No. 742,017. PATENTED OCT. 20, 1903.

C. S. FITZHUGH.

CHURN.

APPLICATION FILED MAR. 2, 1903.

NO MODEL.

Fig. 3.

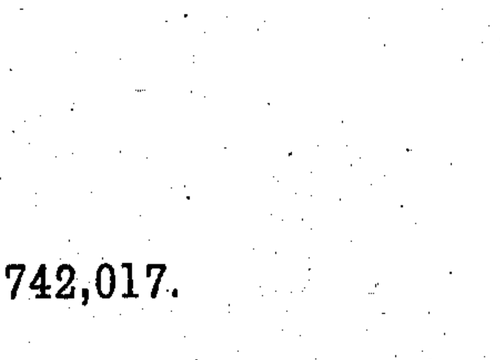

Fig. 1.

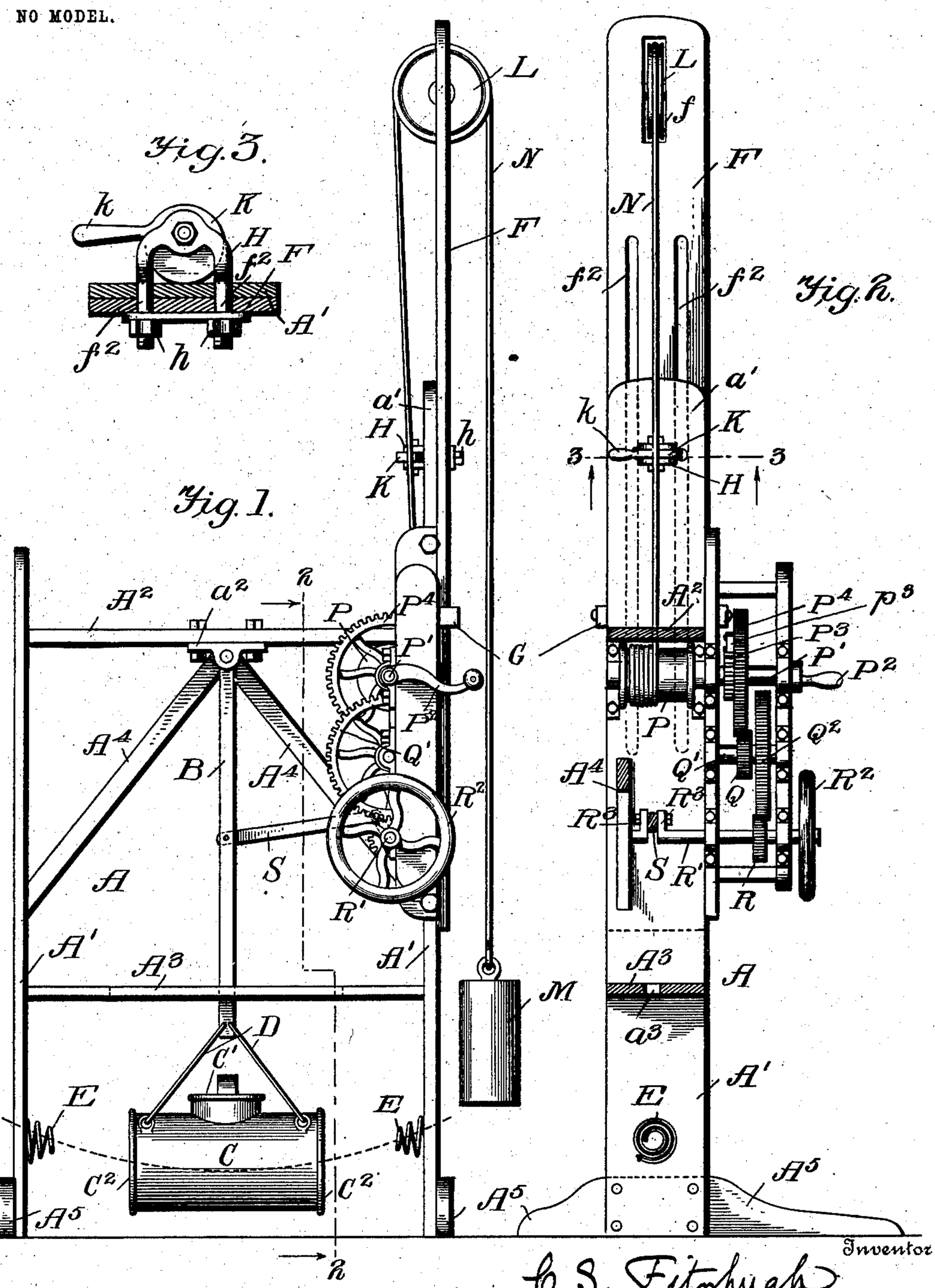

Fig. 2.

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No. 742,017. Patented October 20, 1903.

UNITED STATES PATENT OFFICE.

CAMERON S. FITZHUGH, OF WACO, TEXAS.

CHURN.

SPECIFICATION forming part of Letters Patent No. 742,017, dated October 20, 1903.

Application filed March 2, 1903. Serial No. 145,809. (No model.)

To all whom it may concern:

Be it known that I, CAMERON S. FITZHUGH, a citizen of the United States, residing at Waco, in the county of McLennan and State of Texas, 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.

My invention relates to improvements in churns; and it is intended to provide a churn suspended like the bob of a pendulum and operated by power stored up in a weight or spring.

My invention will be understood by reference to the accompanying drawings, in which the same parts are indicated by the same letters throughout the several views.

Figure 1 is a side elevation of my improved churn. Fig. 2 shows a section along the broken line 2 2 of Fig. 1 and looking in the direction of the arrows. Fig. 3 shows a section along the line 3 3 of Fig. 2 and looking down the clamping device, shown in full lines.

A represents a frame having side pieces A′, cross-pieces A^2 and A^3, braces A^4, and elongated feet A^5, whereby the frame is steadied.

B represents a pendulum-rod, which is pivoted to the bracket a^2 (see Fig. 1) and from which the churn C is suspended by the bails D, of which there are preferably four, so that the churn may not tend to roll laterally.

The churn is provided with an opening on its upper side, preferably projecting above the top of said side and closed by a cap C′.

The churn is provided with stout heads C^2, preferably of wood faced on the interior with tin.

E represents two coil-springs fast to the uprights A′ and adapted to check the motion of the churn and at the same time to start the churn backward after it has reached the limit of its swing.

One of the uprights A′ is elongated at its top, as at a', and is provided with a guide G and a suitable clamp for the sliding upright piece F. This upright piece F carries the pulley *f*, over which is rove the cord N, attached to the weight M. The other end of the cord is wound upon the drum P, and the unwinding of the cord from the drum operates the train of gearing, that will be hereinafter described, whereby the pendulum-rod B and with it the churn are kept vibrating.

In order to adjust the churn to rooms having different heights of ceiling or for different kinds of milk or different temperatures of the milk, I provide a vertical adjustment for the upright F, whereby the length of travel of the weight M may be increased or decreased at will, and thus the length of time the pendulum vibrates may be varied at will. Thus by providing a guide G for the heel of the said upright F and by providing a suitable clamping device for clamping said upright F to the upright A′ the said upright F may be adjusted at the desired height. A suitable form of clamping device is shown in detail in Fig. 3, in which H indicates a yoke having arms projecting through the slots f^2 in the upright F, on which arms are screwed the nuts *h*. The upright F is clamped to the upright A′ by means of the cam or eccentric K, turned by the handle *k*. In this way a quick adjustment may be secured. The pendulum-rod B swings in the guide-slot a^3 in the cross-piece A^3, and is thereby steadied against fore-and-aft vibrations.

Any suitable mechanism may be adopted for transmitting the vibratory motion to the pendulum; but I have devised the train of gearing which will now be described.

The drum P is mounted on the shaft P′, and said shaft is wound up by means of the hand-crank P^2. On this shaft is a ratchet-wheel P^3, engaging a pawl p^3 on the spur-gear P^4, loose on the shaft P′, and thus the shaft P′ may be wound up without disturbing the train of gearing. The spur-gear P^4 meshes with a pinion Q on the shaft Q′, which shaft Q′ carries a spur-gear Q^2, that meshes with the pinion R on the shaft R′. This shaft R′ carries a fly-wheel R^2 and is also provided with a crank R^3, to which the connecting-rod S is pivotally connected. This connecting-rod is also pivoted to the pendulum-rod B. Thus it will be seen that as the weight M slowly descends it will impart a rotary motion to the shaft R′, which will cause the connecting-rod S to swing the pendulum-rod B backward and forward and will thus impart a vibratory motion to the churn.

By adjusting the height of the upright F

the churn may be caused to swing for a longer or shorter time, and by varying the weight of the weight M greater or less power may be applied to vibrate the churn. Where the weight is increased, of course more power will be required to wind up the rope or cord N; but the amount of power required to be stored up is in any event comparatively small.

It will be obvious that a stout coil-spring mounted on the shaft P′ and wound up by turning the hand-crank P^2 might be used in place of the weight; but I prefer the cord and weight, as shown.

It will be obvious that various modifications might be made in the herein-described apparatus which can be used without departing from the spirit of the invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

In an apparatus of the character described, the combination with a frame, having uprights at each side thereof, with a coil-spring secured to each upright, of a pendulum-rod suspended in said frame, a churn suspended from said rod and adapted to strike one of said springs at each end of its swing, a train of gearing, a sliding extension adjustably secured to one of said uprights, an eccentric clamp for securing said extension at the desired height, a pulley carried by said extension, a cord passing over said pulley and connected at one end to said train of gearing, a weight secured to the other end of said cord, and a crank and connecting-rod connecting said train of gearing to said pendulum-rod and vibrating the same, substantially as described.

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

CAMERON S. FITZHUGH.

Witnesses:

TOM L. MCCULLOUGH,

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