(No Model.)

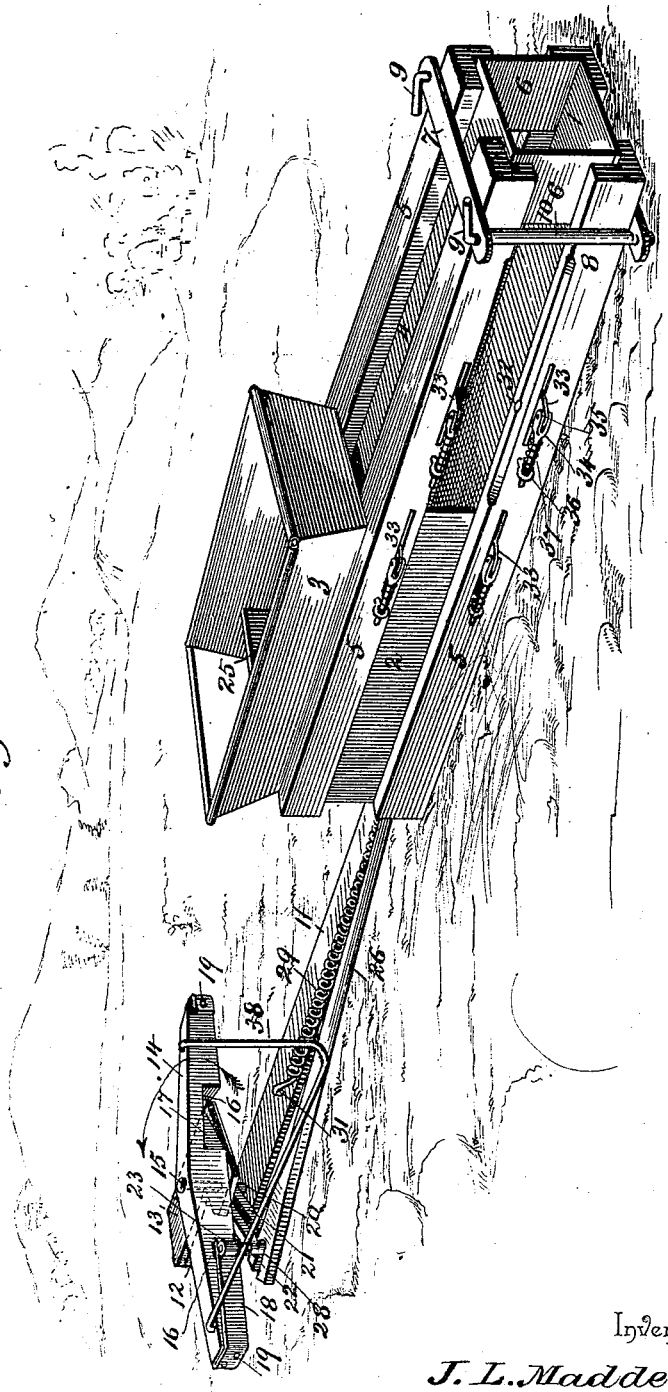
2 Sheets—Sheet 1.

J. L. MADDEN.

BALING PRESS.

No. 492,037. Patented Feb. 21, 1893.

Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

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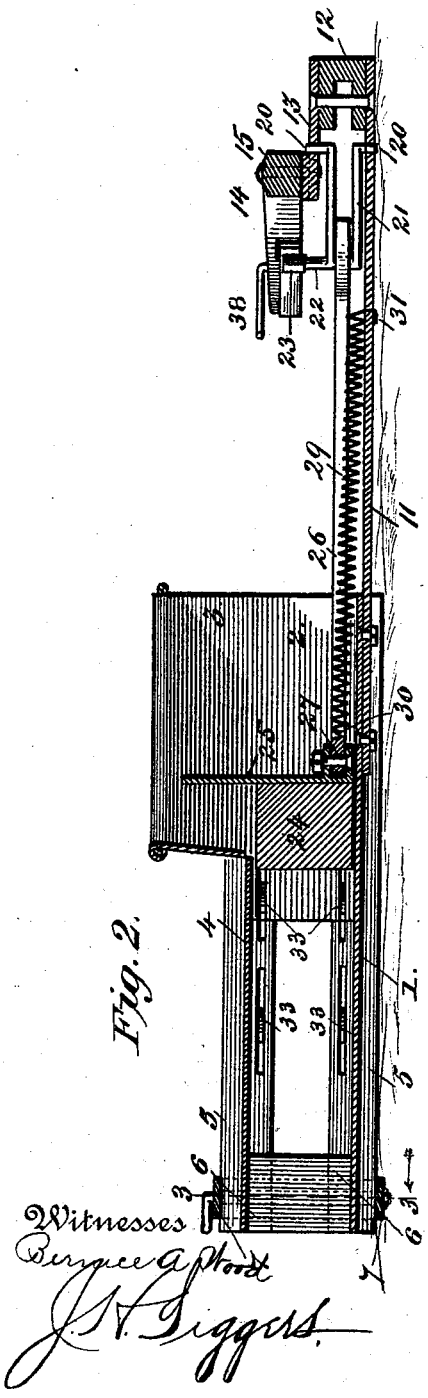

Fig. 2.

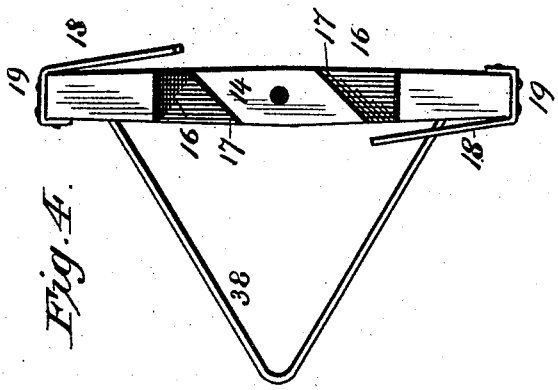

Fig. 4.

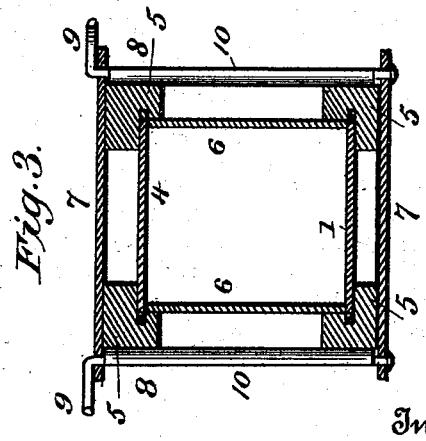

Fig. 3.

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UNITED STATES PATENT OFFICE.

JAMES L. MADDEN, OF LEWISPORT, KENTUCKY.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 492,037, dated February 21, 1893.

Application filed April 8, 1892. Serial No. 428,340. (No model.)

To all whom it may concern:

Be it known that I, JAMES L. MADDEN, a citizen of the United States, residing at Lewisport, in the county of Hancock and State of Kentucky, have invented a new and useful Baling-Press, of which the following is a specification.

My invention relates to improvements in presses for baling hay; and the objects in view are to provide a press of cheap and simple construction, adapted to primarily press the hay into wads of convenient size before depositing it into the baling chamber, to provide means for regulating the size of the mouth of the chamber, and furthermore to so construct the plunger-operating-sweep that it will exert the greatest power at the last portion of the forward reciprocation or compressing-point of said plunger.

Other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings:—Figure 1 is a perspective view of a press constructed in accordance with my invention. Fig. 2 is a longitudinal section. Fig. 3 is a transverse section through the rear end or mouth, of the baling-chamber. Fig. 4 is a detail in bottom plan of the sweep for operating the plunger.

Like numerals of reference indicate like parts in all the figures of the drawings.

In constructing my press, I employ an oblong sheet-metal box, which consists of the bottom 1, which extends throughout the press, the opposite sides 2, which extend from the front end to near the middle of the press, and diverge at their upper ends to form a hopper 3, and a top 4, which extends from the front ends of the side-walls to the rear end of the press. The four corners of the press are embraced by the corner-beams 5, and the same at their rear halves are L-shaped in cross-section. Metal plates 6 are located between the top and bottom 4 and 1 at the rear end of the press, and combine with said plates and rear ends of the beams, to form a mouth or exit-opening of the press.

At the rear end of the press, above and below the same, transverse tie-plates are located, and indicated as 7. These tie-plates have their ends perforated, and inverted L-shaped binding-rods 8 pass through the perforations. The upper bent ends of the rods constitute crank-handles 9, and between the points where they pass through the bearing-plates, the rods are provided with eccentric binding-cams 10. Thus it will be seen, by rotating the rods partially, the binding-cams acting against the outer edges of the perforations of the tie-plates, the said rods are forced inwardly and compress the opposite pairs of corner-beams 5, so that the mouth of the press will be contracted.

A bar 11 has its rear end bolted at 12 to the bottom-plate 1, between the two lower beams 5, or other securing-means may be provided. The front end of the bar is surmounted by a horizontally-disposed U-shaped post 12, and this in turn is surmounted by a horizontal plate 13. To the rear end of this plate a sweep-bar 14 is pivoted by a bolt 15. This bar is provided upon its under side with a pair of recesses, the same being located at opposite sides of its pivot, and indicated as 16. The inner walls of the recesses 16 are at opposite sides of the sweep-bar, cut away as at 17. In this manner the recesses will be contracted, at one side of the sweep-bar, while their opposite ends will be flared, or enlarged. To the opposite ends of the sweep-bar, L-shaped wear-plates 18 are bolted at 19. These wear-plates project over the opposite faces of the sweep-bar, and over the recesses at the smaller ends of the latter. The wear-plates are formed of spring metal, and though they extend over or opposite the small ends of the recesses, yet they are supported normally a slight distance from the faces of the bar. In bearing-openings formed in the bar 11 and 13 the opposite trunnions 20, formed on the upper and lower sides and at the rear ends of a horizontally-disposed swinging-frame or bail 21, upon the outer end and upper side of which is formed a cylindrical lug 22, having a roller 23, which lies in the path of the ends of the sweep-bar.

24 designates a rectangular plunger-head, fitting somewhat loosely in the baling-chamber of the press; and the same is provided on its rear side with an upwardly-disposed pressing-plate 25, moving with the plunger and extending up into the hopper. The plunger-rod 26 is pivoted as at 27 to the rear

face of the plunger-head, and at its front end is bifurcated, as indicated at 28, so as to loosely receive and engage with the outer or free end of the swinging-bail. A coiled spring 29 is secured at 30 to the rear end of the plunger-rod, and as at 31 to the bar 11, the tendency of the spring being to retract the plunger-head and rod. At intervals the beams 5 are slotted, and in the slots are pivoted at 32 beveled detents 33. Bifurcated bolts 34 are pivoted to the outer ends of the detents, as indicated at 35, and the free ends of these bolts pass through eye-bolts 36, extending from the beams. Coiled springs 37 encircle each of the bolts between their points of pivot and the eye-bolts. This completes the construction, with the exception of the draft-hound or bail 38, which diverges and has its terminals secured to the sweep-bar at each side of the pivot of the latter.

In operation, a horse is attached to the draft-bail or hounds, and starting moving in a circle in a manner that is usual in horse-power presses; and at the same time a deposit of hay is dropped into the hopper and partially over the plunger-head. As the sweep-bar moves around, one of the spring-plates comes in contact with the roller 23, on the upper end of the swinging-frame, and the frame is partially revolved upon its axis or bearing, thus forcing the plunger-rod and head to the rear. A continuation of the movement causes the roller 23 to pass beyond the spring-plate, and the latter being relieved, is thrown from over the opening or recess, through which the roller immediately passes and resumes its former position. It will be seen that the roller approaches exceedingly near the center or fulcrum-point of the seat-bar, so that the relative positions of the parts are such that the sweep-bar exercises the greatest possible leverage at the end of the stroke of the plunger, so that the greatest power is applied at the most opportune time, namely, as the final compression is being given the wad or deposit of hay in the baling-press. As soon as the plunger is released and retracted by the coiled spring, that portion of the hay which has during this operation remained upon the top of the plunger-head, now falls into the baling-chamber, and a fresh armful is thrown into the hopper. It will be observed that at each forward reciprocation of the plunger-head, the press-plate rising from the rear end of the head serves to primarily press or condense the hay in the hopper, before it is finally deposited for final compression in the baling-chamber. In this manner, the deposits of hay, as dropped into the chamber, are better adapted to be compressed and in fact facilitate such operation, and the result is that I secure a bale of greater density with a less expenditure of power, than would otherwise be the case. The spring-detents perform their usual function, namely that of catches, for preventing the hay from rebounding as the same is compressed, and of these nothing further need be said. It will be seen that atfer the plunger has been returned to its former position, the roller 23 is brought by the spring into the path of the next succeeding spring-plate, and the operation is repeated, one revolution of the horse and sweep causing two reciprocations or movements of the plunger.

Having described my invention, what I claim is—

1. In a baling-press, the combination with the baling chamber, provided at its upper front end with a hopper, of a plunger-head fitting the baling-chamber and having an upwardly-disposed compressing-plate extending from the front upper corner into said hopper and means for reciprocating said head, substantially as specified.

2. In a baling-press, the combination with the hopper the beam secured to the same,—a bracket or post secured to the end of the beam, a frame pivoted between the bracket and beam, and provided with an upwardly-disposed lug at its outer or free end, a plunger-head mounted in the baling-chamber, a plunger-rod pivoted at its rear end to the head, and at its front end loosely connected with the swinging arm or frame, the superimposed and fulcrumed sweep-bar, the under side of which is notched or recessed, and the spring-plates secured to the opposite ends of the bar and at opposite sides thereof, said plates extending over the recesses into the path of the pin of the plunger actuating-frame, and normally supported at some distance from the faces of the sweep, and a spring for retracting the plunger after its actuation by the sweep, substantially as specified.

3. In a baling-press, the combination with the baling chamber, the plunger-head, the pivoted plunger-rod, and the pivoted plunger-actuating-frame engaging the bifurcated end of the rod and provided upon its upper side with a bearing-pin having a roller, of a superimposed fulcrumed sweep, having a draft-bail and its under side provided with recesses, the inner walls of which are inclined or flared in opposite directions, and the spring metal wear-plates, secured at their outer ends, to the sweep and located upon the opposite sides and at the ends of the sweep, and having their free or inner ends normally supported some distance from the faces of the sweep and a coiled spring for retracting the plunger, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JAMES L. MADDEN.

Witnesses:
JO. C. PELL,
WM. B. MILLER.