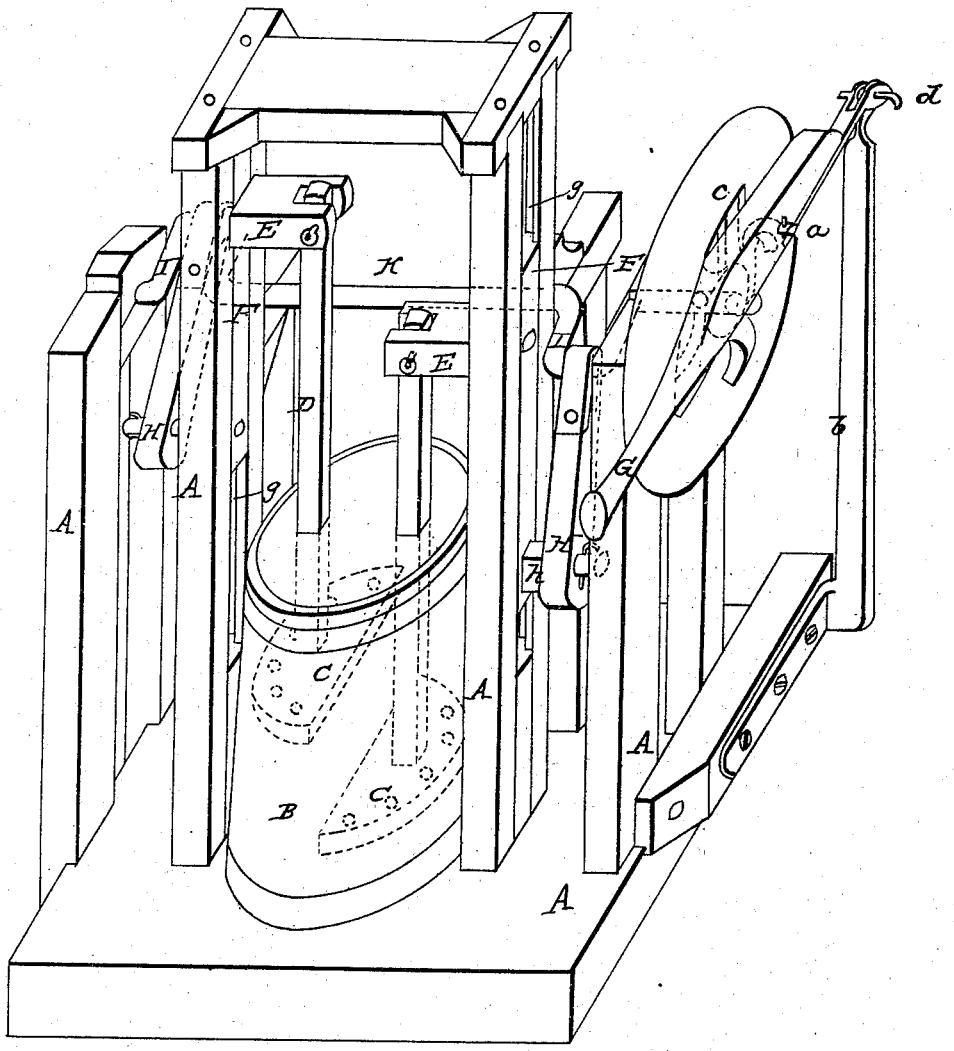
A. RHOADES.

Churn.

No. 48,096. Patented June 6, 1865.



WITNESSES

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ALBERT RHOADES, OF PONTIAC, MICHIGAN,

IMPROVEMENT IN CHURNS.

Specification forming part of Letters Patent No. **48,096**, dated June 6, 1865.

To all whom it may concern:

Be it known that I, ALBERT RHOADES, of Pontiac, in the county of Oakland and State of Michigan, have invented certain new and ful improvements in working-power adapted to the operation of churns or other machines which are operated by means of levers; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawing, in which the figure 1 represents a perspective view of a double-acting churn operated by means of my improved working-power.

To enable others skilled in the art to make and use my improvement, I will proceed to describe its construction and operation.

A represents the frame of the machine.

B represents the vessel which contains the cream.

C represents the churn-dashers, which are operated in vertical reciprocating directions. The rods D of the churn-dashers are pivoted at their upper ends to the horizontal arms E, which are rigidly secured to the sliding blocks F, the latter moving between the ways *g* of the frame A. The sliding blocks F and churn-dashers C are operated by the action of the pitmen H, which are pivoted to said sliding blocks at *h*, and which are operated by the cranks I on the crank-shaft K of the balance-wheel *c*.

G represents a hand-lever, which is pivoted at *d* to the elastic or spring arm *b*, which latter is secured at its lower end to the frame A of the machine. The lever G is, besides, pivoted at *a* to the crank-pin of the wheel *c*.

The operator, in grasping the long arm of the lever G, and operating the same by raising and depressing it, turns it on its pivot *d;* but in doing so he rotates the balance-wheel *c*, and consequently operates the churn-dashers C. In this operation the spring-arm *b* is forced horizontally each way the distance of the radius of the circle which is described by the crank-pin *a*. Thus considerable power is accumulated in the spring-arm *b*, which greatly facilitates the operation of the machine, and which, by aid of the balance-wheel *c*, is equalized, so as to result in a continuous rotary motion of the crank-shaft K, and I thus obtain a simple and effective motive power to work small machinery. One of the great advantages arising from this arrangements is that considerable leverage is gained by it over the ordinary crank arrangement, for if a crank-handle were to be attached to the crank-pin *a* the leverage of it would be equal to the distance of said crank-handle from the center of the wheel *c*, while in my arrangement the leverage is equal to the length from pin *a* to the end of the long arm of lever. Another advantage arising from my arrangement above that of an ordinary crank-motion, is that the body of the operator has not to follow the circular motion of the crank-handle in turning the same, but that he can stand up erect and just raise and depress the long arm of the lever G, and his motion thus results in a continuous rotary motion of the crank-shaft without causing any fatigue to the operator.

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

The combination, with the balance-wheel *c*, of the lever G, pivoted to the crank-pin of said wheel, and to an elastic arm, *b*, in the manner and for the purposes herein described.

ALBERT RHOADES.

Witnesses:

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