H. W. MILLAR.

CHEESE-PRESS AND HOOP.

No. 183,696. Patented Oct. 24, 1876.

Fig. 3

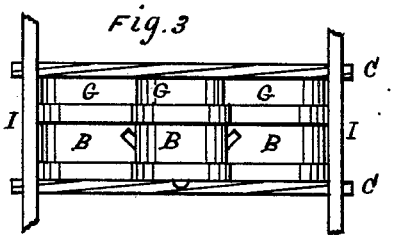


Fig. 1

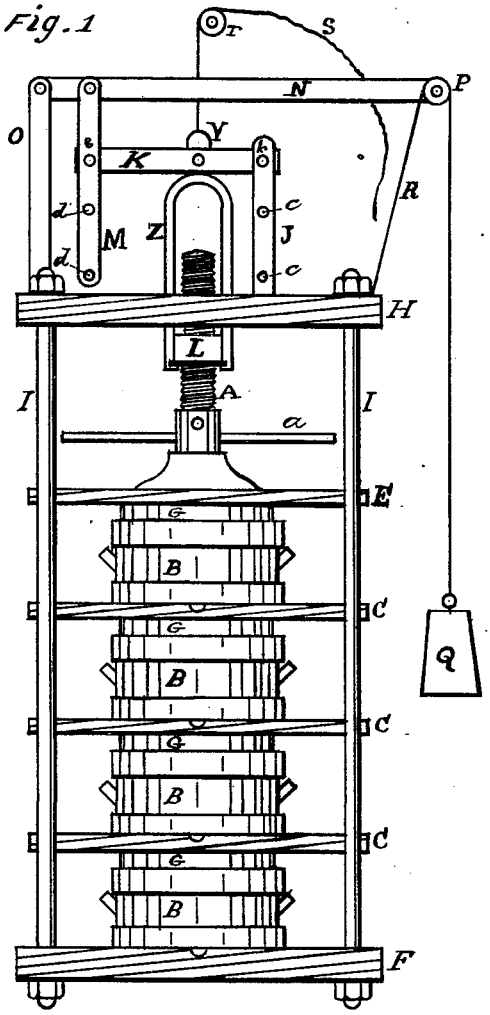


Fig. 5

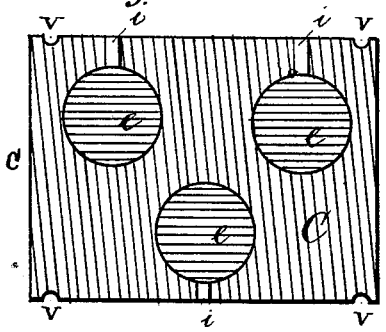


Fig. 4

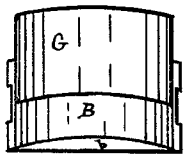


Fig. 2

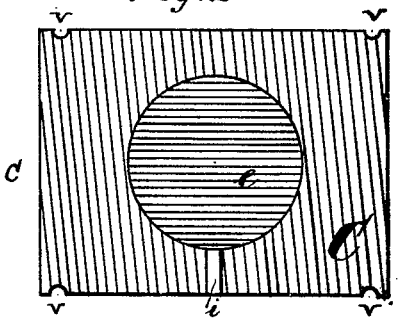
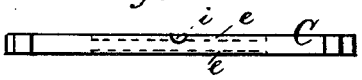


Fig. 6



Witnesses;
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Ed Wood

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UNITED STATES PATENT OFFICE.

HENRY W. MILLAR, OF UTICA, NEW YORK.

IMPROVEMENT IN CHEESE PRESSES AND HOOPS.

Specification forming part of Letters Patent No. **183,696**, dated October 24, 1876; application filed May 13, 1876.

To all whom it may concern:

Be it known that I, HENRY W. MILLAR, of Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Cheese Presses and Hoops; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those 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, and in which—

Figure 1 is a side elevation of the press, press-boards, and hoops as they appear when in use. Fig. 2 shows the upper surface of a press-board arranged for a single hoop. Fig. 3 shows, in side elevation, three hoops arranged to be pressed between two press-boards. Fig. 4 is a vertical section of a hoop, showing the inside ring. Fig. 5 is the upper surface of a press-board, arranged to press three hoops; and Fig. 6 is an end view of one of the press-boards, the dotted lines indicating the depth to which it is countersunk to receive the hoops.

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

The first part of my invention relates to the arrangement of a cheese-press screw with a set of levers and a weight, by means of which a continual pressure is maintained, and in such a manner that when the length of screw is run out it may be lowered and the pressure continued, when more than one cheese in height is pressed and the consequent shrinkage is more than the length of the screw.

The second part of my invention relates to an improved construction of cheese-hoop and press-boards, by which the hoops are always maintained in a perpendicular position, one above the other, and the press-boards in a horizontal position, so that the cheeses are always pressed perfectly true and even. The hoops are of such a construction that the use of the ordinary follower is dispensed with.

In the drawing, H F are the top and bottom of my improved cheese-press. These are united by vertical rods I I, between which the press-boards C slide. The top H of the press has a central perforation for the press-screw A, which is attached to the upper press-board E in such a manner that it may be freely turned by a handle or lever, *a*, passed through a perforation in its lower end. The screw A operates a nut, L, secured in the lower end of a bail, Z, the upper end of which is hinged to a lever, K. One end (the short) of this lever is pivoted by a pin, *k*, to an upright, J, on one side of the central perforation in top piece H, and to its long end is pivoted, by a pin, *g*, a vertical arm, M. O is an upright, secured to the side of top piece H. To the upper end of this upright is pivoted a lever, N, having at the end a pulley, P. The upper end of vertical arm M is pivoted to lever N near upright O, and a rope, R, having at its end a weight, Q, is secured to the side of top piece H opposite upright O and behind upright J, and passed over pulley P. The upright J and arm M have each, not one, but a series of perforations, *c c d d*, so that by simply shifting the position of pins *g k* the lever K with bail Z, screw A, and press-board E may be raised or lowered to any suitable position.

The cheese-hoops used in combination with my improved press are of the construction shown in Fig. 4—that is, they consist of an outside solid hoop, B, within which slides a loose ring, G, which, in order to occupy the least possible space, I prefer to make of stout galvanized sheet metal. They may, however, be made of any other suitable material. The press-boards C, between which they are placed, are countersunk, as shown at *e*, in Figs. 2, 5, and 6, in order to receive them, and hold them steady, while the press is in operation. Grooves *i*, through which the whey may escape, are cut from the countersinks to the edges of the press-boards. The press-boards slide vertically between the rods I of the press, they being provided for this purpose with grooves or guides *v*, fitting upon rods I. Usually only one compound hoop is placed between each two press-boards, but, if desirable, two or more, the press-boards being then, of course, provided with a corresponding number of recesses or countersinks, as illustrated in Figs. 3 and 5 of the drawings.

In operation, the cheese-curd is placed in the double hoop B G first. The press-board is then placed on top of this, care being taken

to let the ring G enter the space in the press-board countersunk to receive it. The next double hoop is then placed in the recess cut on the upper side of this board to receive it, filled with curd, another board placed on top, then another hoop, and so on until all the hoops are placed under the screw. The pins *g k* are now adjusted so as to bring the upper press-board down as far as possible, and pressure is then applied by screw A, operated by lever *a*, to the entire column of cheese. Now, supposing the weight Q to be one hundred pounds, and supposing it to be multiplied by the arrangement of levers N K, uprights J O, and arm M twelve times, the pressure exerted by operating the screw will be equal to twelve hundred pounds. After compressing the cheese as far as this pressure will admit of, the effect of further operation of the screw will be to raise the bail Z, and with it the levers K and N. After doing this as far as possible, the press is left to stand, when the constant pressure of twelve hundred pounds will gradually expel the whey from the hoops, the effect of which will, of course, be that the cheese shrinks, and the levers will be gradually lowered. The screw A is now again operated, and so on until its entire length has run out. The pins *g k* are now removed, the screw A run back into bail Z, and the arm K lowered. Pressure is then again applied, and continued in the manner already described until the cheese is made. The upper press-board E is then lifted, this being easily done after removing pins *g k*, by a rope, S, attached to the upper end Y of bail Z, and passed over a pulley, *r*, attached to the ceiling of the room above the press, and the hoops removed one by one.

The advantages of my invention will be readily understood from the foregoing description. By the peculiar construction of the hoops the use of a follower is dispensed with, thus simplifying the construction. The recesses *e* in the press-boards serve to retain the hoops in their proper position, thus causing the cheeses to be pressed evenly at all times.

I here wish it understood that while the recesses in the upper sides of the press-boards are necessary for this purpose, those in the under side (for accommodating the sliding rings G) may be dispensed with, without changing the character of my invention.

The arrangement of the levers on top of the press enables the screw A to follow up the shrinkage of the cheese, which, owing to the fact that sometimes a considerable number of cheeses are pressed one on top of the other, may be very considerable, and, lastly, the construction of the hoops and press-boards enables several hoops to be placed, if desirable, between each two press-boards, thus economizing time and space.

Having thus described my invention, I claim, and desire to secure by Letters Patent of the United States, is—

1. The cheese-hoop herein described, consisting of solid outer hoop B, having inside sliding ring G, substantially as and for the purpose shown and specified.

2. The press-boards C, having recesses *e* on one or both sides, in combination with the cheese-hoops B, having sliding rings G, substantially as and for the purpose herein shown and specified.

3. The combination of the upper press-board E, adjustable as to height by the screw A, bail Z having nut L, upright J having perforations *c*, lever K, and arm M having perforations *d*, with the press-boards C having recesses *e*, and cheese-hoops B having sliding rings G, substantially as and for the purpose herein shown and specified.

In testimony that I claim the foregoing as my own I have hereto subscribed my name in the presence of two witnesses.

HENRY W. MILLAR.

Witnesses:

WILLIAM M. DAVIES,

WALTER C. DEVEREUX.