No. 889,854. PATENTED JUNE 2, 1908.

A. E. LINTON.

CHURN MOTOR.

APPLICATION FILED SEPT. 16, 1907.

Fig. 3.

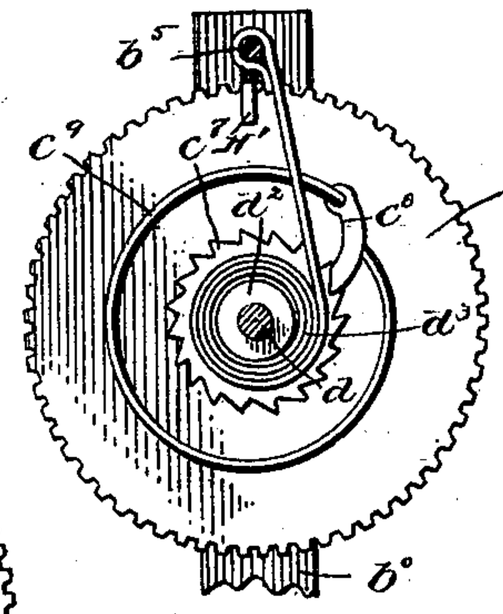


Fig. 1.

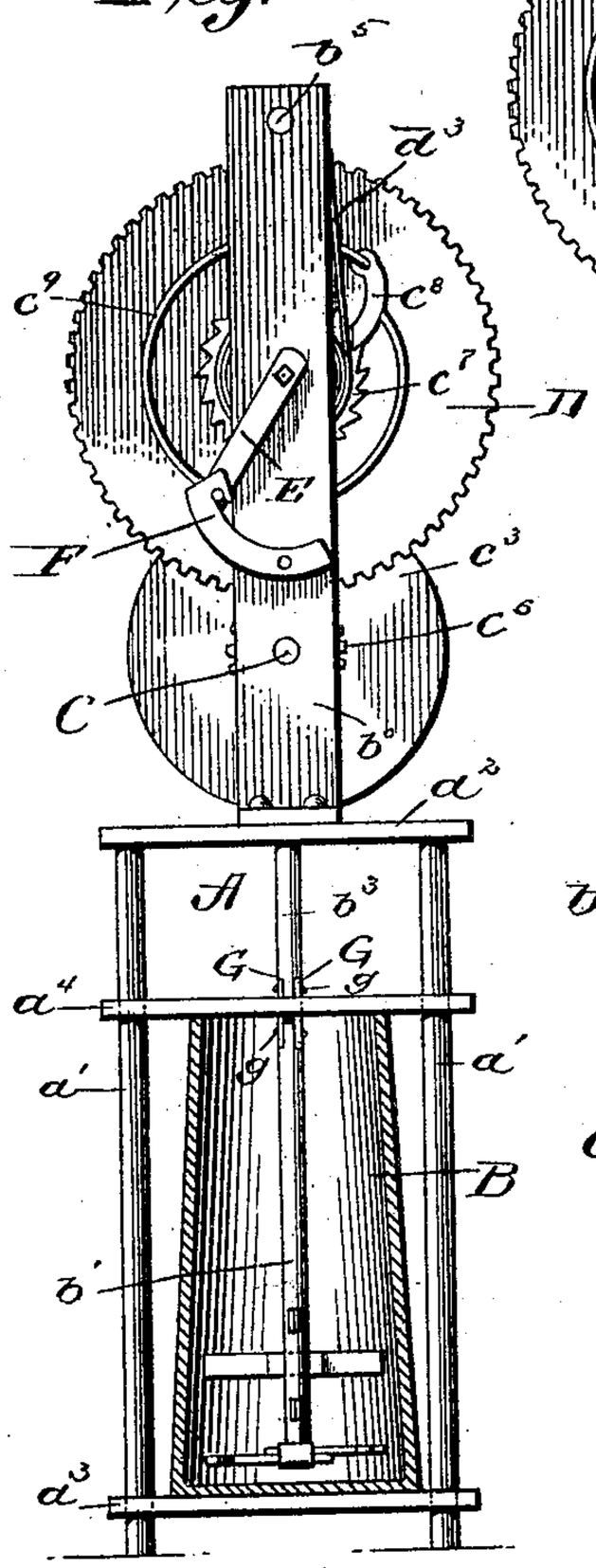


Fig. 2.

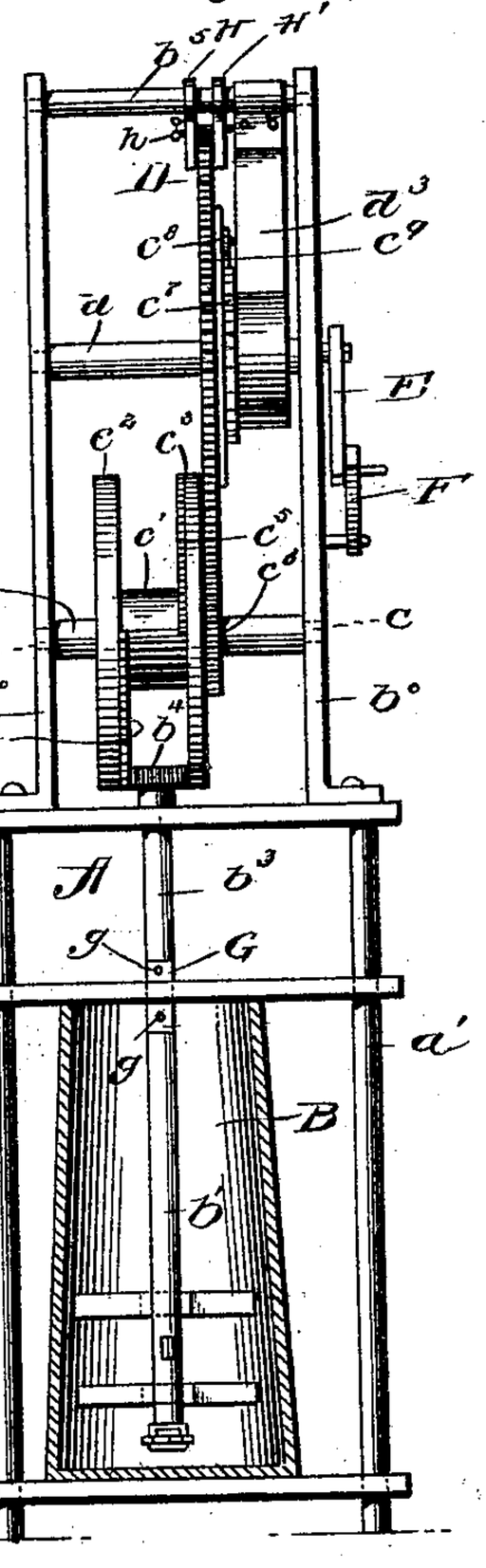


Fig. 4.

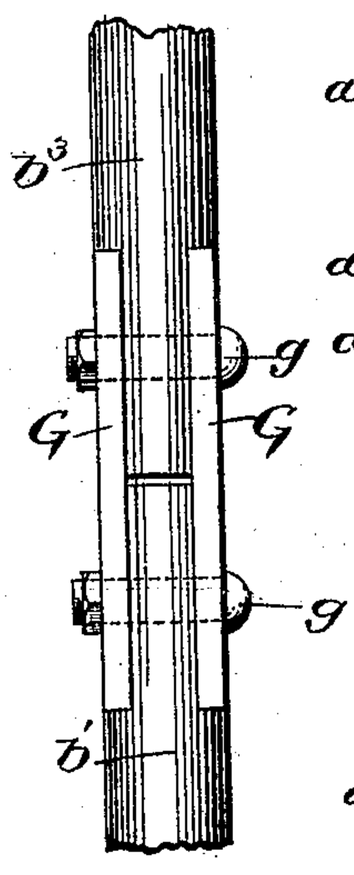


Fig. 5.

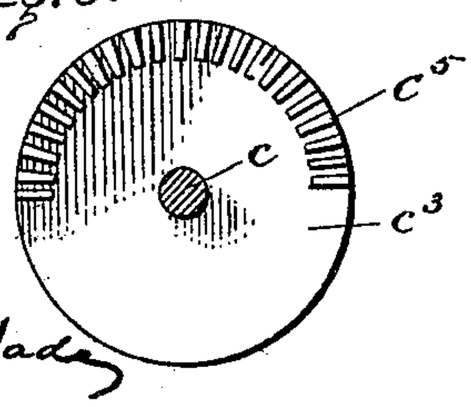
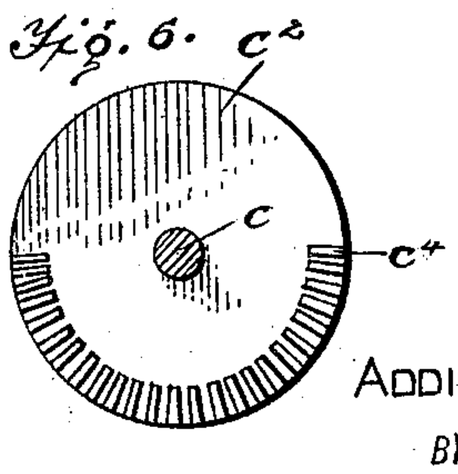


Fig. 6.



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CHURN-MOTOR.

No. 889,854. Specification of Letters Patent. Patented June 2, 1908

Application filed September 16, 1907. Serial No. 393,075.

To all whom it may concern:

Be it known that I, ADDIS EMMETTE LINTON, a citizen of the United States, and a resident of St. Paul, in the county of Madison and State of Arkansas, have made certain new and useful Improvements in Churn-Motors, of which the following is a specification.

My invention is an improvement in churn motors and consists in certain novel constructions and combinations of parts hereafter described and claimed.

Referring to the drawings, forming a part hereof Figure 1 is a side elevation of my invention showing the churn in section. Fig. 2 is a front elevation with the churn in section. Fig. 3 is a detail of the spring and connected parts. Fig. 4 is a detail of the coupling. Fig. 5 is a detail of one of the disks, and Fig. 6 is a detail of the other disk.

In the practical application of my invention I provide a framework A comprising the four uprights a', the upper and lower plates a^2 and a^3, and a central plate a^4. The churn B is of ordinary construction and rests upon the bottom plate a^3. A dasher b' rotates within the churn, and is provided with a coupling G for engagement with a stud shaft b^3, journaled in bearings in the top plate a^2 and provided with a pinion b^4 at its upper end.

Supports b^0 secured to the top plate a^2, extend upwardly therefrom and are connected at their free ends by a cross pin b^5. A shaft C is journaled in bearings c, in the supports and is provided with a collar c', in line with the pinion on the stud shaft. A pair of disks c^2, c^3, are secured to the shaft on either side of the collar, and are provided with a semicircular series of gear teeth c^4, c^5, on their inner faces at the outward margin thereof. The gear teeth on the disk c^4, are oppositely arranged to those on the disk c^5, that is, the gear teeth on both disks form a complete circle. The gear teeth on the disks engage with the pinion on the stud shaft, in such manner that when the shaft C is rotated the teeth on the disk c^4 being in engagement with the pinion, the stud shaft will be rotated towards the right, until it is released therefrom and engages the teeth of the disk c^5, when it will be rotated in the opposite direction. A pinion c^6 is secured to the outer face of one of the disks and meshes with the gear wheel D, secured to a counter shaft d, journaled in bearings in the supports, above the shaft C.

An arbor d^2 is journaled laterally on the shaft d and has secured thereto one end of a coil spring d^3 having its free end secured to the cross pin b^5. A ratchet wheel c^7 is secured to the end of the arbor adjacent the gear wheel, and is engaged by a pawl c^8 pivoted to the gear wheel, and maintained in contact with the teeth of the ratchet, by a spring c^9.

A crank arm E is secured to the extended end of the arbor, for winding the spring when desired. In operation the spring is wound up by means of the crank arm and is retained in its wound condition, by means of the catch F, pivoted to the support, and engaging with the handle of the crank arm. When the churn is properly arranged the catch is released, and the motor begins moving immediately. The engagement of the pawl with the ratchet wheel, drives the gear wheel, which in turn drives the pinion and rotates the disk bearing shaft. The gear teeth on the disks engage the pinion alternately and rotate the churn dasher in alternate directions.

My device is capable of use with the ordinary form of churn, since it may be coupled directly to the dasher of the same. To attain this end I provide the lower end of the stud shaft, with the fish plates G secured thereto by bolts g and secured by their free ends to the dasher, by bolts or by a clamp as desired.

It will be evident that my device possesses many advantages not found in the ordinary construction of motor, among which may be mentioned simplicity of construction, light draft, and lack of strain on the moving parts from a reversal of motion.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is—

1. In a motor the combination of a frame comprising top and bottom plates, and uprights connecting the plates, a stud shaft journaled in the top plate and provided with a pinion on its upper end, upwardly extending supports secured to the top plate, a cross pin connecting the free ends of these supports, a shaft journaled in the supports, a collar secured to the shafts, disks secured to the shaft on either side of the collar, and for engaging opposite sides of the pinion, a semi-

circular series of gear teeth on the inner face of one disk at the outer margin thereof, a semicircular series of gear teeth on the inner face of the other disk at the outer margin thereof, and oppositely disposed with respect to the teeth on the first named disk, a pinion on the shaft, a counter shaft journaled in the supports above the first named shaft, a gear wheel secured to the counter shaft and meshing with the pinion on the first named shaft, an arbor on the counter shaft, a coil spring secured at one end to the arbor and at the other end to the cross pin, a crank arm connected with the arbor a ratchet wheel secured to the arbor, and adjacent to the gear wheel, and a spring pressed pawl on the gear wheel for engaging the teeth of the ratchet wheel.

2. In a motor, the combination of a frame comprising top and bottom plates and uprights connecting the plates, a stud shaft journaled in the top plate and provided with a pinion on its upper end, upwardly extending supports secured to the top plate, a cross pin connecting the free ends of the supports, a shaft journaled in the supports, a collar secured to the shaft, disks secured to the shaft on either side of the collar and for engaging opposite sides of the pinion, a semicircular series of gear teeth on the inner face of one disk at the outer margin thereof, a semicircular series of gear teeth on the inner face of the other disk at the outer margin thereof and oppositely disposed with respect to the teeth of the first named disk, a pinion on the shaft, a counter shaft journaled in the supports above the first named shaft, a gear wheel secured to the counter shaft, and mesh ing with the pinion on the first named shaft, an arbor on the counter shaft, a coil spring secured at one end to the arbor and at the other end to the cross pin, and means connecting the arbor and gear wheel whereby the unwinding of the spring may actuate said gear wheel.

3. In a motor the combination of a frame comprising top and bottom plates and uprights connecting the plates, a stud shaft journaled in the top plate and provided with a pinion on its upper end, upwardly extending supports secured to the top plate, a cross pin connecting the free ends of the supports, a shaft journaled in the supports, a collar secured to the shaft, disks secured to the shaft on either side of the collar, and for engaging opposite sides of the pinion, a semicircular series of gear teeth on the inner face of one disk at the outer margin thereof, a semicircular series of gear teeth on the inner face of the other disk at the outer margin thereof and oppositely disposed with respect to the teeth of the first named disk, a counter shaft journaled in the supports above the first named shaft, an arbor on the counter shaft, a coil spring for actuating the arbor, connections between the arbor and the counter shaft whereby the unwinding of the spring may drive the counter shaft, and connections between the counter shaft and the disk bearing shaft for actuating the same.

4. In a motor the combination of a frame, a stud shaft journaled in the frame and provided with a pinion at its upper end, supports on the frame, a shaft journaled in the supports, a collar secured to the shaft, disks secured to the shaft on either side of the collar and for engaging opposite sides of the pinion, a semicircular series of gear teeth on the inner face of one disk at the outer margin thereof, a semicircular series of gear teeth on the inner face of the other disk at the outer margin thereof and oppositely disposed with respect to the teeth of the first named disk, a counter shaft journaled in the supports above the first named shaft, an arbor on the counter shaft, a coil spring for actuating the arbor, means connecting the arbor and the counter shaft whereby the unwinding of the spring may actuate said shaft, and means whereby motion of the counter shaft may be imparted to the disk bearing shaft.

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