F. TRAXLER.

Dog Churn.

No. 55,556. Patented June 12, 1866.

Fig. 1.

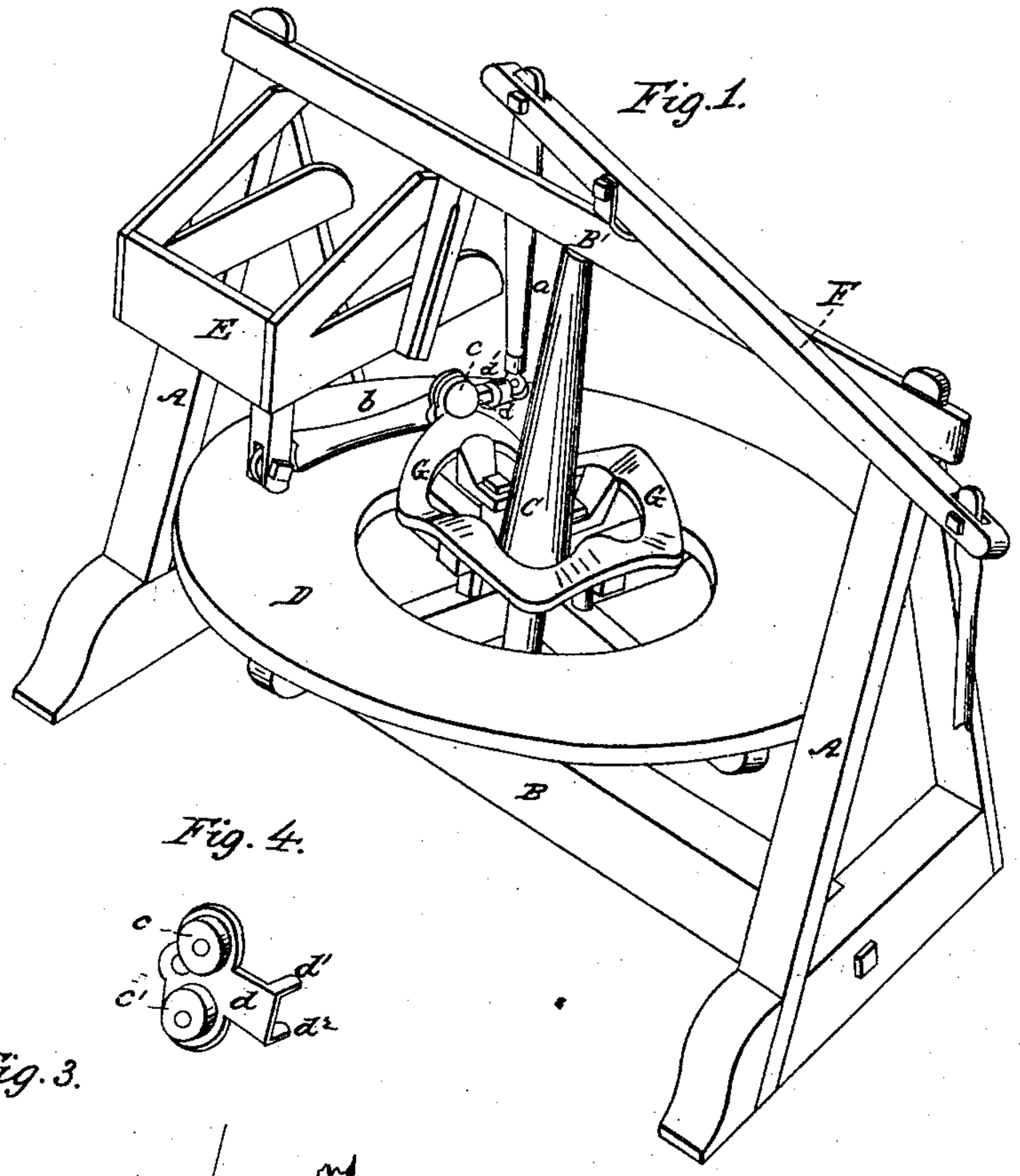


Fig. 4.

Fig. 3.

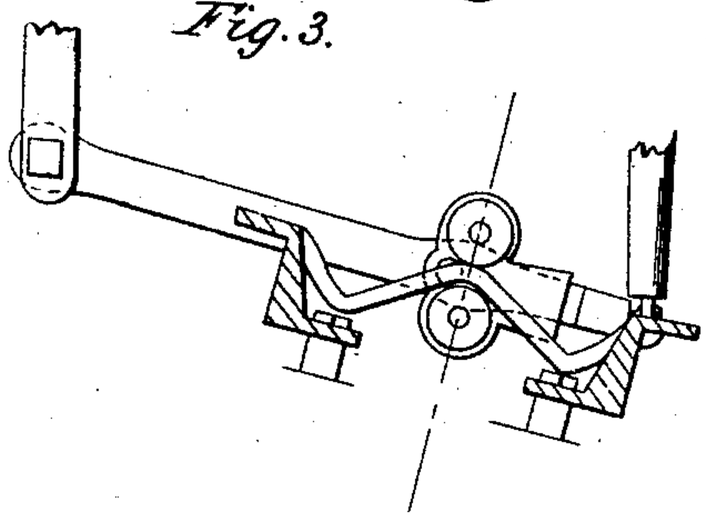
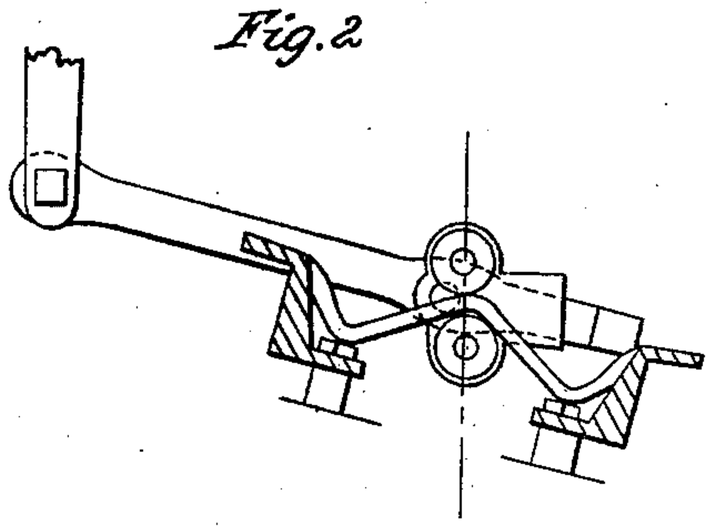


Fig. 2



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UNITED STATES PATENT OFFICE.

FRANKLIN TRAXLER, OF SCOTTSBURG, NEW YORK.

IMPROVEMENT IN DOG-CHURNS.

Specification forming part of Letters Patent No. **55,556,** dated June 12, 1866.

To all whom it may concern:

Be it known that I, FRANKLIN TRAXLER, of Scottsburg, in the county of Livingston and State of New York, have invented a new and Improved Dog-Power for Operating Churns; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of the dog-power complete. Fig. 2 is a sectional view of the inclined cam-wheel, showing the friction-rollers in the act of passing over one of its angles. Fig. 3 is a similar view, showing the friction-rollers in the act of changing their position to descend one of the inclined planes of the cam-wheel. Fig. 4 is a perspective view of the friction-rollers and their vibrating box detached from the machine.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to an improvement on that class of powers where motion is obtained by a dog walking upon an inclined tread-wheel, to the shaft of which contrivances are applied for communicating a reciprocating motion to a churn-dasher or other object.

The nature of my invention consists in transmitting a rapid reciprocating motion to the lever to which the dash-rod of a churn is connected by means of a cam-wheel which is applied to the shaft of the tread-wheel, and which acts directly upon friction-rollers applied to a vibrating arm, said rollers being applied to a box or frame which will vibrate independently of the arm to which it is pivoted and allow the rollers to pass freely over very acute or abrupt angles on said cam-wheel, as will be hereinafter described.

The invention further consists in sustaining the tread-wheel and also the parts which are actuated by it by means of two horizontal beams, which are firmly supported by triangular frames, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

The supporting-frame of the machine is constructed with the view of affording great strength and stability in as small a compass as possible. This frame consists of two triangular side beams, A A, which are connected together by means of two horizontal beams, B B′, the lower one, B′, of which serves as a step-bearing for the inclined shaft C of the inclined tread-wheel D, and the upper one, B, serves as a bearing for the upper end of this shaft C, as shown in Fig. 1. This upper beam, B, is sustained by the frames A A a little to one side of the plane of the beam B′ for the purpose of giving the desired inclination to the shaft of the tread-wheel. The tread-wheel is secured to radial arms projecting from the shaft C, so that a dog that is hitched in the stall E, at one side of the machine, may walk upon the wheel D and thus cause it to rotate. A vibrating movement is communicated to the lever F, which extends across the beam B, and which is suitably pivoted to this beam by means of a cam-wheel, G, which is secured to the radial supporting-arms of the tread-wheel concentric with the axis of this wheel. This cam-wheel is constructed with a number of inclined planes or rising-and-falling surfaces, as shown in Fig. 1, which are made very abrupt for the purpose of causing the lever F to make a considerable length of stroke and to move very rapidly. To effect this rapid movement the lever F is connected by its short arm to a pitman, *a*, which is connected at its lower end to a vibrating arm, *b*. This arm carries two friction-rollers, *c c′*, which are arranged on the upper and lower surfaces of the projecting flange of the cam-wheel G, as shown in Figs. 2 and 3. These two rollers *c c′* have their bearings upon short studs which project from a yoke-plate, *d*, (shown clearly in Fig. 4,) which plate is pivoted to the inside of the vibrating arm *b*, so as to vibrate independently of this arm. The two ears, *d′ d²*, which project from the plate *d*, limit the extent of vibration of this plate upon its arm, but allow it to assume the two positions shown in Figs. 2 and 3.

It will be seen from the above description that when the tread-wheel is rotated the cam-wheel will alternately elevate and depress the free end of the arm *b*, and thus a vibrating motion will be communicated to the beam or lever F on top of the machine. To the longest arm of this lever F the upper end of the dash-rod of a churn may be jointed, as shown in Fig. 1.

It is important that a rapid motion should be communicated to the lever F, and also that the longest arm of this lever should have a long stroke. To this end I make the elevations

of the flange of the cam-wheel very abrupt and the surfaces very much inclined. This being done, it is necessary to provide for allowing the rollers *c c'*, between which the circumferential edge of the cam-wheel moves, to accommodate themselves to the abrupt angles, so as to pass freely over these angles without binding or creating undue friction. This is effected by applying the rollers *c c'* to the plate *d*, so that they will be allowed a movement independent of the arm to which they are attached. These movements take place as the angles of the cams move past the rollers, as shown in Figs. 2 and 3. In Fig. 2 the plate *d* has assumed a position to allow the rollers to descend one of the inclined planes. The position of the rollers in Fig. 3 is that of ascending one of the inclined planes, and when they are about to change this position to pass over the angle preparatory to descending the succeeding plane. Thus it will be seen that the rollers *c c'* will assume such a position that a line intersecting their axes will always be perpendicular, or nearly so, to the surface over which they move. Hence it will be seen that the machine will be regular in its movements.

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

1. Communicating a vibrating movement to the arm *b* by means of a cam-wheel, G, applied to the shaft of the tread-wheel, said wheel acting upon rollers *c c'*, the bearings of which are allowed to have a movement independent of the arm to which the wheels are attached, substantially as described.

2. The pivoted bearing-plate *d*, having rollers *c c'* applied to it, in combination with a vibrating arm, *b*, or its equivalent, and a cam-wheel, G, substantially as described.

3. The construction of the main supporting-frame, of triangular supports A A, horizontal beams B B', and a stall, E, substantially as described.

4. The combination of an inclined tread-wheel, D, cam-wheel G, rollers *c c'*, vibrating arm *b*, pitman *a*, and vibrating lever F, arranged and operating substantially as described.

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