(No Model.) 4 Sheets—Sheet 1.

G. ERTEL.

HAY PRESS.

No. 378,197. Patented Feb. 21, 1888.

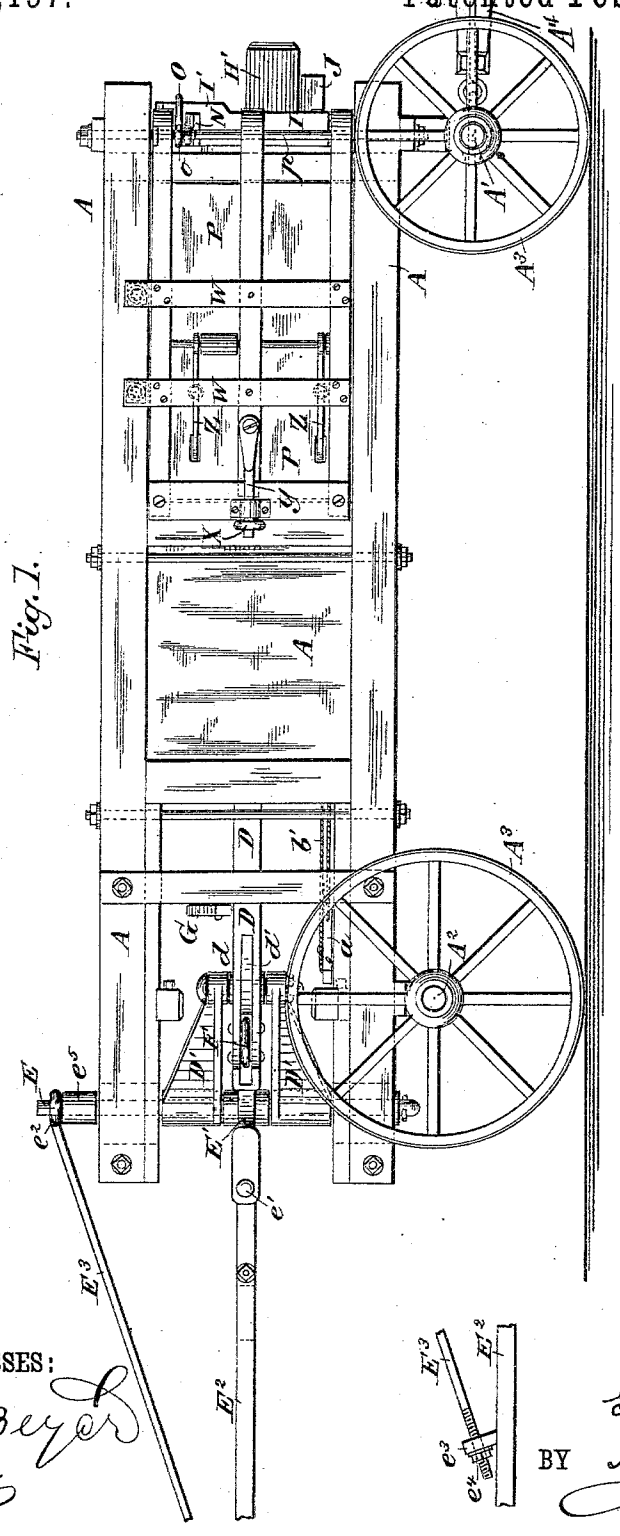


Fig. 1.

WITNESSES:

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INVENTOR:

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(No Model.) 4 Sheets—Sheet 2.

G. ERTEL.

HAY PRESS.

No. 378,197. Patented Feb. 21, 1888.

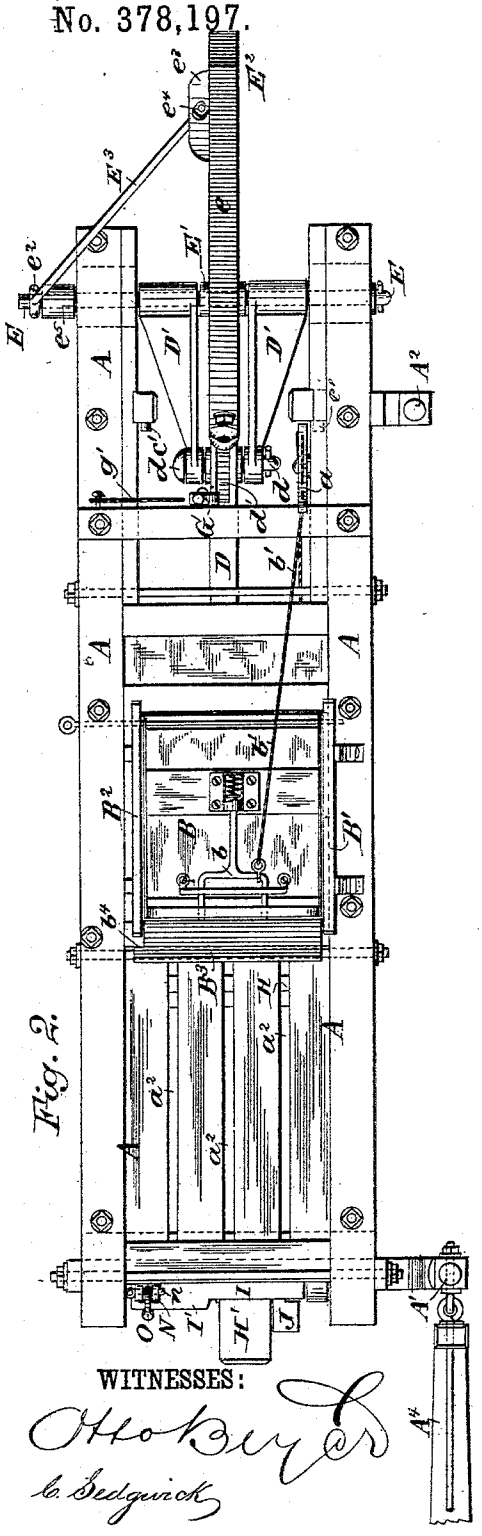


Fig. 2.

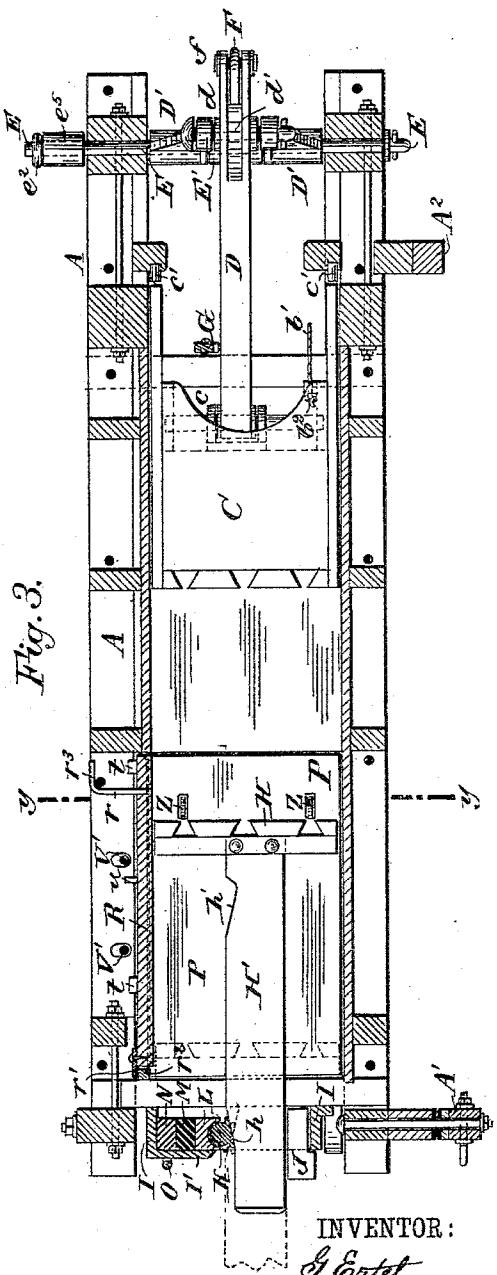


Fig. 3.

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(No Model.) 4 Sheets—Sheet 3.

G. ERTEL.

HAY PRESS.

No. 378,197. Patented Feb. 21, 1888.

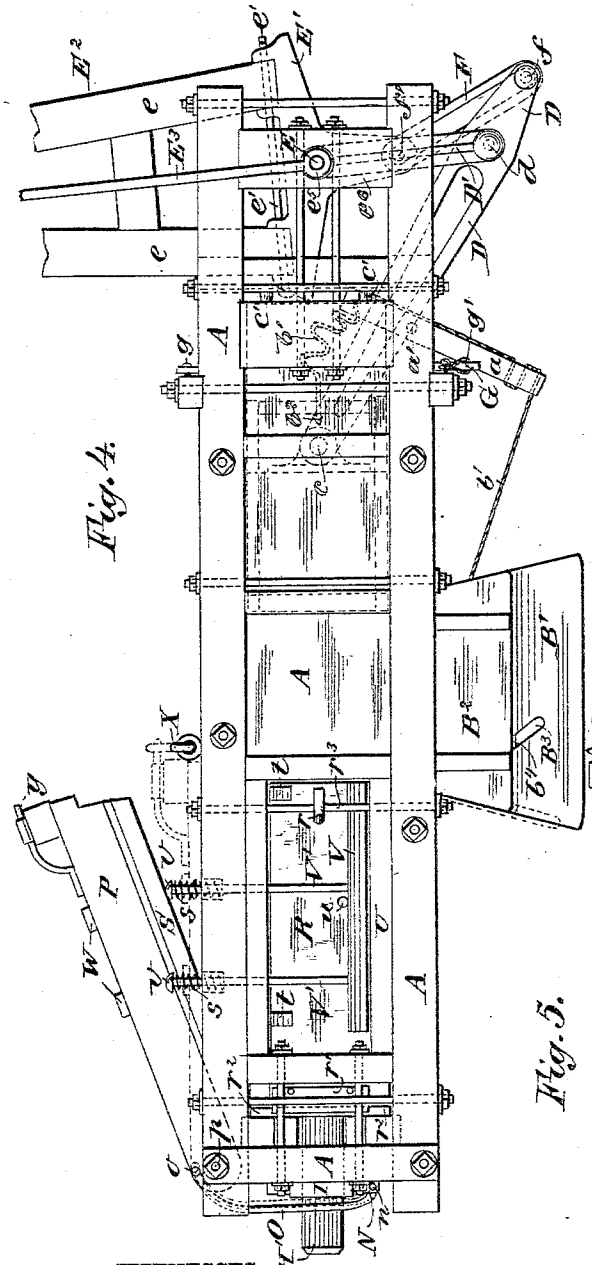


Fig. 4.

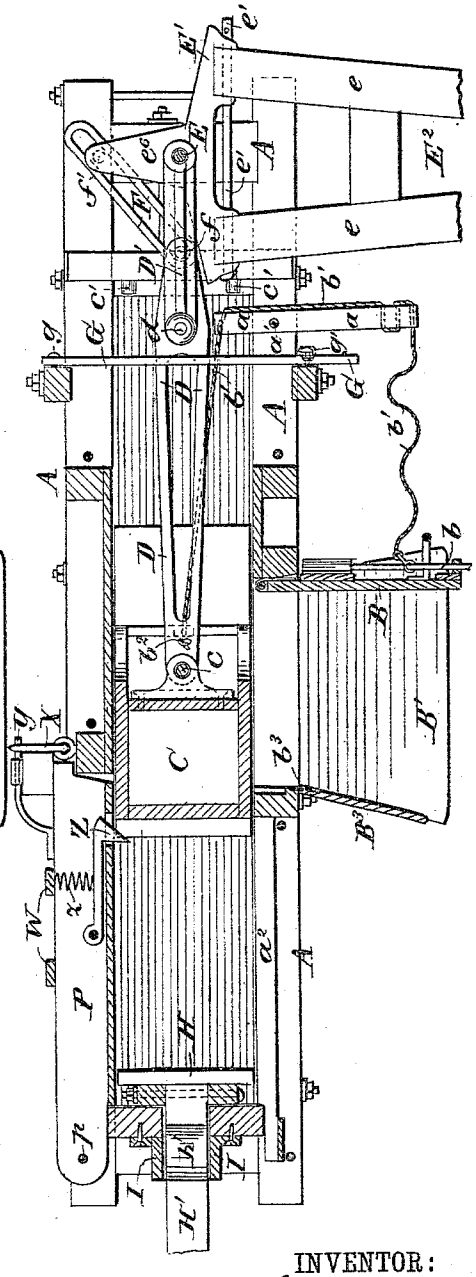


Fig. 5.

WITNESSES:

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(No Model.) 4 Sheets—Sheet 4.

G. ERTEL.

HAY PRESS.

No. 378,197. Patented Feb. 21, 1888.

Fig. 7.

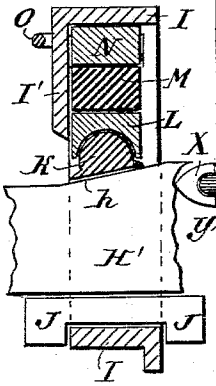


Fig. 6.

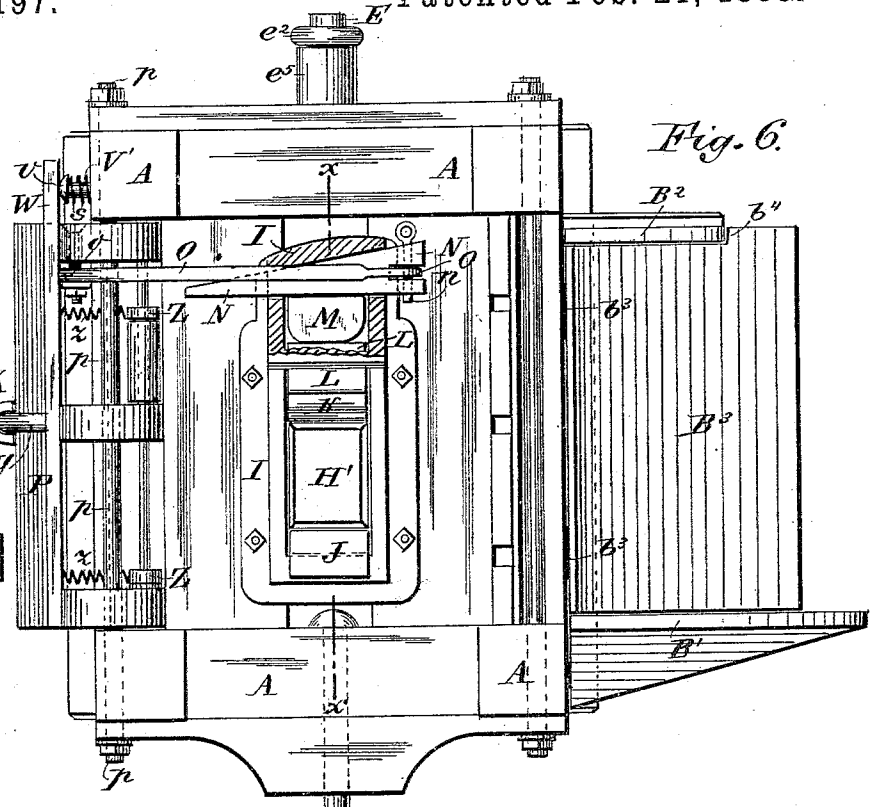
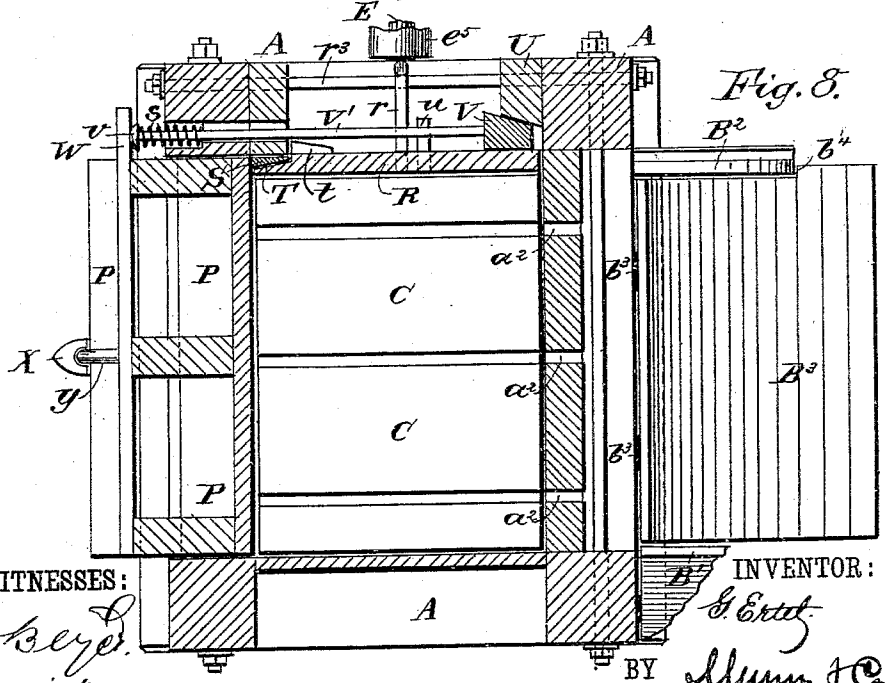


Fig. 8.



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UNITED STATES PATENT OFFICE.

GEORGE ERTEL, OF QUINCY, ILLINOIS.

HAY-PRESS.

SPECIFICATION forming part of Letters Patent No. 378,197, dated February 21, 1888.

Application filed March 22, 1884. Serial No. 125,163. (No model.)

To all whom it may concern:

Be it known that I, GEORGE ERTEL, of Quincy, in the county of Adams and State of Illinois, have invented a new and Improved Hay-Press, of which the following is a full, clear, and exact description.

The object of my invention is to provide a machine of improved construction for pressing hay, straw, moss, cotton, or other materials into bales of uniform density.

The present invention includes important improvements in the construction of the press for which United States Letters Patent No. 261,323 were granted to me on the 18th of July, 1882.

The invention consists in various constructions and combinations of parts of the press, whereby its cost is reduced and its length and weight materially lessened for increased facility in drawing the machine over rough and crooked roads, and whereby, also, time and labor are economized in pressing the bales, the machine being simple in its action and powerful, efficient, and durable, all as hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is an elevation of the press at the bale-discharge side. Fig. 2 is an elevation at the reverse or feeding side, and with the wheels removed. Fig. 3 is a central longitudinal vertical section through the press-case with the follower and movable head-block in side elevation. Fig. 4 is a plan view of the press-case with the sweep swung toward the discharge side, the follower fully drawn back, and the discharge-door open. Fig. 5 is a sectional plan view with the sweep swung toward the feeding side, the follower fully inward, and the feed-door open. Fig. 6 is an end elevation partly in section and in larger size. Fig. 7 is a sectional elevation on the line *x x*, Fig. 6; and Fig. 8 is an enlarged transverse section on the line *y y*, Fig. 3.

A indicates the press-case, built up of strongly framed and bolted timbers, and mounted by a swinging forward axle, A′, and fixed hind axle, A^2, on wheels A^3, and having a tongue or draft connection, A^4, coupled to the forward axle, and to which the team is hitched for moving the press to and from the place of use.

B is the feed-door, strongly hinged at its one vertical side, and so as to close an opening in the side of the press-case through which the hay, straw, moss, or other material to be baled is passed into the press in front of the follower C.

B′ is a table fixed at the side of the press.

B^2 is a hood located over the table, and B^3 is a vertical side board hinged at b^3 to the feed-opening opposite the hinged edge of the door B, said door when open forming, with the parts B′ B^2 B^3, a chute, through which the hay is fed to the press. The upper rear part of the side B^3 passes below the hood B^2, while the front portion extends up or has an attached piece to form a shoulder at b^4, which will strike the front edge of hood B^2, as in full lines in Fig. 4, when the side B^3 is swung inward to be about in the line of the sweep of the door B in closing, so that the side B^3 shall fold in any loose or straggling material and compel the closing door to carry the same into the press-case, thereby avoiding a choking of the door and permitting it to be closed and locked with comparative ease.

The spring-latch *b* of the door B connects by a cord, *b′*, and a lever, *a*, (pivoted at *a′* to the case A,) with the follower C or its pitman, as at b^2, so that when the follower about reaches its extreme inward position the latch will be tripped by the cord and the door B pulled open ready for feeding the next charge of hay to the press. This latch-tripping device acts substantially the same as the tripper described in my aforesaid patent, No. 261,323, wherein the feed-door opens downwardly instead of sidewise, as herein shown.

For driving the follower C to press the bales, I connect it pivotally at *c* with a lever or pitman, D, which is pivoted at *d*, near its outer end, and preferably between two arms, D′, which in turn are pivoted on a strong bar or shaft, E, held in the press-frame. But one pivoted arm D′ may be employed; but by using two, or one at each side of the sweep-head, a stronger pivotal connection with the lever D at *d* may be made, and the action of the sweep as pivoted between the arms is better balanced and more effective.

On the bar E, between the arms D′, is pivoted the three-armed metallic head E′, to which the side bars, *e e*, of the sweep E^2 are pivoted by a rod or bolt, *e′*, so that the outer end of the sweep may be adjusted higher or lower to suit the animals working it. The sweep is supported from the press-frame by a brace, E^3, which has an eye, e^2, engaging the pivot-bar E loosely, and at the other end the brace is screw-threaded and passes freely through a cleat, e^3, fixed at the outer end of the sweep, a nut, e^4, being screwed onto the brace at the outside of the cleat, so that by adjusting the nut along the brace the outer end of the brace may be adjusted as to height. A nut, e^4, may be used at each side of the brace e^3, if desired. A collar, e^5, holds the brace up at the inner end to clear the press-frame as the sweep swings from side to side in working the follower, as hereinafter described. Pins or equivalent devices may be used in place of the nut or nuts e^4, if desired. By this construction the pivot-bolt will not be subjected to so great wear as when the sweep is rigidly connected.

To connect the sweep E^2 with the follower-lever D, I employ an open or slotted bar or link, F, which is held by pins *f f′*, respectively, in the slotted outer end of the lever D and in the slotted end of the rear arm, e^6, of the sweep-head E′, which connection, by its articulations, permits the follower to be moved for the first part of its instroke by the direct pull of the link by the sweep, and enables the link to slide freely on or over the pins *f f′* as the side arms of the sweep-head E′ bear directly on the extreme outer end of the lever D to apply the power by direct contact of the lever and head toward the end of the stroke of the follower when the strain is greatest, or the link F may be of such length as to pull the lever D over or past the longitudinal center of the press without a contact of the sweep-head with the lever, as above described; and the link-connection also permits the outer end of the lever D to be projected to the side of the press (as the follower is fully drawn back) opposite to that from which the sweep extends, so that the parts are in position for a direct pull on the link by the sweep as the horse starts to pull the sweep to the other side of the press in making a full instroke of the follower C, and as the outer end of the lever D may freely be swung to either side of the press, a full inward stroke of the follower may be made as the horse pulls the sweep in either direction, so that no time is lost by a return of the horse and sweep to the opposite side of the press before the next instroke of the follower can be made. Other particular advantages of these connections of the follower with the sweep are that they permit the press to be made much shorter than with other constructions, and also lighter and cheaper, meanwhile increasing the smoothness of working and general efficiency of the machine, and the power is applied in a simple and direct manner, which allows merchantable bales to be made with a pull of the sweep by a single horse.

The slots in the ends of the lever D and the arm e^6 of the head E′ for receiving the link F extend backward by angular grooves to the opposite edges of the lever and arm, as at *d′*, to allow the requisite play of the link.

A lever, G, pivoted to the press case at *g*, extends across above the lever or pitman D to the opposite side of the press, said lever G being notched to drop automatically upon the lever D to hold it by the notch when the follower completes its last instroke on a bale, and a looped cord, chain, or hook, *g′*, is provided to hold the lever G clear of the lever D when the follower is to be drawn back (after tying the bale) and in position for pressing the first charge of the next bale.

In order, further, to shorten the press and to provide for pressing the successive charges of hay with a like pressure to insure a uniform compactness of the pressed bale from end to end, I provide in the press-case or baling-chamber a movable head-block, H, having a strong beam, H′, which projects outward through the end wall of the press, and preferably through a metal socket or box, I, fixed to the case, on the bottom of which box rests a notched metal block, J, of sufficient length to form a bearing on which the beam H′ may slide, and between which block J and a grip-block, K, the beam may be clamped to hold the head-block H against the pressure of the follower, the block bearing down against the incline or shoulder *h*, formed in or on the upper surface of the beam H′. (See Figs. 3 and 7.) The block J may be held detachably in position by dowel-pins instead of a notch.

The grip-block K has a rounded top, which has a bearing in a correspondingly-shaped seat in a block, L, and so as to rock therein in the direction of the length of beam H′ for riding up and down and bearing firmly upon the incline *h* of the beam, the rocking block K accommodating itself to the top surface of the beam. On the block L, and inside of the outer plate, I′, covering the upper part of the box I, is placed a rubber spring-block, M, between which and the top of box I a key or wedge, N, passes through apertures or slide-ways in the sides of the box, the top of the box being adapted to the key. (See Fig. 6.) When the key N is partly withdrawn, the parts M L K are free to be lifted in the box I, while the block K rides up the incline *h* of beam H′ as the head-block H is carried to the end wall of the press, as in full lines in Fig. 6 and in dotted lines in Fig. 3, and with the key withdrawn, the beam H′ may be lifted to remove the block J, when the beam may fall sufficiently to carry the grip-block K and its seat L below the lower end of the cover-plate I′ of box I, so that the parts K L and spring M may readily be removed for repair or renewal when required; and when the block J is in place in box I, below the beam H′, as shown,

the top of block L will rise above the lower end of the plate I', to hold the gripping devices K L M in the box I and secure against displacement by the movements of the beam H'.

It is evident that the rubber spring M may be substituted by any other style of spring made of metal or other material, and that for the single purpose of securing the beam H', by the grip-block K acting on an incline or shoulder of the beam, all forms of springs may be dispensed with; but I prefer to employ a spring, as it permits the parts in box I to yield gradually within fixed limits to the compressive strain on the head-block H, and thereby protects the gripping devices from sudden hurtful shocks or strains while the head-block is held in the forward position by its incline *h* for the pressing of the first charge or charges of material by the follower C, and while the last charge of material for a bale is being pressed the head-block H will rest fairly against the end wall of the press, as in Fig. 5, and the grip-block K will rest loosely on the inclined shoulder *h'* of the beam H', and the beam-gripping devices will then be entirely relieved of strain, whether the key N be loose or be driven tightly to place in its slideways in the box I.

The incline *h* ranges upward and inward, so that the tightened grip-block K resting thereon shall resist the outward movement of the head-block H, and the incline *h'* ranges downward and inward to permit the gripping devices in box I to ride up or swing over this incline easily as the head-block H is pushed inward by hand to carry the incline *h* under the grip-block K in position for locking the head-block in place prior to compressing the first charge of material for the next bale.

Other equivalent mechanical means may be used to press the grip-block K L upon the beam H' for locking the head-block H in place, as above described, such as a screw or cam working in the box I; but the key N makes a simple, reliable, and easily-worked device for the purpose. The key N could be driven tight and loose, to grip and release the beam H', by using a hand mallet or hammer; but I have connected the key by a pivot, *n*, at its end with a rod, O, which connects with the bale-discharge door P at *o*, and in such relation to the hinge-bolt *p* of the door that when the door is thrown open the rod O will act to withdraw the key N automatically for loosening the hold of the grip-block K upon the beam H' of the head-block H, and so that when the door P is closed the key N will be forced in by the pull of the rod O to bind the grip-block or device on the beam at *h*. This operation, by the door P, of a gripping device to bind and release the head-block beam is an important feature of my invention, and the rod O, or equivalent device, may connect with any mechanical equivalent of the key N—such as a cam or a screw of large pitch—to bind a grip device on the beam and release it therefrom by the movement of the door, and still be within the scope of this part of my invention.

In the press described in my said Patent No. 261,323 the slack side of the baling box or chamber was bound fast and released by the action of inclines fixed at the outer closing edges of two opposite hinged doors upon inclines along the back edges of the said slack side.

In the present improvement I have arranged to work the slack side of the baling box or chamber by the action of the single door P, hinged at one side of the press-case, thereby considerably reducing the cost of the press and the labor of working it. The slack side R of the baling-box being in this instance the top side of the box, I suspend it so as to have a limited vertical play by a bent or headed bar, *r*, at the inner end from one of the cross-bolts of the press-frame, and at the other end by a plate, *r'*, of considerable length, fixed transversely to the upper face of slack side R and overhanging it, so as to support the slack side by a rest of the plate *r'* on a cross cleat or bar, *r²*, of the press-case, and with a long bearing to prevent that end of the slack side next the hinge *p* of the door P from rocking laterally, and thereby insuring the true entrance of the beveled plate or block S, fixed along the upper inner edge of the door P, over the incline or bevel T, formed along the upper front edge of the slack side R, as the door P closes. (See Fig. 8.) Over the inner or opposite edge of the side R, I fix to the frame a strong timber or plate, U, leaving a space between plate U and side R, in which a wedge-block, V, may enter. The wedge V is fixed to bars V', which pass outward through the frame and have heads *v* on them to be struck by the bars or cleats W, fixed to the door P, as the door closes, to force the wedge V inward to bind the slack side R fast along the back edge, while the block S rides upon incline T to bind its front edge, as shown. Springs *s* force the wedge V back and loosen it when the pressure on the bars V' is released by opening the door P, and stops *t* are provided on the slack side R to act against the press-frame to prevent pulling the side R outward or withdrawing the wedge V, the outward movement of which wedge is limited by its contact with a stop, *u*, fixed on the side R.

A hinged loop or link, X, on the frame A is to be passed over an iron stay-bar, Y, on the door P to lock it closed. Pivoted hooks Z on door P are thrust inward by springs *z* to hold the pressed material from unduly expanding when the follower C is carried back to admit the next charge of hay for a bale to the press, and when it is fully driven back the follower strikes the rubber or other elastic buffers *c'*, set in the press-frame to relieve the shock.

The side of the baling-box opposite the door P is slotted, as at *a²*, and in horizontal alignment with the face slots of the head-block and follower, to permit the passage of the ties

around the pressed bales when the said door is opened.

The operation of the press is a follows: The machine rests on its wheels A^3 when at work, the sweep E^2 being attached at e' and adjusted for height by the nut e^4, as above described, to suit the horse now hitched to the sweep. The door P being closed, the slack side R will be wedged fast against outward pressure, and the grip-block K will be clamped by the entered key N upon the incline *h* of the head-block beam H', the head-block H being in the inward position shown in full lines in Fig. 3. The follower C having now been drawn or pushed outward by hand at the beginning of the pressing, as in Fig. 3, and the sweep E^2 set at about a right angle at one side of the press, as in Fig. 4, the lever D will have carried the arms D' about in line with the center of the sweep, and the opposite ends of the link F will rest against the pins or bolts *f f'*. The lever G being now held up free of the lever D by the loop or hook device *g'*, the first charge of hay or other material for a bale is fed to the press-case between follower C and head-block H, and the feed-door B then closed and fastened, which draws the lever *a* by cord *b'* to the position shown in Fig. 4, the inner end portion of the cord being slack, as shown. The sweep will now be drawn from the position shown in Fig. 4 toward that shown in Fig. 5, and in starting, the pressure will come on the link F and the bolts *f f'*, and the arms D' are gradually swung around toward the left hand on bolt E. The link F is of such length that when the extreme outer end of the lever D at *f* is drawn inward and laterally to a point about in line with the right-hand side of the press-case the head E' of the sweep will strike the end at *f* of lever D at about the point shown in Fig. 5, and as the movement of the sweep continues, and for about the last quarter of the instroke of the follower, when the compression increases, the strain is transferred from the link F and bolts *f f'* to the pivotal connection of the arms D' with the shaft E, and with the lever D at *d*, the sweep and the lever being pivotally tied together at said points E *d*, while the back of the sweep-head acts directly on the extreme outer end of lever D to complete the instroke of the follower, the link F then running out freely at one end from the bolt *f'*, as in Fig. 5. At about this time the lever *a* will be drawn upon by cord *b'* to unlatch and open the feed-door B, and the end at *f* of lever D will be forced over slightly beyond a straight line connecting the pivot-points E *d*, or beyond the center, whereupon the follower C and its lever D will instantly be free and will be forced backward or outward by the partial expansion or reaction of the pressed material in the baling-box, the link F swinging around freely on the bolt *f'* as a center, while the lever D, arms D', and link F are carried automatically to assume the same relative positions at the bale-discharge side of the press, with the sweep E toward the feeding side, as they occupied in starting, and in readiness to again force the follower inward on the return-stroke of the sweep. The action of lever D will be the same if the link F is only of a length to carry the lever over the longitudinal center-line of the press without a contact of the sweep-head with the end of the lever, as will readily be understood. As the follower C is carried back against the buffers *c'*, the hooks Z hold the pressed material from unduly expanding. The door P is now opened, which simultaneously releases the slack side R of the baling-box and the grip of the block K on the beam H' of the head-block H, the loosening of the slack side also serving to loosen the head-block at its edges, so that the head-block may easily be drawn backward, the block K then riding freely up the incline *h*, and finally dropping into the recess *h'* as the rear side of the head-block strikes the end of the baling-box. The door P is now closed and locked, which again fastens the slack side R by the wedges S V, and the second (and in this instance the last) charge of material for a bale is fed in at the door B, which is then closed and locked, and the sweep is drawn back on the return-stroke. The action of the power apparatus in driving the follower inward, as above described, is repeated; but the notched lever G having now been released to rest upon the lever or pitman D, it will lock by gravity over the lever as the lever reaches the central position and hold the follower C in its extreme inward position while the door P is again opened to release the slack side R and permit the bale to be tied and discharged from the press, the discharge of the bale being easily effected, as the slack side R prevents a wedging of the bale in the baling-box in substantially similar manner as described in my aforesaid patent, No. 261,323. While the door P is open and the wedge N thereby is withdrawn, and after discharge of the bale, the head-block H is again pushed in by hand to carry the incline *h* of beam H' below the grip-block K, as in Fig. 3. The door P is now closed, to secure the slack side R, by the wedges S V, and to grip the beam H' by block K, and the lever G is raised from lever D and the follower pulled back with the parts of the power apparatus again set to the positions shown in Fig. 4, when the first charge of material for the next bale may be fed to the baling-box and the work proceed as before described.

It will be understood that two or more inclines like the one *h* may be formed in or on the beam H' back of the recess or incline *h'*, so that several charges of hay or other material may successively be pressed with the head-block H held in position by the action of the grip-block K on the successive inclines *h*, and in this case the said inclines *h* will have a reverse side or face or be in shallow V form to permit the block K to rise upon the beam as the successive inclines *h* come into position to be clamped at the inner sides or faces by

the block K, and the lock-lever G will be allowed to engage lever D only when pressing the last charge for a bale, as above described.

My improved press is from five to eighteen feet shorter than other presses making bales of the same size and weight, the total length of the press-case, including the power apparatus, (except the sweep,) being only about eleven feet; and the weight of my improved press is from five hundred to fifteen hundred pounds less than other presses for like work. Consequently the machine may be handled and hauled over rough and crooked roads with greater facility; and my improved press may also be built more cheaply. It has ample power to do its work efficiently, and is durable in use.

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

1. In a hay-press, the combination, with the press-case A, the feed-door B, the table B′, and the hood B^2, of the hinged side B^3, provided with the stop or shoulder b^4, substantially as herein shown and described, and for the purpose set forth.

2. In a hay-press, the combination, with the follower-lever D, of the notched lever G and the cord or chain g', substantially as herein shown and described.

3. In a press, the combination, with the baling-box and its follower, of a movable head-block facing the follower, said head-block having a backwardly-extending beam, and gripping devices engaging the beam of the head-block to lock the latter in position, substantially as described.

4. In a press, the combination, with the baling-box and a follower, of a movable head-block having a backwardly-extending beam and gripping devices acting to clamp the head-block yieldingly to place, substantially as described.

5. The combination, with the movable head-block and its beam H′, of inclines or shoulders *h* and gripping devices acting on the inclines for locking the head-block in place, substantially as described.

6. The combination, with the movable head-block H and one or more inclines or shoulders, *h*, on its beam H′, of a grip-block, K, seated on the inclines, and of a clamp for holding the block K to the beam, substantially as described.

7. The combination, with the movable head-block H and one or more inclines or shoulders, *h*, on its beam H′, of a grip-block, K, held with one face on the beam and so as to rock in direction of the length of the beam, and a clamp for holding the block K to the beam, substantially as described.

8. The combination, with the movable head-block H and one or more inclines or shoulders, *h*, on its beam H′, of a grip-block, K, held to bear on the beam, and seated by a concavo-convex joint in a block, L, and a clamp for holding the grip-block to the beam, substantially as described.

9. The combination, with the movable head-block H and inclines or shoulders *h* on its beam H′, of a grip-block, K, held by spring-pressure against the beam, substantially as described.

10. The combination, with the movable head block H and inclines or shoulders *h* on its beam H′, of a grip-block, K, and a key, N, for holding the grip-block on the beam, substantially as described.

11. The combination, with the movable head-block H and inclines *h* on its beam H′, of a grip-block, K, a key, N, and a spring interposed between the key and grip-block, substantially as described.

12. The combination, with the movable head-block H and inclines or shoulders *h* on its beam H′, of the grip-block K, the block L, on or in which the block K rocks in direction of the length of the beam, a key, N, and a spring, M, interposed between the key and block L, substantially as described.

13. The combination, with the movable head-block H, having inclines or shoulders *h* on its beam H′, and a clamp for holding the beam, of a removable block, J, substantially as described.

14. The combination, with the movable head-block H, having inclines or shoulders *h* on its beam H′, of the grip-block K, a clamp for holding the grip-block to the beam, a removable block, J, held at the side of the beam opposite the gripping devices, and a box or casing, I, in which the gripping devices are held loosely to place, substantially as described.

15. The combination, with the movable head-block H, having inclines or shoulders *h* on its beam H′, and the removable block J, of the grip-block K, and a clamp for holding said block to the beam, said block K and holding devices being held in a box or casing, I, having a partial cover, I′, which keeps the grip-block K in place in box I when the block J is in place and permits the removal of said block K when the block J is removed, substantially as described.

16. The combination, with the movable head-block H and its beam H′, having inclines or shoulders *h*, of the box I, having partial cover I′, the block J, held loosely in the box, the self-seating grip-block K L, the spring M, and a key, N, fitted in the box I and adapted to press the grip-block to the beam, said parts K L M being held to place by the cover I′, substantially as described.

17. In a press, the movable head-block H, constructed with a beam, H′, having inclines *h*, ranging upward and inward, and an incline, *h′*, ranging downward and inward, and said incline *h′* so located with relation to the beam-clamp that the latter will be relieved from pressure while the head-block H rests against the end wall of the press-case, and so that the grip-block shall readily ride up said incline *h′* as the head-block is pushed in for pressing the

first charge of material for the next bale, substantially as described.

18. In a press, the following elements in combination: a follower for pressing the successive charges of material, a movable head-block, a clamp for holding the head-block against the thrusts of the follower, and a driving-lever, D, pivoted to the follower and connected to the sweep by a loose link, F, and a pivoted arm, D′, whereby when the lever D is forced past the longitudinal center of the press the follower shall be forced backward by the expansion of the successively-pressed charges of material, and with the parts D D′ F in position for the next instroke of the follower by a return-stroke of the sweep, substantially as described.

19. In a press, the combination of a follower, a movable head-block, and a clamp for holding the head-block in the different positions, said clamp being operated to release and bind the head-block by the opening and closing of the bale-discharge door of the press-case, substantially as described.

20. The combination, with the movable head-block H, its beam H′, having inclines or shoulders *h*, and a grip-block, K, for holding the head-block, of a clamp for clamping the block K on the beam H′ and a rod connecting said devices with the door P of the press-case, substantially as described.

21. The combination, with the movable head-block H, its beam H′, having inclines or shoulders *h*, the grip-block K, and the key N, of the rod O, connecting the key with the door P, so that said key N will be loosened and tightened by the opening and closing of the door P for releasing and binding the head-block H, substantially as described.

22. A press constructed with a relief or slack side to the baling-box, and means operated from a bale-discharge door at one side of the press-case for holding or binding the slack side against the outward pressure of forming the bale, substantially as described.

23. The combination, with the press-case and baling-box, of the slack side R, the bar *r*, secured to the inner end of the slack side and engaging a cross-piece or bolt of the press-frame, and a transverse plate, *r*′, secured to the outer end of slack side and resting on a fixed cleat, *r*², on the press-case, substantially as described.

24. The slack side R of the baling-box, having an incline, T, along its front edge, in combination with the wedge-block V, adapted to enter at the rear edge of side R between said side and a shoulder of the press-frame, a wedge, S, on the door P, and means, substantially as described, for tightening the rear wedge, V, by the closing of the door P as said door forces its front wedge, S, on the incline T of slack side R, substantially as described.

25. The combination, with the slack side R, having inclines T, the door P, having a wedge, S, the wedge V, and plate U, of the bars V′, fixed to the wedge, and the projections W, fixed to the door P, substantially as described.

26. The combination, with the wedge V, plate U, and slack side R, of the springs *s*, acting to loosen the wedge as the door P is opened, substantially as described.

27. The combination, with the slack side R, wedge V, rods V′, and springs *s*, of the stops *t*, substantially as described.

28. In a press, the following elements in combination: a follower, C, its pivoted lever D, connected with the sweep by a loose link, F, arms D′, pivotally tying the sweep to the lever D, a movable head-block held by a clamp while the successively-pressed charges of material expand to force the follower C outward and project the lever D to either side of the press-case, intermediate mechanism for connecting the door P and the head-block clamp, whereby the head-block will be released and clamped by the opening and closing of the door P, and a slack side, R, to the baling-box, released and bound by the door P simultaneously with the gripping and releasing of the head-block, the whole arranged for successive action in pressing the bales, substantially as described.

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Witnesses:
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