

(No Model.)

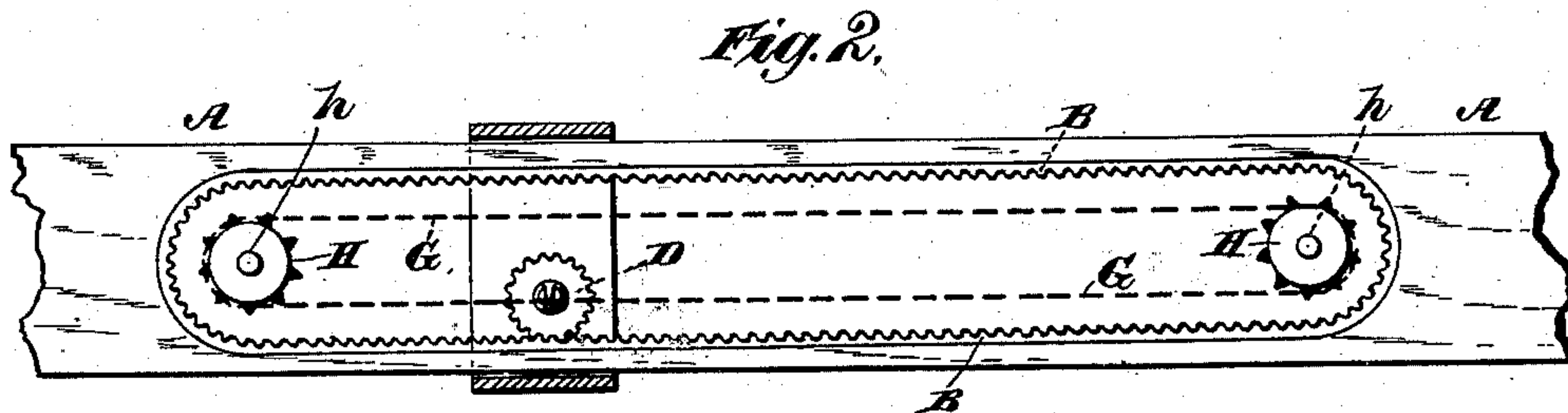
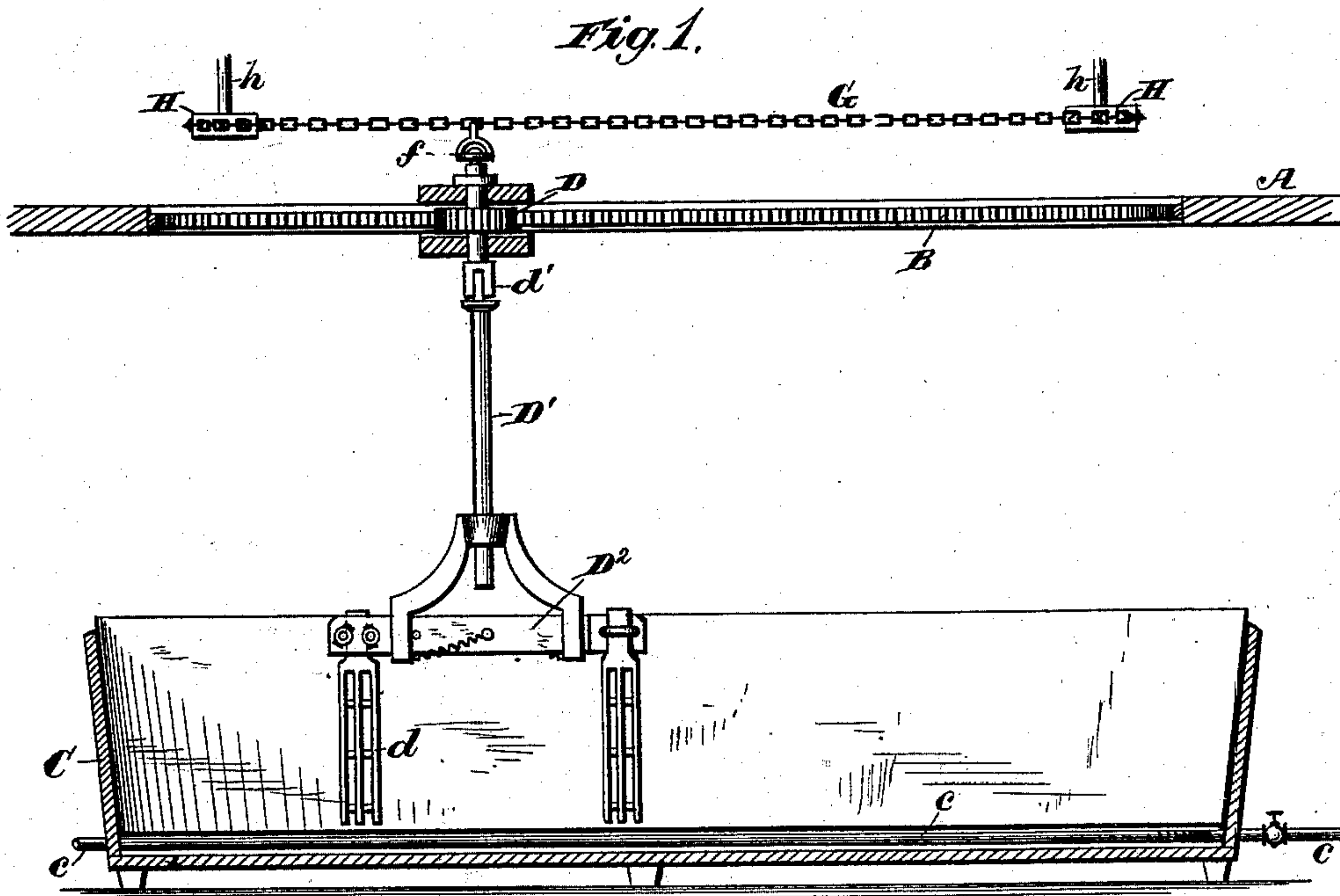
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S. JENKS & H. W. MILLAR.

CHEESE MAKING APPARATUS.

No. 283,251.

Patented Aug. 14, 1883.



Witnesses.

Robert Everett.

J. A. Rutherford

Inventors.

Scott Jenks

and Henry W. Millar.

By James L. Norris  
Atty.

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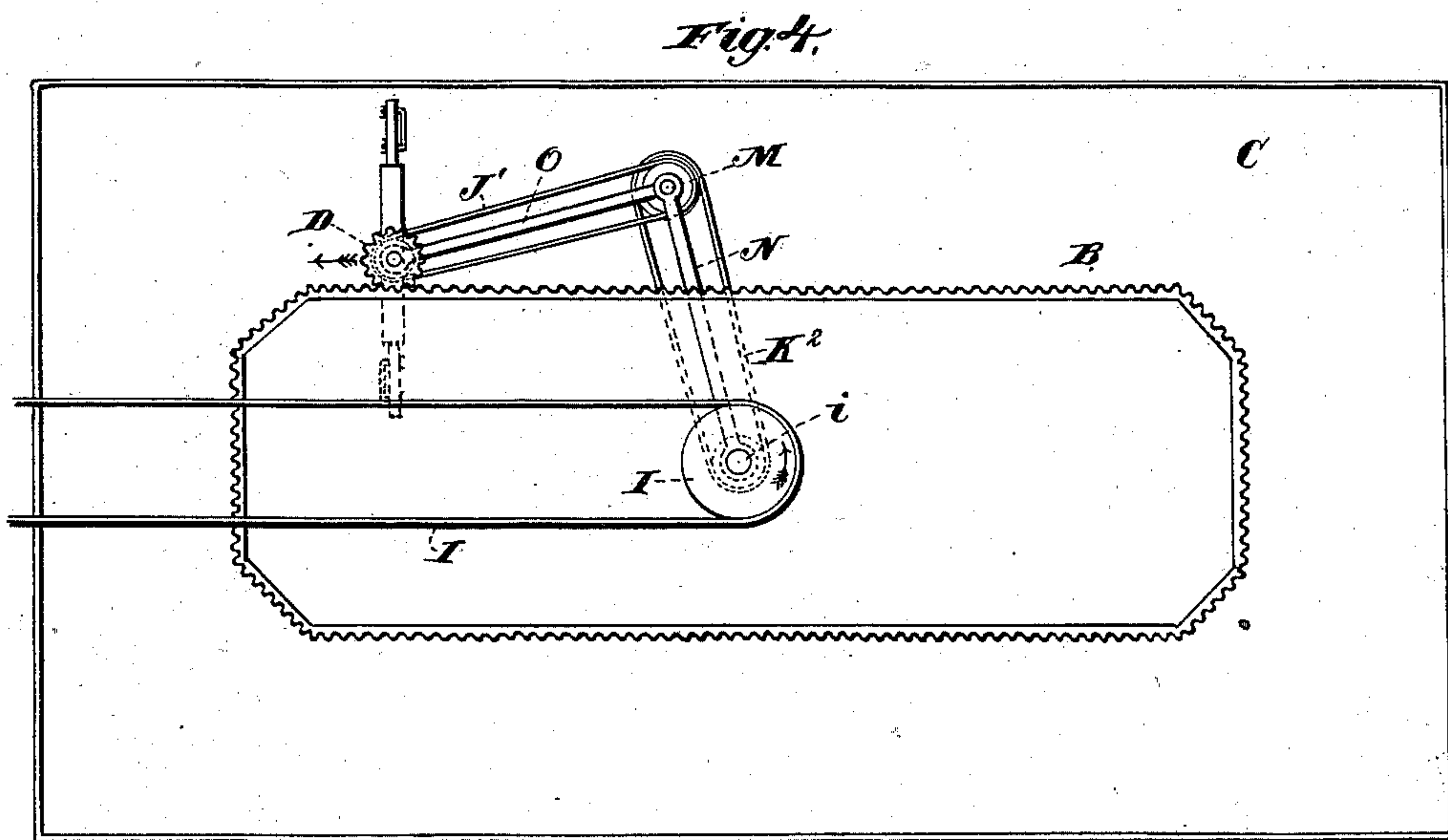
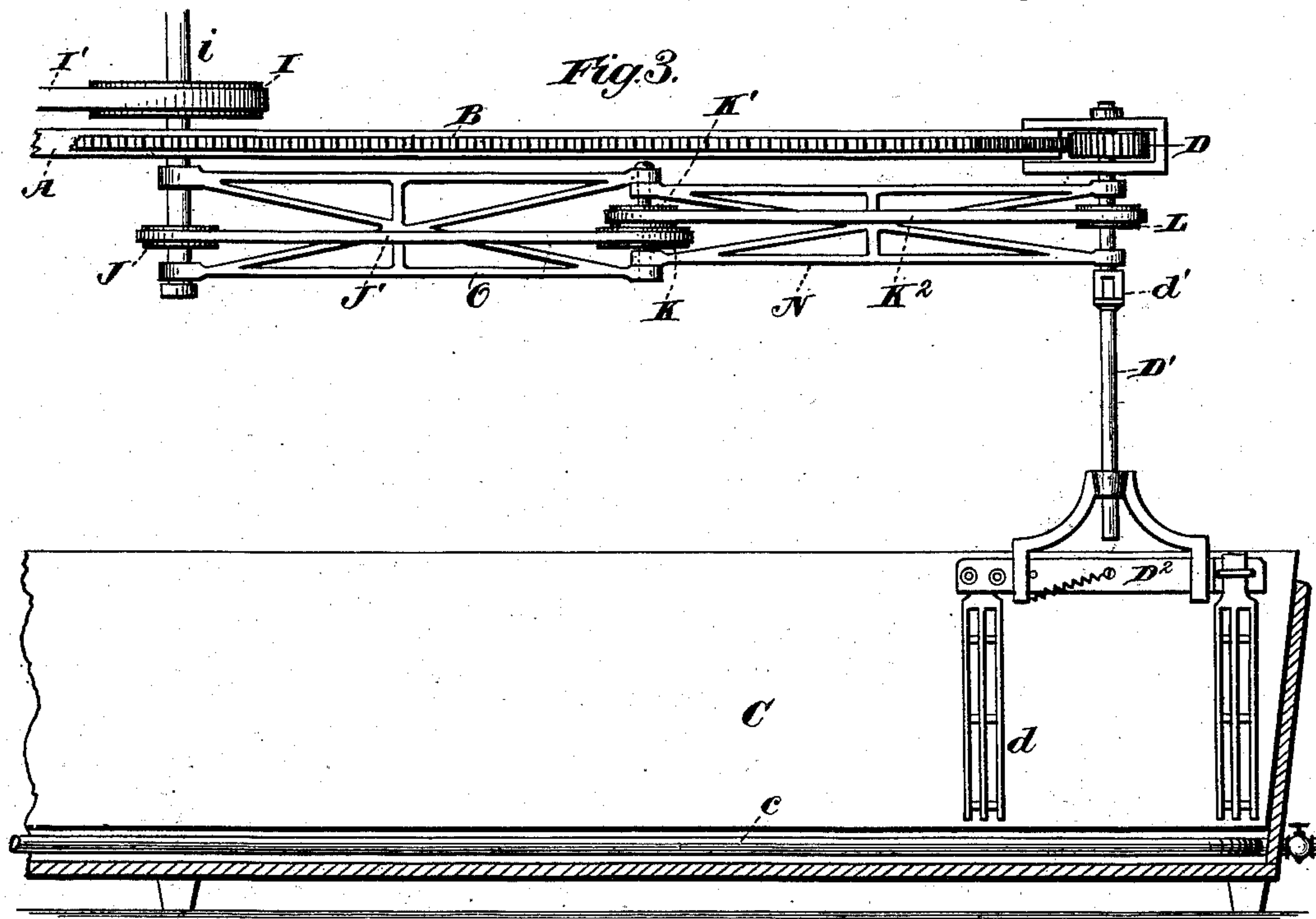
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# UNITED STATES PATENT OFFICE.

SCOTT JENKS, OF CHESHIRE, MASSACHUSETTS, AND HENRY W. MILLAR, OF  
UTICA, NEW YORK, ASSIGNORS TO SAID JENKS, AND CHARLES AND  
HENRY W. MILLAR, OF UTICA, NEW YORK.

## CHEESE-MAKING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 283,251, dated August 14, 1883.

Application filed February 9, 1883. (No model.)

*To all whom it may concern:*

Be it known that we, SCOTT JENKS, of  
Cheshire, Berkshire county, Massachusetts,  
and HENRY W. MILLAR, of Utica, Oneida  
5 county, New York, citizens of the United States,  
have invented new and useful Improvements  
in Cheese-Making Apparatus, of which the  
following is a specification.

Our invention relates to cheese-making ap-  
10 paratus, the specific device sought to be cov-  
ered in the present invention being adapted  
to cut the curds and to traverse the vat auto-  
matically; and the novelty consists in the con-  
struction and arrangement of parts, as will be  
15 more fully hereinafter described, and specifi-  
cally pointed out in the claims.

The invention is designed as an improve-  
ment upon the construction and adaptation set  
forth in patent granted to S. Jenks, Novem-  
20 ber 7, 1882, and numbered 267,211, in which  
the revolving curd-cutter traversed the longi-  
tudinal plane of the milk-vat, and when one  
complete traverse was made the revolving cut-  
ter and carrying and actuating devices were  
25 stopped and reversed before the return trav-  
erse could be accomplished.

To obviate this peculiarity of the construc-  
tion therein set forth, and to allow the use of  
vats of larger size, this invention is designed;  
30 and to that end it consists, essentially, in a re-  
volving curd-cutter which shall continually  
traverse a fixed path and shall always revolve  
in the same direction. This curd-cutter is con-  
trolled and manipulated by the various mech-  
35 anisms fully illustrated in the accompanying  
drawings, which form a part of this specifica-  
tion, and in which—

Figure 1 is a central longitudinal vertical  
section of our invention, showing the gear  
40 traversing an internally-toothed rack; Fig.  
2, a top plan view; Fig. 3, an enlarged view,  
partly in section, showing the gear traversing  
an externally-toothed rack and actuated by  
belts, the irregular surfaces to be traversed by  
45 said gear being accommodated by jointed arms;  
and Fig. 4, a top plan view of the same.

Referring to the drawings, in which similar  
letters of reference indicate like parts in all  
the figures, A designates a board or plank sup-

port cut away so as to receive an oblong or 50  
polygonal rack-bar, B, which rack-bar is trav-  
ersed by a pinion, D, rigidly secured by key,  
feather, or otherwise to a shaft, D', having  
swivel-joint at *d'*, and carrying frame D<sup>2</sup>, pro-  
vided with cutting-knives or agitators *d*, which 55  
are removable and interchangeable at will. The  
pinion D being in mesh with the rack-bar B, and  
being held in such mesh by any suitable means,  
is made to traverse the said rack-bar continu-  
ously in one direction by any suitable connec- 60  
tion with a motive power, two of which will  
be hereinafter explained.

In Fig. 1 we show an endless chain, G, with  
which is loosely engaged a swivel, *f*, carried  
upon the upper extremity of the revolving 65  
shaft D', and the chain G is carried over sprock-  
et-wheels H, carried upon shafts *h*, journaled  
in proper supports above the rack B, and to  
one of these shafts the motive power is ap-  
plied.

C indicates a vat having the ordinary heat-  
ing-pipes, *c*, and this vat is made preferably  
twice the size, or nearly so, of a vat which it  
would be necessary to use where the revolving  
curd-cutter makes its traverse in one direction, 75  
and is then automatically stopped and reversed  
before the return movement, as in the con-  
struction set forth in the patent hereinbefore  
referred to. In this construction the curd-cut-  
ter travels down one side of the vat, across 80  
the end, up the other side, across the other  
end, and so on, the traverse being continuous  
and the line of travel varied and controlled  
by the contour of the continuous rack B;  
hence the size and form of the vat will be made 85  
to agree with the form of the rack.

In the plan view shown in Fig. 2 it will be  
observed that the continuous rack-bar B is of  
oblong form, and hence the pulley D will not  
have a very great amount of lateral movement 90  
in changing from one side to the other in its  
traverse; but this amount may be increased or  
diminished by correspondingly changing the  
form of the rack.

In Fig. 3 we show another means for carry- 95  
ing out the same object. In that figure, *i* in-  
dicates the stationary power-shaft, carrying a  
pulley, I, to which power is imparted by a



belt, I'. Loosely collared on this shaft *i* is an arm, O, and in the free end of this arm is journaled loosely a revolving shaft, M, upon which in turn is hung loosely the arm N. Suitable eyes in the free end of this arm N embrace the shaft D', which carries the curd cutter or agitators. A pulley, J, rigid with the shaft *i*, is connected by a belt, J', to a pulley, K, rigid upon the revolving shaft M, which serves also as the pivot between the arms N O, and upon this shaft M is also rigidly keyed the pulley K', which, by a belt, K<sup>2</sup>, is connected to the pulley L upon the shaft D', which carries the cutters. The pinion D traverses the rack B, the teeth of which are external, being held in mesh therewith by any suitable guide-carriage; and it will be observed that whatever may be the position of the pinion D the arms N and O accommodate themselves readily to such position, while at the same time the belts J' K<sup>2</sup> are kept in their normal operative position, as clearly shown in the plan view, Fig. 4. It will also be observed that the distance at which the longitudinal sides of the rack B in Fig. 4 are separate from each other is approximately equal to the width of swath made by the cutters, and that while the traverse of said cutters in one direction operates upon the end for about one-half such distance the return movement upon the opposite side of the rack B will manipulate the remaining half, and thus the whole amount be successfully and efficiently operated upon.

It is obvious that by this construction double the amount of milk may be manipulated by a single cutter, and that the continuous traverse obviates the jar, strain, concussion, and noise which necessarily follow the stopping and reversing operation which is employed in the reciprocating cutter.

Modifications in details of construction may be made without departing from the principles or sacrificing the advantages of our invention, the essential features of which are the continuous traverse of the cutters and the means of accomplishing it.

Having thus described our invention, what we claim is—

1. In an apparatus for cutting or agitating curd in the art of making cheese, a revolving cutter hung upon a vertical rod or shaft, combined with a continuous rack and with means for supporting and moving the said cutter in a continuous traverse in a milk-holding vat, substantially as set forth.

2. In an apparatus for cutting or agitating curd in the art of making cheese, the combination of a milk-holding vat and a vertical shaft, carrying at its lower end a depending cutter or agitator, with a frame arranged above the

vat and supporting the upper end of the vertical shaft, mechanism for moving the latter in a continuous traverse, and means for rotating the shaft in a vertical plane and imparting to the cutter or agitator a rotary motion in a horizontal plane about the vertical shaft, substantially as described.

3. An apparatus for cutting or agitating curd in the art of making cheese, combining in its structure a vertical shaft, an elevated frame supporting the upper end of the shaft, a cutter or agitator depending from the lower end of the shaft, and mechanism for moving the vertical shaft in a continuous traverse and imparting to it a rotary motion in a vertical plane, and thereby rotating the cutter or agitator in a horizontal plane about the vertical shaft, substantially as described.

4. The combination, with a vat in an apparatus for preparing, cutting, or agitating curd in cheese-making, of a vertical shaft carrying the cutters or agitators and a pinion which is held in mesh with a continuous rack, with means for moving said pinion upon such rack in a continuous traverse, and thereby imparting a rotary motion to the said cutters or agitators, substantially as described.

5. In an apparatus for cutting or agitating curd in cheese-making, the combination of a vat and a vertical shaft or arm carrying the cutting or agitating devices and a rigid pinion, a continuous rack with which said pinion is held in mesh, and means, substantially as described, for simultaneously imparting motion to said pinion and cutters, whereby the cutters are made to rotate in a horizontal plane and the vertical shaft to traverse the line of the continuous rack, substantially as set forth.

6. In combination with the vertical shaft, cutters or agitators, and pinion, the continuous rack B, the pivoted jointed arms N O, and means, substantially as described, for imparting motion to said shaft, as and for the purpose set forth.

7. In a machine substantially as described, the arms N O, and shaft M, combined with the power-shaft *i*, the rotary shaft D', the pulleys J K L, belts J' K<sup>2</sup>, the continuous rack B, pinion D, and cutters, as and for the purpose set forth.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

SCOTT JENKS.  
HENRY W. MILLAR.

Witnesses:

WILLIAM M. DAVIES,  
CLARENCE H. ROSE.