

J. M. PIERCE.

CHURN.

APPLICATION FILED OCT. 20, 1911.

1,020,368.

Patented Mar. 12, 1912.

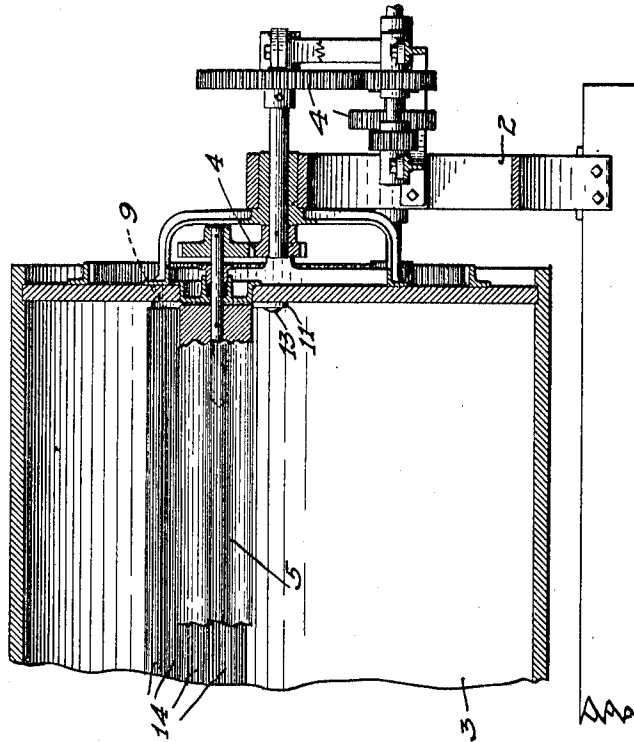


FIG. 1.

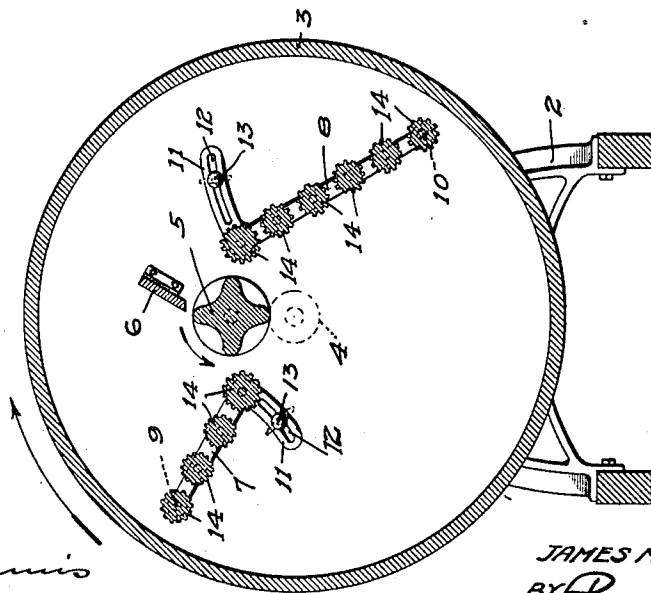


FIG. 2.

WITNESSES
M. R. M. Davis
W. E. Sorensen

INVENTOR
JAMES M. PIERCE
BY *Paul & Paul*
ATTORNEYS

UNITED STATES PATENT OFFICE.

JAMES M. PIERCE, OF OWATONNA, MINNESOTA, ASSIGNOR OF ONE-HALF TO CARL K. BENNETT, OF OWATONNA, MINNESOTA.

CHURN.

1,020,368.

Specification of Letters Patent.

Patented Mar. 12, 1912.

Application filed October 20, 1911. Serial No. 655,783.

To all whom it may concern:

Be it known that I, JAMES M. PIERCE, of Owatonna, Steele county, Minnesota, have invented certain new and useful Improvements in Churns, of which the following is a specification.

My invention relates to combined churns and butter-workers and the primary object of the invention is to provide improved means for working the butter. Generally in devices of this kind wings or shelves are provided on which the butter slides toward the roll at or near the center of the churn. This sliding movement of the butter has been found objectionable and to avoid this objection I have devised a mechanism which will deliver the mass of butter to the roll with a rolling action.

The invention consists generally in tilting frames mounted within the churn and idle rolls carried by these frames and forming surfaces over which the mass of butter passes to the central portion of the churn.

In the accompanying drawings forming part of this specification, Figure 1 is a detail sectional view illustrating the driving mechanism of the churn, Fig. 2 is a transverse sectional view showing the idle rolls cooperating with the eccentrically mounted roll to work the butter.

In the drawing, 2 represents a suitable frame, 3 the churn having bearings therein and 4 a driving mechanism, to which I make no claim in this application.

5 is a roll, eccentrically mounted in the churn and having operative connections with the driving means 4. This roll is preferably star-shaped in cross section, as usual in rolls of this kind.

6 is a shelf located, preferably, above the roll and 7 and 8 are bars pivotally supported at 9 and 10 and adapted to swing back and forth between the roll 5 and the wall of the churn. These bars have arms 11 thereon provided with slots 12 to receive thumb screws 13 which allow the adjustment of the bars back and forth and lock them at the desired angle with respect to the roll 5. In these bars I mount a series of idle rolls 14, preferably corrugated, and arranged sufficiently near together to form carrying sur-

faces for the mass of butter. As the churn barrel revolves, the butter is thrown back and forth therein and falling upon the idle rolls is directed thereby to the space between them and the eccentric roll and thoroughly worked, the point of delivery of the butter to the eccentric roll being governed by the location of the bars 7 and 8 with respect to the roll 5. Evidently, if the bars are swung outwardly toward the walls of the drum, a wider space will be formed between the idle roll and the eccentric roll, the width of this space being governed by the adjustment of the roll supporting bars 7 and 8. The bars on one side of the eccentrically mounted roll are preferably longer than those on the opposite side to provide for a greater number of anti-friction rolls at this point, thereby increasing the length of the carrying surface.

There may be any suitable number of the idle rolls 14, and they may be of any size which seems best suited for the results to be attained.

I claim as my invention:—

1. The combination, with a churn barrel, of a roll mounted therein, a frame mounted in said churn and extending from a point near said roll to a point near the wall of the churn, and anti-friction rolls mounted in said frame and over which the butter is delivered to said first named roll.

2. The combination, with a churn barrel, of a roll eccentrically mounted therein, a frame disposed between said roll and the wall of the barrel, and a series of idle rolls mounted in said frame and forming an anti-friction carrying surface between said first named roll and the wall of said barrel.

3. The combination, with a churn barrel, of frames pivoted at their outer ends in said barrel between said first named roll and the wall of the churn, means for adjusting and locking said frames to obtain the desired space between them and said first named roll, and a series of anti-friction rolls mounted in said frames and forming carrying surfaces over which the butter is delivered to the space between the inner roll of the series and said first named roll.

4. The combination, with a churn, of a

roll eccentrically mounted therein, bars pivotally supported in the heads of the churn near the peripheries thereof, means for adjusting and locking said bars at the desired
5 angle with respect to said roll, the bars on one side of said roll being longer than those on the other side thereof, and a series of corrugated rolls mounted in said bars and

forming carrying surfaces over which the butter is delivered to said first named roll. 10

In witness whereof, I have hereunto set my hand this 14th day of October, 1911.

JAMES M. PIERCE.

Witnesses:

RACHEL C. PETERS,
HARRY D. HOPKINS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."