

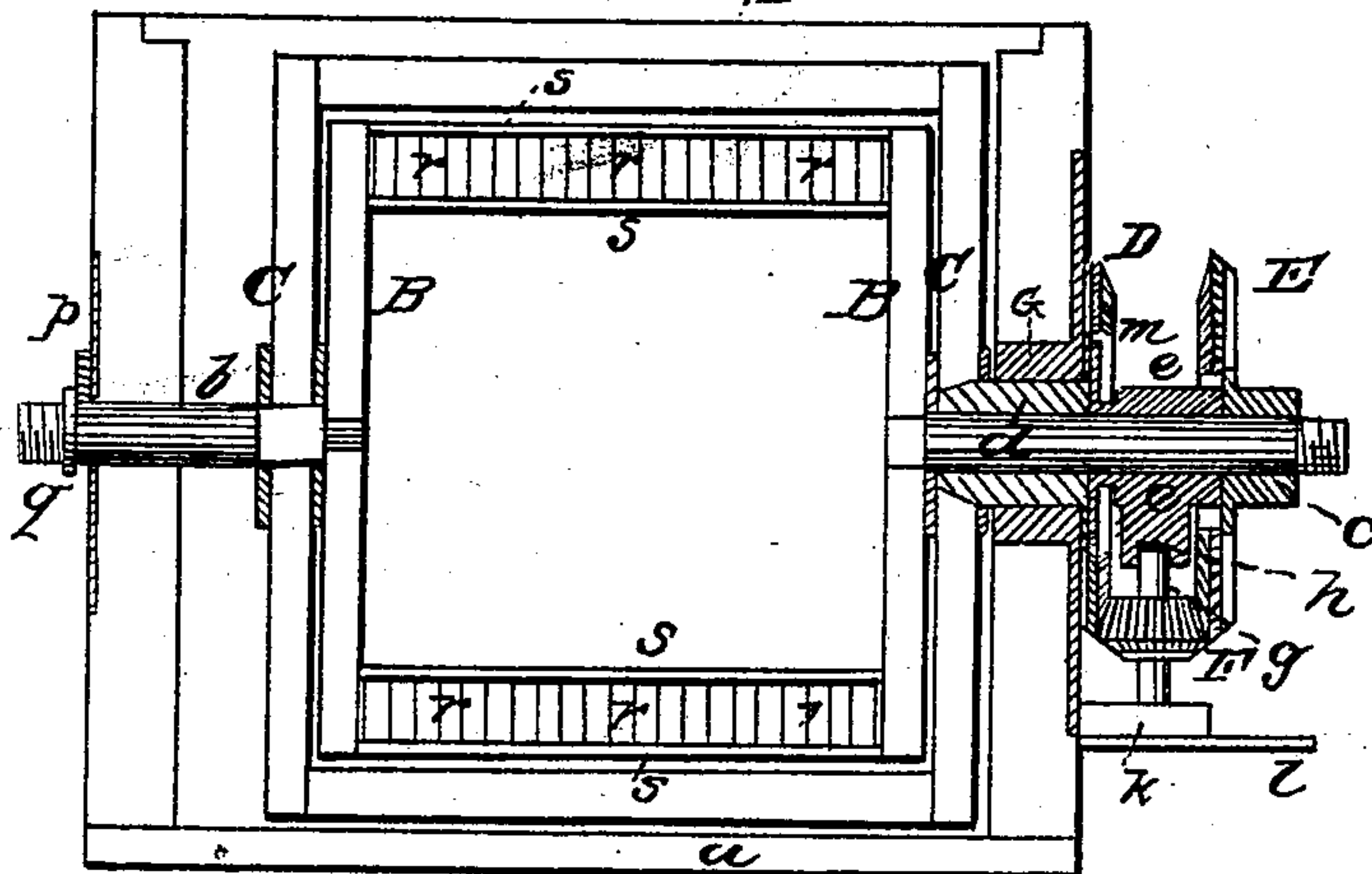
T. RETTEW.

Churn.

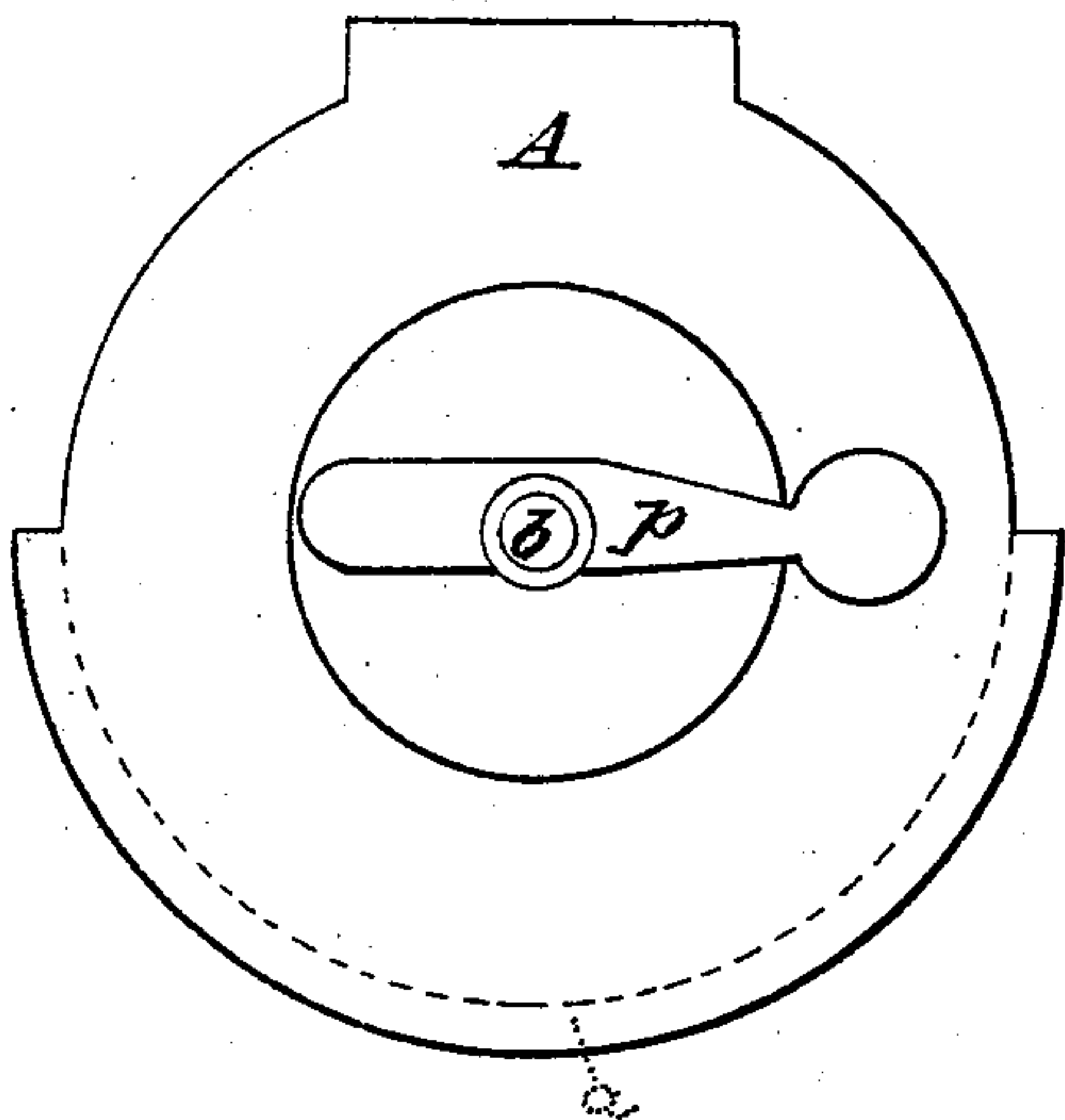
No 70,470.

Patented Nov. 5, 1867.

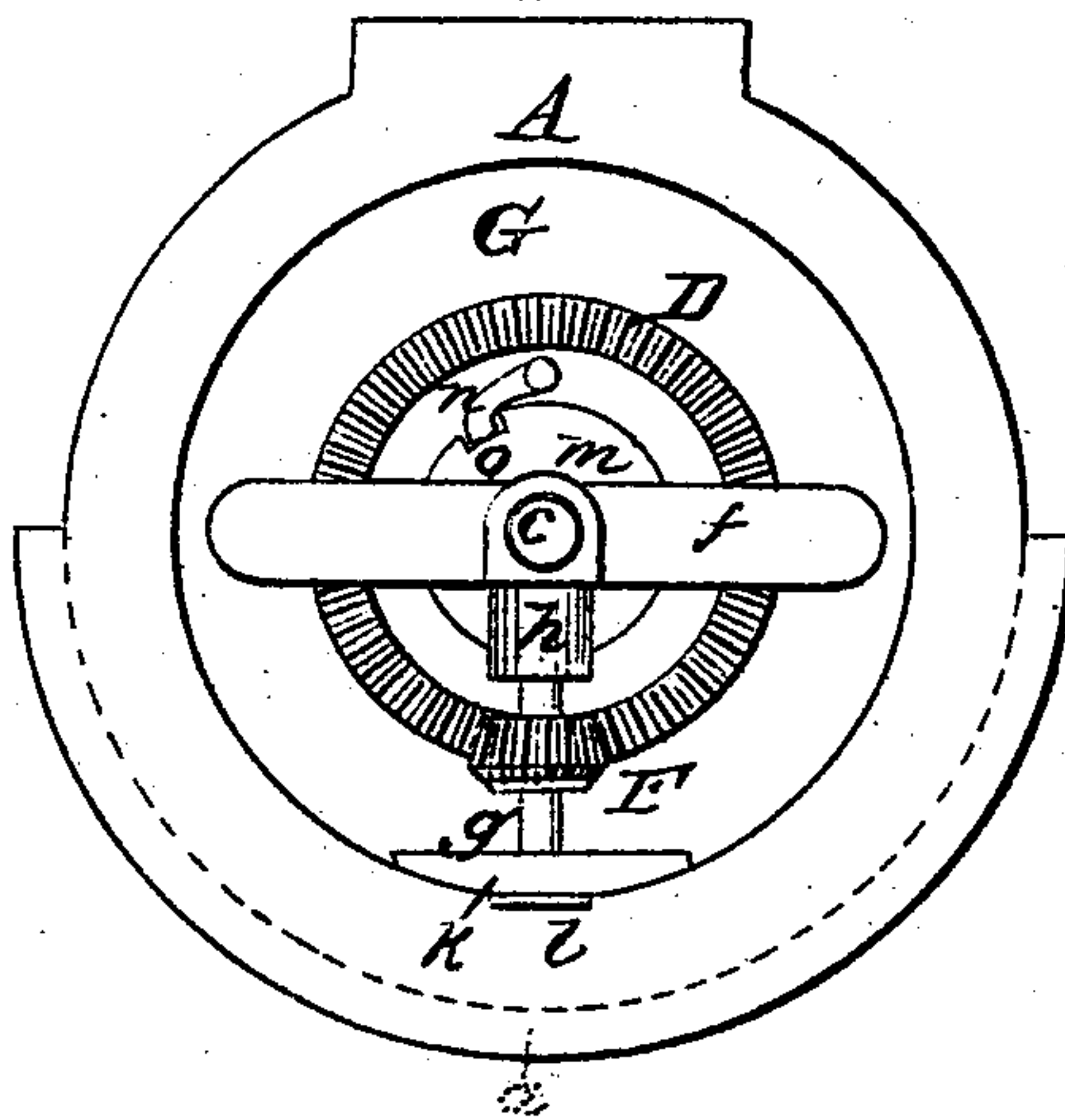
*Fig. 1*  
*M*



*Fig. 3.*



*Fig. 2.*  
*M*



*Witnesses*  
*Francis D. Pastorius*  
*Frank Garde*

*Inventor:*  
*Thomas Rettew.*

# United States Patent Office.

THOMAS RETTEW, OF WEST VINCENT TOWNSHIP, PENNSYLVANIA.

Letters Patent No. 70,470, dated November 5, 1867.

## IMPROVEMENT IN CHURNS.

The Schedule referred to in these Letters Patent and making part of the same.

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, THOMAS RETTEW, of West Vincent township, in the county of Chester, and State of Pennsylvania, have invented a new and useful Churn; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

My invention consists of a horizontal cylindrical churn, its lower half consisting of two surfaces, with an intervening space, for the circulation of air. It has two sets of dashers or paddles, which, by a combination of gears, rotate, either singly, together, or in opposite directions, as is hereinafter fully shown and described. On reference to the accompanying drawing, making part of this specification—

Figure 1 is a sectional elevation,

Figure 2 is a front view with the gear-wheel E detached, and

Figure 3 is a back view.

Similar letters refer to similar parts in the several views.

A is a churn of the usual cylindrical form, having the lower half of its surface encased or made double, forming an intervening space, *a*, for the free circulation of air around its bottom, as shown in fig. 1, and in dotted lines, figs. 2 and 3. B and C are revolving dashers or paddles, placed one within the other, the inner one, B, revolving on and with the shafts *b* and *c*, which extend inwardly from each end of the churn, the outer one, C, revolving with the same shaft *b* and with the hub of the bevel-gear D. D E F are bevelled gear-wheels, combined to impart the same and contrary revolutions to the paddles. The wheel D has an extended hub, *d*, which projects through a circular plate, G, in the front of the churn; its hub is turned out to snugly receive the hub *d*, which rotates in it. The wheel E is fitted to the front shaft *c*, which passes snugly through the boss *e* of the cross-bar *f*, and also through the hub of the wheel D. F is an idle-gear, only employed when it is required to rotate the gears D and E in contrary directions; its stud, *g*, takes into the projection *h* of the cross-bar *f*, and through an opening in the projection *k*. When it is required to throw it out of gear, it is simply necessary to remove its support, the lever *l*, by rotating it on its centre, when it falls by its own weight. *m* is a plate-wheel fixed to the shaft *c*, contiguous to the wheel D. *n* is a detent fixed to the wheel D; its loose end takes into a notch, *o*, in the periphery of the plate-wheel *m*, whereby the wheel D is caused to revolve coincidently with the driving-gear E when the wheel F is out of gear. *p* is a latch at the back end of the churn; it partially embraces the shaft *b*, between the collar *q* and the end of the churn, and serves to keep the shaft from backing out. The outer ends of the paddle B are constructed with a series of wires or ribs *r r r*, &c., fixed to the cross-pieces *s s*, and forming, as it were, gratings, by means of which the vesicles of the cream are more thoroughly broken.

Driving power can be applied in any manner to the shaft *c*. The machine, as shown, is in gear for rotating the paddles in contrary directions. The wheel D, whose hub *d* carries and rotates the outer paddle C, is caused to rotate in a contrary direction to the wheel E, which rotates the inner paddle B, through the intervention of the gear F. When it is required that only the inner paddle is to rotate, the lever *l* is thrown back, which causes the gear F to drop, throwing the wheel D out of gear with the driver E. To revolve both paddles in the same direction at the same time, drop the wheel F and insert the detent *n*, fig. 2, into the opening or notch *o* in the circumference or periphery of the plate-wheel *m*, whereby the wheel D is caused to revolve with the driver E. When the cream is poured into the churn through the opening M in its top, put the wheel F in gear with the wheels D and E. As rotation is given to the shaft *c*, one set of dashers will rotate in one direction, while the other set will revolve in an opposite direction. The agitation thus produced speedily breaks the vesicles of the cream, and vastly shortens the process of butter-making. The gratings on the ends of the inner paddle B quicken the operation of breaking the vesicles by bringing them into contact with a greater number of beating surfaces. After the vesicles are thoroughly broken the wheel F is thrown out of gear, and the paddles revolved, either together or only one, to collect the butter.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The churn A, as a whole, when constructed, arranged, and operating as shown and described.
2. Encasing the lower part of the churn to form a chamber for the circulation of air, as shown and described.
3. The wheel D, plate-wheel *m*, and the detent *n*, as shown and described.

In testimony whereof I hereunto sign my name to this specification in presence of two subscribing witnesses.

THOMAS RETTEW.

Witnesses.

W. W. DOUGHERTY,

FRANCIS D. PASTORIUS,