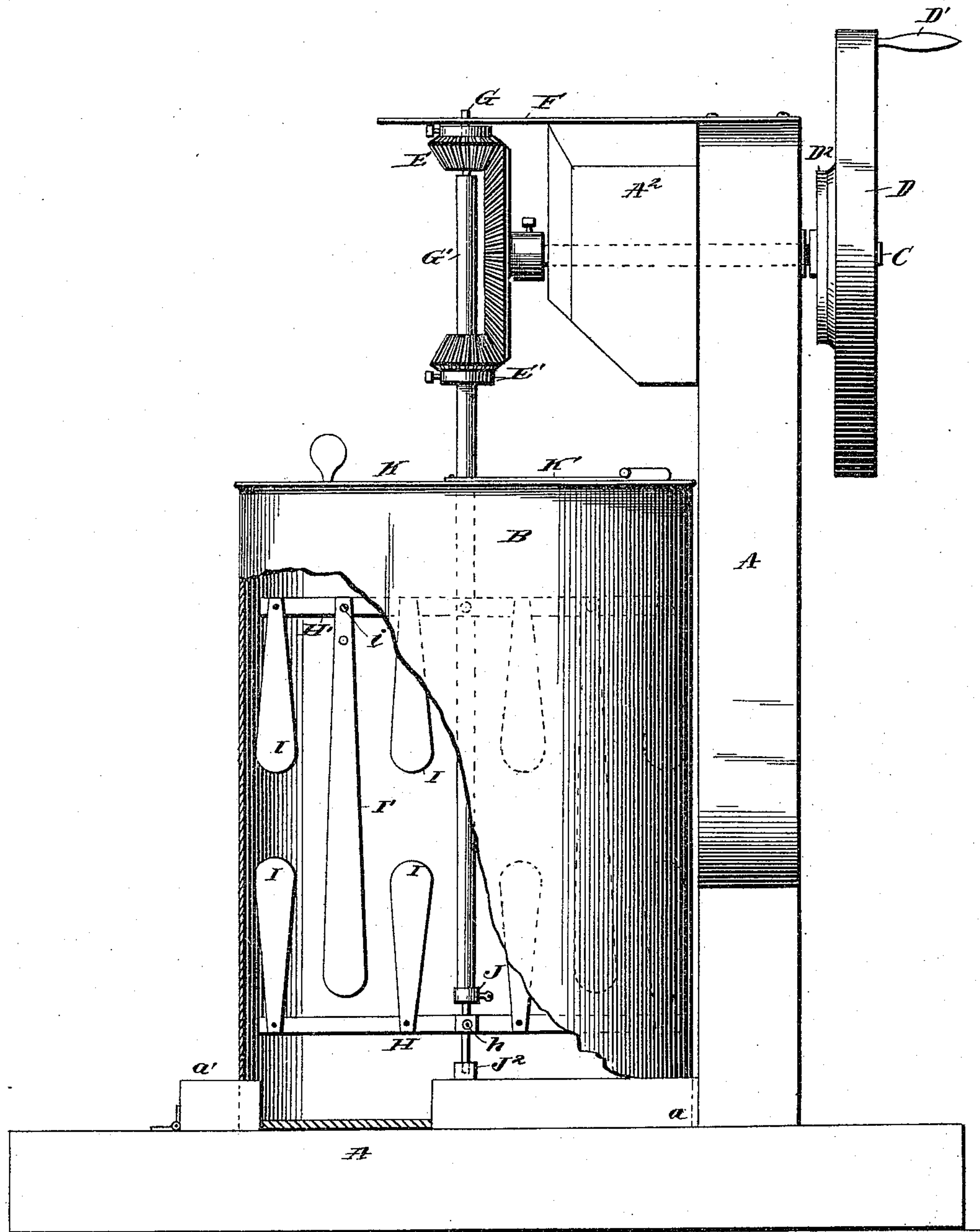


(No Model.)

E. D. MIDDLEKAUFF.
CHURN.

No. 438,482.

Patented Oct. 14, 1890.



Witnesses:

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UNITED STATES PATENT OFFICE.

ELLSWORTH D. MIDDLEKAUFF, OF STOCKTON, CALIFORNIA.

CHURN.

SPECIFICATION forming part of Letters Patent No. 438,482, dated October 14, 1890.

Application filed April 14, 1890. Serial No. 347,922. (No model.)

To all whom it may concern:

Be it known that I, ELLSWORTH D. MIDDLEKAUFF, a citizen of the United States, residing at Stockton, in the county of San Joaquin and State of California, have invented certain new and useful Improvements in Churns; 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.

The figure is a side elevation of my improved churn, a part of the side of the bowl being broken out to display the dasher apparatus.

My invention has relation to improvements in churns; and it consists in the construction, arrangement, and adaptation of devices, as will be hereinafter more fully set forth and claimed.

Similar letters of reference indicate corresponding parts.

A is the foot-stand of the frame, to which is attached a standard A', to the front of which at its top is attached a block A². A way or bearing for a shaft C is provided at the head of the standard A', through such standard, and through the block A². At the outer end of this shaft C is attached a fly-wheel D, provided with an operating-handle D' and a groove-pulley D² in case treadle-power is desired to be used. To the summit of the standard A' and block A² is attached a spring-steel bar F, the outer end of which forms the bearing of a vertical dasher-shaft G, which at its lower end is journaled in a step J² at the bottom of the churn-bowl B, which is seated on the foot-stand A, and is secured in position by side blocks a and front block a', the latter being hinged to the stand A. A hollow vertical shaft G' encircles the shaft G and is supported in position at its foot by a collar J, secured to the shaft by a set-screw. The lower cross-bar H of the dasher is attached near the bottom of the bowl to the shaft G by a set-screw h. To the bar H are attached four short blades I. The upper cross-bar H' is attached by a set-screw to the hollow shaft G', and is therefore vertically adjustable.

To the cross-bar H' are attached four blades I, corresponding to those attached to the lower bar H, the points of each set of blades being a few inches apart. Long vertical blades I'

are attached between each two of the upper blades I by screws i, and are provided with two or more holes each, so as to be vertically adjustable.

The gearing to impart motion to the shafts G and G' consists of a large bevel-gear D³, attached to the end of the shaft C, and meshes with a bevel-pinion E at the top of the shaft G, just beneath the end of the spring-bar F, and with a similar bevel-pinion E', attached to the hollow shaft G'.

By turning the handle D' or treadle-pulley D², attached to the fly-wheel D, the shaft C and its bevel-gear D³ impart motion to the bevel-pinions E and E' and their respectively-attached shafts G and G', causing the dasher-bars H and H' to rotate in opposite directions, whereby a most thorough agitation of the cream within the bowl of the churn is produced.

The long blades I' being vertically adjustable on the bar H' may be made long or short when operated, and thus be accommodated to a large or small quantity of cream within the bowl B. The cross-bar H' may be moved up and down on the shaft G' to accommodate any changes in the position of the blades I'.

The cover K is provided with a covered slot K'.

To remove the dashers and the shafts G and G' from the bowl B, the spring-bar F is raised at its outer end, releasing the shaft G. The cover K is then removed, the slot K' permitting it to pass the shaft G'. The dasher and shafts may then be lifted from the bowl B. The bowl B may be removed from the foot-stand A by turning back the hinged block a'.

Having thus described my invention, what I claim is—

In a churn having a double concentric dasher operated by a gear engaging gears on each dasher-shaft, the spring F, secured to standard A and having a bearing for the shaft G, and the slotted cover K, as and for the purpose set forth.

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

ELLSWORTH D. MIDDLEKAUFF.

Witnesses:

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