

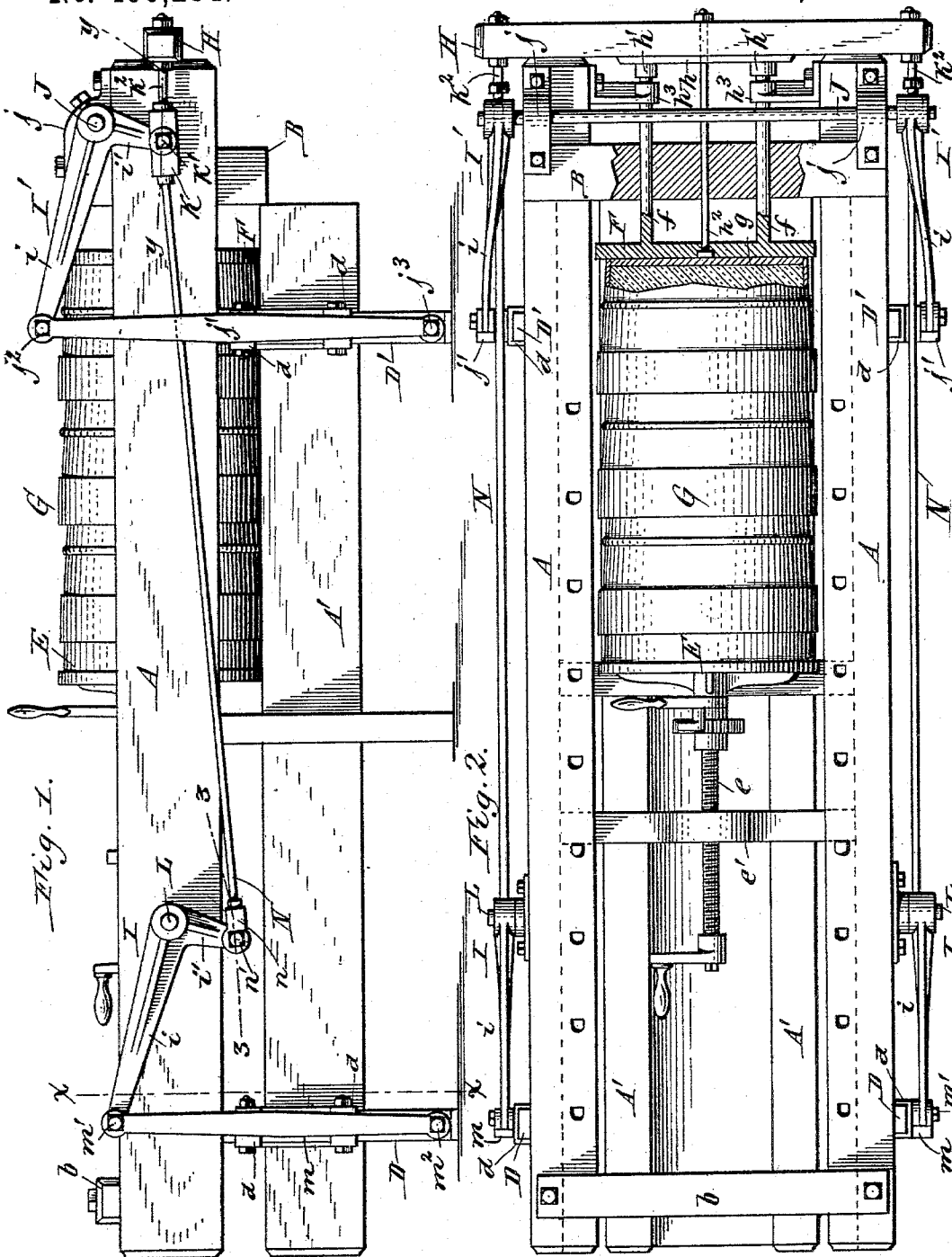
(No Model.)

2 Sheets—Sheet 1.

J. L. HELMER.
CHEESE PRESS.

No. 490,284.

Patented Jan. 24, 1893.



Witnesses:
Thos. L. Cope
Friedrich, Gustav, Wilhelm.

James L. Helmer—Inventor.
By Wilhelm Bornert
Attorneys.

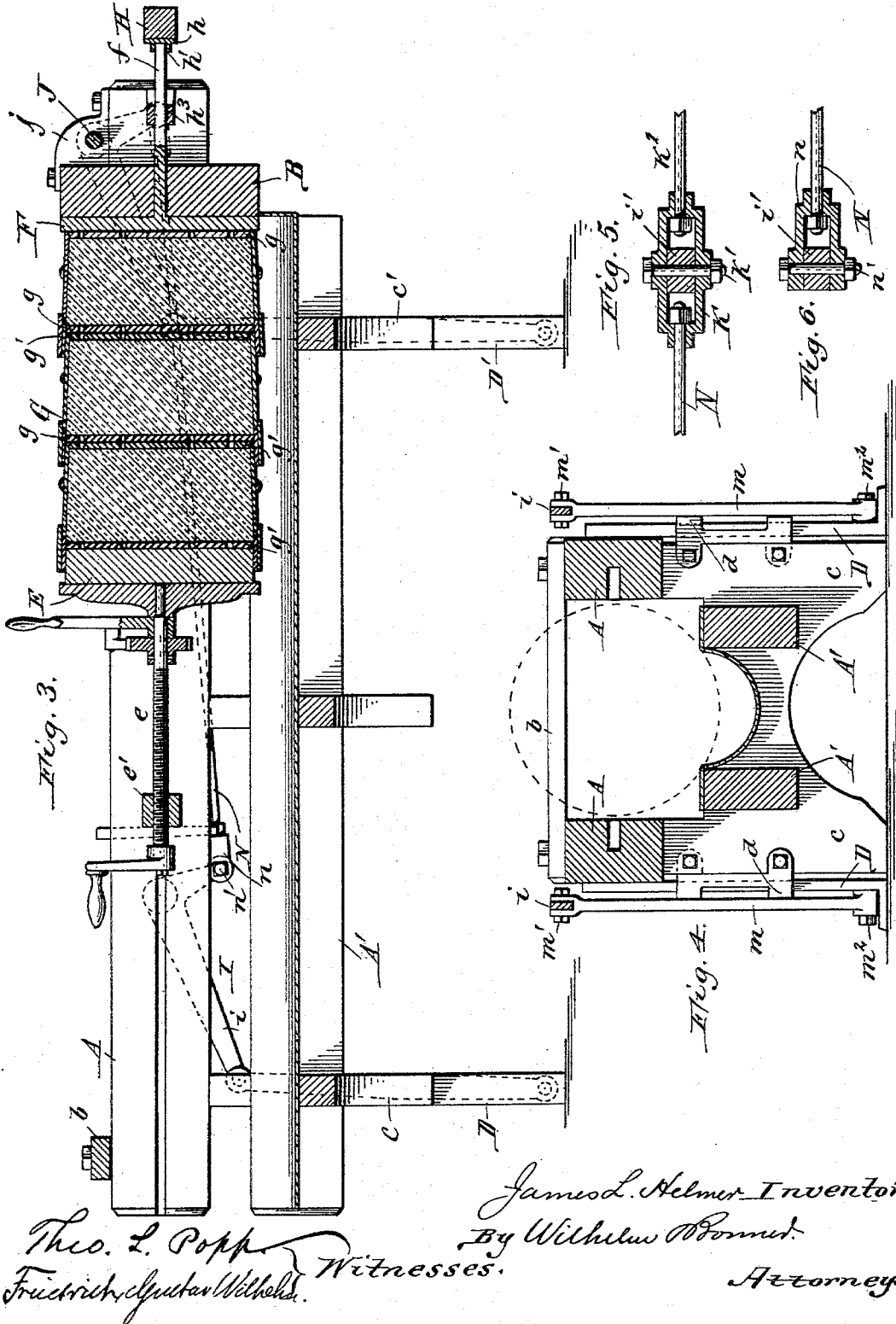
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UNITED STATES PATENT OFFICE.

JAMES L. HELMER, OF ROME, NEW YORK.

CHEESE-PRESS.

SPECIFICATION forming part of Letters Patent No. 490,284, dated January 24, 1893.

Application filed June 24, 1892. Serial No. 437,810. (No model.)

To all whom it may concern:

Be it known that I, JAMES L. HELMER, a citizen of the United States, residing at Rome, in the county of Oneida and State of New York, have invented new and useful Improvements in Cheese-Presses, of which the following is a specification.

This invention relates to a cheese-press in which a number of cheeses are pressed at one operation, and in which the weight of the press and cheeses is utilized to effect the final compression of the cheeses.

The objects of my invention are to produce a press in which the weight of the entire press-frame and parts supported thereon is utilized for pressing the cheeses, and to simplify and improve the construction of the mechanism whereby the press is lifted and the automatic pressure is applied.

In the accompanying drawings consisting of two sheets:—Figure 1 is a side elevation of my improved press, showing the same lowered. Fig. 2 is a top plan view thereof, partly in section. Fig. 3 is a longitudinal section of the press, showing the same elevated. Fig. 4 is a vertical transverse section in line $x-x$, Fig. 1. Figs. 5 and 6 are longitudinal sections, on an enlarged scale, of the connecting rod and its couplings in lines $y-y$, and $z-z$, Fig. 1.

Like letters of reference refer to like parts in the several figures.

The press-frame consists essentially of two upper longitudinal beams $A A$, two lower longitudinal beams $A' A'$, a cross bar b connecting the front portions of the upper beams, and a cross bar B connecting the rear ends of the upper beams. The front and rear portions of the press-frame are supported and connected by legs $C C'$, respectively.

$D D'$ represent upright guide feet on which the press-frame is guided in its vertical movements. These guide feet are arranged on both sides of the press-frame opposite the front and rear legs and pass through loops d secured to the outer sides of the front and rear legs of the press frame. The guide feet rest upon the floor and the loops slide on the feet during the vertical movements of the press-frame.

E represents the head block or follower

which moves lengthwise between the upper beams in the usual manner.

e represents the horizontal pressure screw whereby the follower E is operated and which is arranged in a yoke e' supported with its ends in the upper beams.

F represents the movable foot block arranged between the rear portions of the upper beams and provided with two horizontal guide rods f extending rearwardly from the foot block through openings in the cross beam B .

G represents a gang of cheese hoops of any suitable construction placed between the head and foot blocks in the usual manner, each hoop having a perforated bottom g and a perforated cover or follower g' and bearing with its bottom against the follower of the next hoop, so that the hoops telescope into each other.

H represents a cross head arranged transversely in rear of the upper beams and provided on its front side with a plate h having sockets h' which receive the rear ends of the guide rods f of the foot block. The guide rods f are held in the sockets h' by a tie rod h^2 passing lengthwise through the cross beam, between the guide rods, and connecting the foot block with the cross head. The guide rods f are supported between the cross beam B and cross head H by brackets h^3 which are secured to the inner sides of the upper beams and in which the guide rods slide.

$I I'$ represent two pairs of elbow levers whereby the press is lifted at its front and rear ends. Each lever consists of a long arm i projecting forwardly and a short arm i' projecting downwardly and arranged about at right angles to the long arm. The rear elbow levers are attached to the press frame by being arranged on opposite sides of the press frame in rear of the rear feet D' and secured to the ends of a transverse rock shaft J journaled in bearings j upon the rear portions of the upper beams.

j' represents upright bars which connect the long arms i of the rear elbow levers with the lower ends of the rear feet D' . The front ends of the long arms are arranged about perpendicularly over the rear feet and are connected with the upper ends of the bars by pivots j^2 , while

the lower ends of the bars are connected with the feet by pivots j^3 . The short arms of the levers I' are arranged in coupling links k to which they are pivoted by transverse bolts k' . The rear ends of these links are connected with the ends of the cross head by short rods k^2 . The front elbow levers I are arranged on opposite sides of the press frame and connected therewith by arbors L on which they are mounted, and which are secured to the outer sides of the upper beams.

m represents upright bars which are pivoted with their upper ends to the long arms of the front levers I by bolts m' , while their lower ends are pivoted to the outer sides of the front guide feet B by bolts m^2 . The short arms of the two elbow levers on the same side of the press frame are connected by a rod N which is attached at its front end to the front lever by a bifurcated coupling n and bolt n' , and at its rear end with the front end of the link k , which latter is pivoted to the rear lever. The press-frame rests in its normal position upon the floor, in which position of the parts the cheeses are placed between the head and foot blocks. Upon turning the screw e in the proper direction, the preliminary pressure is applied to each of several cheeses, whereby a portion of the air and whey is expelled from the cheeses. Upon continuing the application of the pressure by the screw, the foot block recedes and moves the short arms of the elbow levers backwardly, through the medium of the guide rods f , cross head and connecting rods k^2 and N . This rearward movement of the short arms of the elbow levers causes the levers to swing upwardly on the pivots connecting the long arms of the levers with the supporting bars $j' m$, whereby the press frame and the parts supported therein are caused to rise on the guide feet. When the press frame and the parts supported therein have been raised, their combined weight exerts a constant pressure upon the cheeses, and as the latter contract or shrink by the escape of air and whey, the press gradually descends, causing the elbow levers to press the foot block forwardly toward the head block, which is held stationary by the screw e . This constant pressure upon the cheeses continues until the press frame again rests upon the floor. The pressure is transmitted from the foot block to the cross head H by the guide rods f and the rod h^2 serves simply to hold these parts together against accidental displacement. Both ends of the press frame are lifted simultaneously and the entire press frame is thereby lifted bodily, so that the entire weight of the frame and parts supported thereon is utilized for the purpose of exerting pressure automatically upon the cheeses contained in the press.

I claim as my invention:—

1. The combination with the press frame, of stationary supports at both ends of the press

frame on which the latter moves vertically, a head block and means whereby it is pressed against the cheeses, a movable foot block against which the cheeses rest, lifting mechanism connecting a stationary support at the foot end of the press frame with the press frame and with the foot block, lifting mechanism connecting a stationary support at the head end of the press frame with the press frame, and a connection whereby the lifting mechanism at the foot end of the press frame is connected with the lifting mechanism at the head end thereof, thereby lifting both ends of the press frame simultaneously by the application of pressure to the head block, substantially as set forth.

2. The combination with the press frame, of stationary supports on which the latter moves vertically, a head block and means whereby it is pressed against the cheeses, a movable foot block against which the cheeses rest, elbow levers pivoted to both sides of the press frame, supporting bars extending from the forwardly projecting arms of the elbow levers downwardly to said supports and a cross head arranged in rear of the press frame and connected with the foot block and with the downwardly projecting arms of the elbow levers substantially as set forth.

3. The combination with the press frame, of stationary supports on which the press frame moves vertically, a head block and means whereby it is pressed against the cheeses, a movable foot block against which the cheeses rest, an elbow lever pivoted to the foot end of the press frame and having its downwardly projecting arm connected with the foot block, and a supporting bar pivoted at its upper end to the forwardly projecting arm of the elbow lever and with its lower end to a stationary support, substantially as set forth.

4. The combination with the press frame, the movable head block and means whereby it is pressed against the cheeses and the movable foot block, of guide feet on which the press frame moves vertically, supporting bars connected with their lower ends to the guide feet, elbow levers journaled on the press frame and connected with their front arms to the upper ends of the supporting bars, a cross head connected with the opposite arms of the elbow levers, and bars connecting the foot block with said cross head, substantially as set forth.

5. The combination with the vertically movable press frame, the elbow levers pivoted thereto and the movable foot block, of a cross head connected with the elbow levers and provided with sockets, guide bars attached to the foot block and resting in said sockets, and a tie rod connecting the foot block with the cross head, substantially as set forth.

6. The combination with the press frame, the head block and means whereby it is pressed against the cheeses, of stationary guide feet on which the front and rear por-

tions of the press frame move vertically, elbow levers pivoted upon the front and rear portions of the press frame and connected by supporting bars with the front and rear guide
5 feet, rods connecting the elbow levers, a cross head connected with the rear elbow levers, and a movable foot block connected with the cross head, substantially as set forth.

7. The combination with the press frame,
10 the head block, the pressure screw, and the movable foot block, of a cross head arranged in rear of the foot block, rods connecting the foot block with the cross head, stationary

guide feet on which the press frame moves vertically, elbow levers pivoted to the press
15 frame near both ends thereof, supporting bars connecting the elbow levers with the guide feet, rods connecting the front and rear elbow levers, and rods connecting the cross head with the rear elbow levers, substantially as
20 set forth.

Witness my hand this 21st day of June, 1892.

JAMES L. HELMER.

Witnesses:

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H. R. HAGEN.