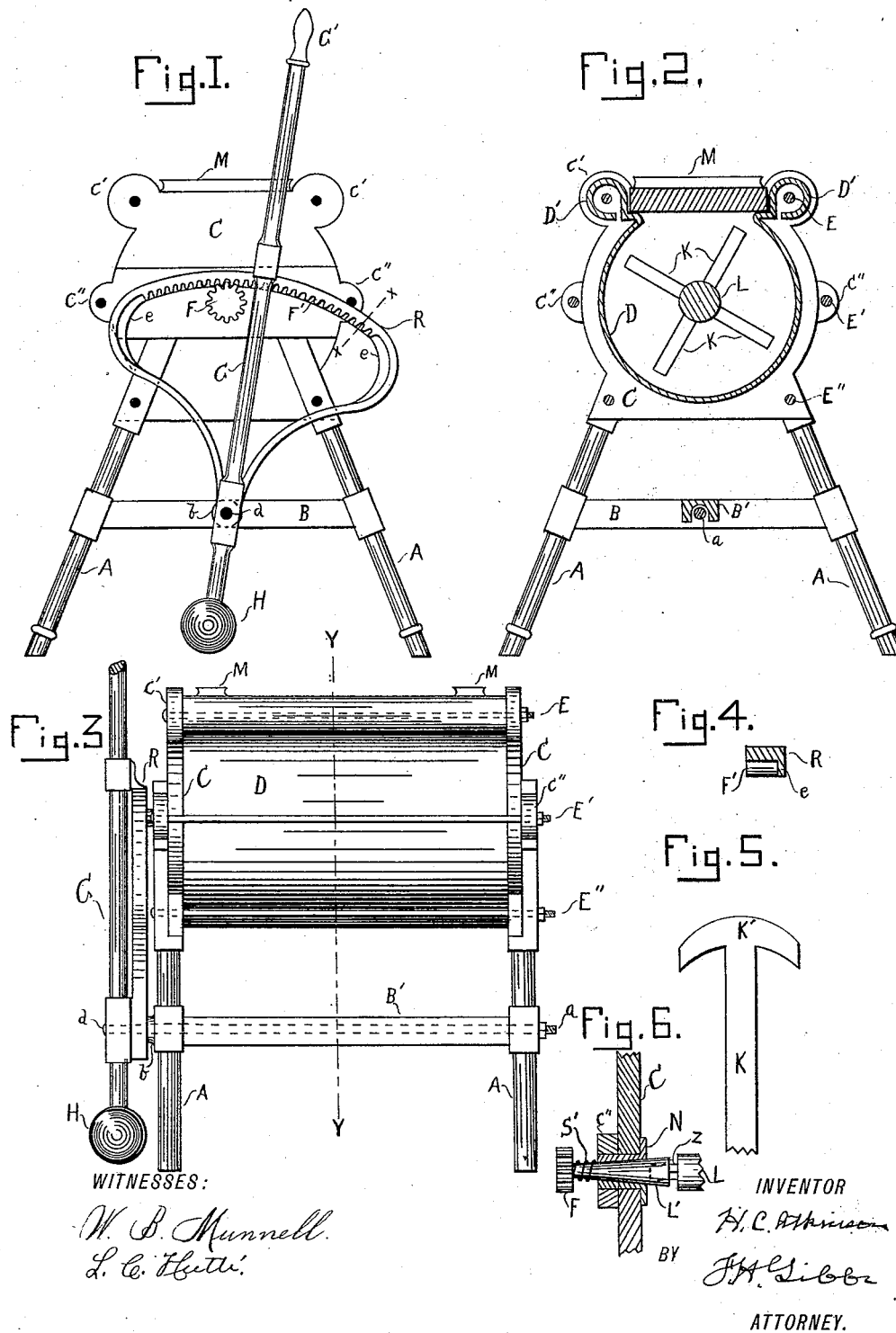


(No Model.)

H. C. ATKINSON.
CHURN.

No. 492,654.

Patented Feb. 28, 1893.



UNITED STATES PATENT OFFICE.

HENRY C. ATKINSON, OF LOUISVILLE, KENTUCKY, ASSIGNOR TO THE
DONALDSON MANUFACTURING COMPANY, OF SAME PLACE.

CHURN.

SPECIFICATION forming part of Letters Patent No. 492,654, dated February 28, 1893.

Application filed October 8, 1892. Serial No. 448,209. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. ATKINSON, of Louisville, in the county of Jefferson, in the State of Kentucky, have invented new and useful Improvements in Churns, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention consists in certain new and useful improvements in churns and comprises a novel construction and arrangement of parts all as hereinafter more particularly set forth and specifically pointed out in the claims.

In the annexed drawings Figure 1 is an end elevation of my improved churn. Fig. 2 is a vertical section on line —Y—Y— Fig. 3. Fig. 3 is a side elevation of the churn. Fig. 4 is a sectional view of the segment rack —R— of Fig. 1. Fig. 5 is a detail of one of the arms of the dasher rotating in the body of the churn, and Fig. 6 is a detail view showing the manner of connecting the shaft —L— carrying the dasher arms with the driving pinion —F'—.

One feature of advantage possessed by my churn is that it is easily and cheaply manufactured at the factory and may be readily shipped or stored in sections with great economy of space. It may be manufactured and shipped in its unfinished condition and readily assembled by an unskilled person so that it will be as effective in operation as if the several parts were assembled at the factory, thus permitting the establishment of a central manufactory for the production of parts which may be shipped to the point where the churns are to be sold and there easily assembled for use. To accomplish this desirable end I provide a sheet metal body —D— bent into proper form as shown in section in Fig. 2 with the upper ends turned over to readily receive a supporting rod as —E— passed through the portion —D'— thereof. The end sections —C—C— are of wood formed in proper shape and provided with ears —C'—C''— to receive the tie rods —E—E'— while the lower angular portion of the wooden end is cut in such shape as to act as a guide in connecting thereto the supporting legs —A—A— which are connected by the tie rods —E''— to the body portion.

The churn body proper is provided with a

suitable cover —M— and has within it the rotating shaft —L— carrying the dasher arms —K— provided with the heads —K'— best illustrated in detail at Fig. 5, a sufficient number of these arms —K— being provided to perform the proper duty in churning. At one end of the shaft —L— is a set screw for securing it in position while a pinion —F— connects with the opposite end, said pinion lying outside of the shell of the churn. Near the base of the legs —A— is a cross piece —B— at each end and the tie rod —a— extends the whole length of the churn, being provided with the collar —b— shrunk thereon at one end and the nut shown at the opposite end is provided to serve as a brace for the lower part of the legs. The cross piece —B'— extends across between the cross-pieces —B'— and, being concaved at its lower side serves to protect the tie rod —a— when in place. At the left of Fig. 3 it will be seen that the tie rod also performs the function of a support for the rocking lever —G— which is provided with the handle —G'— at its upper end. This rocking lever carries a bracket —R— provided with the segment rack —F'— meshing with and driving the pinion —F— on the end of the shaft —L— so that said shaft —L— may be rotated by means of said lever —G—. The lower end of the lever —G— is provided with a counter balance or weight —H— which is caused to move like a pendulum while churning.

The operation of my improved churn is as follows: The cream being placed in the shell —C—D— the cover —M— is placed in position and the operator grasps the handle —G'—, moving it back and forth. The pinion —F— and rack —F'— being in mesh the vibratory movement of the lever —G— carries with it the segment rack, thereby causing rotation of the dasher arms —K— in the cream and consequent agitation thereof for the purpose of separating the butter from the cream; this process is materially assisted by reason of the fact that the rack —F'— bears such relation to the pinion —F— that two or more complete revolutions of the shaft —L— are made before the end of the rack is reached and upon returning the handle to its original position the direction of travel of said dasher arms is

reversed and they are caused to travel in a reverse direction. The labor of churning is materially lessened by the counter-balance weight —H— at the lower end of the lever —G— and the rack is held in place by the feather —e— which prevents it leaving said rack in case of sudden jarring.

The particular shapes of the arm —K— and head —K'— are not absolutely essential and any form of dasher arm and head may be used without materially departing from my invention.

The pinion —F— is secured on the outer end of the tapering shaft —L'— and said shaft is connected to the dasher shaft —L— through the medium of the squared end —Z— fitting into a corresponding socket in said tapering shaft, the latter being held revoluble in the sleeve —N— which latter is held in position by the nut —C''— screwed onto the outer end thereof.

The object of the tapering shaft —L'— is to provide a compensating bearing which will always be tight enough to prevent leakage and this desirable end is attained by interposing a spring —S'— between the pinion —F— and nut —C''— the tendency being to always keep the tapering shaft —L'— tight in its bearing in the sleeve —N—.

Having described my invention, what I claim is—

1. A knock-down churn consisting of the wood supporting frame composed of the parts —A—B—B'— and the tie-rod —a—, the sheet-metal shell —D—, end pieces —C— therefor, tie-rods —E—E'—E''— connecting the end pieces and shell together, the horizontal shaft —L— and dasher arms —K— within said shell, the pinion —F— on said shaft, the lever —G—, the segment rack —F'— on said lever meshing with the pinion —F— and the counterbalance weight —H— on the lower end of said lever —G—, all in combination substantially as specified.

2. A knock down churn consisting of the sheet metal shell —D— wood end supports and end pieces therefor, suitable tie rods for uniting the several parts, a vibratory lever —G— pivoted on the tie rod —a— outside the collar —b—, the bracket —R— carried by said vibratory lever —G—, the segment rack —F'— and the feather —e— forming the upper portion of said bracket —R—, and the counter balance weight —H— upon the lower end of said lever —G— all combined and operating substantially as specified.

In testimony whereof I have hereunto set my hand this 27th day of September, 1892.

HENRY C. ATKINSON.

Witnesses:

FREDERICK H. GIBBS,
L. C. HUTT.