

UNITED STATES PATENT OFFICE.

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CHURN-POWER.

No. 928,297.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM S. WHITNEY, a citizen of the United States, residing at Fort Smith, in the county of Sebastian, State of Arkansas, have invented certain new and useful Improvements in Churn-Powers; and I do hereby 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 devices for operating churns, and for like purposes, and has for one of its objects to provide an efficient means whereby a churn may be operated with the expenditure of a relatively small amount of manual labor.

Another object of the invention is to provide a simply constructed apparatus arranged to utilize the reactionary force of one or more springs to produce the requisite motion to the churn dasher or to the churning paddles as the case may be.

The invention consists in certain novel features of construction as hereafter shown and described and then specifically pointed out in the claims, and in the drawings illustrating the preferred embodiment of the invention,

Figure 1 is a side elevation partly in section of the improved device. Fig. 2 is a front elevation.

The improved device comprises a base or platform 10 of sufficient size to carry the framework of the operating mechanism and likewise support the churn body 11, the latter suitably supported upon the platform by brackets 12 to prevent displacement during the churning action. The framework supporting the operating mechanism comprises two vertical members 13—14 secured by bolts or other fastening means 15 to the base 10 and with a transverse head 16, the head overhanging the frame member 13 at 17 and provided with a depending guide member 18, the latter provided with a longitudinal guideway 19 in its face.

Mounted for rotation transversely of the frame members 13 is a shaft 20 carrying a

crank 21 upon its outer end, the crank having a longitudinal slot whereby it may be adjustably connected to the shaft 20 to enable the "throw" of the crank to be adjusted as required.

Depending from the overhanging portion 17 is a vertical guide rod 22, and slidably disposed upon this guide rod is a cross head 23, the outer face of the cross head having a reduced portion slidably disposed in the guide way 19. The cross head 23 is coupled to the crank 21 by a connecting rod 24 so that the rotary motion of the shaft 20 will reciprocate the cross head 23. The dasher rod is represented at 25 and provided with a head 26 at the upper end through which a rod 27 extends, the upper end of the rod being connected or formed integral with the cross head 23, the head 26 having a set screw 28 whereby the dasher rod may be adjustably connected to the cross head rod 27, and thus adjust the position of the dasher 29 within the churn body and also to adapt the dasher to bodies of different lengths or sizes. By this arrangement it is obvious that by adjusting the crank 21 upon the shaft 20 the length of the "throw" or reciprocating movement of the churn dasher may be easily controlled and the churn dasher also adjusted to move through any desired portion of the churn body. By this means the dasher is easily adapted to the size of the churn body, or the amount of cream or milk therein.

Mounted for rotation between the frame members 13—14 near their upper ends is a shaft 30 and similarly mounted between the frame members near their lower ends is another shaft 31, the shafts carrying chain pulleys 32—33 over which an endless chain 34 operates. The shaft 30 is provided with a gear 35 engaging with a smaller gear 36 on a countershaft 37, the countershaft also carrying a gear 38 engaging with a pinion 39 on the shaft 20. By this arrangement motion imparted to the chain 34 will be transmitted through the gearing to the shaft 20 and its crank 21 and thence through the rods 24 and 27 to the dasher rod 25 as will be obvious, the gearing being arranged as

shown so that a relatively slow motion of the chain will impart a relatively rapid motion to the dasher.

Connected to the upper portion of the head member 16 are two brackets 40—41 extending in opposite directions. The bracket 40 is supported at its outer end by a stay rod 58, while the bracket 41 is supported at its outer end by a stay rod 59, the lower ends of the stay rods being secured to the base 10 in any suitable manner. The bracket 41 is provided with a cable sheave 42 over which a cable 43 passes, one end of the cable connected at 44 to the platform 10 and the other end of the cable connected to a hook 45, the hook being connected to one end of a spring 46, as shown. The opposite end of the spring is connected at 47 to the platform 10, and the cable 43 is provided at intervals with rings 48 or other suitable devices whereby weights 49 may be coupled to the cable. The cable is also provided with a foot engaging stirrup 50 as shown. The spring 46 is located close to the pulley 33 or contiguous to the chain 34, so that when the outer side of the cable 43, or the portion having the weights 49 and the stirrup 50 is moved downwardly the spring 46 will be distended or stretched upwardly, and when this has been accomplished by downward pressure applied to the stirrup 50, the hook 45 may be engaged with one of the links of the chain and the reactionary force of the spring utilized to draw the chain downwardly on one side and thus rotate the chain wheels 32—33 and thus operate the chain for a length of time corresponding to the length of the chain and the force exerted thereby. The weights 49 are utilized merely to assist in stretching the spring and lessening the labor required to accomplish that result, and as soon as the spring has been stretched to the required extent, and engaged with the chain 34 by its hook 45, the weights are removed so that no resistance is offered to the downward pull of the spring. A similar spring 51 is coupled at 52 to the bracket 40 while a pulley 53, corresponding to the pulley 42 is connected to the base 10 and a pull cable 54 connected to the hook 55 of the spring and thence carried around the pulley 53 and upwardly to the bracket 41 to which it is connected at 59. The cable 54 is provided with detachable weights 56 similar to the weights 49, a stirrup 57 being attached to the outer side of the cable in position to be pulled upwardly by the operator to distend the spring downwardly and engage its hook 55 with the chain near the pulley 33. By this means it will be obvious that if the cable 43 be operated by the stirrup 50 to pull the spring 46 upwardly and the cable 54 operated by

the pull handle 57 to distend the spring 51 downwardly and the hooks 45 and 55 engaged with the chain at its opposite sides, the two springs will operate simultaneously to rotate the shaft 30, and thereby operate the chain dasher as before described, the employment of the two churns doubling the force of the device, as will be obvious.

The springs 46—51 will preferably be of sufficient length so that when distended and engaged with the chain 34 the dasher 29 will be operated for a sufficient length of time to complete the churning action but if for any reason the churning action is not accomplished when the force of the springs is exhausted, they may be again distended and engaged with the chain and thus extend the time of the churning action indefinitely.

By this simple arrangement it will be obvious that the churning action may be accomplished by the expenditure of a relatively limited amount of labor by the operator, and is only required to actuate the stirrup 50 and the pull handle 57 to distend the spring and engage the same with the hooks 45—55 with the chain when the churning action thereafter is automatic.

The improved device is simple in construction, can be inexpensively manufactured, and applied to any of the various forms of churns, and adapted to churns of various sizes, and to regulate the throw of the dasher rod to any required extent, as above described.

While the structure shown is the preferred arrangement of the mechanism it will be understood that it is not desired to limit the construction, but changes and modifications may be made therein within the scope of the claims without departing from the principle of the invention or sacrificing any of its advantages.

What is claimed, is:—

1. A device of the class described comprising an endless chain mounted for rotation, a spring, a cable connected to said spring and operating to distend the same, means for detachably coupling said spring to said chain and a plurality of weights detachably coupled to said cable.

2. A device of the class described comprising two shafts spaced apart and carrying chain wheels, an endless chain operating over said wheels, means for transmitting the motion from said chain, springs at each side of said chain, said springs adapted to be alternately coupled to said chain when in distended positions to impart motion thereto.

3. A device of the class described comprising a base, a frame comprising spaced side members with a head portion laterally extended and with vertical guides depending from said extension, a shaft mounted for ro-

tation through said frame members intermediate the ends, a crank carried by said shaft, a cross head slidably engaging said guides, shafts spaced apart through said
5 frame members, chain wheels carried by said spaced shafts, means for imparting the motion of said spaced shafts to said intermediate shaft, a spring arranged at each side of said chain, a pull cord connected to each of said

springs, and weights detachably coupled to 10 each of said cables.

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

WILLIAM S. WHITNEY.

Witnesses:

CHAS. C. S. CHAMBERS,
BENJIMAN F. KANE.