J. NAYLOR, Jr.

Gang Cheese-Press.

No. 222,724. Patented Dec. 16, 1879.

Fig. 1.

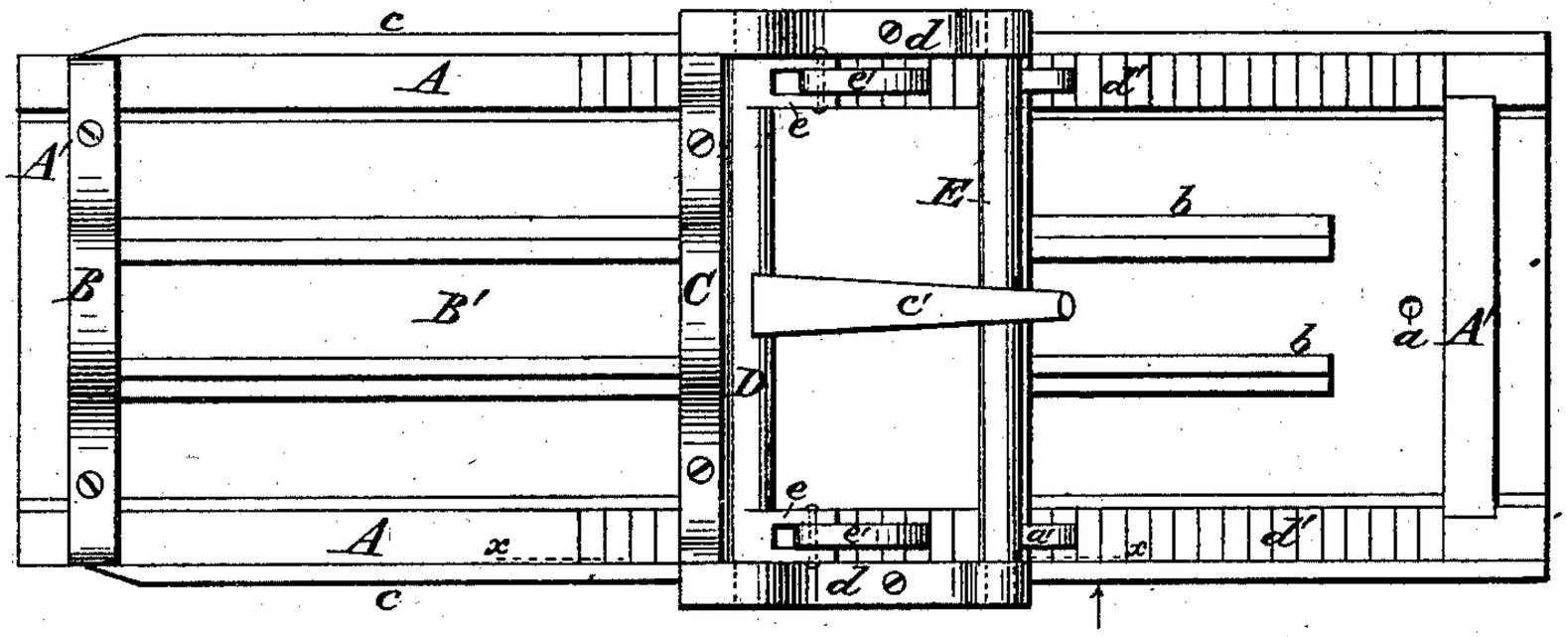


Fig. 2.

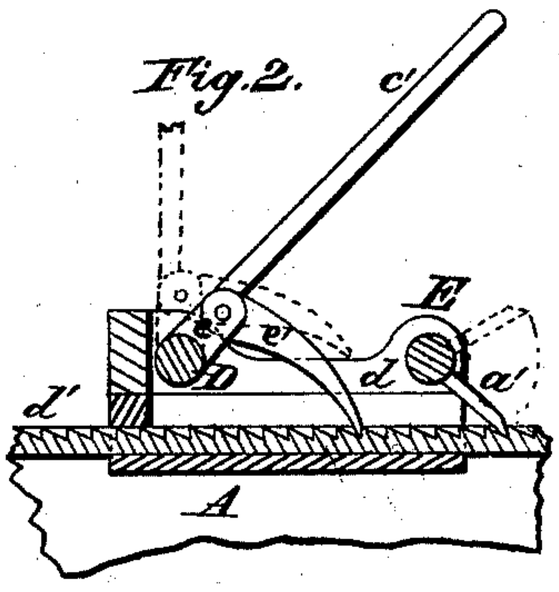
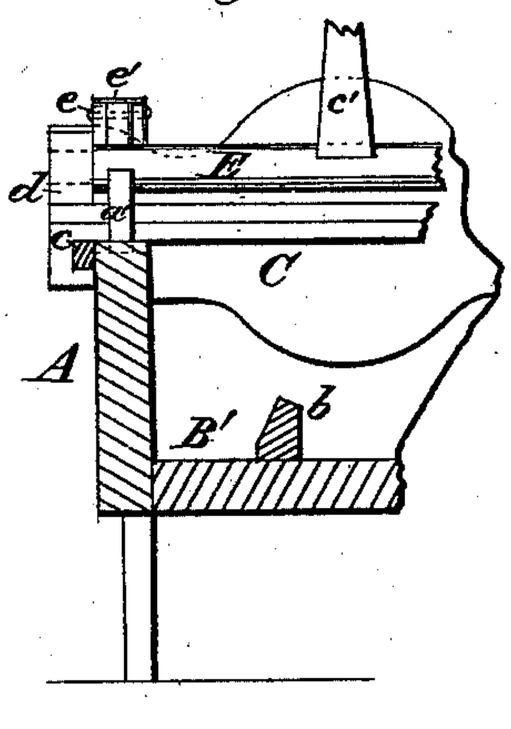


Fig. 3.



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UNITED STATES PATENT OFFICE.

JAMES NAYLOR, JR., OF ROCHESTER, ASSIGNOR TO WHITMAN & BURRELL, OF LITTLE FALLS, NEW YORK.

IMPROVEMENT IN GANG CHEESE-PRESSES.

Specification forming part of Letters Patent No. **222,724**, dated December 16, 1879; application filed May 20, 1879.

To all whom it may concern:

Be it known that I, JAMES NAYLOR, Jr., of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Gang Cheese-Presses; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to an improvement in that class of cheese-presses known by the general term of "gang-presses," in which several cheeses may be placed at the same time, and all acted upon by the same mechanism, giving an equal pressure to each cheese in the press, whatever number there may be, the object being to furnish a cheaply-constructed press, in which the operation of pressing cheeses may be performed in less time and with less labor than with the gang-presses in common use, which are generally operated by a screw, the turning of which, in drawing back the follower, as well as in forcing it up, is slow, although the power exerted by such a press when properly constructed is fully sufficient for the purpose named. In order to avoid this loss of time in operating the press, and the excessive cost of construction, I have invented the hereinafter-described press, which consists, essentially, in so constructing and arranging the parts of the press as to dispense entirely with the screw, substituting therefor one or more toothed racks, secured to or formed in the bed of the machine, in which work pawls attached to the arm of a rock-shaft carried in suitable journal-bearings upon the movable follower of the press, said rock-shaft being oscillated by a lever attached thereto, and the follower prevented from having a retrograde movement by a shaft provided with pawls catching in the teeth of the racks, as will be hereinafter fully set forth, and then specifically stated in the claims.

In the drawings, Figure 1 is a plan of the press, showing the arrangement of the bed with its racks, the follower, and the rock-shaft and pawls, by which motion is given to the follower. Fig. 2 is a longitudinal section on the line *x x* of Fig. 1, giving a side view of the operating parts. Fig. 3 is a transverse section of the press in the rear of the follower, and shows the relative positions of the follower, bed, and rock-shaft in a vertical plane.

The side pieces, A, of the frame are preferably constructed of wood, and are united at their ends by the cross-pieces A′, one of which, in connection with the side pieces, A, supports the stationary cross-head B, it being securely bolted to the parts named, so as to be immovable under the great strain to which it will be subjected when the press is in operation.

A tight bottom, B′, is securely fastened to the under side of the frame, thus forming a tank or cistern, which catches the whey as it runs from the cheeses, and which may be drawn off whenever needed by a cock or plug, *a*, placed in the lowest part of the bottom.

Two or more ways, *b*, are secured to the bottom B′, and extend nearly the whole length of the cistern, sufficient room, however, being left at one end for the passage of the whey, so that the cistern may be easily and fully drained. These ways serve as a support for the cheese-hoops, which are so constructed as to have a level bearing on them to bring their axis parallel with the longitudinal axis of the press, thus causing the forward motion of the movable follower to act equally upon the contents of all the hoops in the series operated upon.

Guide-strips *c* are secured to the side pieces of the frame on the outside, near their upper edge, and serve as guides to the movable follower C, the ends of which project over the sides of the press and extend rearward, forming the sliding side pieces, *d*, which hook under the strips *c*, and prevent any swaying or unequal movement of the ends of the follower. Journaled in these side-pieces, *d*, is a rock-shaft, D, provided with arms *e*, in which are pivoted the pawls *e′*. A lever, *c′*, is also firmly secured to the rock-shaft in such a position that when thrown back against the follower, as shown by dotted lines in Fig. 2, it shall raise

the pawls e' from the racks d upon the side pieces, A, of the frame, so that the pawls shall not interfere with the movement of the follower in either direction; but when the lever is turned down the pawls catch in the teeth of the racks, and as the lever is forced still farther downward the arms e of the rock-shaft, in conjunction with the pawls e', act as toggle-levers, moving the follower forcibly forward, and exerting a great pressure upon the series of cheeses in the hoops between the follower and stationary cross-head B.

In order to prevent any reaction of the follower when the lever c' is raised to get the pawls e' in position for another forward movement, a shaft, E, is journaled in the movable side pieces, d, near their rear ends. Into this shaft are inserted the pawls a', moving with the shaft, so that they may be lifted out of contact with the racks by turning the shaft; but when resting upon the racks these pawls catch automatically, and hold the follower at any point to which it may have been forced by the action of the rock-shaft D and pawls e'.

The operation of this press will be perfectly clear from the foregoing description, and its simplicity of construction and effectiveness will, it is believed, render it a favorite with both dairymen and manufacturers.

I am aware that presses have been heretofore constructed in which the movement of the follower was produced by the action of pawls upon a rack; but so far as my knowledge extends none of them have accomplished the desired result with such a simple array of mechanism as is used in this press.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent, the following:

1. In a gang cheese-press, the combination of the movable follower, provided with a rock-shaft and pawls pivotally attached to the arms thereof, with the racks d, or their equivalents, substantially as set forth.

2. In a gang cheese-press, the follower provided with the guided side pieces, d, in combination with the rock-shaft D, its actuating-lever and pawls, and the pawl-shaft E, all operating substantially as specified.

3. The side pieces, A, provided with racks d, and the cross-head B, in combination with the movable follower C and its operative mechanism, constructed and arranged substantially as shown and described.

4. In a gang cheese-press, the means, hereinbefore described, for imparting a forward movement to the follower, consisting essentially of a toggle-acting pawl and toothed rack, as set forth.

5. In a gang cheese-press, the toggle-acting pawl and lever for producing a forward movement of the follower, in combination with the independent pawl-shaft and its pawls, for preventing a retrograde movement of the same, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 13th day of May, 1879.

JAMES NAYLOR, JR.

Witnesses:

HORACE MCGUIRE,

M. F. O'DEA.