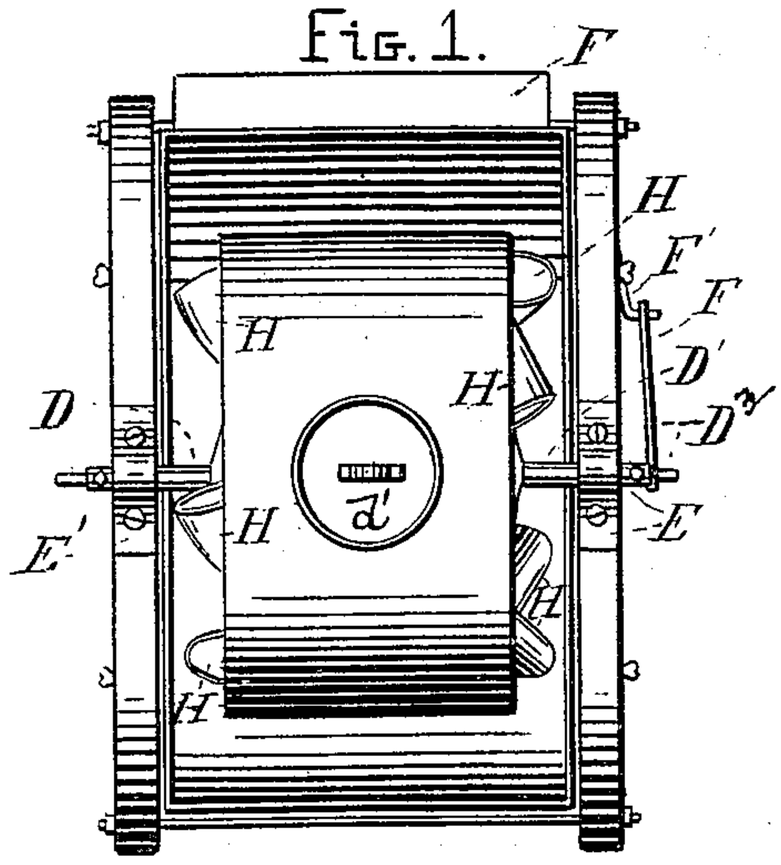


Fig. 2.

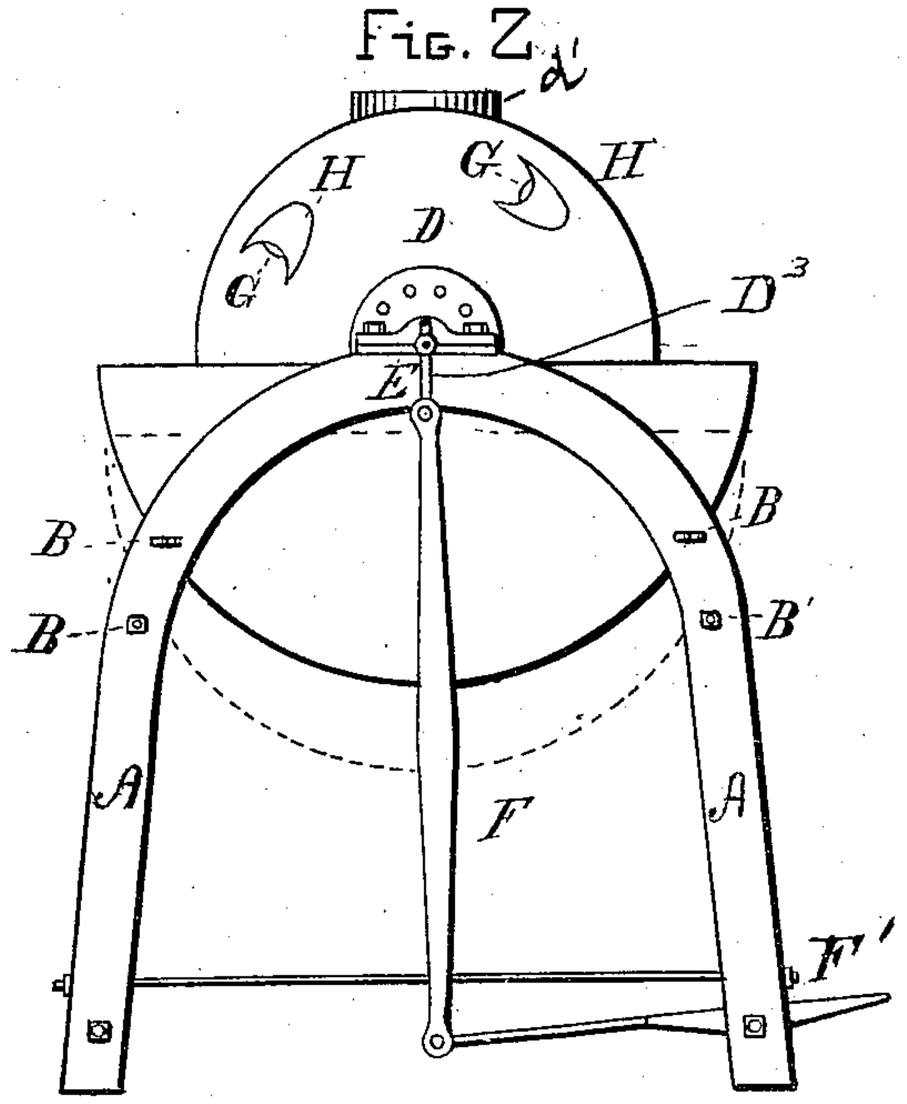


Fig. 3.

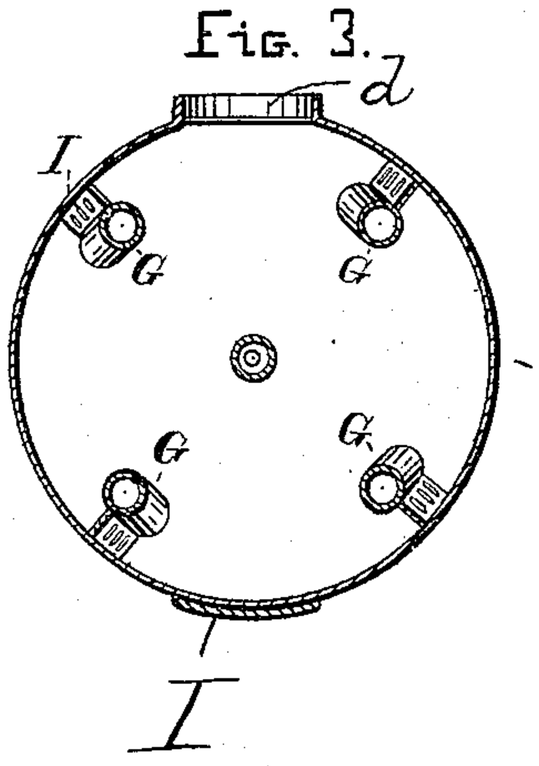
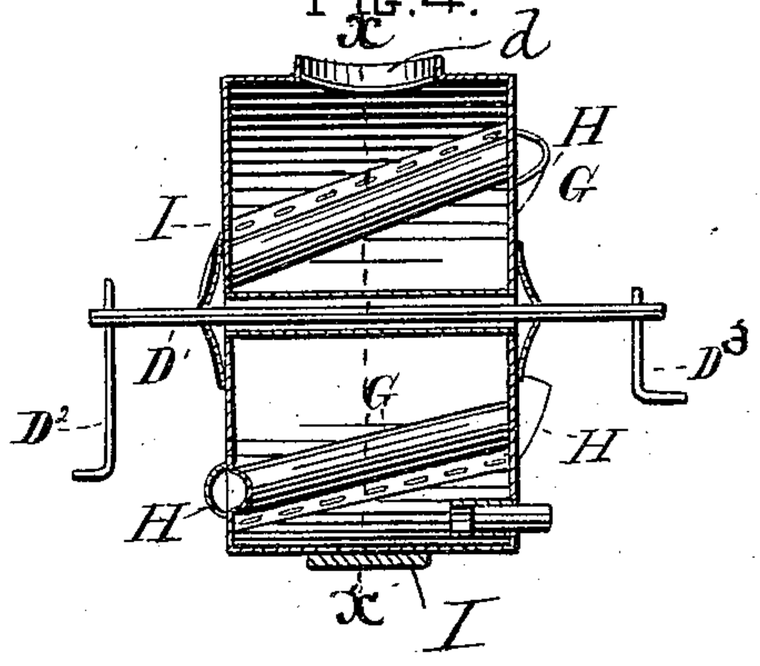


Fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

HARLAND S. CARR, OF WYMORE, NEBRASKA.

CHURN.

SPECIFICATION forming part of Letters Patent No. 316,007, dated April 21, 1885.

Application filed July 26, 1884. (No model.)

To all whom it may concern:

Be it known that I, HARLAND S. CARR, a citizen of the United States, residing at Wymore, in the county of Gage and State of Nebraska, have invented certain new and useful Improvements in Churns; and I do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to churns; and it consists, essentially, in a revolving body provided with tubes extended through it, and opening out at its opposite ends and arranged at an angle to the axis, substantially as hereinafter specified.

It consists, further, in the novel construction, combination, and arrangement of parts, as will be hereinafter more fully described and claimed.

In the drawings, Figure 1 is a plan view, and Fig. 2 an end view, of my machine. Fig. 3 is a transverse section of the churn-body on line *x x*, Fig. 4. Fig. 4 is a longitudinal section thereof, all of which will be hereinafter described and claimed.

The side frames, A, of the main frame are suitably connected at their lower ends, and have their upper ends connected by rods B B′, whereon I support the tub. In Fig. 2 the tub is shown supported on rods B. By removing said rods the tub may be lowered to rest on rods B′. By thus adjusting the tub I am able to regulate the depth to which the churn-body, presently described, may be submerged.

The churn-body D has its journals D′ supported in suitable bearings, E, and held therein by caps E′ or other suitable means. This journal may be provided with a hand-crank, D^2, at one end and a small crank, D^3, at the other end, to which may be connected the pitman F, extended from a treadle, F′; or the body may be revolved in any other suitable manner. This body is preferably made cylindrical, as shown, so that it will more readily revolve through the water in the tub. It is provided with tubes G G, extending from end to end and near the periphery of the body, as shown. These tubes G G, it will be seen, open out at the opposite ends of the body, and are arranged at an angle to the axis thereof, so that water being taken up at one end of the tubes will pass through and out the opposite ends of same, so that the milk within the body will be affected thoroughly by the water, the action of the same being not only on the outer portions of the milk, but the inner portions as well.

Funnel-shaped hoods or gatherers H are secured at one side to the body D, and project thence over the ends of the tubes G. These gatherers serve to catch the water and direct it into the open ends of the tubes. It will be noticed that the gatherers in the opposite ends of the body project in reverse directions. This, it will be seen, enables the body to be revolved in one or the other direction, and the water to be properly caught up with each line of revolution. It will also be seen that as the gatherer on one end of the machine is directing the water into one end of the tube the gatherer at the other end of the tube is forcing water out of the way and producing a suction which aids to draw the water through the tube, causing the circulation to be more rapid and certain, as will be understood. These gatherers, by reason of the suction exerted, as before described, will give good results with tubes extended parallel to the axis; but I prefer the arrangement shown because of the quicker, better circulation attained. It will also be understood that with the tubes disposed at an angle, as shown, some water will circulate through them if the gathering-hoods be dispensed with; but I prefer to use such parts because of the better action thereby secured, as before described. The tubes, extending as they do from end to end and within the body, serve as breakers for the milk, and such action is increased and supplemented by the radial perforated breaker-plates I, extending from the said water-tubes to the periphery of the body. These plates, being arranged, like the tubes, at an angle to the axis, strike the milk first at one end, and such part as is not forced through the perforations is directed into the corner at the other end of the plate, producing a great commotion and agitation of the milk, as is desirable.

The body is provided with an opening, *d*, through which the milk and cream may be

poured in, and butter, &c., removed, and this opening is supplied with a suitable cover, *d'*, as shown.

The tub is filled with hot or cold water, according as the weather or other circumstances may require the milk to be warmed or cooled.

The cover side being heavier than the opposite part of the body, I prefer, as a counterbalance to the said cover, to have the main and small crank extend toward the side of the body opposite the cover, and also to secure a small plate of iron, I, on the opposite outside of the periphery, as shown in Figs. 3 and 4. A short tube may be arranged at one end and next to the periphery of the body, nearly opposite the cover, by which to empty the buttermilk, and said tube may be closed with a cork or plug, as shown in Fig. 4. The churn-body has an axial tube extending through it and fitted for the passage of shaft D'. The tube is larger than the shaft, thus giving the center of the churn's body the advantage of said tube, so the air can pass through and help to cool or warm the milk. The shaft is secured to suitable perforated castings fixed on the body over the ends of the axial tube.

I prefer that the churn's body should be made out of tin or galvanized iron, for said tin or iron being thin, the milk can be readily cooled through it.

Heretofore washing-machines have been made having perforated tubes extended from end to end of a cylindrical body, and provided with caps or hoods at their opposite ends, by which to gather the water and force same into the body. The tubes of said washing-machine are necessarily perforated, while those of my churn are imperforate and serve an entirely different purpose—namely, to conduct the water through and not into the body.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A revolving churn-body provided with an imperforate tube extending between and opening out of its opposite ends, and having a gathering-hood secured over the receiving end of said tube and projected in the direction of motion of the body, substantially as set forth.

2. A revolving churn-body provided with an imperforate tube extended between and opening out of its opposite ends, and gathering-hoods arranged over the receiving and discharging ends of the tube and projected in reverse directions, substantially as set forth.

3. The combination of the main frame, the churn-body journaled thereon, and the tub supported in the main frame below the churn-body, and adjustable to and from the same, substantially as set forth.

4. The herein-described churn-body, provided near its periphery with tubes extended through it from end to end, and arranged at an angle to the axis, and perforated plates extending from end to end of the body, and from the periphery thereof to the tubes, and arranged parallel with said tubes, substantially as set forth.

5. A revolving churn-body having an imperforate water-conducting tube extending within and opening at its opposite ends out of the body, whereby water may be conducted therethrough, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

HARLAND S. CARR.

Witnesses:
V. P. BACON,
HENRY SCHMITZ.