2 Sheets—Sheet 1.

# E. TYHURST.

## Curd Separator and Cooler.

**No. 218,906.** **Patented Aug. 26, 1879.**

*Fig. 1.*

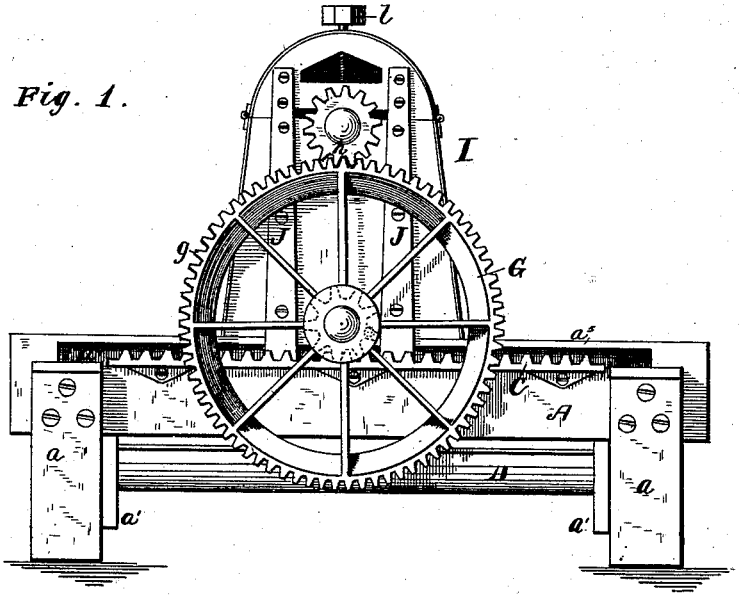
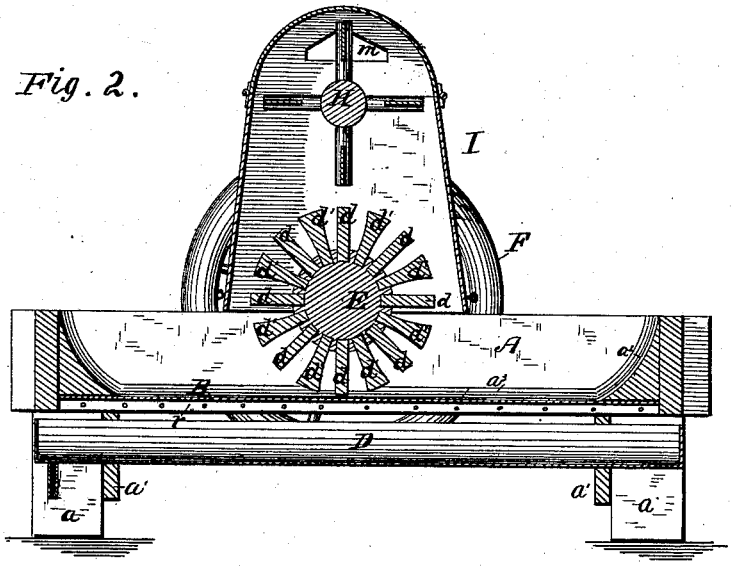



*Fig. 2.*




Witnesses,
W. H. H. Knight,
W. Blackstock.

Inventor,
Edward Tyhurst
by L. Rice,
His Attorney.

# E. TYHURST.

## Curd Separator and Cooler.

No. 218,906. Patented Aug. 26, 1879.

*Fig. 3.*

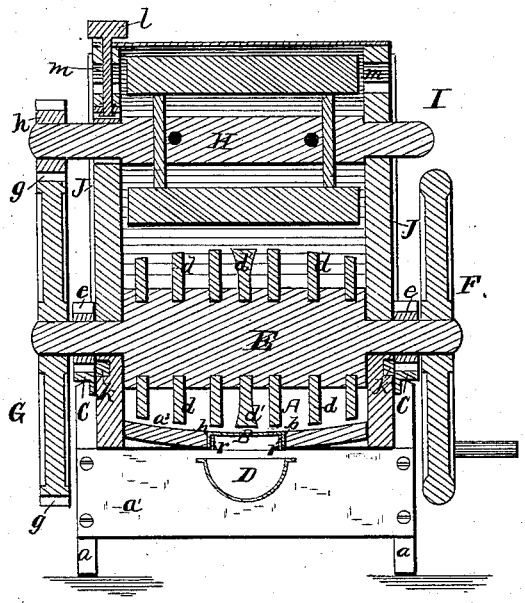
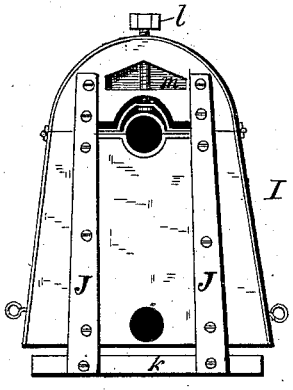



*Fig. 4.*




Witnesses,
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his Attorney

# UNITED STATES PATENT OFFICE.

EDWARD TYHURST, OF CHATHAM, ONTARIO, CANADA.

## IMPROVEMENT IN CURD SEPARATORS AND COOLERS.

Specification forming part of Letters Patent No. **218,906**, dated August 26, 1879; application filed April 10, 1879.

*To all whom it may concern:*

Be it known that I, EDWARD TYHURST, of Chatham, in the Province of Ontario and Dominion of Canada, have invented a certain new and Improved Curd Separator and Cooler; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation; Fig. 2, a longitudinal vertical section; Fig. 3, a cross-section; Fig. 4, an end elevation of the housing detached.

Similar letters of reference in the several figures denote the same parts.

The object of this invention is to improve the means for cooling the curd and separating it from the whey; and to this end it consists in the construction and combination of parts which I will now proceed to describe.

In the drawings, A is the curd-sieve or separator-box, mounted on legs *a*, stayed by cross-braces $a^1$ $a^1$. The sides of this box are vertical and its bottom and ends concave, as shown at $a^2$ $a^3$, respectively. Along the lowest or middle portion of the bottom is arranged a metal strainer, B, to permit the whey to run off into an inclined discharge-spout, D. The outer side walls of the box are slotted, as shown at $a^4$, or provided with a projecting flange, $a^5$, below which is arranged a cog-rack, C.

E is a stout cylinder, whose shaft or journals project beyond the said walls, and are provided with pinions *e e*, which engage with the racks C C and cause the cylinder to travel along in the box whenever it is rotated in either direction. The cylinder is driven by a heavy wheel, F, at one side of the box, and is provided with a counterbalancing-wheel, G, at the opposite side, which may be furnished with circumferential gear-teeth *g*, for the purpose of imparting motion to the pinion *h* of the fan-wheel H, arranged above it, as shown. The said cylinder is constructed with a large number of projecting spikes or pins, *d d'*, whose function is to pierce and divide the curd, so that the whey can escape therefrom, and so that cool air can be introduced into it for the purpose of cooling it. These spikes or pins are made longer toward the middle of the cylinder to correspond to the increased depth of the curd, and those that operate directly above the strainer are enlarged at their outer end, as shown at *d'*, in order to open or scrape the curd from the strainer and allow the whey to drain off more freely.

I do not limit myself to the form of such enlargements, as the desired result may be accomplished by many different forms of pin, the effective principle consisting simply in increasing the acting surface of the pins at their outer end. Over this cylinder is placed a housing or cover, I, the end walls of which over the sides of the curd-sieve are vertical, while the side walls facing the end of said sieve may be vertical, inclined, or convex. Straps J J extend down from the end walls to a slide-block or guide, K, which moves in the groove $a^4$, or under the projecting flange $a^5$ at each side of the curd-sieve, thereby confining the movable cover, with its contained cylinder and fan, to the said curd-sieve, and guiding and steadying them in their operation.

The top of the cover or housing is preferably semi-cylindrical in form, and contains the revolving fan, which is driven by the action of the gear-wheels G *h* as the apparatus moves along the curd-sieve. The bearing of the fan-shaft nearest to the pinion *h* is made adjustable by means of a screw, *l*, or any equivalent thereof, so that the pinion *h* can be raised out of gear with the wheel G, and the fan can thereby be thrown out of action at any time and for any length of time desired.

The front and rear sides of the housing are hinged, and can be opened or closed, as may be at any time preferred. When closed they operate to prevent the cylinder from spattering the curds and whey out of the box, and they confine and direct the cool air-currents from the fan into the openings made in the curd by the action of the pins *d d'* on the cylinder.

Suitable openings *m* should be made in the ends of the housing to admit air to the fan.

The strainer is secured in place by soldering two turned-down flanges, *b b*, to its lateral edges, and inserting it from above into the slot or opening provided in the bottom of the curd-sieve for its reception. The dependent flanges *b b* may then be tacked to the bottom

of the curd-sieve, or secured by strips *r* tacked thereto, or otherwise fastened in place by any suitable means. This makes a neat and smooth surface above and a secure fastening, and is besides very easily and conveniently accomplished.

The concavity and inclination of the ends of the curd-sieve are adapted in form to the shape of the cylinder and the length of its arms or pins, which also correspond to the concavity of the bottom.

The operation of the machine will be understood from the description already given.

I claim as my invention—

1. In combination with the curd-sieve having a strainer arranged along the middle of its bottom and a traveling rotary cylinder working therein, the teeth or arms *d'* of the cylinder over the strainer, enlarged at their ends, substantially as described.

2. The combination of the fan, arranged over and traveling with the cylinder, with the traveling stirring-cylinder and the housing or cover to confine and direct the air-blast, substantially as described.

3. The combination of the traveling stirring-cylinder with the curd-sieve, and with a housing or cover to prevent spattering the contents of the curd-sieve, substantially as described.

4. The combination of the curd-sieve, the traveling stirring-cylinder, the traveling fan, and means, substantially as described, for throwing the fan out of gear without interfering with the continued operation of the cylinder, substantially as described.

5. The combination of the curd-sieve, the guided blocks K, the slots $a^4$, or flanges $a^5$, either or both, the racks C C, the pinions *e e*, the cylinder E, and the large counterbalancing-wheels F G, to steady the movement and increase the effective force of the cylinder, substantially as described.

EDWARD TYHURST.

Witnesses:
N. H. DOLSON,
A. S. WILLIAMS.