(No Model.)

N. MILLER.

Press for Extracting Water from Starch.

No. 235,001. **Patented Nov. 30, 1880.**

Fig. 1.

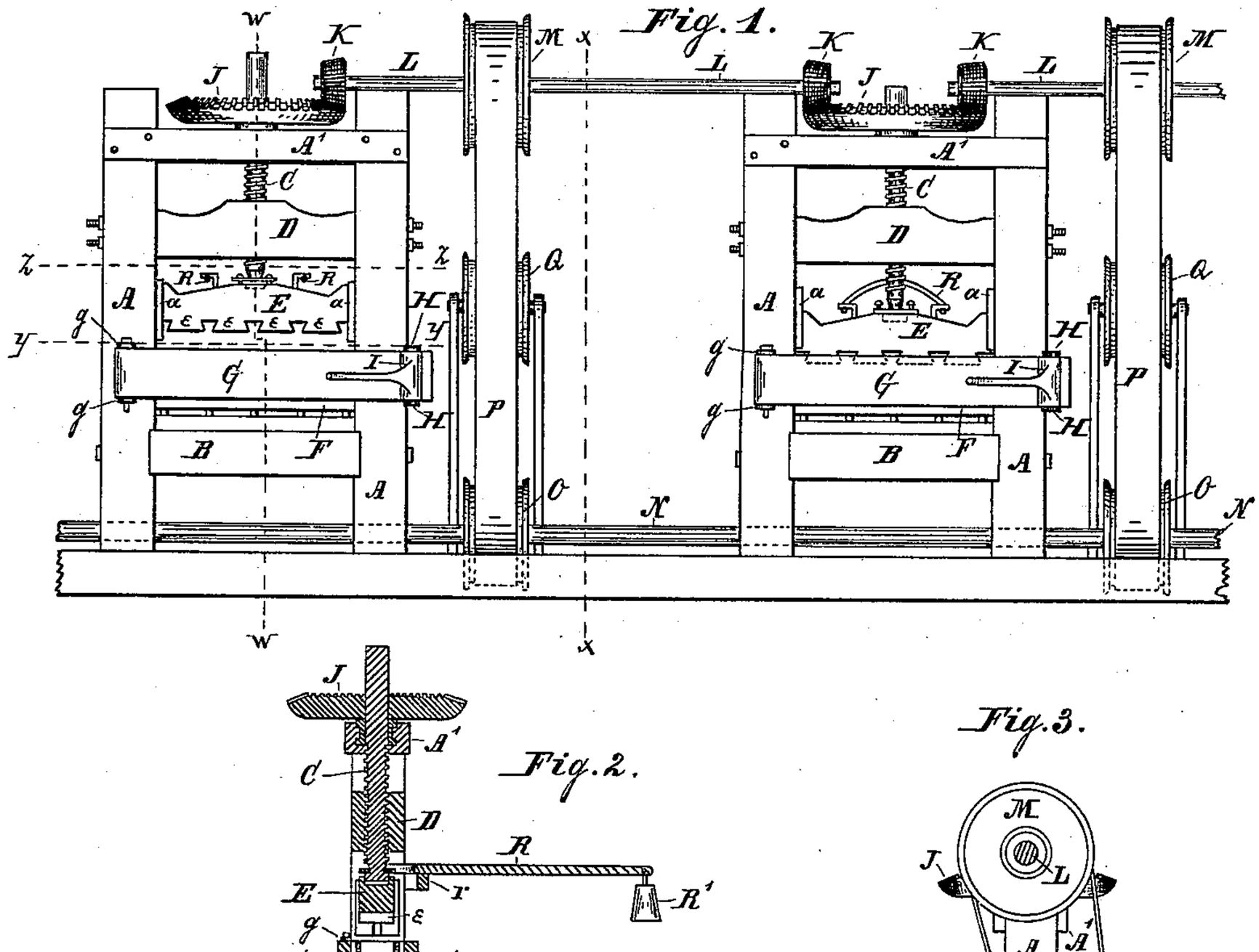


Fig. 2.

Fig. 3.

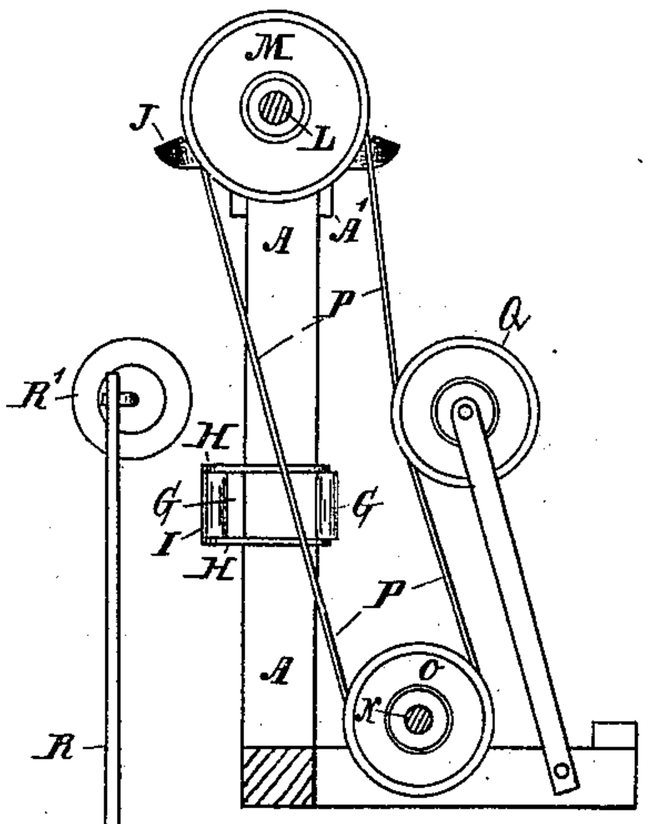


Fig. 4.

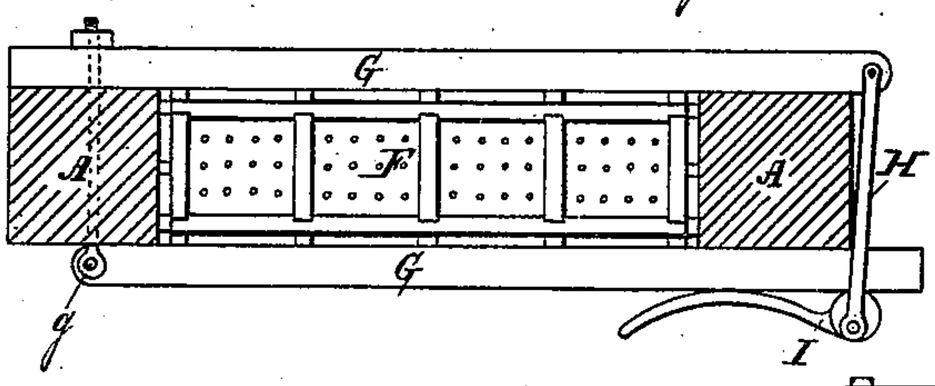
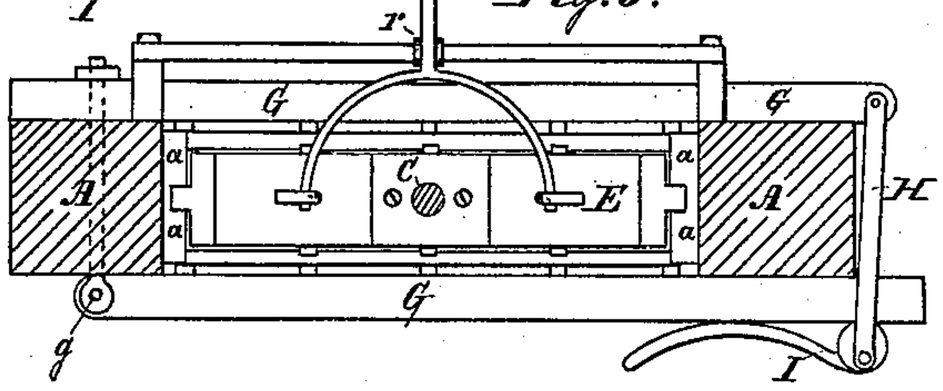


Fig. 5.



WITNESSES.

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NICHOLAS MILLER, OF EDINBURG, INDIANA, ASSIGNOR TO HENRY W. SCHOLLER, OF SAME PLACE.

PRESS FOR EXTRACTING WATER FROM STARCH.

SPECIFICATION forming part of Letters Patent No. 235,001, dated November 30, 1880.

Application filed October 26, 1880. (No model.)

To all whom it may concern:

Be it known that I, NICHOLAS MILLER, of the town of Edinburg, county of Johnson, and State of Indiana, have invented certain new and useful Improvements in Presses for Extracting Water from Starch or other Wet Substance, of which the following is a specification.

The object of my said invention is to improve the construction and increase the efficiency of the press shown and described in the patent to Henry W. Scholler, No. 204,918, dated June 18, 1878.

Referring to the accompanying drawings, which are made a part hereof, Figure 1 is a front elevation of two presses embodying my improvements of construction, and having, in connection therewith, such an arrangement of shafts, pulleys, and belts as is adapted to cause the two presses to work reciprocally. Fig. 2 is a transverse vertical section of one of said presses looking to the left from the dotted line *w w* in Fig. 1. Fig. 3 is a side elevation of the belt and pulleys as seen from the dotted line *x x*. Fig. 4 is a horizontal section looking downwardly from the dotted line *y y*, and Fig. 5 is a similar view looking downwardly from the dotted line *z z*.

In said drawings the portions marked A represent the side posts of the press; B, the bridge-tree; C, the screw; D, a cross-bar through which the screw runs; E a cross-head, carried by the screw C and traveling in the slides *a a* on the posts A, which, by means of the followers *e e*, operates to compress the wet substance; F, a perforated and partitioned box in which the wet substance is placed to be pressed; G, clamps secured to the posts A, which are for the purpose of preventing the boxes from bursting when in use, one or both of which are hinged as at *g*, so that it or they can be swung back, and thus leave the boxes readily accessible; H, a rod hinged to one of the clamps and adapted to become engaged with the other by means of an eccentrically-faced lever; I, the lever aforesaid, which is hinged to the rod H, and which operates, when brought into the position shown in Fig. 4, to hold said clamps tightly against the sides of the boxes F; J, gear-wheels mounted upon the screw C and supported by suitable bearings in the cross-beams A′; K, pinions engaging with the wheels J; L, shafts upon which the pinions K are mounted; M, pulleys, also upon the shafts L; N, a line-shaft; O, pulleys upon said line-shaft; P, belts connecting the pulleys M and O; Q, tightening-pulleys mounted in appropriate swinging frames, by means of which the belts P are caused to operate; R, a weighted lever connected, by appropriate means, to the cross-head E, and which operates over a fulcrum, *r*, which may or may not be in the form of an anti-friction truck, as shown, to keep said cross-head always in contact with the end of the screw C, and R′ the weight upon said lever.

The advantage of using the eccentrically-faced lever I instead of the hand-nut shown in the Letters Patent referred to is that it is more convenient and more efficient.

The use of the fulcrumed and weighted lever R is, as before stated, to keep the cross-head always in contact with the lower end of the screw. I have found this, in practice, much superior to the method heretofore in use, of drawing the cross-head up by means of a shoulder cut in the screw, and a cap to fit over said shoulder, as it causes less friction and less wear, and is consequently less liable to get out of order.

The arrangement of pulleys and shaft shown, besides changing the presses from hand to power machines, secures a further very useful and economical result, viz: When the belt nearest either press, as shown in the drawings, is actuated, the screw of that press is driven down, which operates the plungers on the cross-head thereof to express the water from the starch in the boxes which have been inserted in said press. As will be readily understood, on examination of the drawings, by any one skilled in such machinery, the screw of the other press is at the same time driven in the reverse direction, and the cross-head thereof lifted or allowed to be raised up free from the boxes in said other press.

The operation of the presses is, therefore, as follows: Boxes containing the wet starch properly prepared for pressing are inserted in one of the presses, in which at the time the cross-head E is in raised position. The

tightener Q is then applied to the belt near said press, and the screw is thus driven down and the water expressed from the starch in said boxes. The operator then steps to the other press, which has been raised by this operation, and inserts boxes containing wet starch therein, and, by means of the tightener and belt belonging to it, operates it in a similar manner. He then returns to the first press, removes the boxes containing the starch already pressed, inserts fresh boxes, and repeats the previously-described operation. By using two or more presses in this manner the operator is enabled to do a materially-greater amount of work than with a single press, as the time which would otherwise be required to operate the press is almost or wholly saved.

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

1. The combination of two or more presses connected by shafts and gears, arranged, as described, in such manner that when the screw of one is driven downwardly the other shall, by the same operation, be raised or allowed to rise, substantially as and for the purposes set forth.

2. The combination, in two presses, of the screws C C, the wheels J J, the shafts L L, and the pinions K K K, all arranged and operating substantially as and for the purposes set forth.

3. The combination, in a press, with the cross-head or follower thereof, of a lever which operates to hold said follower at all times against the end of the screw by which it is driven, substantially as and for the purposes set forth.

4. The combination, in a press, of the box F, the clamps G G, the rod H, and the cam-faced lever I, when all constructed, arranged, and operating substantially as shown and described.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 13th day of October, A. D. 1880.

NICHOLAS MILLER. [L. S.]

In presence of—

C. BRADFORD,

H. W. SCHOLLER.