

G. W. FREEMAN.
Churns.

No. 229,599.

Patented July 6, 1880.

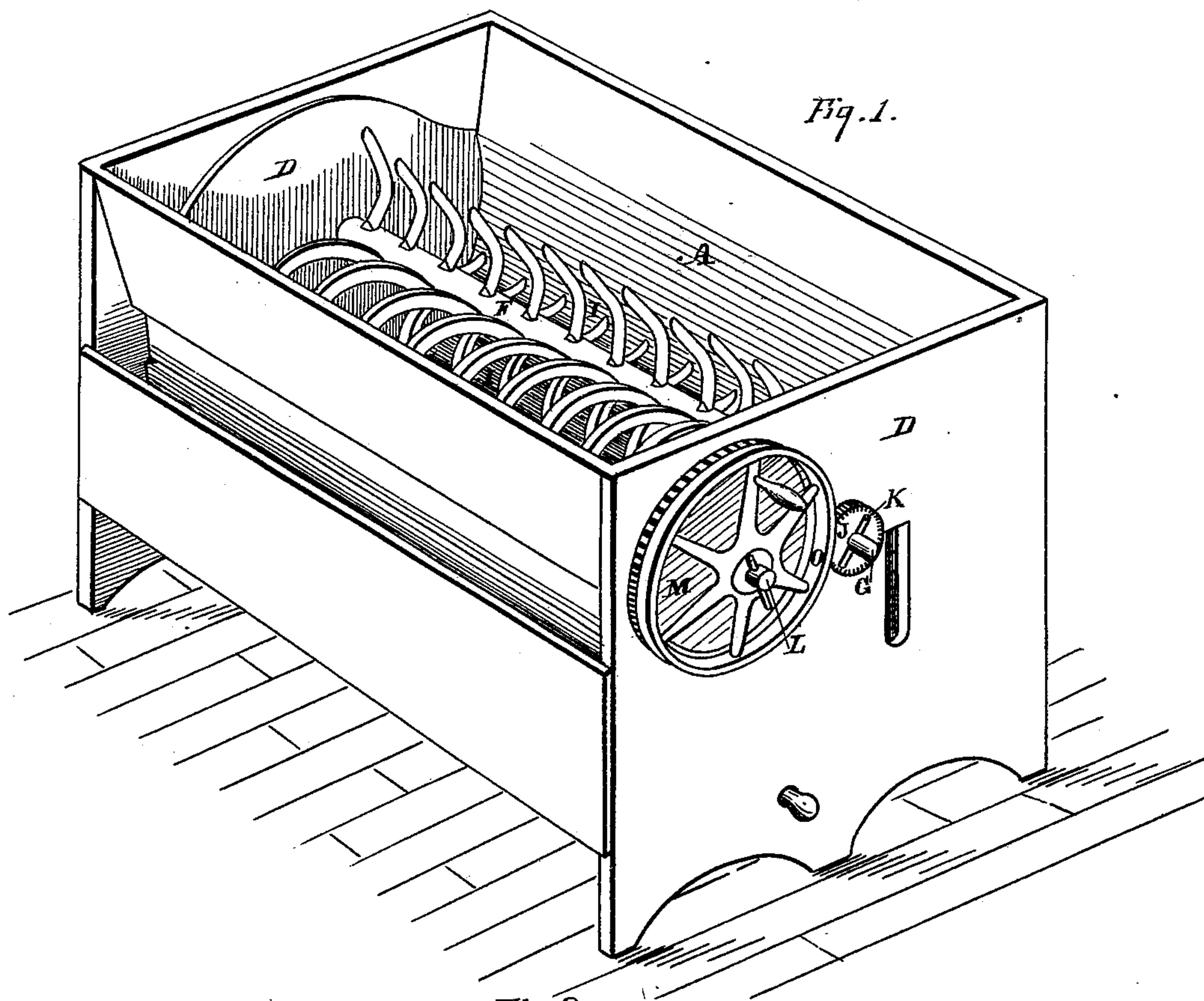
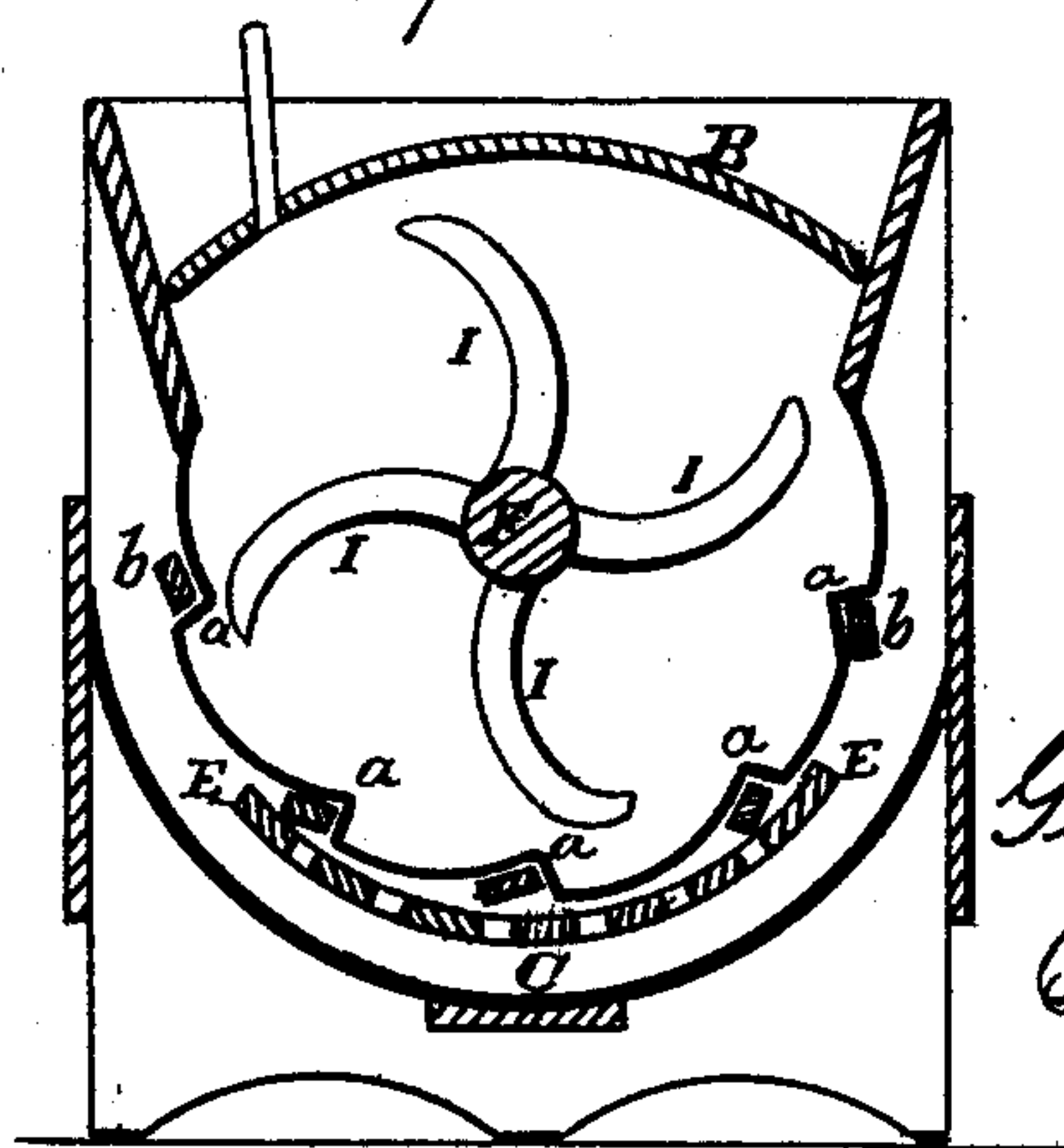


Fig. 2.



WITNESSES

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Jas House

INVENTOR

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Fig. 3.

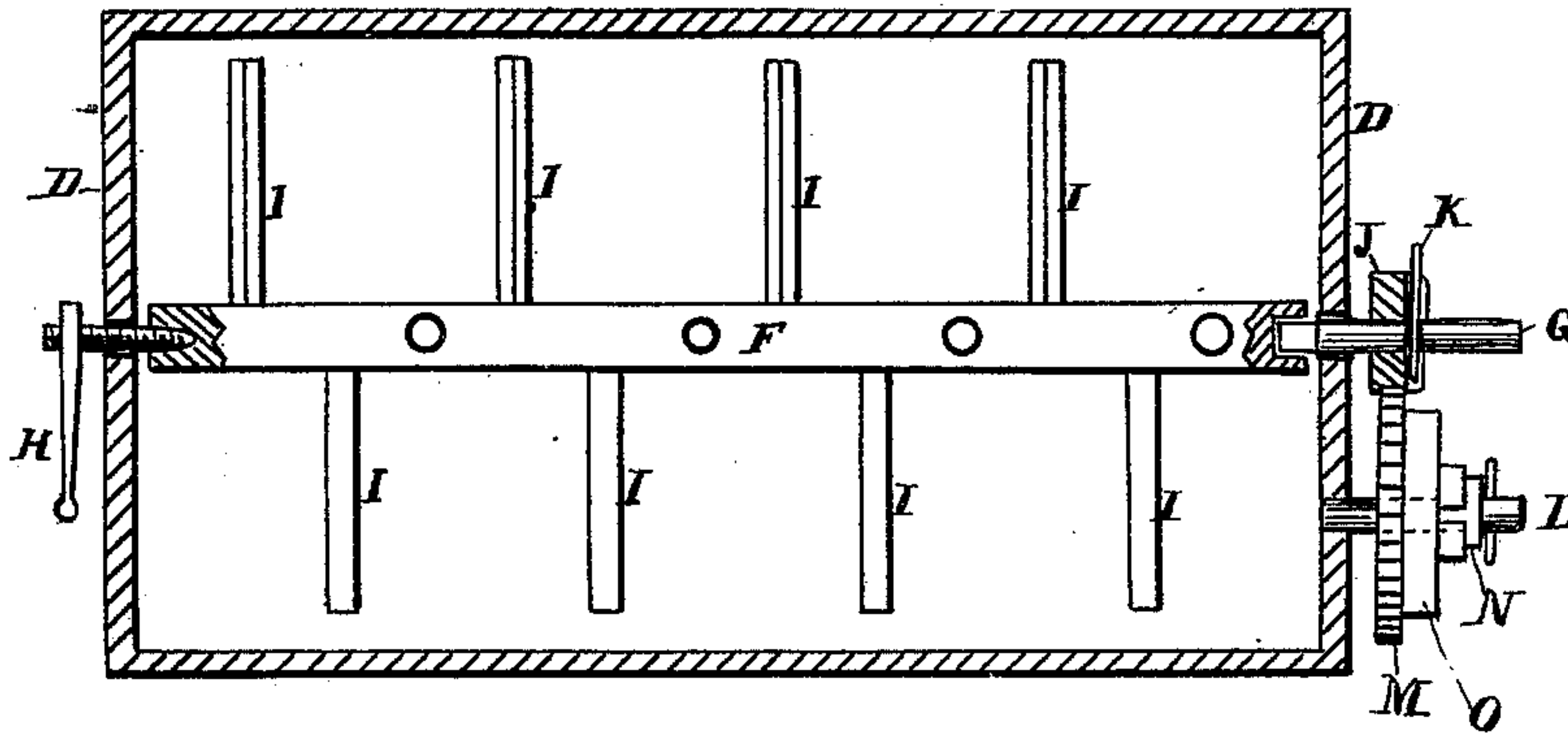


Fig. 4.

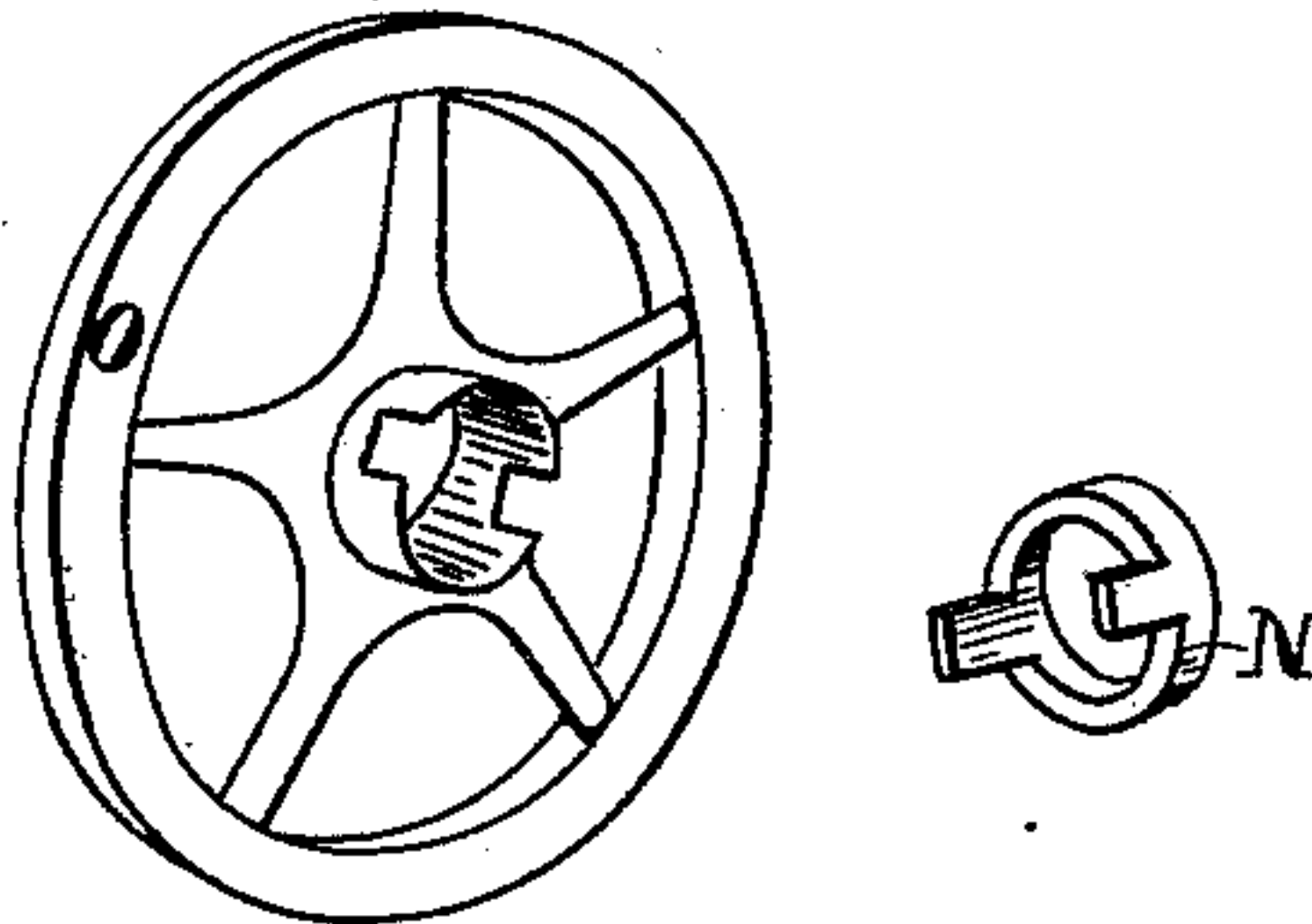
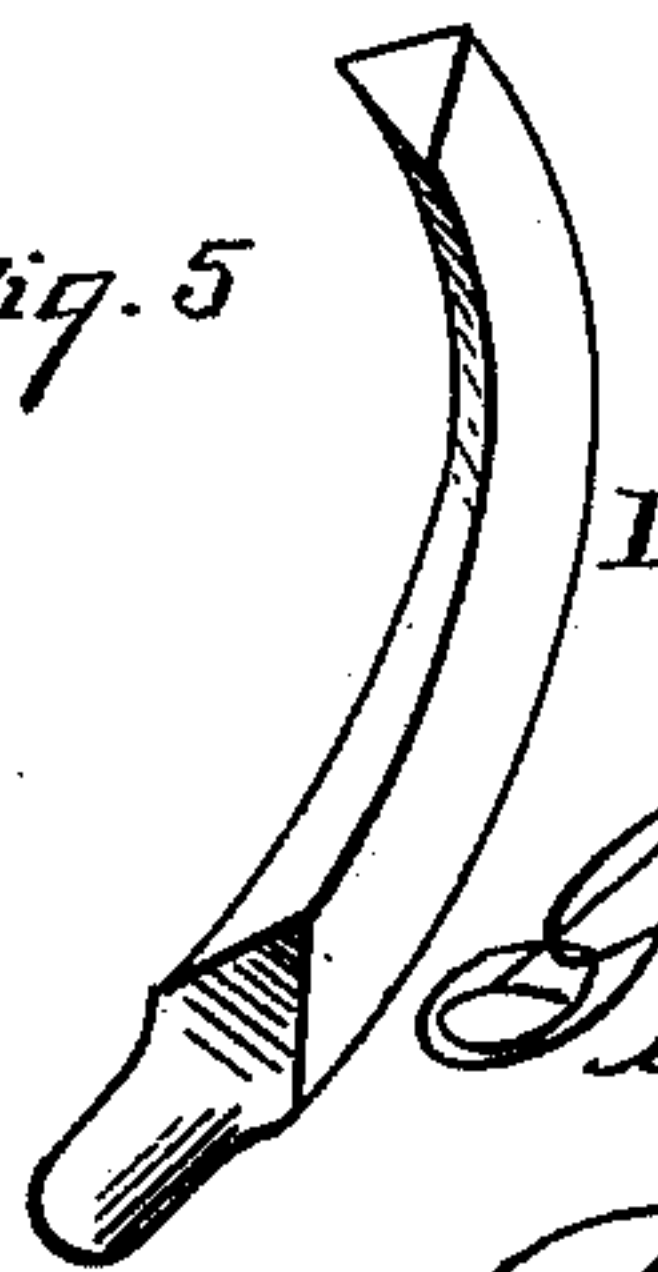


Fig. 5.



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UNITED STATES PATENT OFFICE.

GEORGE W. FREEMAN, OF ROCKY POINT, CALIFORNIA.

CHURN.

SPECIFICATION forming part of Letters Patent No. 229,599, dated July 6, 1880.

Application filed November 3, 1879.

To all whom it may concern:

Be it known that I, GEORGE W. FREEMAN, of Rocky Point, county of Sierra, and State of California, have invented an Improvement in Churns; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to certain improvements in churns which add to the efficiency of the machine.

These improvements consist in certain details of construction, which will be more fully described by reference to the accompanying drawings, in which—

Figure 1 is a perspective view of my churn. Fig. 2 is a transverse vertical section, with view of false bottom. Figs. 3, 4, and 5 are detailed views of parts of the machine.

Let A represent the box or body of the churn, which is semi-cylindrical in form, and provided with a removable cover, B, formed like a segment of a cylinder, so as to make the churn cylindrical in shape when in place. Inclosing the lower part of the churn is a cooling-chamber, C. Both main box or cylinder and the piece forming the cooling-cylinder are made of zinc.

The inside of the churn has peculiarly-shaped corrugations, *a*, formed longitudinally through it, so as to prevent the butter from slipping while working it. Small strips of wood, *b*, extend from the ends D of the churn lengthwise and fit into the backs of the corrugations, so the zinc will not be bent and the form of the ledges or corrugations will not be altered. This also enables me to cleanse the churn much better than could be done if strips of separate material were introduced to form the ledges.

Beneath the bottom of the inner part or body of the churn is fitted a segment, E, of wood, which is also secured to the ends D, and fits up against the bottom of the churn proper, so as to support the weight of the contents of the churn, and also prevent the zinc from being separated from the ends, thus allowing a thin metallic bottom to be used, through which a change of temperature may be easily obtained without sacrificing strength. This supplemental bottom is perforated, as shown, so that the surface of the inner bottom is readily accessible to the influence of the cooling medium in the outer tank or chamber.

The shaft F extends longitudinally through the center of the churn, and has a square socket at one end, which receives the end of the driving-shaft G. The opposite end of the shaft has a socket, which is fitted to receive the point of the hand-screw H, which serves as a pintle for it to turn upon. The hand-screw allows the pintle to be easily removed or adjusted at any time.

Upon the shaft are the arms or beaters I, which are curved, as shown. The cross-section of these beaters is in form of an equilateral or isosceles triangle, having the vertex in one direction. When the churning is being done the shaft is revolved, so that the sharp edges of the triangular beaters are forward and move into the cream, and the angular sides will thus dash the cream outward from each beater and agitate it. Three, four, or more sets of beaters may project from the shaft, and they are placed alternately, so that each set lies between those before or behind it.

Upon the outer end of the driving-shaft G is secured a pinion, J, the hub of which has a transverse slot formed in it, so that a pin, K, may pass through a hole in the axle or shaft and this slot, and serve as a key to unite the pinion to the shaft.

At one side of the churn, and in a convenient position, is secured a short spindle, L, upon which the large driving-wheel M turns. This spindle is made of the same size as the shaft G, so that the wheel M may be used upon either shaft, so as to produce with the pinion a fast speed, and with the wheel transferred to the main shaft a slower one with more power.

The hub of the wheel is slotted similarly to that of the pinion, so that it may be secured to the shaft G in a like manner. In order to prevent this slot from catching the pin which holds the wheel in place when used on the spindle L, I employ a collar, N, which has a smooth outer face to run against the pin, while the inner face has two lugs, which fit into the slots in the hub, so that the collar revolves with and forms a part of the hub.

A heavy rim, O, is secured to the gear-wheel, and this serves as a balance-wheel, and may also receive a belt when power is to be used to drive the machine. This combination of

gear, balance, and driving wheel in one is very effective and useful.

The operation will then be as follows: The main shaft and beaters and the geared wheel and pinion being in position, the churn is well scalded and then cooled with cold water. The cream is put in and the lid is closed and fastened. If the cream is below the temperature required, (about 62°,) as will be indicated by the thermometer, hot water is introduced into the outer chamber, and the cream is agitated briskly (to prevent scalding) until the thermometer shows that it has reached the proper temperature. The hot water is then drawn off, and the churning is completed by turning the geared wheel, pinion, and beater-shaft, the angles of the beaters being forward until the butter is formed. If the cream should have too high a temperature, it is reduced by putting cold water or water and ice into the outer chamber. The cream is then agitated slowly until lowered to the desired degree.

After the butter has been formed the geared driving-wheel is removed to the driving-shaft and turned back and forward until the butter is collected. The milk is then drawn off and cold water is added. The beaters are moved alternately back and forward, the water being changed at intervals until the butter is thoroughly cleansed. At the same time it is cooled by filling the exterior chamber with cold water. Salt is then added, and the beaters are then driven with the flat side forward until the salt is well incorporated with the butter. The peculiar angular ledges in the bottom of the churn will hold the butter and prevent it

from slipping while being thus worked until it is ready to take up and put away.

This forms a complete butter-worker without the necessity of using the hands or other apparatus.

The cylindrical form of the churn obviates corners in which the cream might lodge while churning.

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

1. The cylindrical case A, with the curved metallic bottom, bent or corrugated to form the longitudinal ledges *a* in the bottom itself, in combination with the longitudinal strips *b*, fitting the backs of said ledges and supporting them, substantially as herein described.

2. The curved metallic bottom A, with its angular ledges *a* and supporting-strips *b*, in combination with the curved perforated segment E and the exterior refrigerating-chamber, C, the whole constructed to operate substantially as and for the purpose herein described.

3. The driving-shaft G, with its pinion J, in combination with the balance-wheel and gear M, the hub of said wheel being slotted and fitted with a collar, N, with lugs, as shown, whereby the gear-wheel may be used upon either the shaft G or L, substantially as herein described.

In witness whereof I have hereunto set my hand and seal.

GEORGE WASHINGTON FREEMAN. [L. S.]

Witnesses:

WILLIS FREEMAN,

JOHN FREEMAN.