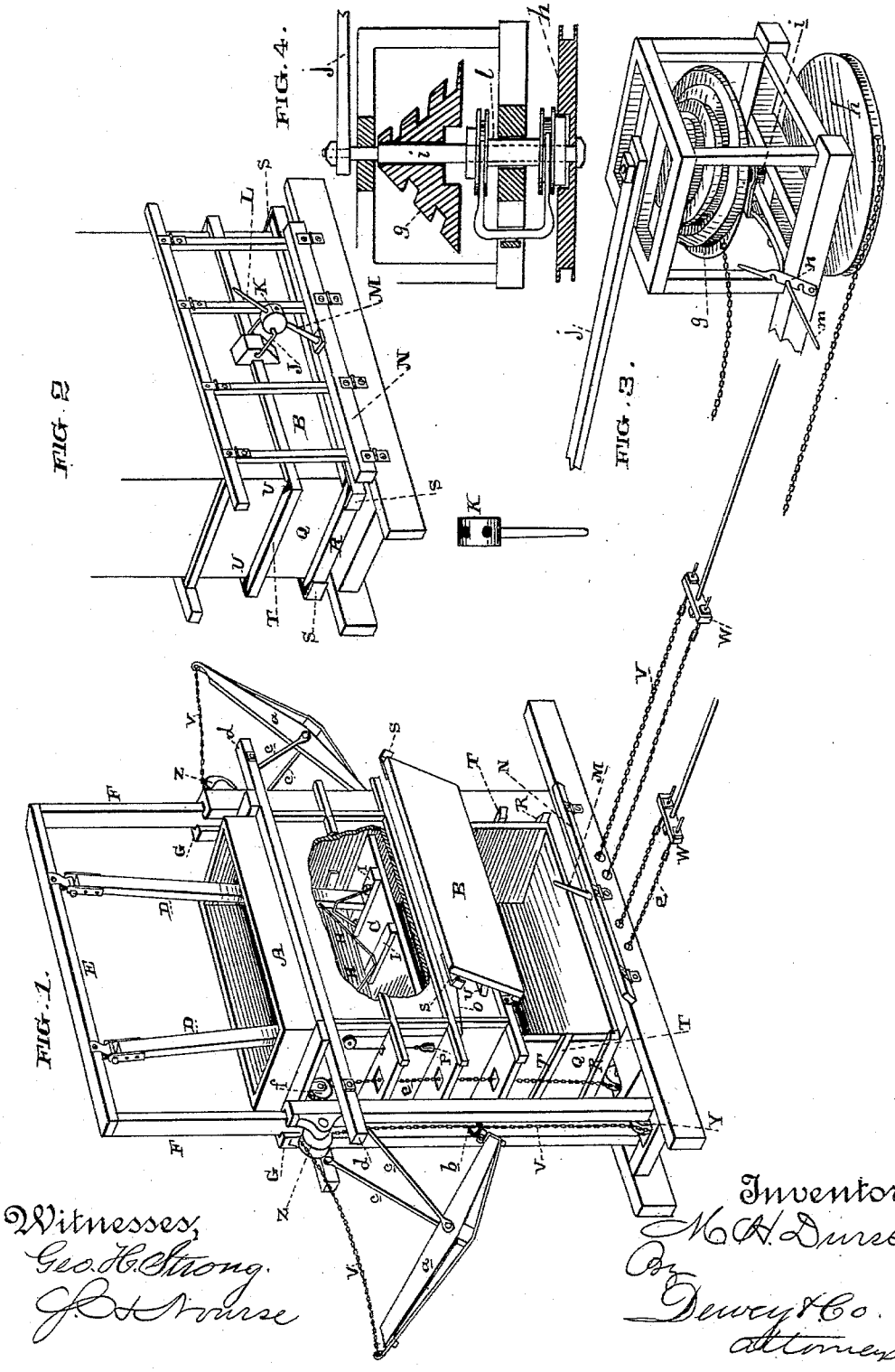
(No Model.) 2 Sheets—Sheet 1.

M. H. DURST.

BALING PRESS.

No. 331,873. Patented Dec. 8, 1885.



Witnesses,
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(No Model.) 2 Sheets—Sheet 2.

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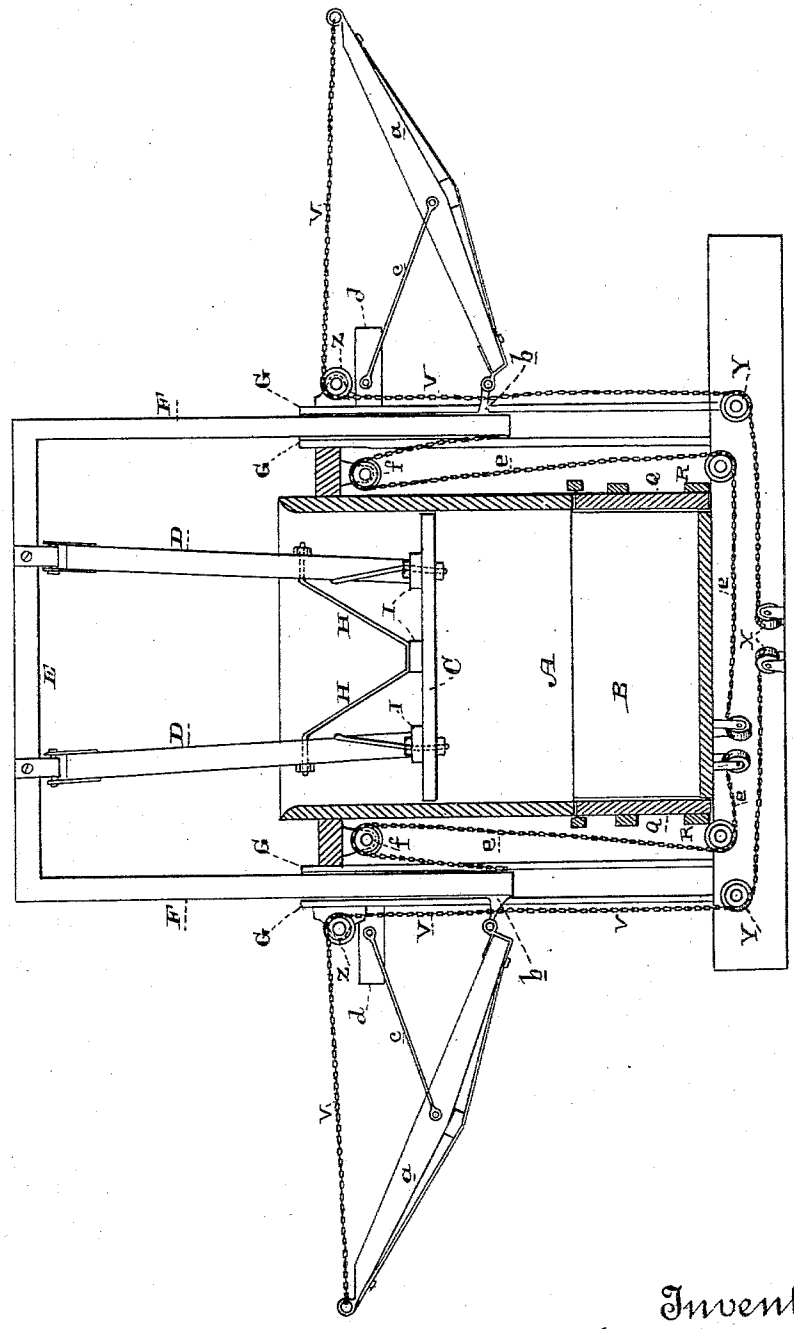

FIG. 5.

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UNITED STATES PATENT OFFICE.

MURRAY H. DURST, OF WHEATLAND, CALIFORNIA.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 331,873, dated December 8, 1885.

Application filed May 18, 1885. Serial No. 165,928. (No model.)

To all whom it may concern:

Be it known that I, MURRAY H. DURST, of Wheatland, Yuba county, State of California, have invented an Improvement in Baling-Presses; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to certain improvements in baling-presses; and it consists in certain details of construction, power, and means of application, all of which will be more fully described by reference to the accompanying drawings, in which—

Figure 1 is a general view of the press. Fig. 2 shows the lower part of the press with the door closed. Fig. 3 is a view of the mechanism for raising and lowering the follower. Fig. 4 is a section of the same. Fig. 5 is a vertical section of the press.

This press is especially designed for the pressing of hops, and is preferably so built that the upper end of the vertical case or box A will be on a level with or under the floor upon which the hops are contained, while the lower end, having discharge-doors B, communicates with the floor below. The follower C fits the press-box A, and has arms D extending vertically upward from it and hinged to a cross-bar, E, the ends of which are strongly secured to the vertical timbers F. These timbers move in vertical guides G, as shown, and when drawn down will force the follower down to the bottom of the press-box, and when raised will elevate it, so that when it arrives at a point just above the top of the box and the level of the floor with which it communicates the follower will be swung to one side about the hinges by which its supporting-timbers D are connected with the transverse bar E, before described.

H H are braces of iron which extend from the timbers D down to the follower or to the transverse timbers I, which are secured to its top. These braces have screw-threads upon each end, and nuts above and below the follower, so that by moving these nuts the follower can be readily trued up at any time. The discharge-doors B open outwardly upon each side of the bottom of the case, so that the whole of both sides of the bale will be exposed when they are opened. To the central portion of each door a strong link, J, is hinged so as to extend outward, and its outer end has an eccentric or cam, K, journaled upon it and provided with a lever-arm, L, by which it may be turned. The periphery of the eccentric or cam has holes or indentations made in it, so that it may engage the top of a lever or post, M, which projects upward from a bar, N, hinged to the frame-work horizontally just below the edge of the door. The door B is hinged from above, as shown, and after being closed the bar N is turned up so as to lie across its lower edge, the lever-arm L is lifted up, thus turning the eccentric K around on the link J until one of the indentations engages the top of the lever M, after which it is drawn down and the eccentric or cam forces the lever M inward, thus causing the bar N to bind strongly against the bottom of the door and hold it firmly in place without other lock. It is easily disengaged by throwing the lever-arm L upward, which releases the lever M and bar N and allows the door to be opened.

O is a cord secured to the side of the door, passing up over a pulley and thence down to a weight, P, so that when the door is turned up about its hinges this weight acts as a counterbalance to keep it in place. The ends of the press-box below the level of the top of the doors B are formed of loose separate plates or doors Q, which stand in line with the permanent end frames of the press-box and extend down to the bottom. In order to hold these in place, the upper ends are held against timbers or guides upon the outside of the frame-work. The bottom or lower ends have stout timbers R extending across them and projecting slightly at each side. These timbers are beveled so that clasps S upon the bottom of the doors B will extend outside of the timbers R when the doors are closed, and thus prevent the lower ends of the movable doors Q from being forced outward. Across the center of the doors are other timbers, T, which have their projecting ends beveled from the inside outward, and plates U, secured to the doors B, are correspondingly beveled, so that when the doors are closed these plates will pass inside of the beveled ends of the timbers T, so as to hold them outward, the doors being thus kept from falling inward by the

central timbers and beveled plates, and being held so that they cannot be forced outward by the stops at the top and bottom. These end doors are situated at a considerable distance inside of the follower-guides G, and when the bale has been pressed the doors B are opened and the end doors, Q, are removed, leaving a clear space all around the bale so that it can be easily sewed up before being removed. Power is applied to draw the follower down by means of chains V, which are connected with a cross-head, W, upon a rod or link, which in turn connects with the chains from the power mechanism hereinafter described. These chains V lead through the side of the base timbers or beneath them, passing around pulleys X, which give them a change of direction outward to the ends of the press, where they again pass around pulleys Y, and from thence extend upward between the guides G and over pulleys Z, journaled at the top of the guides, thence passing downward and having their ends secured to the ends of the arms *a*. These arms *a* are hinged to the bottom of the vertical sliding timbers F of the follower at *b*, and holes are made through the rear portion of these hinges, through which the chains V pass, and as the chains move in the same direction in which the timbers F and the hinges are moving there is no danger of their binding or becoming entangled. Stout arms *c* have their outer ends pivoted to the centers of the timbers *a*, while their inner ends are pivoted to the upper frame-timbers, *d*, of the press. These arms serve as swinging fulcrums, about which the timbers *a* are caused to turn by the action of the chains V, so that when the chains are drawn outward the outer ends of the arms *a* are drawn upward and toward the sides of the press, while the fulcrum-arms *c*, holding their central portion, cause the inner ends of the timbers *a* to act so as to force the vertical timbers F downward between the guides G, and thence, through the transverse bar E and timbers D, which are attached to the follower, the latter is forced down through the body of the press. Other chains, *e*, pass in through the lower part of the press around guiding-pulleys, and thence upward between the end of the press-box and the guide-timbers G, over pulleys *f* at the top, and their ends are attached to the bottom of the vertical moving timbers F, so that when these chains are drawn outward and the chains V are allowed to move inward correspondingly the chains *e* will act to draw the timbers F, together with the follower, up to the top of the press, where the follower may be swung out, so as to allow a new charge to be placed in the press. The chains V, which serve to press the bale, are connected with a chain, as before described, and the latter winds around a spiral drum, *g*, which decreases in diameter in the manner of a fusee, so that the greatest amount of power is applied when the bale is nearly pressed. The chains *e*, by which the follower is again raised after the bale is pressed, are operated by a drum or pulley, *h*, to which they are connected. The winding-drums *g* and *h* are both mounted loosely upon the vertical shaft *i* of a horse-power, to which the sweep *j* is attached, and a collar, *l*, is fitted to the vertical driving-shaft, so as to slide between the two winding-pulleys either upon a feather or upon a square portion of the shaft. This collar has a clutch mechanism at each end, and is moved up or down by a lever, *m*, so that either pulley may be engaged by it and caused to rotate. The lever is held in any desired position by a rack, *n*, so that either the upper or the lower pulley may be caused to rotate to operate its chain; or the clutch may be set between the two, so that while the horse continues his movement neither pulley will be operated.

The whole device forms a powerful and convenient press, which is especially adapted for the baling of hops.

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

1. In a baling-press, the vertical box or case having the follower adapted to press downwardly, the side doors, B, opening outwardly at the bottom, having their upper edges hinged to the press-box, and provided with links J, and eccentric K, in combination with the transverse hinged bar N, with its lever-arm M, substantially as herein described.

2. The transverse hinged bar N, closed against the bottom of the hinged door, and having a lever-arm, M, projecting upwardly from it, in combination with a cam or eccentric connected by a link or swivel with the door, and having notches or indentations in its periphery, whereby it may engage the end of the lever M and force it downwardly, substantially as herein described.

3. In a baling-press having a vertical press-box and downwardly-projecting follower, outwardly-opening doors B at the bottom, hinged as shown, in combination with the cords or chains O and counter-weights P, substantially as herein described.

4. In a baling-press, the vertical press-box having the follower C fitted to move within it, and the suspending and actuating timbers D, in combination with the arms or braces H, whereby the follower is secured to the timbers and leveled or trued, substantially as herein described.

5. In a baling-press, a vertical press-box having the follower C moving within it and connected with the arms D, as shown, said arms being hinged at their upper ends to the vertical side timbers, F, in combination with the operating chains and levers, whereby said timbers and follower are forced downward, substantially as herein described.

6. In a baling-press, the vertical press-box, with its follower, and the side timbers, F, moving in guides G, as shown, in combination with the lever arms or timbers *a*, hinged to the vertical timbers at *b*, and having the moving

fulcrum-arms *c*, pivoted to the center of the timbers *a*, and also pivoted on the timber *d*, thus forming a central fulcrum, whereby the timbers *a* are balanced to facilitate their ready upward or downward movement, together with the operating-chains V, attached to the outer ends of the timbers *a*, passing over guide-pulleys, substantially as herein described.

7. In a baling-press, the vertical press-box, with its follower, vertical operating-timbers, and guide-levers, in combination with the chains *e*, passing over the pulleys at the top and connected with the bottom of the vertical timbers F, substantially as herein described.

8. In a baling-press, and in combination with the chains V and *e*, and the mechanism for raising and lowering the follower, as shown, the spiral fusee or pulley G, the pulley H, and the clutch-collar and operating-lever, substantially as and for the purpose herein described.

In witness whereof I have hereunto set my hand.

MURRAY H. DURST.

Witnesses:
RALPH DURST,
D. P. DURST.