(No Model.)

E. LAASS.

GANG PRESS.

No. 256,904. Patented Apr. 25, 1882.

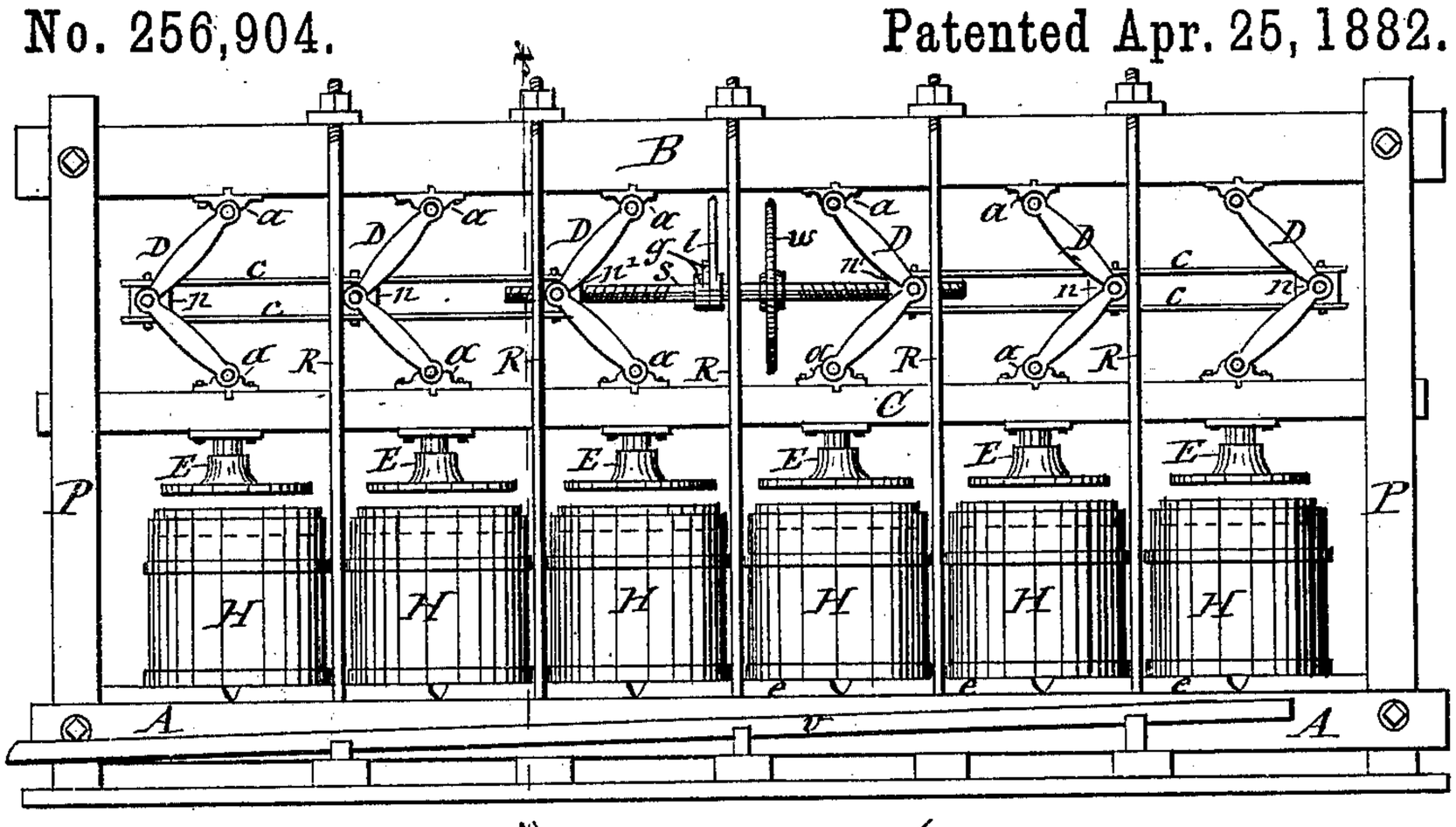

Fig. 1

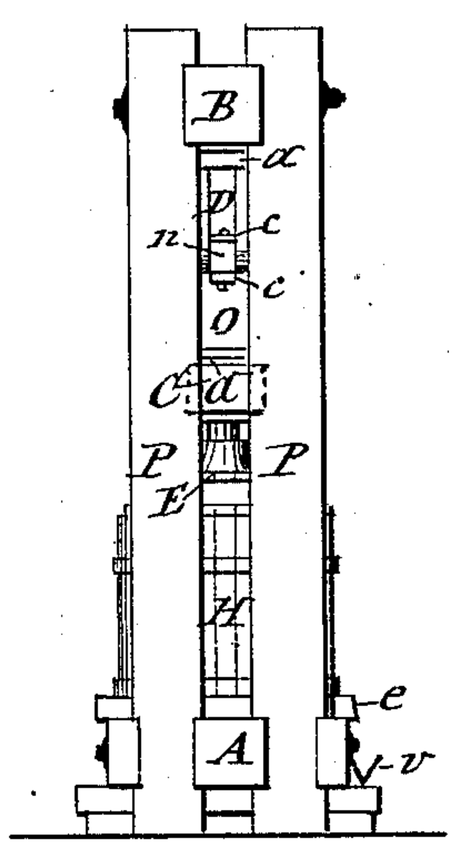

Fig. 2

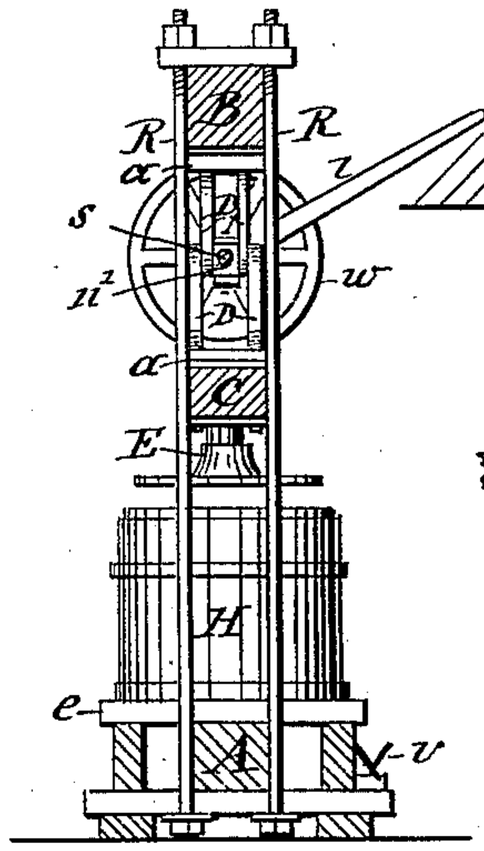

Fig. 3

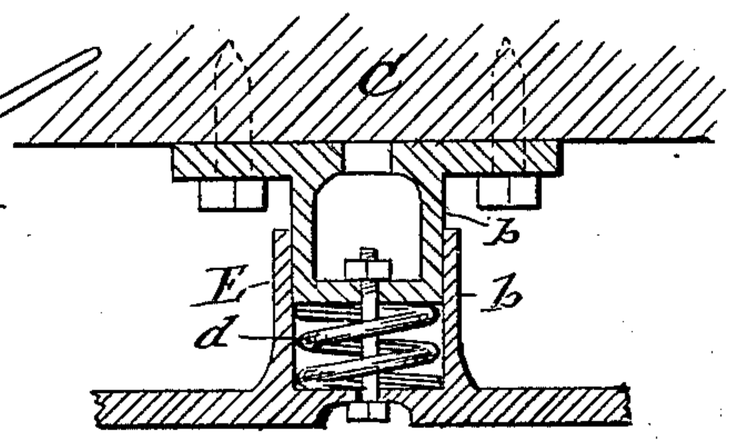

Fig. 4

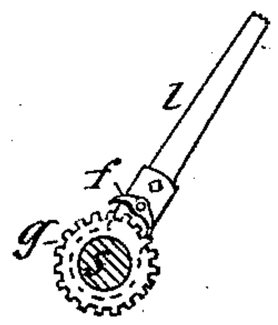

Fig. 5

Witnesses:
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UNITED STATES PATENT OFFICE.

EMIL LAASS, OF GEDDES, NEW YORK.

GANG-PRESS.

SPECIFICATION forming part of Letters Patent No. 256,904, dated April 25, 1882.

Application filed February 13, 1882. (No model.)

To all whom it may concern:

Be it known that I, EMIL LAASS, of the town of Geddes, in the county of Onondaga and State of New York, have invented new and useful Improvements in Gang-Presses, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

The nature of this invention consists in a novel combination and arrangement, with a prolonged upright press-frame and a prolonged pressing-beam arranged to press a number of cheeses in an upright position and at one operation, of two series of toggle-levers distributed over the length of the press, between the press-head and pressing-beam, and arranged conversely in relation to each other, each series having its respective toggle-levers connected with one another intermediately between the press-head and pressing-beam, and the two series being connected by a right-and-left screw or other suitable mechanical power arranged to operate said toggle-levers simultaneously, and a series of plungers attached to the under side of the pressing-beam, thereby transmitting in the simplest, most positive, and most effective manner the requisite power to the successive toggle-levers and compelling them to operate synchronously and in unison.

The invention also consists in a novel construction of the plungers of the gang-press, whereby said plungers are allowed to yield and compensate for any unevenness which may exist in the height of the substance to be pressed, and are also caused to impart a gradual pressure to said substance and follow up the pressure accordingly as the liquid is expressed, all as hereinafter fully explained, and specifically set forth in the claims.

In the annexed drawings, Figure 1 is a front elevation of my improved gang-press. Fig. 2 is an end view of the same. Fig. 3 is a vertical transverse section. Fig. 4 is an enlarged sectional view of one of the plungers; and Fig. 5 is a detail view of the lever and pawl by means of which the screw of the press is operated.

Similar letters of reference indicate corresponding parts.

A denotes the press-bed, in the form of a long sill, on opposite sides of each end of which are framed two posts, P P, with a space, *o*, between said posts. On the upper end of these posts is framed a prolonged press head or cap, B, and between the said press-head and press-bed is a horizontal prolonged pressing-beam, C, arranged movable vertically and guided by the end posts, P P, between which the ends of the pressing-beam are fitted to slide. A proper number of vertical rods, R R, distributed over the length of the press-frame, tie the press-head B to the press-bed intermediately between the end posts, and also serve to guide and steady the central portion of the movable pressing-beam C.

D′ D′ represent two series of toggle-levers, hinged to suitable bearings, *a a*, respectively on the press-head B and pressing-beam C, and arranged relatively equidistant from the center of the press and conversely to each other, so as to cause one series of said toggle-levers to counteract the lateral strain exerted by the other series of toggle-levers, and thus prevent the longitudinal sway of the pressing-beam. The several toggle-levers of each series are connected together by straps or rods *c*, connected to the knuckles *n n′* of the respective toggle-levers, thus compelling them to operate synchronously and in unison. The knuckles *n n′* of the two central toggle-levers which constitute the first of each series are made in the form of nuts having their threads running in opposite directions, and in these nuts works a right-and-left screw, *s*, to which is connected a lever, *l*, provided with a double pawl, *f*, which can be made to engage with a ratchet, *g*, fixed to the central portion of the screw *s*, so as to allow the lever to turn said screw in either direction. The turning of the screw *s* in one direction draws the knuckle-joints of the two series of toggle-levers toward the center of the press, and by the resultant approach of the toggle-levers to a perpendicular position exerts a gradually-increasing downward pressure on the pressing-beam C. By reversing the movement of the screw *s* the knuckle-joints of the toggle-levers are crowded toward the ends of the press, and the resultant deflection of said toggles draws upward the press-beam C.

To the under side of the pressing-beam C are

secured a series of plungers, E E, arranged a proper distance apart to come directly over a corresponding series of cheese-hoops, H H, placed in an upright position on the press-bed A. Inasmuch as it is necessary to apply the pressure gradually and uniformly to all the cheese-hoops, I construct the plunger of two parts, *b b*, one of which is fixed to the pressing-beam C and the other is fitted to move vertically thereon, and between these parts I interpose a spring, *d*, as illustrated in Fig. 4 of the drawings, said spring exerting an expansive force in the direction of its axis and pressing the movable part of the plunger away from the pressing-beam as far as the coupling of the parts will permit.

The operation of my improved press is as follows: The cheese-hoops H H are placed upon a board or plank, *e*, which is grooved to conduct away the expressed whey, and after the usual cloths are adjusted in the hoops in accordance with the style of hoops employed the hoops are filled with curd, the head-cloth placed upon the curd and the follower upon the head-cloth. In this condition the cheese-hoops are arranged under the respective plungers E E. Then by working the lever *l* the pressing-beam C is brought down and caused to apply its series of plungers E E to the followers of the respective cheese-hoops. The lever *l* is operated so as to apply the pressure gradually, the compression of the springs *d* of the plungers serving as indicators, showing the degree of pressure applied. When the compression of the springs indicates that the application of the pressure should be checked the operation of the lever *l* is temporarily stopped. Then the springs *d* follow up the pressure according to the yielding of the curd. So soon as the springs have exhausted their power and become distended the operation of the lever *l* may be resumed. This process is continued until the curd has received its requisite pressure to eliminate all the whey and to form the cheese. When this is completed the operation of the screw *s* is reversed, either by operating the lever *l*, with its pawl shifted accordingly, or by means of a hand-wheel, *w*, attached to the screw. A trough or gutter, *v*, may be arranged along the side of the press to carry away the whey during the process of pressing.

Having described my invention, what I claim is—

1. The combination, with a press-frame and its vertically-movable pressing-beam, of toggle-levers applied to said pressing-beam at intervals, mechanism arranged to operate said toggle-levers synchronously and in unison, and a series of plungers arranged under the pressing-beam, as set forth.

2. The combination, with a prolonged upright press-frame adapted to sustain a number of cheese-hoops in an upright position side by side, of toggle-levers arranged over the respective cheese-hoops and connected with one another, a series of plungers interposed between the toggle-levers and cheese-hoops, and a screw arranged to operate the toggle-levers simultaneously, as set forth.

3. The combination, with the prolonged upright press-frame A P P B and prolonged pressing-beam C, of two series of toggle-levers, D D, distributed over the pressing-beam and arranged conversely in relation to each other, the tie-rods *c*, connecting the respective toggle-levers of each series with one another, the nuts *n'*, connected to the first of each series of toggle-levers, the right-and-left screw *s*, a lever or other mechanical power connected to said screw, and a series of plungers connected to the pressing-beam, all as shown and described.

4. The combination, with a prolonged press-frame, of a series of plungers arranged to yield and conform to the unevenness in the heights of the several cheeses to be pressed, substantially as set forth.

5. The combination, with the prolonged pressing-beam C, of the plungers E E, composed respectively of two parts, *b b*, and an intermediate spring, *d*, as described and shown.

6. In an upright gang-press, the combination, with a prolonged press-bed and a prolonged press-head, of tie-rods connecting said members intermediately of their length, as shown and set forth.

7. In an upright gang-press, the combination, with a prolonged press-bed and a prolonged press-head, of tie-rods connecting said members intermediately of their length, and a pressing-beam moving between and guided by said tie-rods, as described and shown.

In testimony whereof I have hereunto set my hand this 9th day of February, 1882.

EMIL LAASS.

Witnesses:
C. H. DUELL,
WM. C. RAYMOND.