(No Model.)

3 Sheets—Sheet 1.

C. W. MINEAR.

BALING PRESS.

No. 247,095. Patented Sept. 13, 1881.

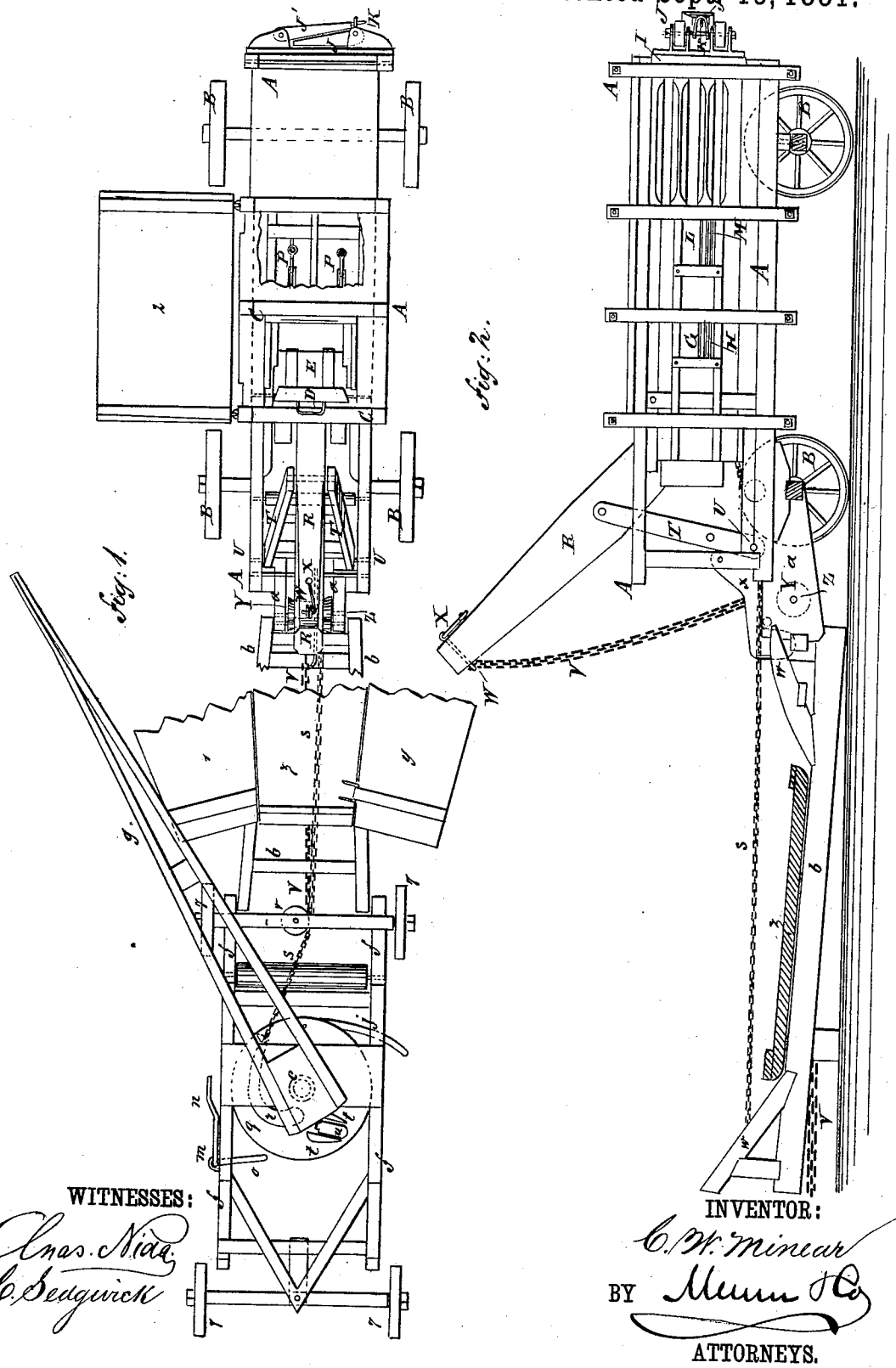


Fig. 1.

Fig. 2.

WITNESSES:

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C. Sedgwick

INVENTOR:

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BY Munn & Co

ATTORNEYS.

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 3 Sheets—Sheet 2.

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Fig: 3.

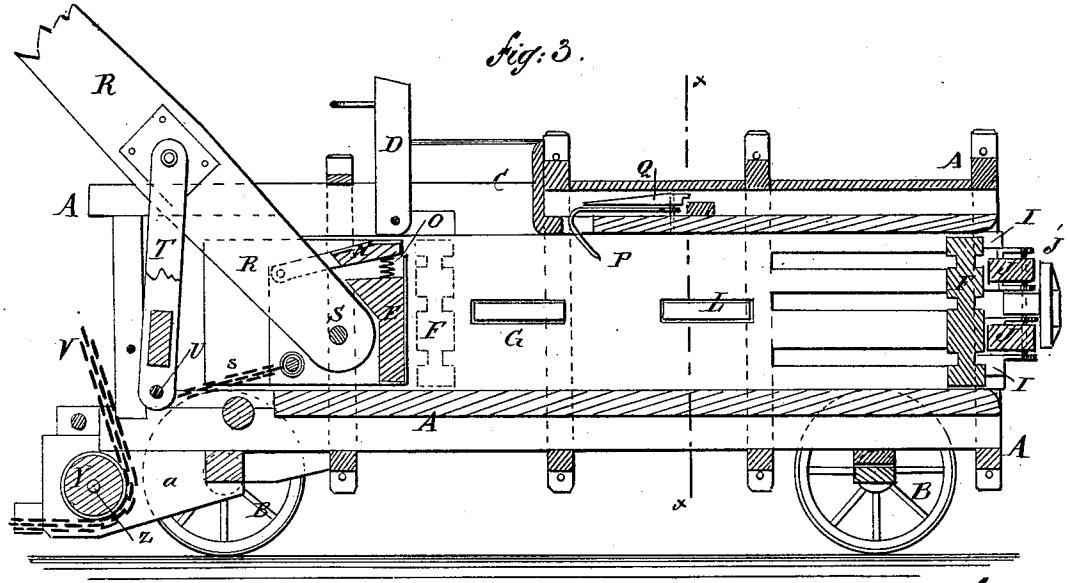


Fig: 4.

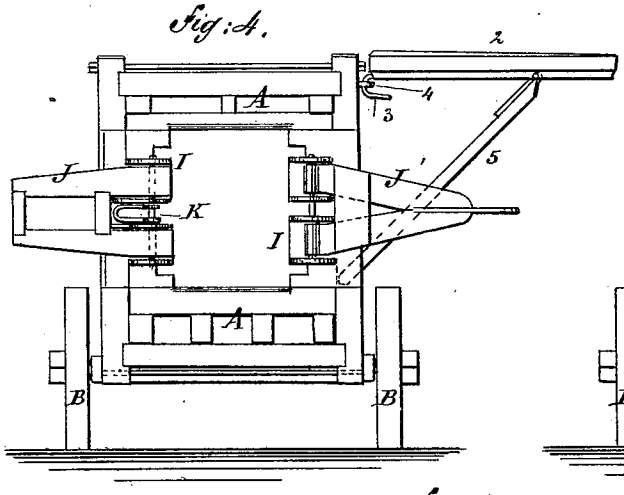


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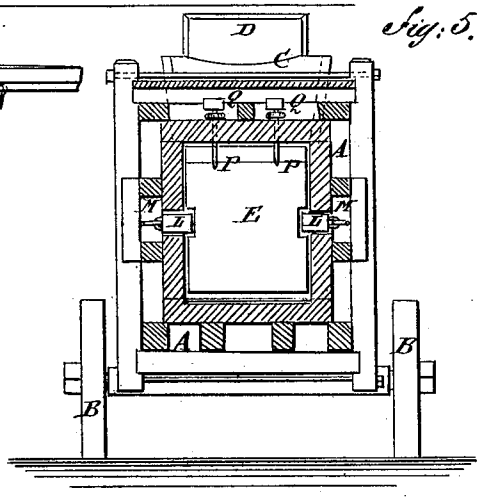
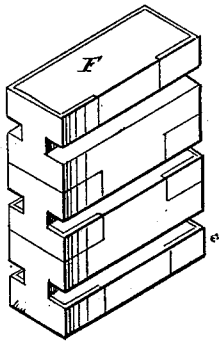


Fig: 6.



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3 Sheets—Sheet 3.

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BALING PRESS.

No. 247,095. Patented Sept. 13, 1881.

Fig: 7.

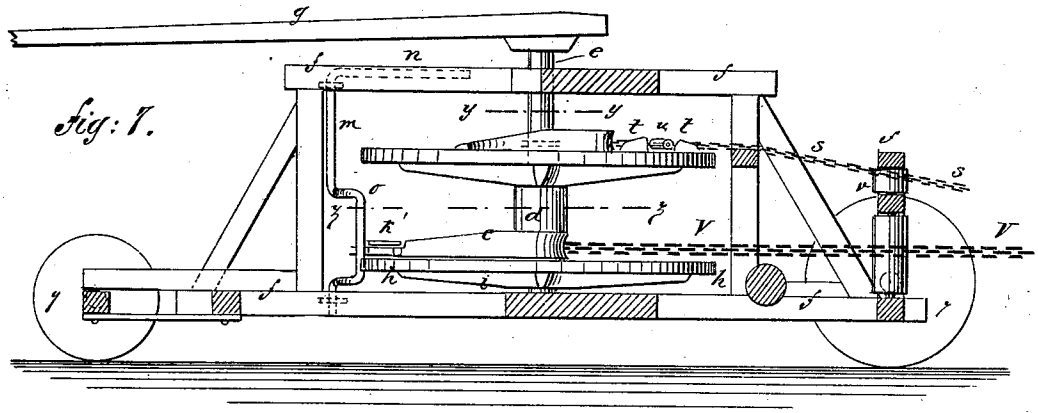


Fig: 8

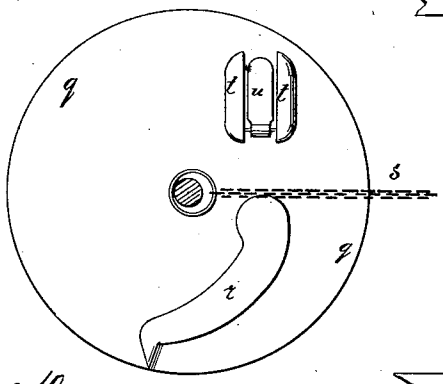


Fig: 9.

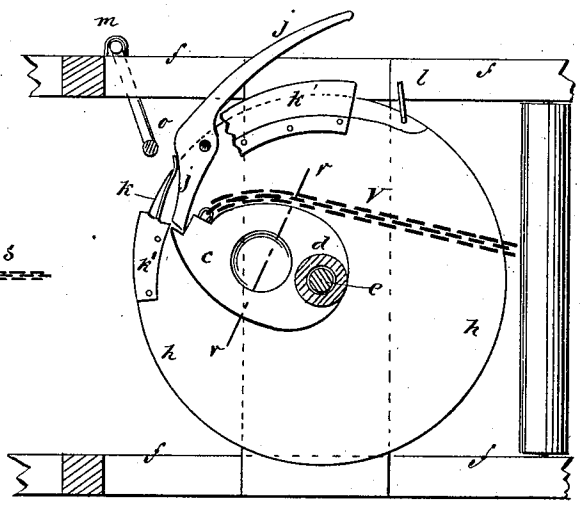


Fig: 10

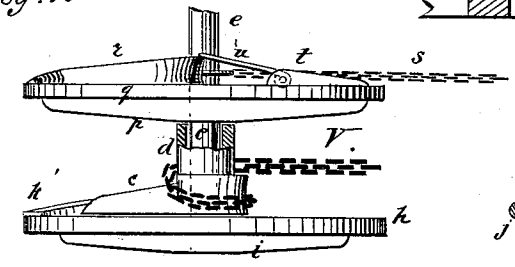
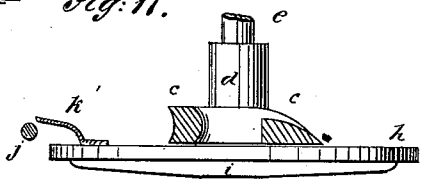


Fig: 11.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES W. MINEAR, OF KIRKSVILLE, MISSOURI.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 247,095, dated September 13, 1881.

Application filed January 24, 1881. (No model.)

To all whom it may concern:

Be it known that I, CHARLES WESLEY MINEAR, of Kirksville, in the county of Adair and State of Missouri, have invented a new and useful Improvement in Baling-Presses, of which the following is a specification.

Figure 1, Sheet 1, is a plan view of my improvement, parts being broken away. Fig. 2, Sheet 1, is a side elevation of a part of the improvement. Fig. 3, Sheet 2, is a sectional side elevation of the baling-box and its appliances. Fig. 4, Sheet 2, is a rear elevation of the baling-box. Fig. 5, Sheet 2, is a sectional end elevation of the baling-box, taken through the line *x x*, Fig. 3. Fig. 6, Sheet 2, is a perspective view of one of the detached blocks. Fig. 7, Sheet 3, is a sectional side elevation of the driving mechanism. Fig. 8, Sheet 3, is a sectional plan view of the driving mechanism, taken through the line *y y*, Fig. 7, and showing the cam-plate and cam for drawing back the follower. Fig. 9, Sheet 3, is a sectional plan view of the driving mechanism, taken through the line *z z*, Fig. 7, and showing the appliances for forcing the follower forward. Fig. 10, Sheet 3, is a side elevation of the driving-shaft and its attachments. Fig. 11, Sheet 3, is a sectional elevation taken through the line *v v*, Fig. 9, the cam-plate and sleeve being shown in side elevation.

Similar letters of reference indicate corresponding parts.

The object of this invention is to facilitate the compression of hay, cotton, straw, moss, and other substances into bales.

In the accompanying drawings, A represents the baling-box, which is mounted upon wheels B for convenience in moving it from place to place. In an opening in the forward part of the upper side of the baling-box A is secured a hopper, C, through which the material to be compressed is introduced. The forward side, D, of the hopper C is made heavy, and is hinged at its lower edge, so that it can be turned down to force the substance in the said hopper down into the baling-box in front of the follower E.

F are blocks of such a size as to fit loosely into the baling-box, and which serve alternately as follower-blocks and as head-blocks. The separate follower-blocks F are grooved upon their opposite sides for the passage of the bale-bands, and are bound or faced with metal at the points subject to friction to prevent wear.

In working the press a block, F, is inserted through the feed-hopper C, and is pushed forward by the forward movement of the follower E. The block F is forced forward and the hay or other material is packed against it by successive forward movements of the follower E. The hay is kept from expanding as the follower E is drawn back by dogs G, pivoted at their middle parts in slots in the sides of the baling-box A, in such positions that their forward ends will be a little in front of the forward side of the feed-hopper C. The forward ends of the dogs G are pressed inward by spiral or other springs, H, connected with the outer ends of the said dogs G. With this construction the forward ends of the dogs G are pressed outward by the advance of the hay, and spring inward into grooves in the sides of the follower E as soon as the hay has passed, so as to hold the hay from expanding into the space beneath the hopper C when the said follower E is drawn back. As the hay for the bale is being packed the block F moves forward through the bale-chamber and rests against the rounded inner edges of the metal plates I, attached to the sides of the delivery end of the baling-box A.

Upon the outer parts of the plates I are formed lugs, to which are hinged the bars or frames J J′, to support the block F against the pressure when the bale is being compressed. The bars J J′, when closed, overlap each other, as shown in Fig. 1, and are held in place by a loop, K, hinged to one of the plates I, and swung over the free end of the outer bar, J′. When a sufficient quantity of hay for a bale has been packed into the baling-box A a second block, F, is inserted in the rear of the hay and the follower E is pressed forward to compress the hay into a bale. When the hay has been compressed into a bale of the desired size the rear block F passes a second set of spring-dogs, L M, by which it is held while the bale is being tied, leaving the follower E free to be used for packing hay for another bale against the rear side of the rear block F. When the bale is tied the bars J J′ are released, and the bound bale is forced out of the baling-box A by the advance of the rear block F, as it is pushed forward by the hay.

The upper part, N, of the follower E is made

separate, is hinged at its rear part to the body of the said follower, and its forward part is held up by spiral or other springs, O, placed beneath it. With this construction, should the follower E begin to move forward before the hay has passed down from the hopper C, the top piece, N, will yield and allow the surplus hay to lap over the top of the said follower, so as to prevent the forward movement of the follower from being obstructed. The hay overlapping the top of the follower E is held from being carried back by the said follower in its rearward movement by hooks P, hinged in slots in the top of the baling-box A, just in front of the hopper C, and which are held down by their own weight or by weights Q, or equivalent springs, bearing against their upper sides. The points of the hooks P are inclined forward, as shown in Fig. 3, so that they will be raised out of the way by the pressure of the advancing hay, and will take hold of the hay and prevent it from being drawn back by the rearward movement of the follower E.

If desired, the feed-hopper C, the feed-door D, the spring part N of the follower, and the hooks P, instead of being at the top of the press, can be arranged at one side, so that the press can be fed from the ground.

The rear side of the follower E is recessed, and in the cavity thus formed is hinged the end of a lever, R, by a bolt or pin, S. The middle part of the lever R is pivoted to the upper end of a small frame, T, the lower end of which is pivoted to the lower part of the baling-box frame A by a rod or long bolt, U. This construction causes the lever R to press the follower E forward as the rear end of the said lever R is drawn downward.

To the rear end of the lever R is secured a chain, V, by a link, W, and hook X, or other suitable means. The link W is made with its upper part wide enough to allow the chain V to be drawn through it, and its lower part narrow to receive a link of the chain V. The upper end of the link W is passed through a hole in the rear end of the lever R, to receive a hook or other toggle at the upper side of the said lever R. With this construction the chain V can be readily lengthened or shortened to give the follower E a shorter or longer movement, as may be required. The chain V passes around a roller, Y, pivoted by a bolt or pin, Z, to the lower part of the frame of the baling-box A, or to bearing-blocks *a*, attached to the said frame. From the roller Y the chain V passes beneath the rear cross-bar of the brace-frame *b*, over the forward cross-bar of the said frame *b*, and its end is attached to the outer end of a cam, *c*. The cam *c* has a sleeve or long bearing, *d*, formed upon its inner end, to receive and work upon an upright shaft, *e*. The shaft *e* revolves in bearings attached to the power-frame *f*, and to its upper end is attached the sweep *g*, to which the power is applied. The cam *c* rests upon a circular plate, *h*, bolted to a spider or frame, *i*, keyed or otherwise secured to the lower part of the shaft *e*. The edge of the plate *h* is recessed to receive a curved bar, *j*, which is pivoted at a little distance from its forward end to the said plate *h*. The forward end of the curved bar *j* is pressed inward by a spring, *k*, to engage with the outer end of the cam *c* and cause the said cam to be carried around by and with the plate *h* and shaft *e* in their revolution. The curved bar *j* is protected from the chain V by a guard-plate, *k'*, attached to the said cam-plate *h*. The forward end of the guard-plate *k'* is inclined, so that the chain V will pass over it freely.

To the edge of the cam-plate *h* is hinged a loop, *l*, which can be swung over the rear end of the curved bar *j*, to hold the forward end of the said curved bar *j* out of the sweep of the cam *c* when it is desired to have the cam-plate *h* turn without forcing the follower E forward.

m is a rod which works in bearings attached to the upper and lower parts of the power-frame *f*, and which has a crank arm or handle, *n*, formed upon or attached to its upper end. Upon the rod *m*, directly opposite the edge of the cam-plate *h*, is formed a crank or bend, *o*. With this construction, by turning the bend or crank *o* of the rod *m* close to the edge of the cam-plate *h*, the said crank or bend at each revolution of the cam-plate *h* will press the rear end of the curved bar *j* inward and release the cam *c*. When it is desired to have the cam *c* carried around more than one revolution, the crank-rod *m* is turned to take its crank *o* out of the sweep of the curved bar *j*. The face or forward side of the cam *c* is grooved to receive and hold the chain V, which groove, after passing partly around the hub of the said cam, gradually passes into an upward inclination, so that the chain will pass up to and be wound upon the sleeve *d*.

To the shaft *e*, above the sleeve *d*, is keyed or otherwise secured a second spider or frame, *p*, to which is bolted a circular cam-plate, *q*. To the plate *q* is permanently attached a cam, *r*, the forward end and outer side or face of which is grooved to receive and hold the chain *s*. The rear end of the cam *r* is bent outward and is inclined, so that when the chain *s* reaches the said rear end of the cam *r* it will slide up the said incline, and will thus be thrown from the said cam. The chain *s* will thus be wound upon and released from the cam *r* at each revolution of the cam-plate *q* and shaft *e*.

A little in front of the forward end of the cam *r* two parallel cleats, *t*, are attached to the cam-plate *q*, the forward ends of which cleats *t* are inclined, so that the chain *s* will slide over them freely.

To and between the rear parts of the cleats *t* is hinged the end of a small plate, *u*, in such a position that when turned forward it will lie between the cleats *t*, so that the chain *s* will pass over the said cleats *t* without touching the plate *u*. When the plate *u* is turned back its free end will rest upon the forward end of the cam *r*, and serve as a guide to the chain *s*, so that the said chain *s* will pass over the said cam *r* without engaging with it. The end

of the chain *s* is connected with the shaft *e* by a ring or other suitable means, so that it can play freely upon the said shaft. The chain *s* passes between cross-bars of the frame *f* and bears against a roller, *v*, pivoted to the said cross-bars of the frame *f*, to hold the chain *s* in place while being operated upon by the cam *r*. The other end of the chain *s* is attached to the follower E, so that the said follower will be drawn back when the chain *s* is operated upon by the cam *r*.

To the ends of the brace-frame *b* are attached brackets, frames, or blocks *w*, to rest against the adjacent ends of the frames A *f* and prevent the said frames from being drawn toward each other by the tension of the chains V *s*. The chains V *s* cross each other at the forward end of the baling-box frame A, and are kept from contact with each other by a guard-plate, *x*, placed upon bolts or rods attached to the forward end of the baling-box frame A. The middle part of the frame *b* is covered by a bridge made in three parts, *y z* 1. The middle part, *z*, rests upon the frame *b*, and to one of its edges is permanently hinged the part *y*, so that the said parts *y z* can be folded together for convenience in carrying them. To the other edge of the middle part, *z*, is detachably hinged, by hooks and eyes or other suitable means, the third part, 1, so that the said part 1 can be readily detached for convenience in handling and carrying the bridge. The outer edges of the side parts, *y* 1, rest upon the ground, so that the horses attached to the sweep *g* can readily pass over the brace-frame *b*. The bridge *y z* 1 also keeps the chains from contact with each other when the upper chain, *s*, is slackened, as the lower chain, V, will be below the bridge-piece *z* and the upper chain, *s*, will be above the said bridge-piece. The upper chain, *s*, when taut, will be a few inches above the bridge *y z* 1, so that the horses can readily step over it.

2 is the feed-table, to the inner edge of which are attached hooks 3, to hook into eyes 4, attached to the upper part of the side of the baling-box frame A.

Eyes 4 should be attached to both sides of the baling-box A, so that the feed-table 2 can be attached to either side of the said frame A, as convenience may require. The feed-table 2 is held in a horizontal position by braces 5, which are hinged at one end to the outer part of the lower side of the said table 2, and their other ends rest upon side bars of the baling-box frame A.

When the machine is to be moved the feed-table 2 is raised to release the lower ends of the braces 5, and is then detached. The braces 5 are then swung upward against the lower side of the table 2, and the said table is again hung upon the eyes 4, so as to hang against the side of the baling-box frame A, with the free ends of the braces 5 projecting upward.

In working the press, one man stands at the rear end of the baling-box A to tie the bales, fasten and unfasten the locking-bars J J′, and place the blocks F upon the top of the press as they fall from the rear end of the baling-box. A second man stands upon the baling-box A or feed-table 2, to place the hay in the hopper C as the follower E moves back and forth, and to place the blocks F in the baling-box C in front of the follower E when enough hay for a bale has been packed. A third man pitches the hay upon the feed-table 2 from a stack or other place, and also attends to adjusting the power. When the press is started the crank-shaft *m* is turned to bring its bend or crank close to the plate *h*, and the guide *u* is turned down between the cleats *t*, so that the follower E will be moved forward and back to pack the hay at each revolution of the shaft *e*. When enough hay for a bale has been packed into the baling-box A, the feeder places a block, F, in the baling-box A, in front of the follower E, and the pitcher turns the guide *u* back against the cam *r* to prevent the chains *s* from being operated upon by the said cam *r*, and turns the shaft *m* to bring its bend or crank *o* away from the edge of the plate *h*, so that the catch-bar *j* will not be tripped at each revolution of the shaft *e*, and the chain V will be wound upon the sleeve *d*, forcing the follower E forward to compress the hay into a bale. The bale is tied and forced out of the baling-box in the manner hereinbefore described. When the bale is sufficiently compressed the pitcher forces the free end of the catch-bar *j* inward to release the cam *c*, and secures the said end by a link, *l*, hinged to the plate *h*, turns the crank-shaft *m* into position to trip the catch-bar *j*, and turns the guide *u* down between the cleats *t*, so that hay for another bale may be packed while the preceding bale is being tied, as hereinbefore described.

The frame *f* is mounted upon wheels 7 for convenience in moving the press from place to place.

The frames A *f* can be provided with separable tongues for convenience in drawing them from place to place, which tongues are not shown in the drawings.

The chain *s* is made in two parts connected by a hook, so that they can be separated when desired.

When the press is to be moved the bridge *y z* 1 is removed, and the parts *y z* 1 are laid upon the forward part of the frame *f*, the chain *s* is unhooked, and the chain V is detached from the lever R. The sweep *g* is then turned over the brace-frame *b*, and the forward end of the said frame *b* is raised until its forward cross-bar rests upon the sweep *g*. The frame *b* is then pushed forward until its forward cross-bar drops from the rear end of the sweep *g* and its rear cross-bar passes beneath the forward end of the said sweep, in which position the said frame *b* will ride securely.

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

1. In a baling-press, the combination, with the driving-shaft *e* and the chain V, connected with the lever R, of the cam *c*, having sleeve

d, the spring catch-bar *j*, and the cam-plate *h*, substantially as herein shown and described, whereby the follower E will be forced forward by the revolution of the said shaft, as set forth.

2. In a baling-press, the combination, with the cam-plate *h* and the catch-bar *j*, of the crank-shaft *m*, substantially as herein shown and described, whereby the cam *c* can be released automatically at each revolution of the driving-shaft, as set forth.

3. In a baling-press, the combination, with the driving-shaft *e* and the chain *s*, attached to the follower E, of the plate *q* and the cam *r*, having a bent and inclined rear end, substantially as herein shown and described, whereby the follower is drawn back and the chain released at each revolution of the driving-shaft, as set forth.

4. In a baling-press, the combination, with the plate *q*, the cam *r*, and the chain *s*, of the hinged guide *u*, substantially as herein shown and described, whereby the chain *s* can be kept from engaging with the cam *r*, as set forth.

CHARLES WESLEY MINEAR.

Witnesses:
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