No. 820,297. PATENTED MAY 8, 1906.

R. H. GARNER & K. T. HENLEY.

CHURN.

APPLICATION FILED JAN. 6, 1906.

Fig. 1.

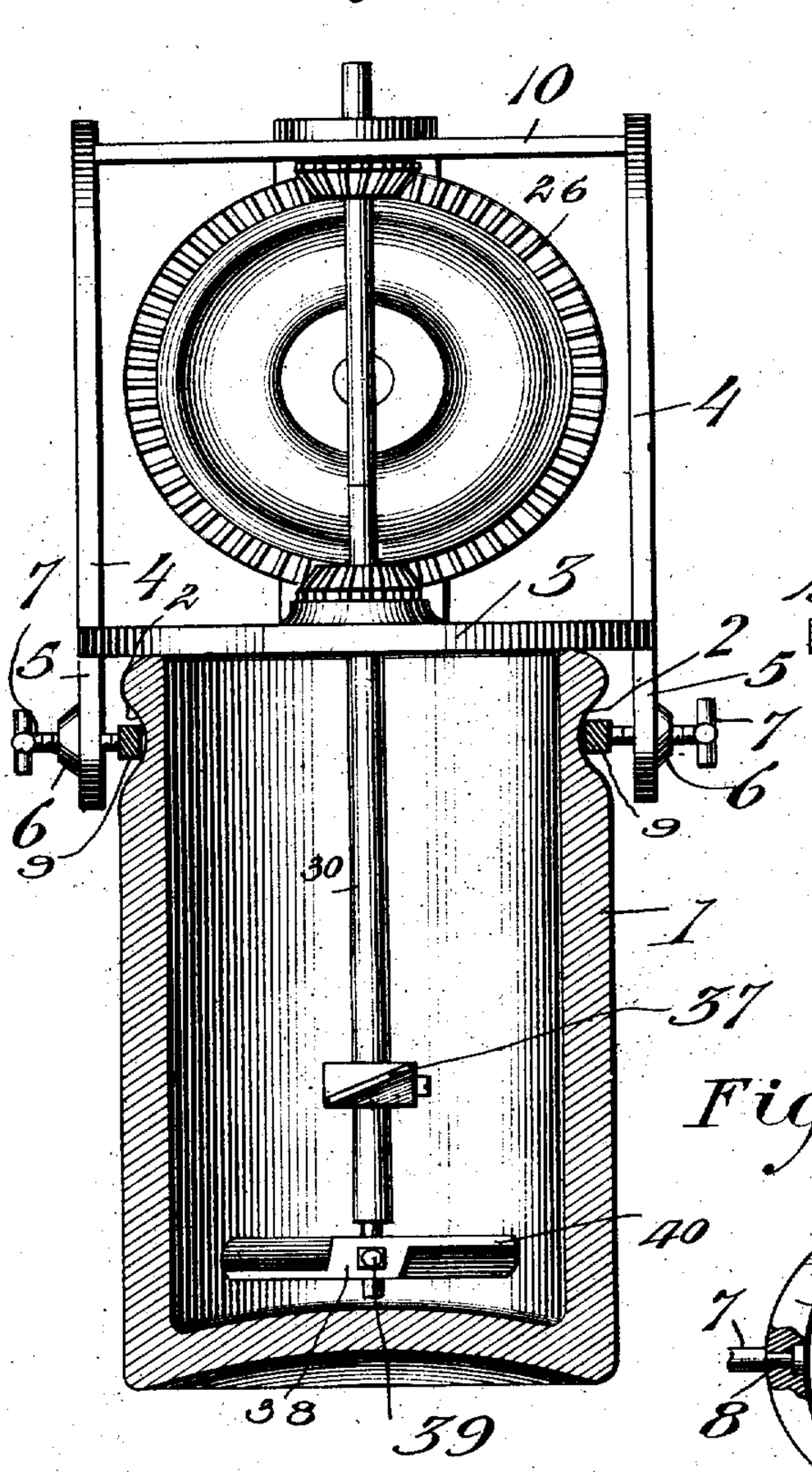

Fig. 2.

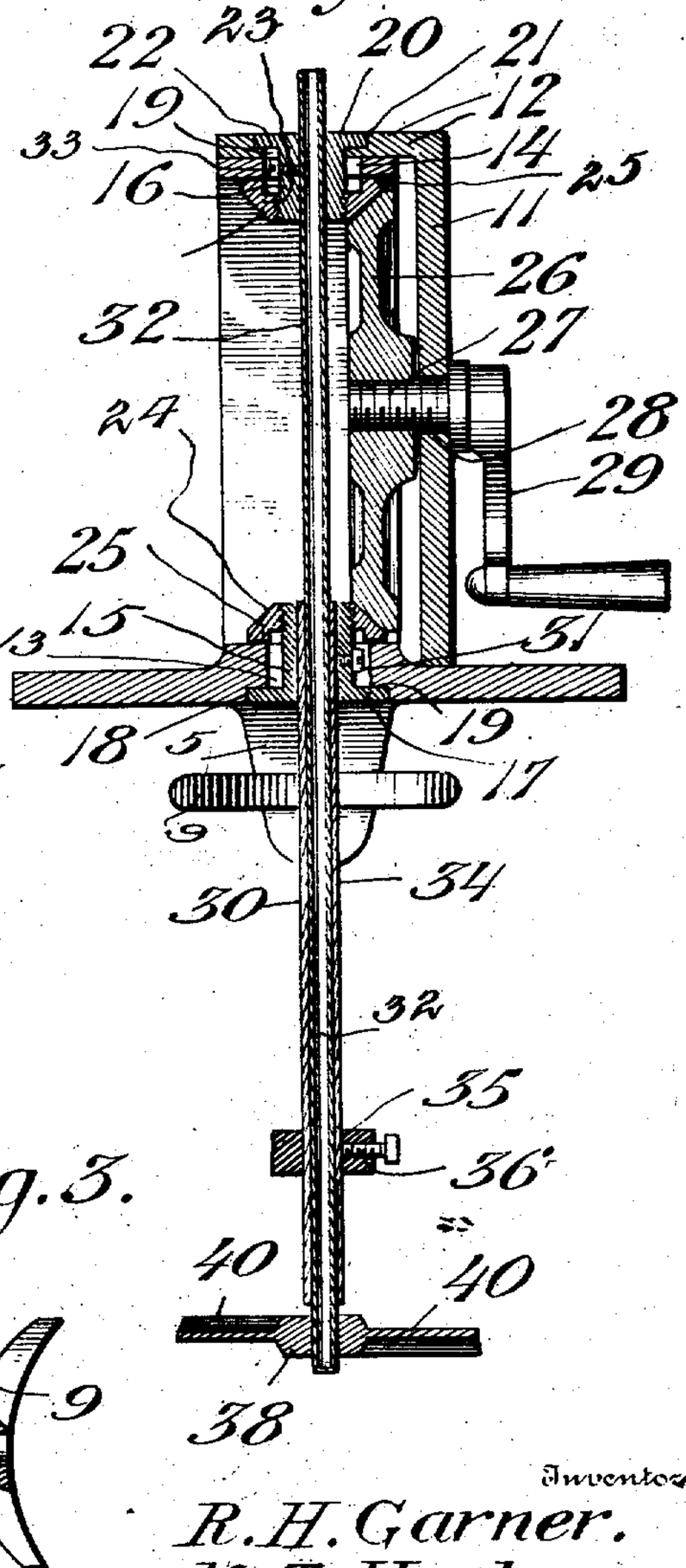

Fig. 3.

Witnesses:
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UNITED STATES PATENT OFFICE.

ROY H. GARNER AND KINTCHEN T. HENLEY, OF BAY CITY, ILLINOIS.

CHURN.

No. 820,297. Specification of Letters Patent. Patented May 8, 1906.

Application filed January 6, 1906. Serial No. 294,953.

To all whom it may concern:

Be it known that we, ROY H. GARNER and KINTCHEN T. HENLEY, citizens of the United States, residing at Bay City, in the county of Pope and State of Illinois, have invented new and useful Improvements in Churns, of which the following is a specification.

This invention relates to improvements in churns of that type employing a plurality of oppositely-rotating dashers and wherein the dashers and operating mechanism therefor are mounted upon a lid or cover adapted to be clamped to the churn-casing, the object of the invention being to provide a novel construction of churn of this character productive of specific advantages, as will be hereinafter fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a side elevation of the operating mechanism of the churn applied to the churn-casing, the latter appearing in vertical section. Fig. 2 is a vertical transverse section of the lid, frame, and dasher mechanism. Fig. 3 is a detail view of one of the clamps, showing the swiveled connection of its actuating-screw therewith.

Referring to the drawings, the numeral 1 designates the churn body or casing, which preferably consists of a stone jar formed adjacent its mouth portion with external grooves or recesses 2 and adapted to be closed by a removable lid or cover 3. The cover 3 supports a gearing-frame composed of a pair of side pieces or standards 4, suitably fixed at their lower ends thereto and provided with depending extensions 5, said extensions being formed with threaded eyes or apertures 6 for the reception of adjusting-screws 7, swiveled at their inner ends, as indicated at 8, to segmental clamping-jaws 9, said jaws being adapted to fit within the grooved portions 2 and bear against the same to hold the cover and parts applied thereto firmly in position upon the casing.

The standards 4 are connected at their upper ends by a cross or crown piece 10, and disposed upon one side of this cross-piece between the adjacent side edges of the standards and extending upwardly from the cover is a bearing-bracket 11, suitably fixed at its lower end to the cover and provided at its upper end with a horizontal arm 12, extending over upon and fastened in any preferred manner to said cross-piece.

The cover and cross-piece are formed with alined openings 13 and 14, receiving bearing-sleeves 15 and 16, the sleeve 15 being provided at its lower end with a flange 17, which is countersunk in a recess 18 at the base of the opening 13, said recess causing the production of a shoulder 19, engaged by the flange, whereby said sleeve is held from upward movement. The sleeve 16 extends through the opening 14 and through a registering opening 19 in the arm 12 and is provided at its upper end with a flange 20, countersunk in a recess 21, formed in said arm, said recess causing the production of a shoulder 22, against which said flange bears to limit the downward movement of the sleeve. The upper and lower ends of the two sleeves 15 and 16 are respectively threaded for engagement with hollow or tubular beveled pinions 23 and 24, each of which is provided with a bearing-shoulder 25, which shoulders, respectively, engage the upper surface of the cover and the lower surface of the crown-piece 10 to hold the sleeve 15 from downward and the sleeve 16 from upward movement, whereby the two sleeves are adapted to rotate in fixed planes in their respective bearing-openings. The pinions mesh with and are driven in reverse directions by a beveled drive-gear wheel 26, the hub of which is formed with a threaded opening for engagement with a threaded spindle 27, journaled in a bearing-opening 28, formed in the bracket 11 and carrying a crank-handle 29, whereby the gear may be operated.

Extending at its upper end through the sleeve 15 and projecting below the cover is a hollow shaft 30, which is fixed to said sleeve 15 by a set-screw 31. A hollow shaft 32 extends at its upper end through the sleeve 16 and is similarly fixed thereto by a set-screw 33. The shaft 32 also extends downward loosely through the hollow shaft 30 and projects below the same, the construction thus being such that the two shafts will rotate with the bearing-sleeves in opposite directions when motion is imparted thereto through the pinions and beveled drive-gear. The shaft 32 forms a conductor through which hot or cold water may be introduced into the churn.

The hollow shaft 30 carries a dasher 35, arranged to slide vertically thereon and adapted to be fixed thereto by a set-screw 36, said dasher being provided with a pair of obliquely-set blades 37, tending to force the cream downward, the adjustability of said

dasher permitting it to be set at different elevations within the churn-casing to operate effectually according to the level of the cream or the amount of cream contained in said casing. The lower end of the shaft 32 carries a rotary dasher 38, fixed thereto by a set-screw 39 and provided with obliquely-arranged blades 40, set reversely to the blades 37, so as to force the cream upwardly, the two dashers in their opposite rotary movements thus not only imparting rotary motion to the cream, but also an up-and-down motion, so as to affect its rapid and thorough conversion into butter.

The modes of employing the churn mechanism will be apparent, and it will be seen that its construction is such as to adapt the dashers and drive mechanism to be used in succession for churning the cream within any desired number of casings or jars and that by adjusting the upper dasher 35 the apparatus may be employed for operation in casings containing different quantities of cream. It will also be apparent that the construction of the operating mechanism is simple and capable of production at a comparatively low cost and that the mode of mounting the bearing-sleeves and pinions adapts them to run true at all times and prevent play and objectionable vibration of the parts.

Having thus described the invention, what we claim is—

1. In a churn, the combination of a casing, a cover therefor having an opening and an enlarged recess below the opening forming an interposed shoulder, a supporting-frame carried by the cover and having a superposed portion formed with a bearing-opening having a counterpart recess and shoulder at the upper end thereof, bearing-sleeves extending through said opening and provided at their respective lower and upper ends with flanges occupying said recesses and bearing against said shoulders, beveled pinions in threaded engagement with the upper end of the lower bearing-sleeve and the lower end of the upper bearing-sleeve and having shoulders respectively engaging the upper surface of the cover and lower surface of said superposed portion of the frame, a drive-gear mounted on the frame and meshing with said pinion, a hollow shaft extending through and fixed to the lower sleeve and carrying a dasher, a shaft extending through and fixed to the upper bearing-sleeve and projecting downward through and below the hollow shaft and carrying at its lower end a dasher, and means for securing the cover to the churn-casing, substantially as described.

2. In a churn, the combination of a casing, a cover therefor having an opening and an enlarged recess below the opening forming an interposed shoulder, a supporting-frame carried by the cover and having a superposed portion formed with a bearing-opening with a counterpart recess and shoulder at the upper end thereof, bearing-sleeves extending through said opening and provided at their respective lower and upper ends with flanges occupying said recesses and bearing against said shoulders, beveled pinions in threaded engagement with the upper end of the lower bearing-sleeve and the lower end of the upper bearing-sleeve and having shoulders respectively engaging the upper surface of the cover and lower surface of the said superposed portion of the frame, a drive-gear mounted on the frame and meshing with said pinion, a hollow shaft extending through and fixed to the lower sleeve, and dashers carried by said shafts and having obliquely-disposed blades arranged to respectively force the cream up and down the casing, the dasher upon the hollow shaft being adjustable to operate at different elevations.

3. In a churn, the combination of a casing, a cover therefor, a continuous hollow shaft, a second continuous hollow shaft extending through and above and below the first-named hollow shaft, said shafts having their lower ends arranged in juxtaposition, the lower end of the inner shaft opening directly into the casing, dashers independently fixed upon the lower ends of said shafts, and gearing acting upon the upper ends of the shafts for driving them in opposite directions.

In testimony whereof we affix our signatures in presence of two witnesses.

ROY H. GARNER.
KINTCHEN T. HENLEY.

Witnesses:
EDWARD HARRIS,
G. B. WATERS.

Certificate in Letters Patent No. 820,297.

It is hereby certified that the name of first-mentioned patentee in Letters Patent No. 820,297, granted May 8, 1906, for an improvement in "Churns," was erroneously written and printed "Roy H. Garner," whereas said name should have been written and printed *Ray H. Garner;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 4th day of December, A. D., 1906.

[SEAL.]

F. I. ALLEN,

Commissioner of Patents.