UNITED STATES PATENT OFFICE.

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BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 586,332, dated July 13, 1897.

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To all whom it may concern:

Be it known that I, PETER K. DEDERICK, of Loudonville, county of Albany, State of New York, have made certain Improvements in Baling-Presses, of which the following is a specification, reference being had to the accompanying drawings and letters and numerals of reference marked thereon.

Figure 1 is a perspective view of my improved press complete. Figs. 2, 3, 4, 5, 6, and 7 are sectional views disclosing my improvements. Fig. 8 is a detail of the pipe connection.

Similar letters and numerals represent similar parts.

A is a lever; B, fulcrum-arms; C, connections; D D D D, the arms of a pair of joints; E, the follower; F, pipe connection; G, capstan-drum; H, horse-lever.

The frame of the press may be constructed in any suitable manner or as shown.

The lever A is constructed of metal plates, with wood between them and riveted together, and the lower ends of the plates project the wood to receive the sheave or pulley between them. The wood center may be of suitable width for one pulley, as shown, or wide enough for two or more. Other projecting plates with wood strips may be added and with sheaves between their projecting ends, and the wood is cut away at the lower corners next the sheave, as indicated by dotted line, to prevent chafing of the power-line. This lever A is pivoted to the follower E at its upper end and to arms B, of which two are shown, at or near its center. A single arm may be used, if preferred, and either bifurcated at the top or located under the lever at center or between the parts or two levers. This jointed lever is connected by connection C to the two joints D, of which there are two pairs, which I have shown connected at the joint-pin, although they may be entirely disconnected, if desired, or a single one of the joints may be used, and, if desired, the upper arm of that be spread out or be two arms. Either modification will be effective in small presses.

At the bottom of the press I locate stops I, Fig. 3, in such position to form a rest for the fulcrum-arms when the power is down. The stops might support the lever or form a rest for the fulcrum-pin, as any support for the power levers or joints is all that is necessary to prevent sag of the joints, thus causing them to start with half the power applied, or the power may be dropped much lower and started with the same power than other presses in which the follower is stopped and the levers hang suspended.

The upper arm D is pivoted to the follower or follower-beams and the lower arm D to the base of the press.

I have shown the arms D pivoted at their upper and lower ends outside of the perpendicular of the box-line, which I think preferable, although they may be pivoted on the box-line or entirely within, if desired, although this would require larger openings to pass arms D than to pass connections C only.

In any event the arm D and connections cut off all cross-timbers of the frame up to near the top, thereby greatly reducing the support of the box end and requiring, ordinarily, very heavy box ends or very heavy posts to sustain the projecting ends of the cut girths, in either case greatly increasing the weight and cost of the machine; but I overcome this without either and make the end as strong as with uncut girths by passing the frame-rods J through the cut girths K inside of the posts at that end, as shown in Fig. 2, thus making it impossible for the girth to give outward without breaking the rod, as the outer end of the cut girth is firmly secured to the posts L L by being framed with it or bolted against it, or both, and the side girths M, extending across the press, prevent the posts from springing.

In deep box-presses the lever cuts up in the end of the box, as do also the fulcrum-knees, and thus cuts off the center strip N, Figs. 2 and 5, leaving its lower end without support, and to remedy this I make the center strip movable, as shown, N being the center strip, E the follower, O being sections of the lining, (outside view,) P a steel plate inside of lining to form a slideway for the upper end of strip N, and the lower end R catches under the follower edge and is supported by the follower-planking and heads of arm or arms D.

In feeding the press I provide a hopper S, and back of the hopper on a line with the in-

side of the box I provide a slide T for closing the feed-orifice U in advance of the pressing-follower, so as to prevent the material pressed from bulging out. (See Fig. 1.) This slide remains closed until the follower is nearly or quite reversed, so that the hopper may be packed full against it ready for another charge. Thus it serves the double purpose of a door and guard to feed against, whereas the ordinary method of hinged door to swing out prevents feeding against it, and if opened there could be no feeding until the power was reversed, as the material would either catch under the power of press or feed-door. This slide T may be operated in any suitable manner, so that it is projected upward, closing the feed-opening by a movement preferably much faster than the traverser, so that the first few inches movement of the traverser upward will move the slide nearly or quite over the feed-opening. The slide might move downward to close the feed-orifice if located above it, but not as desirable. I have shown it operated by levers V, preferably made light to spring, one at each end of the press, connected by pitmen W to projections from the slide T. These levers V are pivoted to the frame at their opposite end, as shown, and coupled to another lever X by the bar Y. This lever X is also pivoted to the frame and operated upon by a projection Z of the follower through the box, as shown, or by the press levers or joints. It may be operated at both ends of the press or at one end and connected across by a shaft, and the lever X is of suitable shape, so that when the slide is moved to close the feed-orifice the projection Z passes the angle of the lever X and moves along its then perpendicular side, thereby retaining the slide in position until the power returns, and meantime the hopper is packed full of material ready to be pushed into the press-box as soon as the power returns and the slide moves from off the feed-orifice.

The press and horse-power parts of the machine are connected by a pipe F, Fig. 1, through which the power connection passes to the levers, and I have shown this pipe connection inclined downward from the press, so that the horse-power part occupies a lower position, as when operating on a barn-floor with the horse-power part outside, in which case heretofore the entire combined machine must occupy an inclining position. To accomplish this, I pivot, hinge, or attach one end of the pipe to the press-frame to allow depressing the pipe and the other end to the power-frame, so that the pipe may be extended upward to the press, and then preferably secure it rigidly by means of clamps or bolts Q, or other suitable device means, so that the pipe may be adjusted to any angle desired for barn-floor operation with the power outside. At each end of the pipe, secured to it or in a frame of the press and power, as shown, I provide a pulley or roller 3 to turn the power connection to the required angle and avoid chafing. A smooth rounded surface to slide over would answer in place of pulley.

The horse-power consists of a drum or pulley and shaft 4, rigidly secured together, and a pair of arms 5, mounted loosely on the shaft at each side of the drum and connected together at their outside ends outside of the drum, as shown in Fig. 6. The power connection is also attached to these arms outside of the drum or pulley and so as to wind on it, as shown. The arms 5 are adjusted to the pulley 4 by means of an adjustable catch or lock 6, which is tripped every round of the horse-lever by coming in contact with trip 7, thus allowing the power to fall back, being the ordinary power and trip in construction and operation thus far, and in which, after detaching or tripping, friction appliances are used to prevent the power falling back too fast and to avoid shock, but which are neither reliable nor durable. I attach another line, chain, or rod 8 to that connecting to the power connection 9, as shown, and attach the other end of this line to a crank 14 or to a lever operated by the crank or cam, as hereinafter described, in Fig. 1, so that when the power trips it falls back into this safety connection and is slowly let down as the horses move on. All that is required is to stop the descent of the power by a safety check-line or connection to the power-line, thus preventing shock. The same safety or check line may be applied to any trip-power, as, for instance, Fig. 1, being a crank-and-drum power, 8 being the check or safety line attached to the power connection at 9, and the other end attached to lever 10, which is pivoted to the frame, as shown, and operated by means of cam-arm 11, secured to the power-shaft, so that as the power is tripped the shock falls on arm 11 or against the shaft, and as the movement continues the power is slowly let down by the arm 11 moving off of lever 10.

Heretofore all trip-powers were allowed to fall and the shock or blow was cushioned at the bottom or friction was used to check too rapid descent, which means, however, have not been found reliable. The safety-line in the present case stops the power when the expansion of the pressed material has exhausted its force and before the power gets far enough down to acquire a leverage against the safety-line, from which point the onward movement of the horse gradually lowers the power through the medium of the safety-line.

Having thus fully described my improvements, what I claim in a baling-press, and desire to secure by Letters Patent, is as follows:

1. In a baling-press, the combination with the press-frame and box slotted for the passage of the power-levers, of the sectional girth K and the rod J passing through said girth between the posts and connected to the frame at the opposite end; substantially as described.

2. In a baling-press, the combination with the press-box having a feed-opening in the

side, the traverser and the power mechanism, of a sliding door for closing the feed-opening and connections between said sliding door and power mechanism for advancing the sliding door faster than the movement of the traverser, whereby the feed-opening is closed and the hay is prevented from bulging out through the same as the traverser advances; substantially as described.

3. In a baling-press, the combination with the press-box having a feed-opening in the side, the hopper surrounding said opening, the traverser and power mechanism, of a sliding door for closing the feed-opening and a speed-multiplying mechanism for operating the door interposed between the door and power mechanism whereby the door is closed in advance of the traverser and the bulging of the hay through the door as the traverser advances is prevented; substantially as described.

4. The combination with the press and power parts in a baling-press, of the rigid pipe adjustably connected at opposite ends to the press and power parts, with sheaves or bearings for the power connection located at the points of union, whereby the power may be located at a different level from the press; substantially as described.

5. In a press, the combination with the traverser, levers for operating the same and power mechanism for advancing the levers, of the check-line connected with the levers for checking their rearward movement and controlled by the power mechanism, whereby the levers may be lowered gradually; substantially as described.

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