Oct. 2, 1923. 1,469,252

E. C. DAMROW

CONTINUOUS CHEESE PRESS

Filed Dec. 16, 1921 2 Sheets-Sheet 1

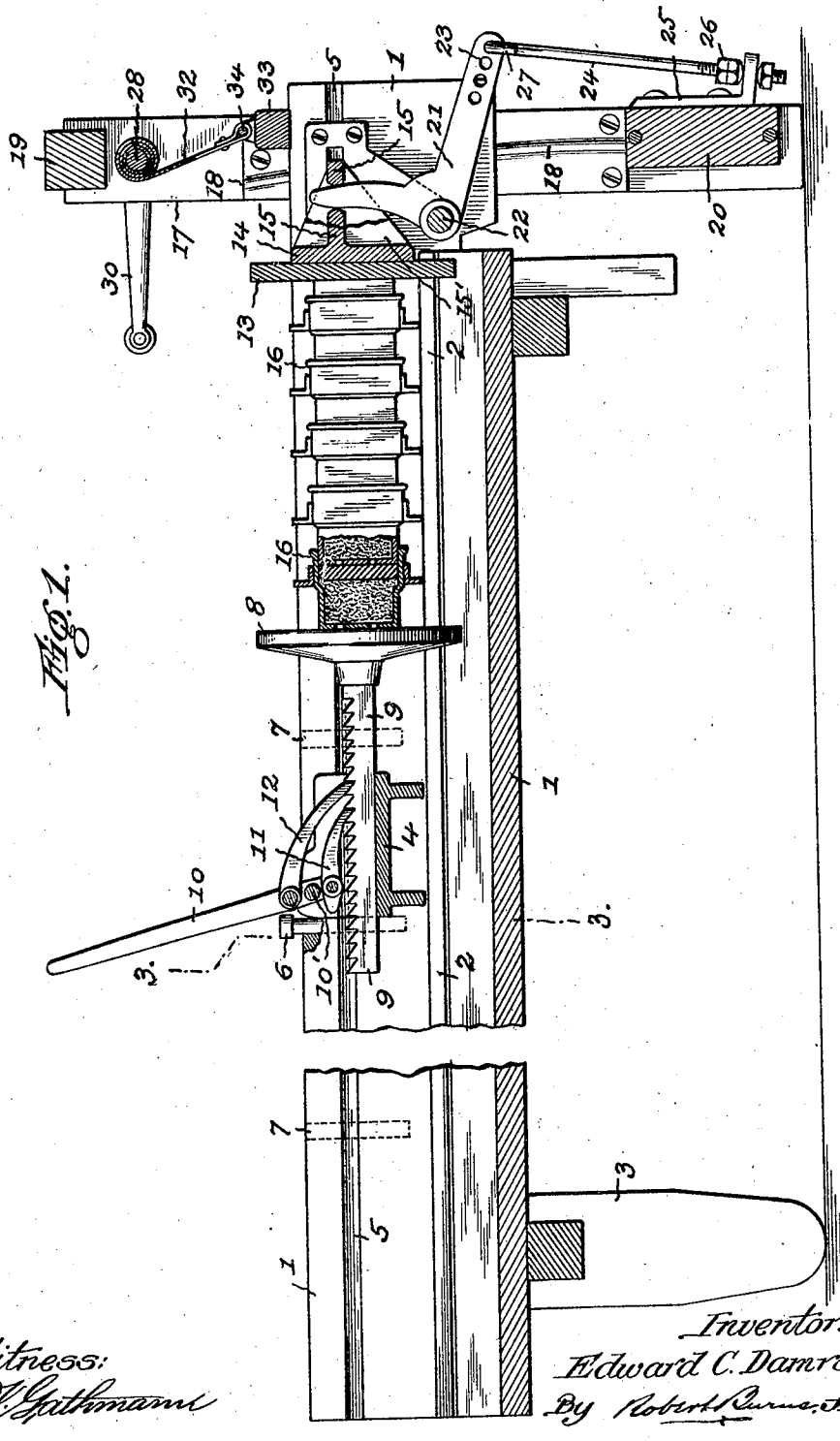


Fig. 1.

Witness:
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Inventor:
Edward C. Damrow
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Fig. 2.

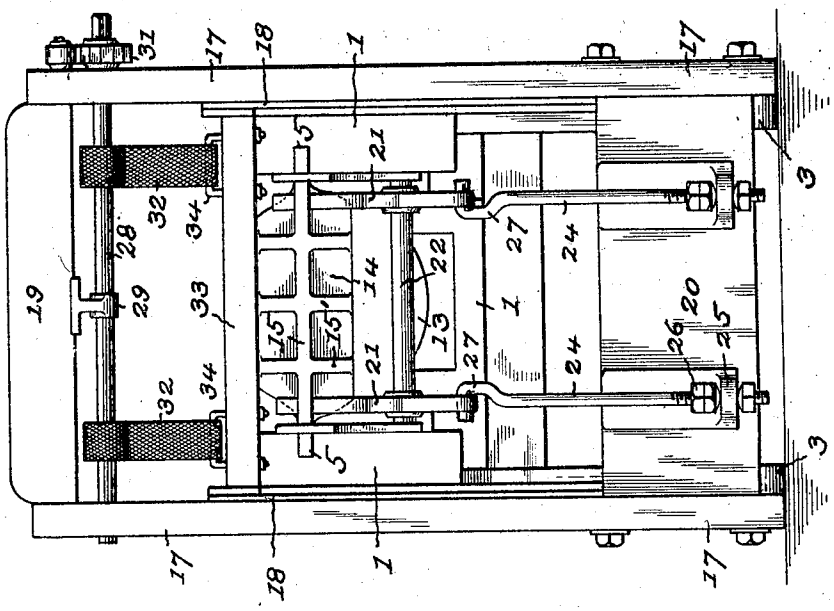
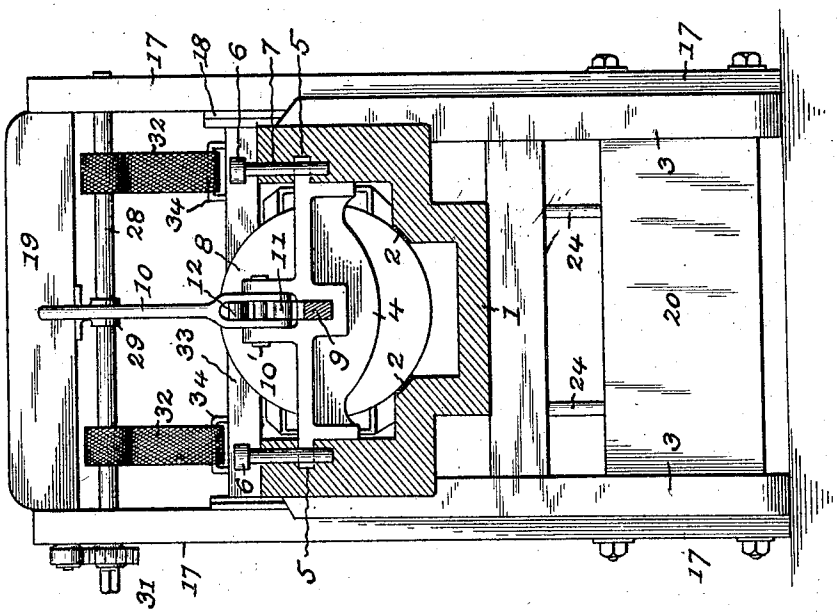


Fig. 3.



Witness:
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Patented Oct. 2, 1923. 1,469,252

UNITED STATES PATENT OFFICE.

EDWARD C. DAMROW, OF FOND DU LAC, WISCONSIN, ASSIGNOR TO DAMROW BROTHERS COMPANY, OF FOND DU LAC, WISCONSIN, A CORPORATION OF WISCONSIN.

CONTINUOUS CHEESE PRESS.

Application filed December 16, 1921. Serial No. 522,752.

To all whom it may concern:

Be it known that I, EDWARD C. DAMROW, a citizen of the United States of America, and a resident of Fond du Lac, in the county of Fond du Lac and State of Wisconsin, have invented certain new and useful Improvements in Continuous Cheese Presses, of which the following is a specification.

This invention relates to cheese-presses of the continuous pressure type, in which the gradual downward rocking movement of the press bed and parts mounted thereon is adapted to impart a powerful and continuous compression movement to the pressure head or platen of the press, and the present improvements therein have for their object:—

To provide a structural formation and association of the rocking press bed, the guide frame for the movable end of the bed and the intermediate mechanism and connections whereby the press bed is effectively guided in its up and down movements and with which an elevation of the press bed into position for the insertion and removal of the cheese hoops or molds, and for a renewal of the continuous compressing operation of the parts, is attained in a convenient and effective manner.

To provide a simple and effective formation and combination of the intermediate mechanism between the guide frame and the press bed for converting the gradual downward movement of the press into a like continuous and powerful pressure of the pressure platen upon the gang of cheese hoops and their contents, all as will hereinafter more fully appear.

In the accompanying drawings:—

Fig. 1, is a longitudinal sectional elevation of a continuous cheese press of the gang type embodying the invention.

Fig. 2, is a front end elevation.

Fig. 3, is a transverse sectional elevation on line 3.—3. Fig. 1.

Like reference numerals indicate like parts in the different views.

Referring to the drawings, 1 designates the elongated bed of the press, preferably of a trough form and having longitudinal ledges 2 in spaced relation to form guideways for the platens and cheese hoops, as usual in the present type of cheese presses.

3 designates standards or legs fixed to the rear portion of the press bed to form a support upon which the press bed has a rocking movement in a vertical place in actual use.

4 designates a cross head arranged in a longitudinally adjustable manner in side grooves 5 in the press bed 1 and held to place in a step by step adjustment by holding pins 6 inserted in pairs of longitudinal series of holes 7 intersecting the grooves 5, with said pins arranged at the rear of the cross head 4 and forming an abutment therefor.

8 designates the adjustable abutment head or platen of the press, having a central guide stem 9 of the ratchet form, moving in a longitudinal guide groove in the cross head 4, and adapted for feeding and holding engagement with a pawl mechanism as follows:—

10 designates an operating lever pivoted in side flanges of the cross head 4 by a pivot pin 10′, and carrying at opposite sides of said pivot pin ratchet pawls 11 and 12 adapted to have alternate operative engagement with the ratchet teeth of the guide stem 9 aforesaid to effect a forward movement of the platen 8 as the lever 10 is oscillated by hand.

The companion pressure head or platen of the press is arranged in opposed relation to the aforesaid abutment platen 8 and comprises a face plate or disk 13 and a rear cross head 14 having a main central transverse web or flange 15 the respective ends of which have guiding engagement in the side grooves 5 of the press bed 1, with its intermediate portion connected to the attaching plate of the cross head by pluralities of upper and lower bracing ribs 15′ to provide a light and strong construction. Near its respective ends the web or flange 14 is formed with bearing orifices for operative engagement with the upright arms of the hereinafter described angle levers of the automatic pressure mechanism of the present construction.

16 designates the cheese hoops or molds of any usual construction, arranged between the press platent 8 and 13 aforesaid, and guided by the ledges or ways 2 of the press bed, as usual.

17 designates an upright frame arranged adjacent to the forward end of the press bed 1 with its side posts having guide rails 18 for guiding engagement with grooved guide blocks on the respective sides of the forward position of the press bed to main-

tain proper operative relation between said bed and frame. At its upper end the frame 17 is provided with a top or tie rail 19 and near its lower end with a like tie or cross rail 20 to afford support for the intermediate operating mechanisms now to be described.

21 designates a plurality of angle levers fulcrumed in the forward end of the press bed 1 by a transverse pivot rod 22, with their upright arms in operative engagement in the bearing orifices of the cross head 14 above described, and with their horizontal arms formed with a series of spaced orifices 23 for connection with the upper ends of push rods as follows:—

24 designates a plurality of push rods having bearing engagement at their lower ends in angle bracket pieces 25 attached to the lower tie rail 20 of the guide frame 17 aforesaid, and preferably in an adjustable manner by adjustable lock nuts 26 as shown, while at their upper ends the push rods 24 have hook shape portions 27 adapted to detachable engagement in the series of orifices 23 of the angle levers 21 aforesaid. With such arrangement of parts a ready and convenient change can be effected in the degree of pressure transmitted to the pressure platen 14 from the press bed 1 in its gradual descent by gravity, so that the force transmitted will correspond with the force required in the final compression of different varieties of cheese in the varied uses of the press.

28 designates a transverse shaft journalled in the vertical side posts of the guide frame 17 and in a central depending journal hanger 29 attached to the top rail 19 of said frame.

30 designates an operating hand crank having operative engagement with a non-circular end of the shaft 28 for imparting manual rotation to the same in the operation of raising the press bed 1 to its initial operative position with relation to the guide frame 17 and pressure lever mechanism above described.

31 designates a ratchet wheel and pawl associated with the shaft 28 aforesaid for holding the same in the position to which it may be adjusted.

32 designates a plurality of flat flexible lifting straps arranged in transverse spaced relation and attached at their upper ends to the shaft 28 so as to wind thereon in a lifting rotation of said shaft. At their lower ends the straps 32 are connected to a transverse rail 33 at the forward end of the press bed 1, by loops on the lower ends of said straps engaging attaching staples 34 the prongs of which pass down through the rail 33 and are provided with holding nuts as shown.

In the practical operation of the press, the forward end of the press bed 1 is elevated by the winding of the lifting straps 32 upon the shaft 28 and the locking of said shaft against retrograde movement effected by the pawl and ratchet mechanism 31 aforesaid.

The gang of cheese hoops or molds 16 in a filled condition are then placed in position between the press platens 8 and 13, and the cross head 4 carrying the operating mechanism of the platen 8 adjusted to the proper position and secured in place by the holding pins 6 aforesaid.

The initial pressure upon the gang of cheese hoops 16 and their contents is effected by a manual oscillation of the lever 10 and consequent operative engagement of the pawls 11, 12 with the ratchet stem of the abutment platen 8. With a completion of the initial compressing operation the ratchet and pawl mechanism 31 is released from its holding engagement with the shaft 28, and the forward end of the press bed 1 is free to descend by gravity, and in such descent impart continuous movement to the angle levers 21, which in turn impart a like continuous and powerful advance movement to the pressure platen 13 to attain the final compression of the cheese material within the hoops or molds 16.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent, is:—

1. In a cheese press, the combination of an elongated press bed having supporting legs at one end upon which it is adapted to have pivotal movement in a vertical plane, an upright guide frame having guide tracks for guiding engagement with the movable end of the press bed, an adjustable abutment platen and a companion pressure platen having guiding engagement in aligned relation on the press bed and adapted for engagement with a gang of interposed cheese hoops, manual means for attaining a pressure movement of the abutment platen, means for automatically effecting a continuous pressure on the pressure platen, the same comprising a plurality of angle levers journalled in the press bed near its movable end, a cross head attached to the back of the pressure platen and having a transverse web formed with orifices for engagement with the upright arms of said angle levers, and push rods attached at one end to the upright guide frame and at the other end to the other arms of the angle levers.

2. In a cheese press, the combination of an elongated press bed having supporting means at one end upon which it is adapted to have pivoted movement in a vertical plane, an upright guide frame having guide tracks for guiding engagement with the movable end of the press bed, an adjustable abutment platen and a companion pressure platen hav-

ing guiding engagement in aligned relation on the press bed and adapted for engagement with an interposed gang of cheese hoops, means for automatically effecting continuous pressure on the pressure platen, the same comprising a plurality of angle levers journalled in transverse spaced relation in the movable end of the press bed, a cross head attached to the back of the pressure platen and having a transverse web formed with orifices in transverse spaced relation for engagement with the upright arms of the angle levers, and push rods attached at one end to the upright guide frame and at the other end to the other arms of said angle levers.

3. In a cheese press, the combination of an elongated press bed having supporting means at one end upon which it is adapted to have pivotal movement in a vertical place, an upright guide frame having guide tracks for guiding engagement with the movable end of the press bed, an adjustable abutment platen and a companion pressure platen having guiding engagement in aligned relation on the press bed and adapted for engagement with an interposed gang of cheese hoops, means for automatically effecting continuous pressure on the pressure platen, the same comprising a plurality of angle levers journalled in transverse spaced relation in the movable end of the press bed, a cross head attached to the back of the pressure platen and having a transverse web formed with orifices in transverse spaced relation for engagement with the upright arms of the angle levers, and push rods attached at one end to the upright guide frame and at the other end to the other arms of said angle levers, the last mentioned lever arms having rows of orifices in their outer ends for selective operative connection with said push rods.

Signed at Fon du Lac, Wis., this 8th day of Dec. 1921.

EDWARD C. DAMROW.