

D. P. LONG.
CHURN.

APPLICATION FILED APR. 5, 1913.

1,091,887.

Patented Mar. 31, 1914.

Fig 1

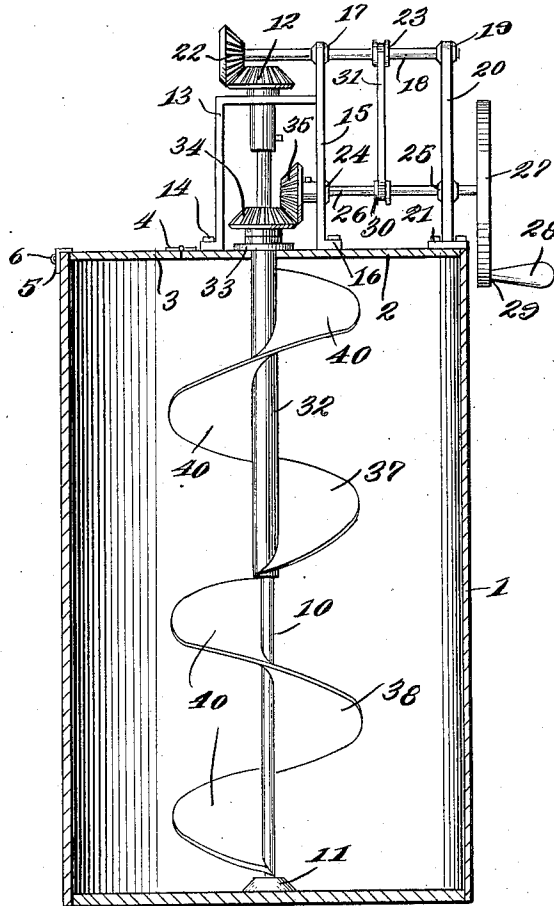
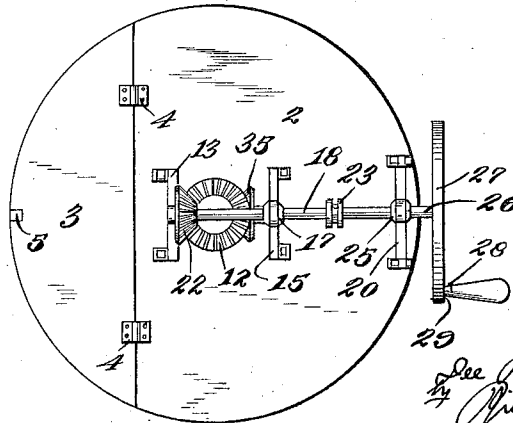


Fig. 2.



WITNESSES
A. T. Lacy.
Rohr Meyer.

INVENTOR
D. P. Long,
Richard Brown
Attorney

UNITED STATES PATENT OFFICE.

DEE P. LONG, OF SAMPSEL, OKLAHOMA.

CHURN.

1,091,887.

Specification of Letters Patent.

Patented Mar. 31, 1914.

Application filed April 5, 1913. Serial No. 759,158.

To all whom it may concern:

Be it known that I, DEE P. LONG, a citizen of the United States, residing at Sampsel, in the county of Cimarron and State of Oklahoma, have invented certain new and useful Improvements in Churns, of which the following is a specification.

This invention relates to churns and its primary object is to provide an improved general construction for the churning mechanism adapted to be actuated either manually or by mechanical power.

Another object of this invention is to provide an improved churn wherein all parts which contact with the milk during the churning operation are constructed of metal thereby being easily cleaned and much less accessible to bacteria or other germs, than wood or other absorbent material.

A still further object of this invention is the provision of the dasher or agitator for the churn of improved construction which will eliminate striking the milk flatly or beating it, thereby separating the small particles of butter fat which have congregated or adhered one to the other, and will agitate the milk in an efficient and general manner imparting whirling motion thereto and not with the contacting or beating force as is commonly found in churns of this type.

With the foregoing and other objects in view, this invention consists in such novel features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawings and claimed.

In describing the invention in detail, reference will be had to the accompanying drawings, wherein like characters of reference designate like or corresponding parts throughout the several views, and in which,

Figure 1 is a longitudinal sectional view through the churn receptacle showing the dasher and mechanism for operating the same in elevation; and, Fig. 2 is a top plan view of the churn.

In referring to the drawings by numeral, 1 designates the receptacle or container for the churn which is preferably constructed of any suitable sheet metal so that it may be easily cleaned and will not absorb any of the impurities which might be contained in the milk. A suitable covering or closure 2 is removably connected to the upper end of the container 1 and has a door 3 hingedly connected thereto as at 4. The door 3 is

held closed by means of the ordinary catch 5 which engages a staple or other suitable means 6 upon the outside of the container 1. This door 3 forms a means for putting the milk or cream into the container 1 previous to the churning of the same and also forms a means for conveniently removing the butter fat, after the same has been separated from the milk, from the churn.

A shaft 10 is mounted within the receptacle 1 and has its lower end seated in a bearing member 11 which is formed upon the inner surface of the bottom of the container 1 while the upper end of the shaft extends through the opening in the closure 2 and has a bevel gear 12 mounted upon its upper end. The upper end of the shaft 10 is supported by a bracket 13 which is secured to the closure 2 by any suitable means as at 14. Another bracing member 15 is also secured to the closure 2 as at 16 and has a bearing 17 formed upon its upper end. A shaft 18, which extends parallel with the lateral ends of the container 1 or at right angles to the shaft 10 is mounted within the bearing 17 and the bearing 19 which is formed upon the upper end of the bracing member 20. The bracing member 20 is also mounted upon the closure 2 and secured thereto as at 21. Mounted upon the outer end of the shaft 18 is a bevel gear 22 which meshes with the bevel gear 12 while a small pulley 23 is also mounted upon the shaft 18 at a point intermediate the two bearings 17 and 19. The braces 15 and 20 have other bearings 24 and 25 formed thereupon respectively, which bearings support a shaft 26 which extends parallel with the shaft 18 and which has a balance wheel 27 mounted upon its outer end. A handle 28 or other suitable means whereby rotary motion may be imparted to the wheel 27 is secured thereto as at 29.

A pulley wheel 30 is mounted upon the shaft 26 in alinement with the pulley 23 upon the shaft 18 and a small belt 31 passes over these pulleys forming means of communication between the shafts 26 and 18 and transmitting the rotary motion which is imparted to the shaft 26 by means of the balance wheel 27 to the shaft 18.

A hollow tubular shaft 32 is mounted in a bearing 33 which is secured to the upper surface of the closure 2 and extends downwardly into the receptacle 1 encompassing a shaft 10 for approximately one-half of the

length thereof. The hollow shaft 32 has a bevel gear 34 which is rigidly mounted upon its upper end which meshes with a bevel gear 35 which is rigidly mounted upon the inner end of the shaft 26. Screw propellers 37 and 38 are secured to the hollow shaft 32 and also to the shaft 10 and rotate with the shafts respectively.

The bevel gears 22 and 35 being disposed so as to mesh with the gears 12 and 34 respectively from opposite sides of the same will cause the shafts 10 and 32 upon which the bevel gears 12 and 34 are mounted respectively to rotate in opposite directions when rotary motion is imparted to the shafts 18 and 26 by means of the balancing wheel 27. This rotating of the shafts 10 and 32 will also rotate the propellers 37 and 38 in opposite directions and cause a thorough as well as a general agitating of the milk or cream which is contained within the receptacle 1, causing the same to assume a whirling motion. The screw propelling members 37 and 38 are so shaped that while causing a whirling motion of the milk, the portions 40 thereof will contact with the milk or cream in such a manner and with the necessary force to cause the small particles of butter fat to be separated from the cream and to congregate together, thus insuring the best possible results in abstracting the butter fat from the milk.

Should it be desired the bevel gears 22 and 35 may be disposed upon the shafts 18 and 26 in a position so as to engage the connections 12 and 34 in the same manner or from the same side and by twisting or cross-

ing the belt 31 the motion which is imparted to the shaft 26 will be reversed when imparted to the shaft 18, thus causing the two shafts 10 and 32 to rotate in opposite directions.

Should it be desired the shaft 10 which has the spiral portion 38 thereupon may be removed and only the upper or hollow shaft 32 used. This shaft 10 may also be removed for facilitating the cleaning of the hollow shaft 32 by removing the beveled gear 12 off the upper end of the same.

In practical fields, certain minor features of construction, combination and arrangement of parts may necessitate alterations to which the patentee is entitled, provided such alterations are comprehended within the scope of what is claimed.

What is claimed is:—

In a churn including telescoping shafts, a spiral agitator extending along one of said shafts and therearound at least one turn and a spiral agitator extending along the other of said shafts and substantially meeting to form a practically continuous spiral, said second spiral agitator extending around said shaft at least one turn, said first mentioned spiral agitator being arranged above said second mentioned spiral agitator, for the purpose set forth.

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

DEE P. LONG.

Witnesses:

JAMES DUFFIELD,
THORNTON DUFFIELD.