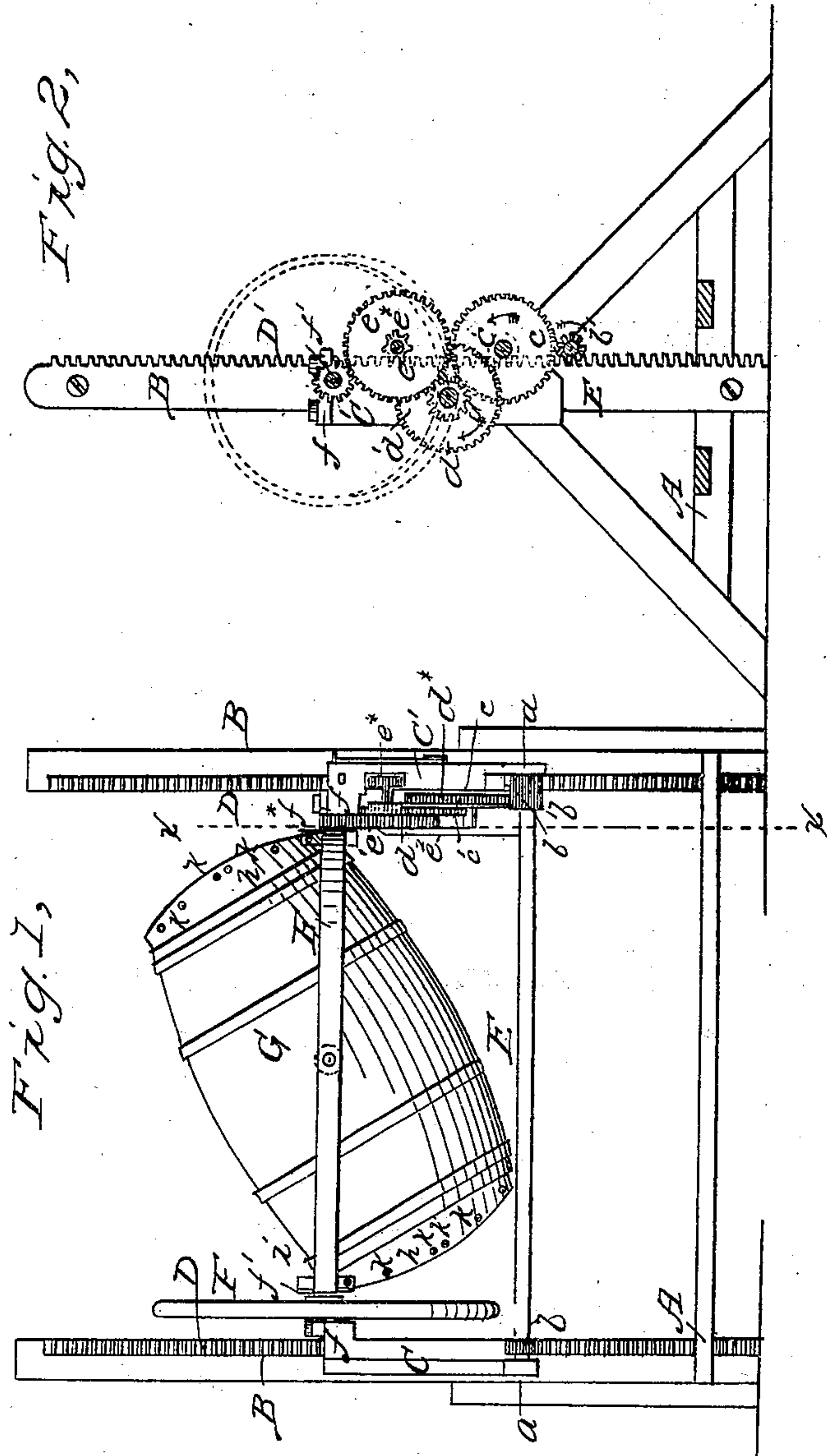


G. TRUE.

Churn.

No. 42,129.

Patented March 29, 1864.



Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE TRUE, OF FUNCHAL, ISLAND OF MADEIRA.

IMPROVEMENT IN MECHANISM FOR OPERATING CHURNS.

Specification forming part of Letters Patent No. 42,129, dated March 29, 1864.

To all whom it may concern:

Be it known that I, GEORGE TRUE, of Funchal, in the Island of Madeira, have invented a new and Improved Self-Acting Barrel-Churn; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a front elevation of my invention. Fig. 2 is a transverse vertical section of the same, the line xx , Fig. 1, indicating the plane of section.

Similar letters in both figures refer to corresponding parts.

The object of this invention is to arrange a barrel-churn in such a manner that the churning will be accomplished by the action of the gravity of the barrel and its contents, and of a fly-wheel and a series of gear-wheels whereby the velocity of the descending barrel is regulated.

The invention consists in a barrel hung upon pivots and adjustable in a hoop which forms bearings for the pivots of the barrel, and which is provided with gudgeons that have their bearings in carriages moving up and down on suitable uprights arranged in combination with two toothed racks and suitable gearing in such a manner that the barrel can be readily brought in an upright position to receive the cream and then adjusted in the rotary hoop to any desired inclination, and wound up to the top of the toothed racks, whence it descends by its own gravity, slowly rotating all the while, and that by this motion the operation of churning is accomplished.

To enable those skilled in the art to make and use my invention, I will proceed to describe it.

A represents a frame, made of wood or any other suitable material, and provided with two uprights, B, which form the guides for the sliding carriages C C'. These carriages straddle the toothed racks D D', which are rigidly attached to the inner surfaces of the uprights B, and they are provided with lugs or ears a , which form the bearings for a horizontal shaft, E. This shaft carries two pinions, b b' , one at each end, and these pinions gear into the toothed racks D D'. The pinion b' at one end of the shaft E also gears in a cog-wheel, c , which is secured to an arbor, c' , and meshes

into a pinion, d^* , on an arbor, d' , which also carries a cog wheel, d , and this cog-wheel meshes into a pinion, e^* , on an arbor, e' , which also carries the cog-wheel e , and finally the cog-wheel e meshes into a pinion, f^* , that is firmly secured to one of the gudgeons of the rotating hoop E. The arbors c' d' e' have their bearings on one end in the sliding carriage C', and on the other end in a bracket, e^2 , which is rigidly attached to the carriage C'. The pinion e^* on the arbor e' is so arranged that it can be shifted in a longitudinal direction and thrown in gear with the toothed rack D', or with the cog-wheel d , said arbor being provided with a key, so that it is compelled to rotate with the pinion, whether the same be in gear with the rack or with the cog-wheel. The hoop E is provided with two gudgeons, f' , which have their bearings in suitable journal-boxes, f , on the top of the sliding carriages C C', and one of these gudgeons carries the pinion f^* , as above stated, and the other the fly-wheel F, which is intended to regulate the motion and to counterbalance the weight of the gear-wheels on the opposite side. The hoop forms the bearings for the pivots g , which support the barrel G. These pivots are rigidly attached to the central part of the body of the barrel, and two segmental flanges, h , are secured, one to each of the heads of the barrel. The edges of these flanges form portions of a circle described from either one of the pivots g as the center and they are guided between ears i , secured to the opposite ends of the hoop E. Two pins, j , passing through holes in the ears i and flanges h , retain the barrel in the desired position and prevent it from rotating on the pivots g , and a series of holes, k , in said flanges allow of adjusting the barrel to any desired inclination. By withdrawing the pins j the barrel can be turned in an upright position, and by removing one of the heads when in this position convenient access can be had to the interior of the barrel for charging or discharging.

The operation is as follows: In order to charge the barrel and wind it up, the pinion e^* is thrown in gear with the rack D', as shown in Fig. 1 of the drawings, and by turning the fly-wheel in the proper direction the churn is wound up to such a height as may be convenient for charging the barrel. The barrel is then turned in an upright position. The cream is introduced by removing the head, and after

the head has been refastened the barrel is adjusted to the desired inclination by means of the pins *j*, and the churn is finally wound up to the top of the racks *D D'*. The pinion *e** is now shifted on its arbor *e* and thrown in gear with the wheel *d*, as indicated in red in Fig. 1, and the churn is started. The weight of the barrel with contents and of all the cog-wheels and fly-wheel must be so regulated that it will overcome the friction of the gear-wheels and the churn will run down by its own weight. The cream in the barrel, on account of the oblique position of the latter, will act as a sort of regulator, so as to prevent the churn from attaining a higher velocity than desirable, and the time which it takes the churn to run down will depend upon the height of the racks and upon the proportion of the gearing.

In practice the gearing will be so arranged that the butter has sufficient time to form and the churning will be completed when the churn has run down, and all the dairyman has to do is to fill the barrel with the desired quantity of

cream, set it, wind up the churn, and start it, and the churn will complete the operation of churning by its own gravity.

What I claim as new, and desire to secure by Letters Patent, is—

1. The barrel *G*, hung upon pivots *g*, in a rotary hoop, *E*, in combination with the toothed racks *D D'*, sliding carriages *C C'*, and suitable gear-wheels and pinions, all constructed and operating in the manner and for the purpose substantially as described.

2. The sliding pinion *e**, in combination with the gear-wheels *c d e*, rack *D'*, sliding carriage *C'*, and barrel *G*, constructed and operating substantially as and for the purpose set forth.

3. The application of the segmental flanges *h* to the heads of the barrel *G* when the latter is hung upon pivots *g* in the rotary hoop *E*, substantially as and for the purpose specified.

GEO. TRUE.

Witnesses:

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