

J. H. Doughty.

Churn.

N^o 34,416.

Patented Feb. 18, 1862.

Fig. 2.

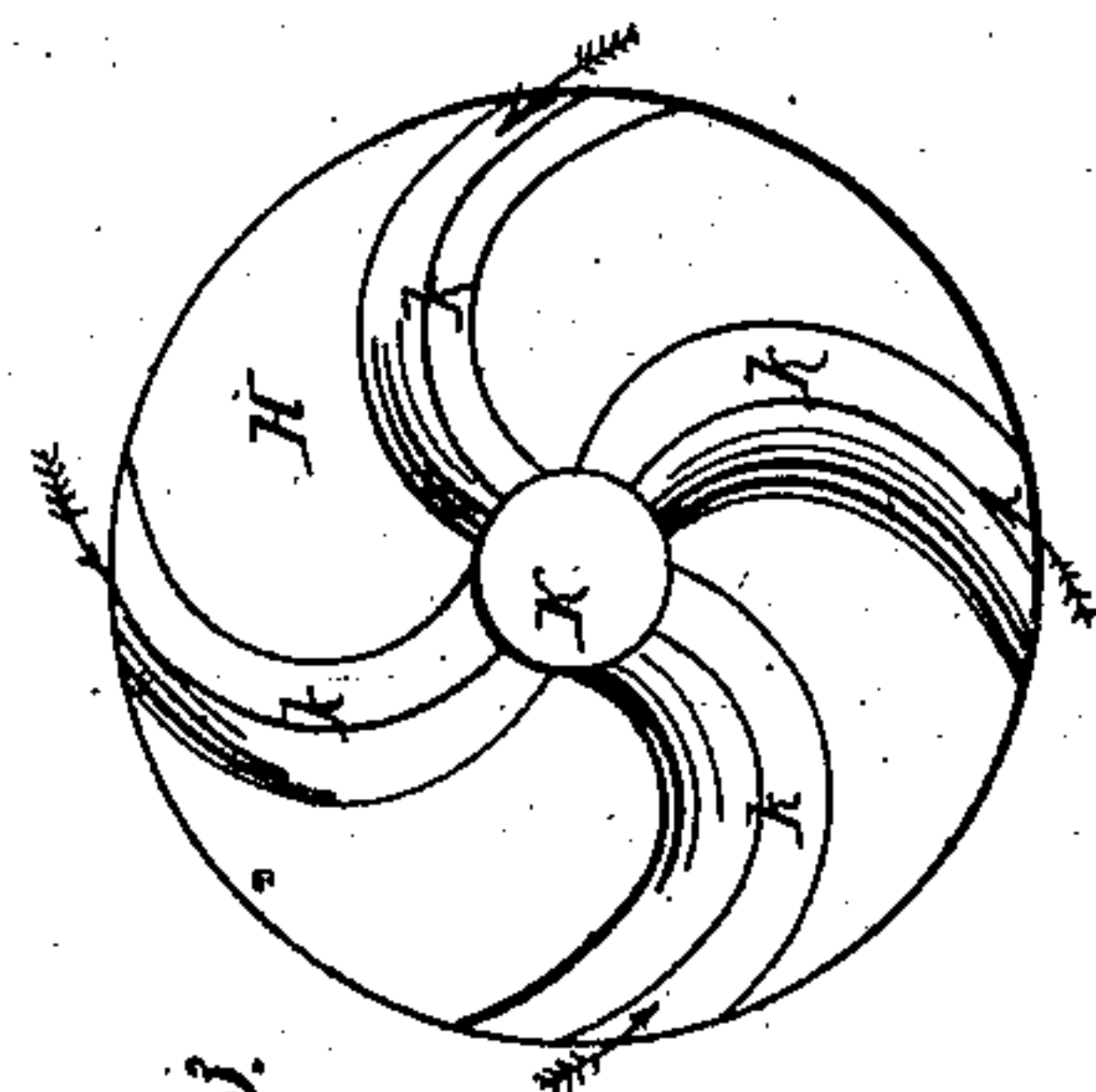
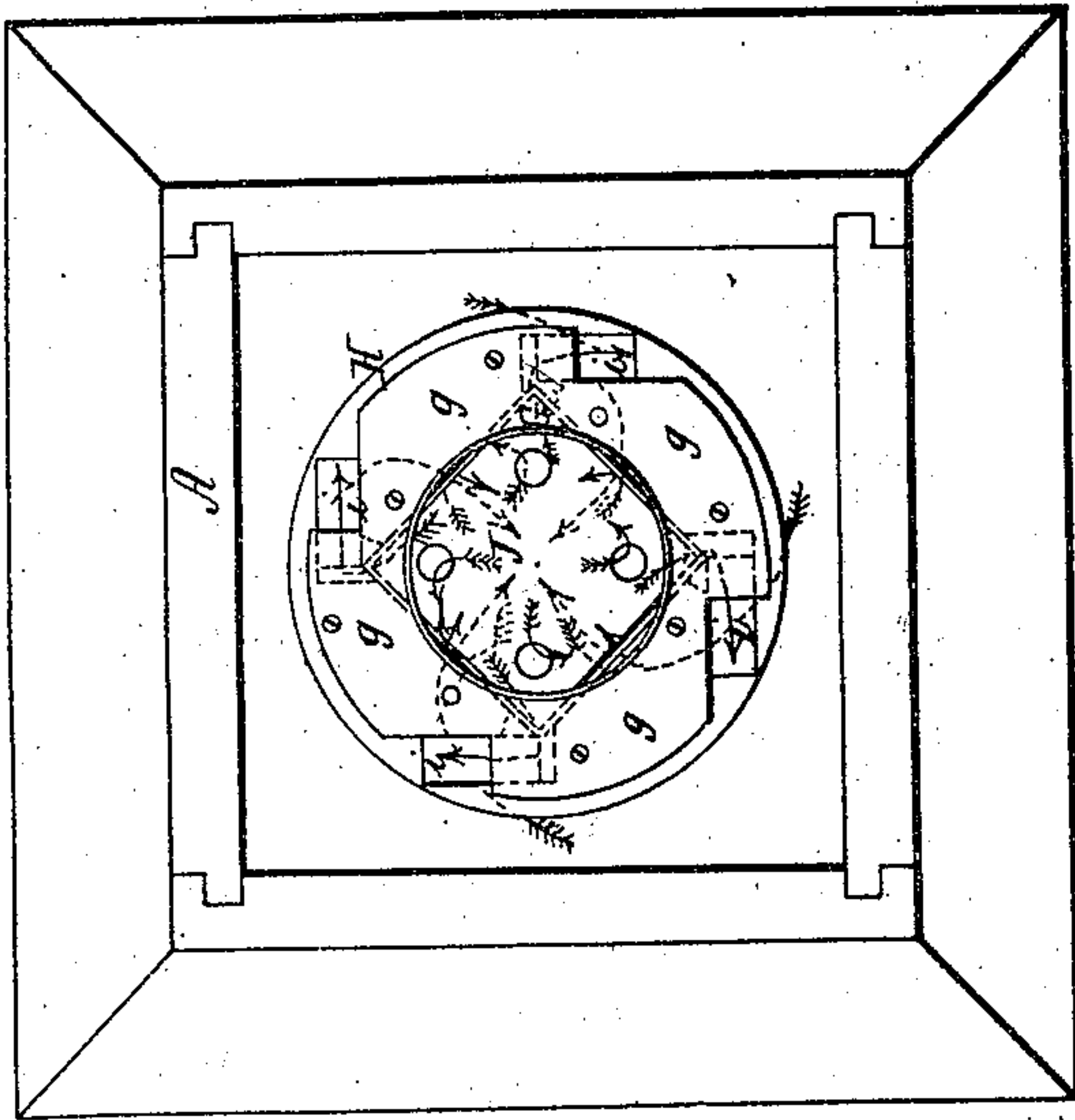
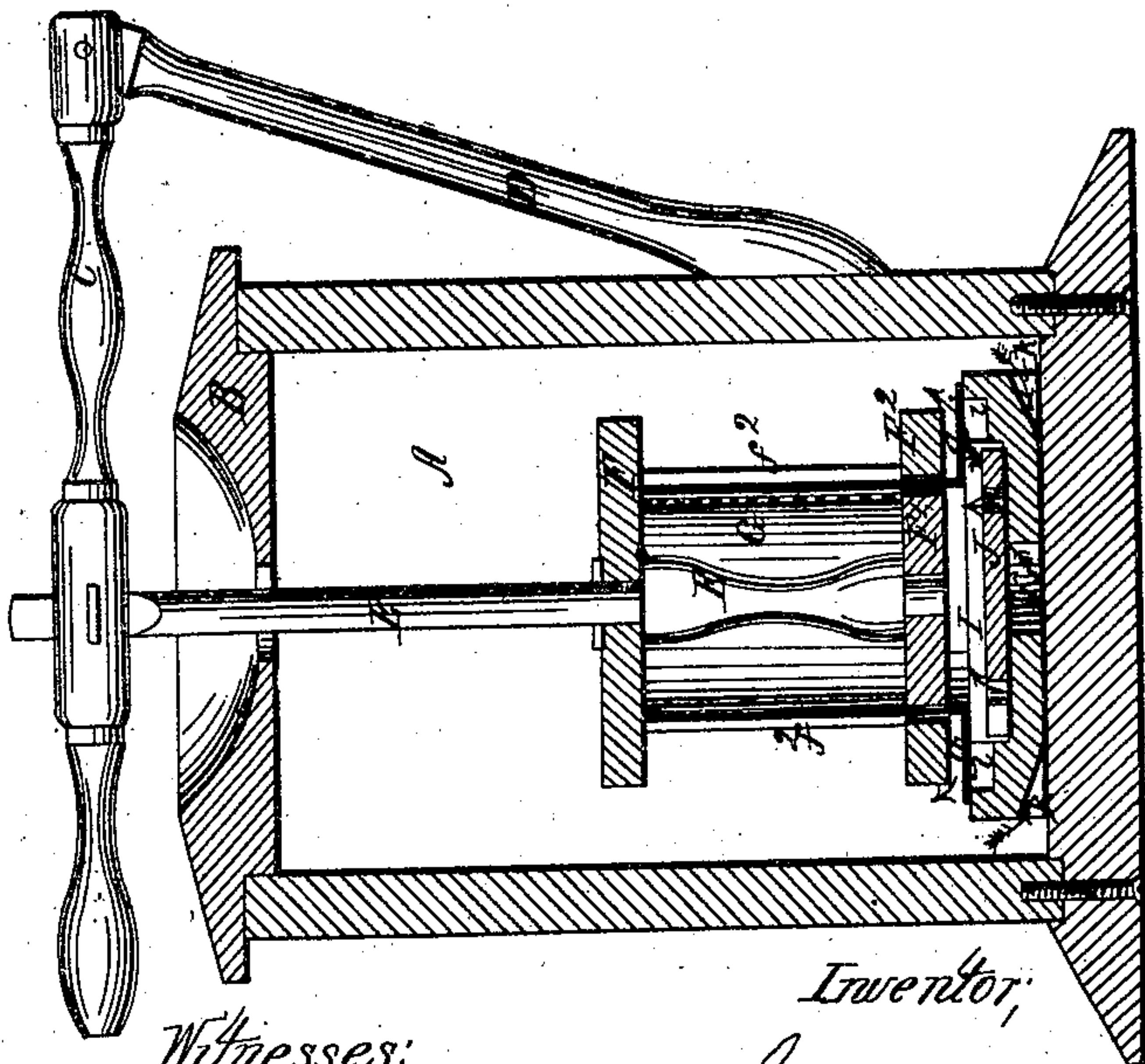


Fig. 3.

Fig. 1.



Witnesses;

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UNITED STATES PATENT OFFICE.

JAMES H. DOUGHTY, OF ADAMSVILLE, OHIO.

CHURN.

Specification of Letters Patent No. 34,416, dated February 18, 1862.

To all whom it may concern:

Be it known that I, JAMES H. DOUGHTY, of Adamsville, in the county of Muskingum and State of Ohio, have invented a new and
5 useful Improvement in Churns; 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, making part of this specification,
10 in which—

Figure 1 is a vertical axial section of my improved churn. Fig. 2, is a plan of the same with the cover and dasher removed. Fig. 3, is an underside view of the base of
15 the inner cylinder hereinafter described.

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

The nature of the present invention consists in an improved combination of devices
20 to impart a vortical motion to the cream, subject all parts of it to equal and thorough agitation and gather the formed butter in a compact and solid mass.

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

A is a tub or box provided with a cover B.

C is a lever fulcrumed to a standard D on the outside of the box A and carrying the
30 dasher rod E.

F F' are two circular disks secured, the latter at the lower end and the former toward the center of the rod E.

F² is an annulus secured concentrically
35 around the disk F' by means of rigid rods f², depending from the upper disk F. The space between the disk F' and annulus F², is sufficient to accommodate a short metallic cylinder G which is secured by means of
40 flanges g g g g to a base H of peculiar construction, which is screwed fast to the bottom of the churn. The base plate H is formed on top with a central cavity I in which a square or other shaped, perforated
45 valve J works.

i i i i are angular channels extending radially from the corners of the cavity I and turning at their outer ends to positions nearly tangential with the periphery of the
50 base plate. The said channels excepting at

their outer ends are covered by the flanges g g g g.

K is a central aperture extending from the cavity I completely through the base plate H but closed at its lower end by the
55 said base plate being fixed to the bottom of the churn.

k k k k are a series of curved channels formed in the under face of the base plate H. The said channels extend from the cen-
60 tral aperture K to the circumference of the base plate, terminating in positions tangential or nearly so with the periphery of the base plate but presenting in opposite directions to the upper channels i. The form of
65 the lower channels k is more clearly shown in Fig. 3, which represents the base plate inverted.

The operation of this churn is as follows:
A reciprocating motion is imparted to the
70 dasher E F F' F² f². As it rises the cream flows freely inward through the lower channels k up through the central aperture K and raising the perforated valve J passes
75 through and around it and fills the cylinder beneath the disk or piston F'. As the dasher descends the valve J closes instantaneously and the cream is driven forcibly
80 out through the contracted channels i subjecting it to great compression and friction which breaking the globules, liberates the olein and results in the rapid formation of butter. The blue arrows represent the direction in which the cream is drawn into
85 the churn and the red arrows the direction in which it is forced out, the arrows being shown in dots, where they pass beneath superposed parts of the churn. It will be apparent that by reason of the opposite direc-
90 tions of the outer parts of the respective channels i and k the cream is alternately drawn and impelled in the same circular direction, which imparts to it a rapid vortical or circular motion and thus causes all its
95 parts to be presented successively to the action of the dasher. The upper disk F and annulus or ring F² operate upon the cream on the outside of the cylinder G. The cream being taken into the cylinder, exclusively at the lower part, the butter as
100

fast as formed collects in a mass at top and is preserved from any further agitation.

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

5 The combination of the channels *i* and *k* formed and arranged as described when used in connection with the cylinder G pis-

ton F' and valve J arranged and operating substantially as and for the purposes set forth.

JAMES H. DOUGHTY.

Witnesses:

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