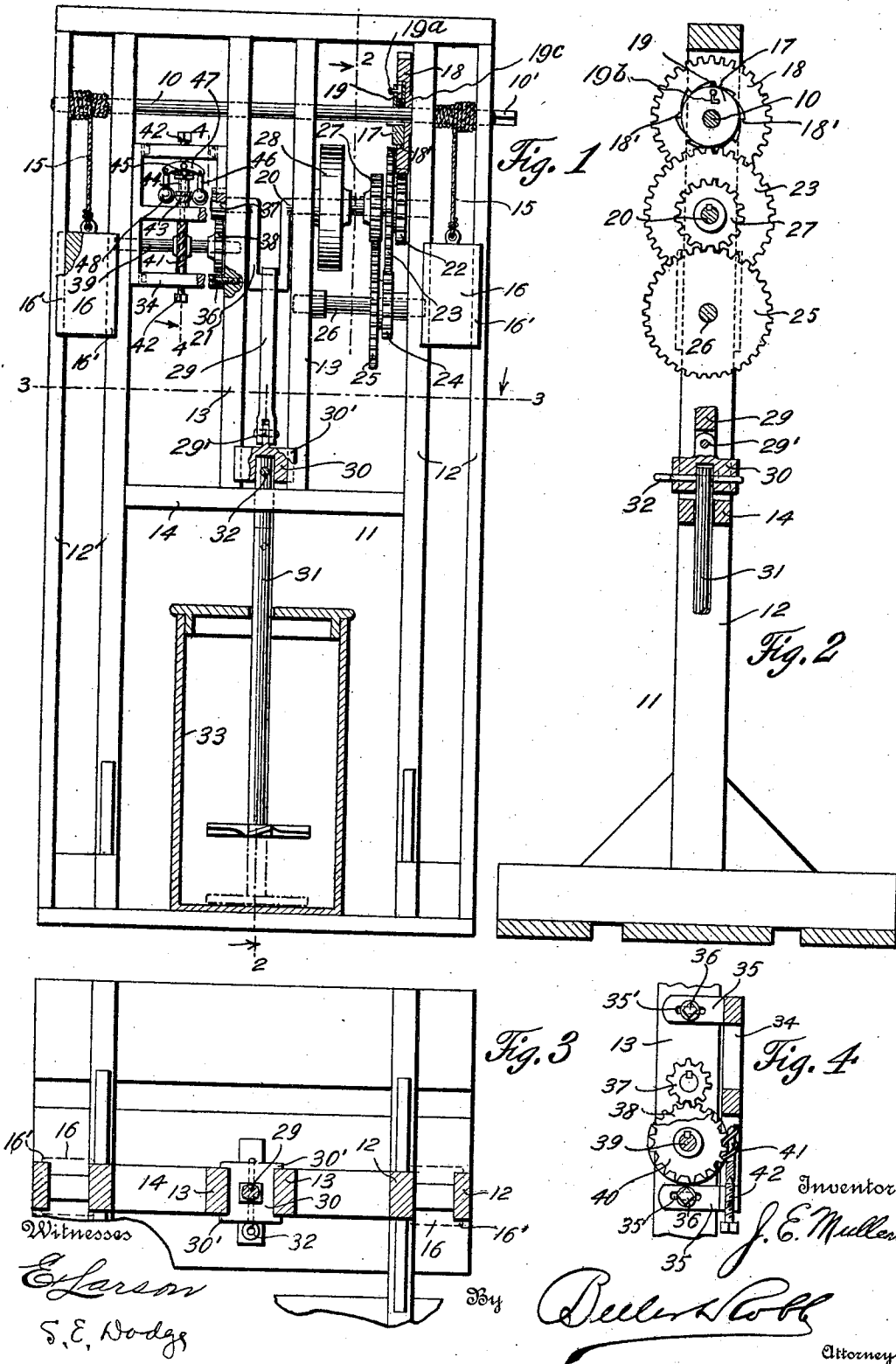


J. E. MULLEN.
CHURN POWER.
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JESSE E. MULLEN, OF BROWNSVILLE, TENNESSEE.

CHURN-POWER.

946,615.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JESSE E. MULLEN, a citizen of the United States, residing at Brownsville, in the county of Haywood and State of Tennessee, have invented certain new and useful Improvements in Churn-Powers, of which the following is a specification.

This invention relates to power machinery for operating churns or similar devices, and has particular reference to the specific novel details of construction hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the invention, certain parts being broken away to disclose certain structural features; Fig. 2 is a transverse vertical section, substantially on the broken line 2—2 of Fig. 1; Fig. 3 is a transverse section on the line 3—3 of Fig. 1, and Fig. 4 is a vertical transverse sectional detail substantially on the broken line 4—4 of Fig. 1.

Throughout the following detail description and on the several figures of the drawings similar parts are referred to by like reference characters.

The invention comprises a power shaft 10 mounted transversely in bearings in a suitable rigid frame-work 11. The shaft 10 is adapted to be operated at one end 10' by any suitable mechanism preparatory to the operation of the machine in the manner hereinafter described. The frame 11 includes a pair of parallel vertical standards 12 at each side thereof and extending substantially throughout the entire height of the machine. The frame includes also another pair of vertical parallel standards 13, extending downwardly from the top of the frame for a shorter distance than the standards 12 extend, and are braced at their lower ends by a cross piece 14 connected to the inner members of the pairs of members 12. The shaft 10 is journaled in all of said pairs of standards. A power cable 15 is connected to each end of the shaft 10 between the adjacent pair of standards 12, and to the other end of the cable is connected a weight 16 having flanges 16' embracing said standards 12, whereby the weight is properly guided in its vertical movements. Power being applied to rotate the shaft 10 the cables 15 are wound thereupon and the weights 16 hoisted toward the top of the frame. A hub 17 is connected rigidly to the shaft and adjacent

thereto is a gear wheel 18, normally loose upon the shaft. A pin 19 movable radially in the hub 17 may engage the ratchet teeth 18' of the wheel, whereby the hub will drive the wheel in one direction, but permit independent movement in winding. A finger piece 19^a of the pin 19 projects laterally through a bayonet slot 19^b and whereby the pin may be drawn inwardly toward the shaft against the tension of a spring 19^c, and when the pin is rotated slightly by the finger piece so as to bring said finger piece into contact with the shoulder at the end of the slot, the pin may be held withdrawn out of engagement with the ratchet teeth 18' leaving the power shaft 10 and hub 17 free to rotate in either direction without disturbing the gear wheel 18. A crank shaft 20, having a crank 21, is journaled in the short standards 13 and one of the side standards just below and parallel to the power shaft 10. A pinion 22 is mounted loosely on the crank shaft 20 and is in mesh with the gear wheel 18. Another gear 23, likewise loose on the shaft 20, is rigidly connected to the pinion 22. The gear 23 meshes in turn with a second pinion 24, which together with a companion gear 25, is journaled loosely upon a counter-shaft 26. The last mentioned gear 25 meshes with a pinion 27 rigidly secured to the crank shaft, whereby when the power shaft 10 and the intermediate gearing are operated the crank shaft will be driven at a correspondingly high speed. The crank shaft may be provided with a fly-wheel 28 if desired. A pitman 29 is connected to the crank 21 at one end and is pivoted at its other end at 29' to a cross head 30 having flanges 30' and slidable vertically between the intermediate standards 13. The transverse form of the cross head is similar to that of the aforesaid weights 16, with reference to its guide flanges. When the crank shaft is rotated the pitman and cross head will be reciprocated, and the churn dasher 31, connected detachably to the cross head by means of a pin 32, will be given a vertical reciprocation in a well known manner.

In order to separate the churn 33 from the machine it is only necessary to remove the pin 32, allowing the dasher 31 to drop downwardly into the dotted line position indicated in Fig. 1, at which time the upper end thereof will be free from the brace 14 in which it normally has bearing.

In order to control the speed at which the

machine will operate under the influence of the weights 16 there is provided a governing device including a frame 34, vertically disposed and having pairs of laterally extending ears 35 having horizontal slots 35'. Said ears lie in proximity to the opposing faces of one of the side standards 12 and one of the central standards 13. By virtue of said slots the frame 34 may be adjusted bodily laterally and is adapted to be secured in such adjusted position by means of set bolts 36 passed through said slots and into said standards. The adjacent end of the crank shaft 20 is provided with a pinion 37 which meshes with a gear 38 secured to a shaft 39 journaled in the last mentioned standards. The shaft 39 has connected thereto a worm gear 40 meshing with a worm 41, the ends of which are supported by adjustable screws 42 mounted in the frame 34. The proper contact between the worm and worm gear will be maintained by the aforesaid adjustment of the frame 34. A friction brake member 43 is mounted stationarily on the frame 34 and coöperating therewith is a brake member 44 loosely mounted upon the shaft of the worm 41 and slidable vertically thereon. The member 44 is provided at its upper end with a sleeve and flange 45 against which a pair of bell cranks 46 have bearing at one end. Said bell cranks are pivoted to a yoke 47 which rotates with the worm-shaft. If the speed at which the machine operates becomes too great, a pair of balls 48 connected to the other ends of the bell cranks 46 will cause the depression of the rotary brake member 44, bringing the same into frictional contact with the stationary member 43.

40 Having thus described the invention, what is claimed as new is:

1. In a device of the character set forth, the combination of a frame comprising pairs of vertical parallel standards, a power shaft

journaled transversely in said standards, a crank shaft journaled in certain of said standards below the power shaft, weights connected to said power shaft and guided for vertical movement by two pairs of said standards, a power pinion rigidly connected to one end of said crank shaft, a hub rigidly connected to said power shaft, a gear wheel mounted on said power shaft adjacent to said hub and having a series of ratchet teeth surrounding the hub, a pin carried by said hub and movable radially to engage said teeth to lock said gear to said hub, gearing between said gear wheel and said power pinion, and means connected to the opposite end of said crank shaft for controlling the speed of said crank shaft, substantially as set forth.

2. In a device of the character set forth, the combination of a frame having pairs of vertical standards, a power shaft journaled in said standards, weights connected to the ends of said shaft and guided for vertical movement between certain pairs of said standards, a crank shaft journaled below and parallel to the power shaft, means for driving the crank shaft from the power shaft, and means to control the speed of rotation of the crank shaft, said means including a vertical frame mounted between certain of said vertical standards and adjustable laterally thereof, a worm shaft journaled in said adjustable frame, friction members associated with said worm shaft, and means between the adjacent end of the crank shaft and said worm shaft whereby the latter is driven from the crank shaft.

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

JESSE E. MULLEN.

Witnesses:

E. C. HARVEY,
J. G. PITTMAN.