W. ROBINSON.

Churn.

No. 50,631. Patented Oct. 24, 1865.

FIG. 1.

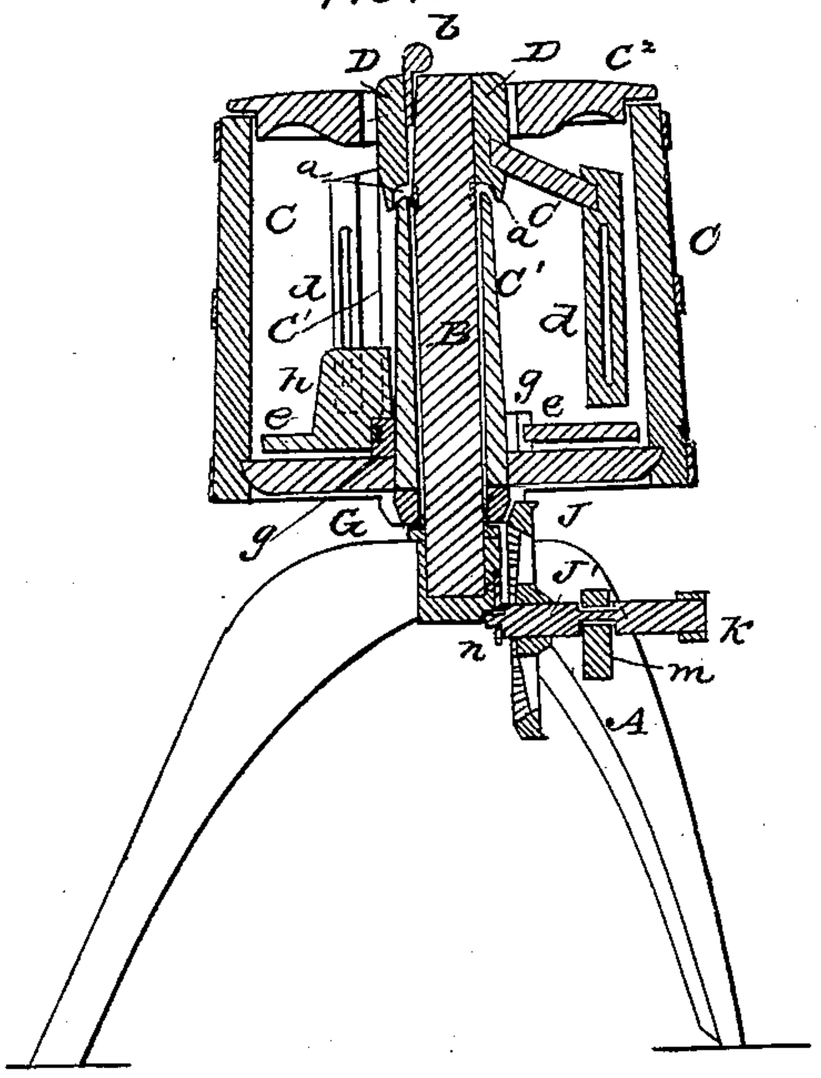


FIG. 3

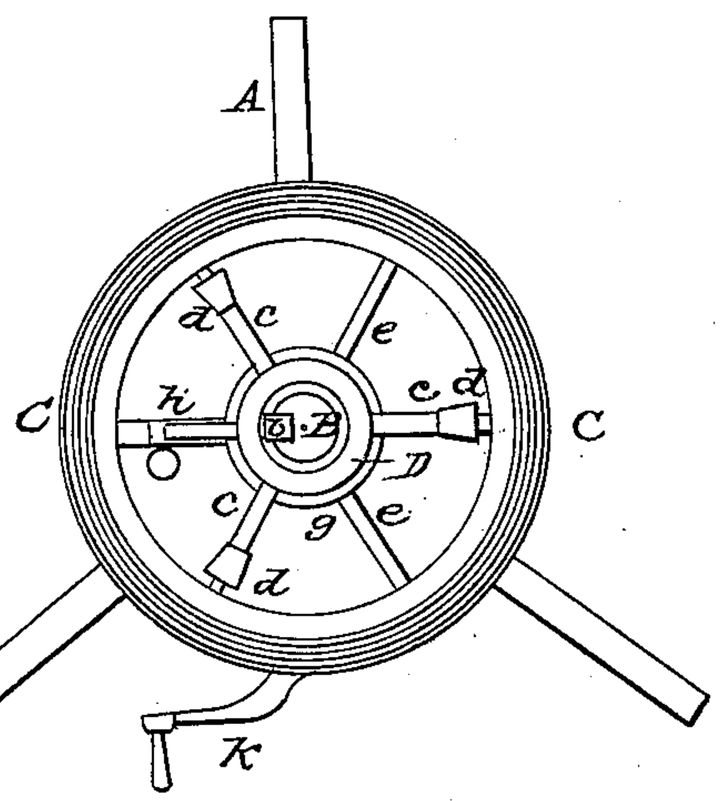


FIG. 2.

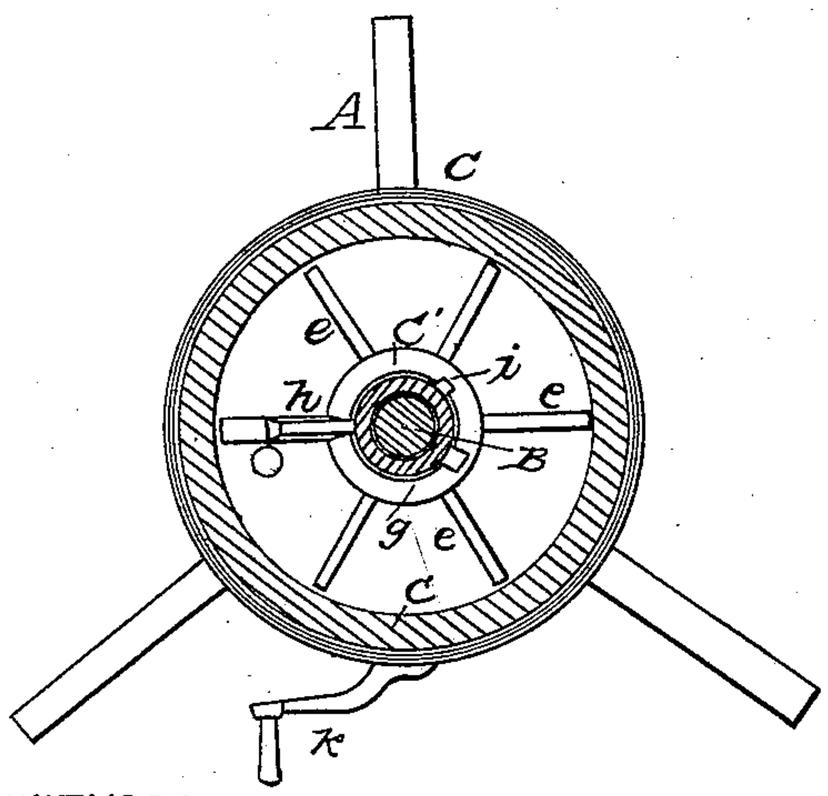
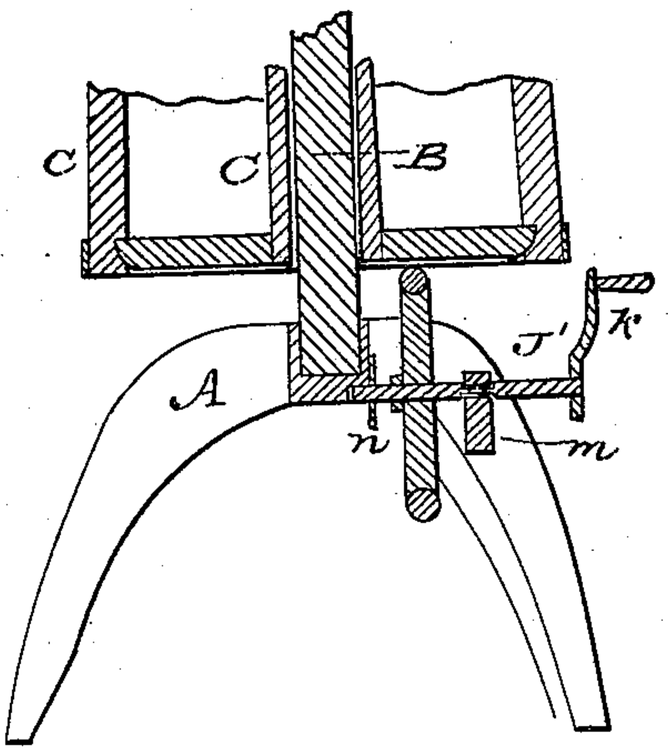


FIG. 4



WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM ROBINSON, OF BELLEFONTAINE, OHIO.

IMPROVEMENT IN CHURNS.

Specification forming part of Letters Patent No. **50,631**, dated October 24, 1865.

To all whom it may concern:

Be it known that I, WILLIAM ROBINSON, of Bellefontaine, in the county of Logan and State of Ohio, have invented a new and Improved Churn; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical central section through the new churn. Fig. 2 is a horizontal section through the same with the dashers removed. Fig. 3 is a top view of the churn with the cover removed. Figure 4 is a vertical section, showing a mode of applying a friction-wheel to operate the churn instead of spurred gearing.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to certain novel improvements on the churn which were secured to me by Letters Patent No. 37,244, the object of which improvements is to give a rapid rotary motion to the body of the churn by means of a driving-wheel applied to the bottom of the same and acting directly upon this bottom, as will be hereinafter described.

Another object of my invention is to provide for closing the upper end of the central tubular bearing by means of a hub to which the radial arms of the dashers are affixed, said hub passing through the cover of the churn and being so applied to the fixed supporting-stem that it can be detached from this stem or attached thereto at pleasure without removing the cover or stopping the motion of the churn-box, as will be hereinafter described.

Another object of my invention is to apply a series of radial arms and a gatherer within the churn-box and upon the bottom thereof in such manner that they will rotate with said box and may be removed therefrom at pleasure, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings A represents a three-legged stand, the upper ends of the legs of which are rigidly secured to a solid block in any suitable manner, from which blocks proceeds a vertical spindle, B, which should be of sufficient length to project slightly from the cover of the churn-box C, when this box is mounted upon the stand A, as shown in Fig. 1. The cylindrical churn-box C has a central tube, C′, projecting up from its bottom, and extending up such height as that its upper end shall not be below the milk when it is put into the churn. The upper extremity of this tube is slightly beveled, and fits snugly into an annular recess, *a*, which is made in the lower end of a hub, D. This hub is of sufficient length to extend to the top of the spindle B when the churn-box C is in its place on the stand A, and it is secured to this spindle by means of a key, *b*, driven in at the top, as shown in Fig. 1. In driving the key *b* into its place the hub D will be forced down so as to fit over the tube C′ and prevent leakage at this point. The hub should not fit so tight upon the tube C′ as to cause the churn-box to work hard.

Three radial arms, *c c c*, project from the hub D, and have affixed to their outer extremities vertical dashers *d d d*, which may be slotted as shown in Fig. 1. These dashers do not extend quite down to the bottom of the churn-box, but leave a space beneath them for a series of radial blades, *e e e*, which project from an annular collar, *g*, which is slipped over the tube C′ and brought down upon the bottom of the churn-box, as shown in Figs. 1 and 2. This collar is also provided with a paddle, *h*, which projects up from one of the blades *e*, and serves a very important office in gathering the butter. A notch is made on the inside of said collar, which allows it to pass beneath a stud, *i*, which projects from the tube C′, and by giving the collar a slight turn the stud will confine it down upon the bottom of the churn-box, as shown in Fig. 2.

The radial blades *e e e* are employed for the purpose of assisting in carrying the milk around with the churn-box by offering a resistance to it. They assist in counteracting the effect of the dashers upon the milk, and cause a rapid agitation thereof. The blade or paddle *h* also assists in carrying the milk around with the churn-box and admits of this box being rotated very rapidly.

G represents a pinion spur-wheel, which is secured to the outside of the bottom of the box C and concentric with its axis. This spur-wheel has a central hole through it to receive the spindle A, as shown in Fig. 1, and it is mitered to receive the teeth of a larger bevel-spur wheel, J, which is keyed on a horizontal shaft, J′, that has a crank, *k*, on its outer end, as shown in the

drawings, Fig. 1. The shaft J′ has its bearings in a hanger, *n*, and a cross-bar, *m*, applied to the stand A.

Instead of employing bevel-spur wheels to rotate the churn-box, a friction-wheel may be used, as shown in Fig. 4, and in this case but one wheel will be required, as the periphery of this wheel will act directly upon the bottom surface of the churn-box. This wheel may be constructed with a groove in its periphery, and an india-rubber ring stretched over the wheel and allowed to contract and retain itself in said groove. In either case the churn-box will be held down to the driving-wheel by the fixed hub D and its key, as above described.

The cover C^2 of the churn has a hole through its center to receive the upper end of the hub D, and to allow this end to be exposed in order to get at the key *b* when it is desired to loosen the hub and its radial arms or to fix them.

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

1. The combination of a driving device applied to the bottom of the churn with a hub, D, and tube, C′, substantially as described.

2. Extending the hub D and the upper end of the spindle B through the top of the churn-cover, in combination with the tube C′, substantially as described.

3. The radial blades *e e*, applied to a collar, *g*, which surrounds the central tube, C′, and which, together with the blades, can be removed from the churn-box at pleasure, substantially as described.

4. The gathering-paddle *h*, applied to the removable collar *g*, substantially as described.

WILLIAM ROBINSON.

Witnesses:
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J. M. KELLY.