(No Model.)

F. M. RICHARDSON.

CHURN.

No. 282,669. Patented Aug. 7, 1883.

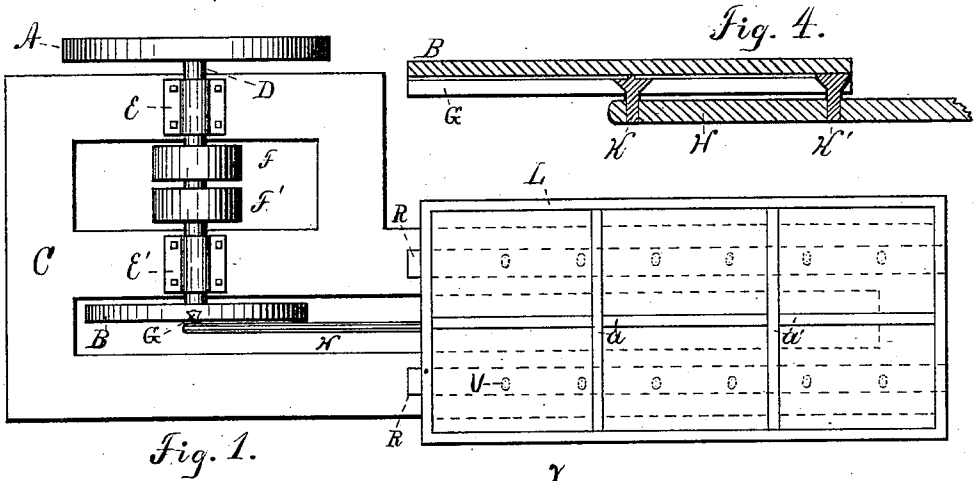

Fig. 1.

Fig. 4.

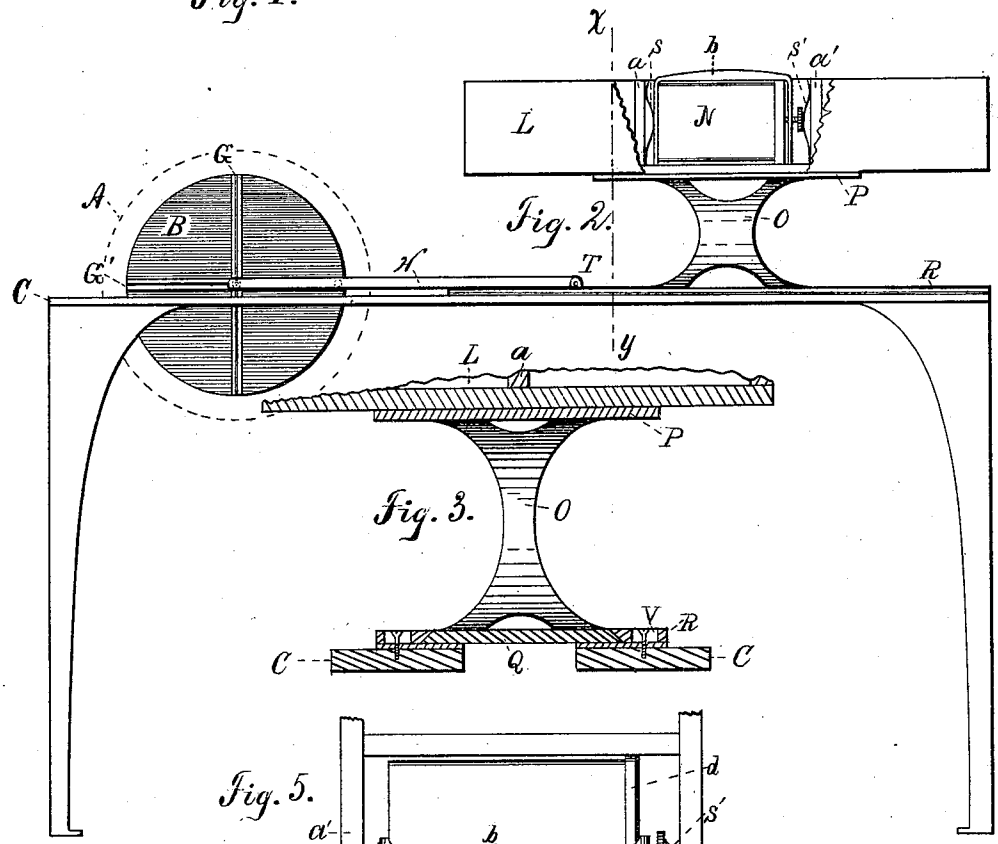

Fig. 2.

Fig. 3.

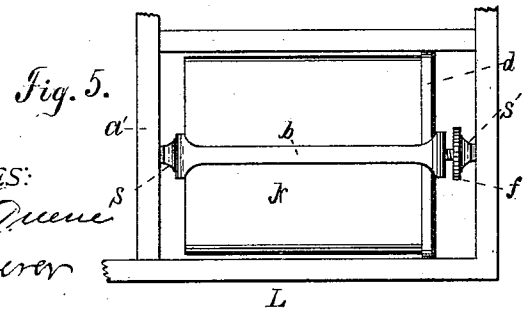

Fig. 5.

WITNESSES:

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FRANCIS M. RICHARDSON, OF WADDAM'S GROVE, ILLINOIS, ASSIGNOR OF ONE-HALF TO JOHN F. CHILDERS, OF SAME PLACE.

CHURN.

SPECIFICATION forming part of Letters Patent No. 282,669, dated August 7, 1883.

Application filed March 5, 1883. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS M. RICHARDSON, a resident of Waddam's Grove, in the county of Stephenson and State of Illinois, have invented certain new and useful Improvements in Churns; and I do hereby 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 pertains to make and use the same.

My invention is a new and improved device for use in creameries and other establishments where cream is bought in large quantities from numerous persons, its object being to enable the purchaser to determine the quality of the different lots of cream by testing a small sample from each lot, and to make the process as speedy as possible by testing a number of such samples simultaneously. The construction of the device is described in the following specification and shown in the accompanying drawings, in which—

Figure 1 is a plan of the machine; Fig. 2, a side elevation of same, the side of box L being cut away to show internal construction; Fig. 3, a vertical transverse section through line *x y*, Fig. 2; Fig. 4, a horizontal central section of tram B and pitman H, Fig. 2; and Fig. 5, a plan of one copartment of box L, showing cream-jar, clamping device, and springs. Figs. 3, 4, and 5 are on a scale double that of Figs. 1 and 2.

In the drawings, C is a bed-plate mounted on legs or other supports, and formed with suitable openings for the working of the different parts of the machine.

D is a shaft journaled in boxes E E′, and serving as the axis of the balance-wheel A, fast and loose pulleys F F′, and trammel-wheel B, said balance-wheel and trammel-wheel being rigidly attached to the shaft, and said pulleys F F′ being adapted to receive a driving-belt for applying power to the machine. The face of the trammel-wheel is crossed by two diametrical dovetail grooves, G G′, at right angles to each other, and at the bottom of each of said grooves is a central supplemental groove extending throughout its entire length.

H is a pitman provided with two cone-headed buttons or pins, K K′, which slide freely in the grooves G G′, and each of said buttons is provided with a feather crossing the center of the head, said feathers being adapted to slide in the supplemental grooves above mentioned and carry the buttons in straight lines across the center of the trammel. The opposite end of the pitman H is pivoted to a slide, 2, Fig. 3, beveled at its outer edges, resting on the bed-plate C, and held in position thereon by two beveled guides, R R, the guides being pierced by a series of transverse slots, V, through which pass the screws for holding the guides to the bed-plate, the slots permitting lateral adjustment of the guides to compensate for wear.

To the slide Q is rigidly attached a standard, O, of any desired form, and to the upper surface of the standard is rigidly attached a plate, P, of suitable size. A box, L, divided into any desired number of compartments by partitions *a a′*, rests upon and is rigidly attached to the plate P, so that the slide Q, standard O, plate P, and box L move together upon the bed-plate.

In each compartment of the box L is placed a jar, N, Figs. 2 and 5, provided with a cover, *d*, which is secured by a clamp, *b*, and set-screw *f*, and to the ends of each compartment are attached springs *s*, which press against the ends of the jar and relieve it of the shock arising from rapid reciprocal motion. The jars may be of any desired form; but a square or rectangular cross-section is preferable, and it is also advisable to make the jars of uniform or nearly uniform size from end to end, as shown, and without neck or shoulder, as this form permits the readiest possible removal of the contents. The material of the jars is preferably glass, and one side, or a considerable portion of one side, should in all cases be of glass, in order that the condition of the cream in the jar may be constantly in view of the operator. The cover of the jar has a flange which extends downward outside the edge of the jar, and a disk of rubber within the cover presses against the edge of the jar and forms a tight joint.

The operation of the machine is as follows: Upon the receipt of a number of lots of cream from different persons a given quantity is taken from each lot, and the samples so obtained are placed in the jars N, which are then closed and put in the compartments of the box L. In creameries the most convenient amount for each sample is an "inch"—*i. e.*, an

inch in depth from a can of standard diameter—as that is the universal standard by which cream is bought and sold; but any other quantity may be taken. The jars being placed in the box, power is applied to the machine by means of a belt passing about the tight pulley F, and the trammel-wheel is rotated at any desired speed. Each rotation of the trammel produces two reciprocal movements of the pitman H, each stroke being equal to the distance between the pins K K′, and the reciprocal motion of the pitman is communicated directly to the slide Q and box L. This short quick reciprocal motion rapidly churns the cream in the jars, so that a few minutes' time is sufficient for the test. As the churning proceeds the operator can observe the gradual change of the condition of the cream in the different jars, and they can be removed one by one or all at one time, as circumstances require. When the operation of churning is complete, the jars are emptied of their contents, the butter from each jar is weighed, and the quality of each lot of cream is determined from the amount of butter made from the corresponding sample.

I am aware that a single churn moving reciprocally on a suitable slide is already in use; also, that a series of vessels placed in a reciprocating frame and suspended by a series of supporting-links has been shown and patented as a device for aging liquors, and that a trammel-wheel is a well-known means of producing reciprocal motion, having been used in sawing-machines and other similar devices. I am also aware that there is a patented transportation-package consisting of a glass jar inclosed in a box and protected from contact with the box by a series of springs interposed between the jar and the sides of the box. I do not therefore intend to cover in this application any of these devices; but,

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

The combination of the frame C, transversely-slotted guides R, attached thereto, slide Q, moving reciprocally in said guides, standard O, resting upon and attached to said slide, box L, attached to said standard and divided into a series of compartments for the reception of a series of cream-holding jars, trammel-wheel B, mounted on a suitable journaled shaft attached to the frame C, and pitman H, connecting the trammel-wheel and the slide Q, whereby the rotation of the trammel-wheel produces reciprocal motion of the slide and the parts attached thereto, substantially as shown and described, and for the purpose set forth.

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

F. M. RICHARDSON.

Witnesses:
R. H. WILES,
A. W. GREENE.