F. McENTIRE.

CHURN.

APPLICATION FILED MAR. 2, 1916.

1,225,462.

Patented May 8, 1917.

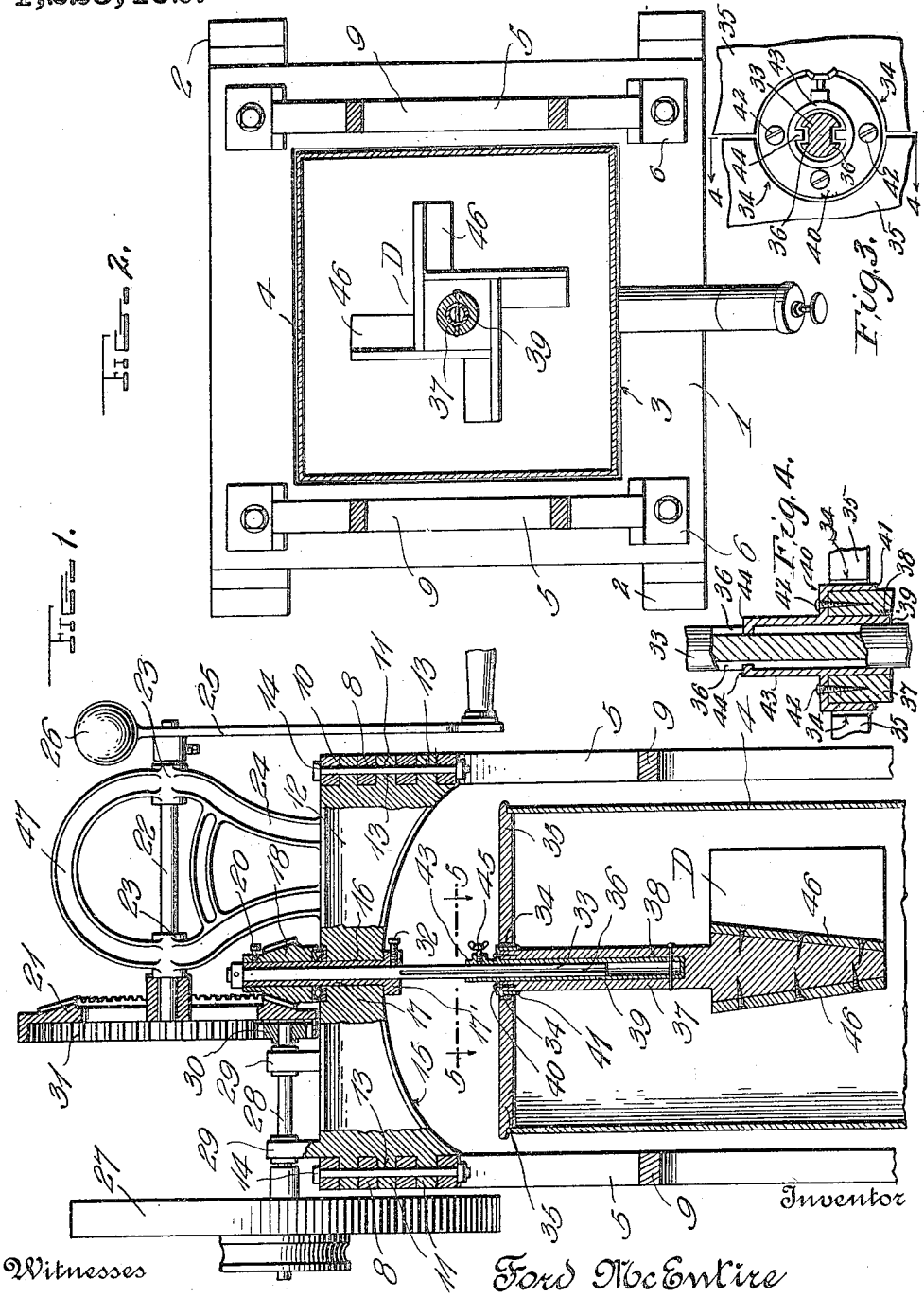


Fig. 2.

Fig. 3.

Fig. 4.

Fig. 1.

Witnesses

H. Woodard

Inventor

Ford McEntire

by H. B. Williamson & Co.

Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FORD McENTIRE, OF SHELBY, NORTH CAROLINA.

CHURN.

1,225,462. Specification of Letters Patent. Patented May 8, 1917.

Application filed March 2, 1916. Serial No. 81,725.

To all whom it may concern:

Be it known that I, FORD McENTIRE, a citizen of the United States, residing at Shelby, in the county of Cleveland and State of North Carolina, have invented certain new and useful Improvements in Churns; and I do 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 appertains to make and use the same.

This invention relates to improvements in churns, and the principal object is to provide an article of this character, the parts of which can be readily dismounted for storage or the like.

Another object is to provide a churn having an improved means for shortening and lengthening the operating rod which supports the dasher so that said dasher may be moved toward or away from the bottom of the cream can.

With these and many other objects in view, my invention resides in certain novel features of construction, combination and arrangement of parts which will hereinafter be more particularly described and claimed and shown in the drawings wherein:—

Figure 1 is a central vertical longitudinal section of the upper portion of the cream can and the operating means for the dasher;

Fig. 2 is a transverse horizontal section taken on a plane immediately above the dasher D;

Fig. 3 is a similar view taken on the line 3—3 of Fig. 1, the parts however being on an enlarged scale; and

Fig. 4 is a detail vertical section taken on the line 4—4 of Fig. 3.

As shown in the accompanying drawings, my improved churn comprises a supporting base 1 preferably rectangular in plan view and raised above the floor by the feet 2, said base having a rectangular recess 3 in its top for the reception of a similarly shaped cream can or receptacle 4 in which a dasher D is designed to rotate. A pair of supporting standards 5 are secured by their feet 6 to this base 1 adjacent the opposite edges thereof. Each of these supporting standards is substantially inverted V-shape, the legs 7 thereof converging from their feet 6 to the upper end where they merge into a shank 8, the intermediate portions of the legs being strengthened by the transverse bar 9 formed integrally therewith as shown in Fig. 2.

The shanks 8 are provided with a plurality of vertically alined spaced apart sockets 10 which receive the vertically alined spaced apart lugs 11 carried by the opposite ends of a frame 12. Each series of lugs 11 has a vertical aperture 13 which alines with an aperture in each shank 8 in order that a connecting pin or bolt 14 may be placed therethrough as shown in Fig. 1 to secure the parts in operative position. From an examination of the drawings, particularly Figs. 1 and 2, it will be seen that the receptacle 4 is disposed between the supporting standards 5 and its upper end is spaced a considerable distance below the frame 12.

This frame 12 is designed to support the means for rotating the dasher D, and as shown is substantially rectangular in cross section, its top being flat while its under side is arched as at 15. The central part directly over the center of the receptacle 4 is provided with an aperture 16 in which a sleeve 17 is disposed, the upper end of said sleeve having a beveled gear 18 fixed thereto. This gear 18 preferably has a collar formed integrally therewith through which a set screw 20 extends for attaching the sleeve 17 and the gear together. This beveled gear 18 is designed to mesh with a larger beveled gear 21 carried by one end of a rotary shaft 22 which is mounted in bearings 23 supported by a bracket 24 integrally formed with said frame 12. The shaft 22 and gear are rotated by means of a crank 25 fixed to the opposite end of said shaft, said crank having a ball or other weight 26 on one end to aid in operating the same.

For mechanically operating the beveled gears 18 and 21, I provide a fly wheel 27 fixed on a rotatable shaft 28, said fly wheel being adapted to receive a belt or any other driving connection from a suitable source of power (not shown). This shaft 28 is mounted in the vertical plane of the shaft 22, but in a horizontal plane below that occupied

by the other shaft, and is supported by the bearings 29 formed on the upper side of said frame 12. A pinion 30 is fixed to the end of the shaft 28 opposite to the fly wheel and meshes with the internal gear 31 which is integrally cast with the beveled gear 21 as shown in Fig. 1. This arrangement permits the beveled gear 18 and the sleeve 17 to be either operated manually by the crank 25 or mechanically through power transmitted to the shaft 28. It will also be seen that by providing the fly wheel 27, the manual operation of the device will be greatly facilitated, because of the fact that this wheel will act as a balance wheel, its momentum causing the gears to move with greater ease once it has been started.

Furthermore by providing means for connecting the gear 18 on the upper end of the sleeve 17, said sleeve which has a head 17′ on its lower end, will be held in said frame 12, and the gear will be maintained in cooperative engagement with the larger gear 21. This head 17′ has a threaded opening for the reception of a set screw 32 for locking an operating rod 33 therein so that it may be rotated with the gear 18. This operating rod extends downwardly through an opening 34 in the two-part cover 35 of the receptacle 4 and into the interior thereof.

As shown the lower end of the rod 33 below the head 17′ is provided with grooves 36 which are disposed at diametrically opposite points therein and extend longitudinally thereof. This end is designed to slidably receive the stem 37 of the dasher D, said stem being provided with a longitudinally extending bore 38 for this purpose. Before inserting the rod into the bore, a cylinder 39 is placed therein, the inner diameter thereof being substantially the same as the rod 33 to prevent its wabbling. The lower end of the cylinder 39 has a pin extending therethrough, said pin also extending through the stem 37 to prevent one shifting in the other, the other end of the cylinder being provided with an annular flange 40 which has a depending portion 41 to form a cap which slips over the free end of the stem 37 as shown in Fig. 1. As shown also in this figure the cap is disposed in the opening formed in the top of the two-part cover 35 of the receptacle, thus forming a bearing surface for the preferably wooden stem of the dasher. Although it is sometimes necessary to regulate the position of the dasher within the receptacle, this seldom takes place except when receptacles of different heights are used. In other words if a shorter receptacle was disposed on the base of the device, the dasher would be lowered until the cap on the end with the stem was disposed within the opening in the top 35 in the manner shown in Fig. 1.

As shown, fastening elements 42 pass through said flange into the stem. This cap member has an opening through which the rod 33 extends into the cylinder 39, and surrounding this opening is a sleeve 43, its inner diameter being substantially the same as the diameter of the rod 33. The sleeve 43 is provided with a pair of inwardly extending lugs 44 which are disposed in the grooves 36 to prevent the rotation of the stem 37 thereon, while at the same time allowing said stem to be moved vertically. The sleeve 43 is also provided with a set screw 45 by which the stem may be secured in its adjusted position on the rod.

The lower end of the stem 37 has a head integrally formed therewith, said head being square in cross section and tapered from its upper toward its lower end. Dasher wings 46 are secured by their sides to the flat faces of the head, four of these wings being provided, one for each of the faces. Only one end of each wing extends beyond the edges of each face, the other end being beveled and disposed flush with the edge of the face to which it is applied and contacts with the intermediate portion of the adjacent wing. This particular construction is best shown in Figs. 1 and 2.

From the foregoing description, it will be seen that the several parts of the device may be readily disconnected for the purpose of storage or the like, the supporting standards being readily removed from the base 1, and the frame 12 disconnected from the ends of the standards. When the bolts 14 have been removed the frame 12 can be readily removed from the ends of the standard, a hand grip 47 being provided so that the same can be readily lifted from place. This member 47 is arched and its lower ends are formed integrally with the bearings which are supported by the bracket 24.

While I have described the elements of my invention with considerable minuteness of detail, it is obvious that various changes may be made in the form and proportion thereof without departing from the principle or spirit of the invention as defined in the following claim.

I claim:

In combination, a stationary member having a circular opening therein, a rotary member, a stem extending from the rotary member into said circular opening, said stem having a longitudinally extending bore, a tube in said bore and projecting beyond the end of the stem, said tube having a radial flange formed thereon at a point spaced from its outer end and disposed in engagement with the end of the stem, an annular flange being formed on the edge of the radial flange and surrounding the end of the stem, said annular flange being disposed in said circular opening to form a bearing surface for the stem, means for securing

the tube and flanges to the stem, a rod slidable and nonrotatable in said tube, means on the tube between its end and said radial flange for engagement with the rod to hold the same in adjusted positions in said tube, and operating means connected with the rod.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FORD McENTIRE.

Witnesses:
RUSH STROOP,
J. J. LATTIMORE.

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