

No. 614,140.

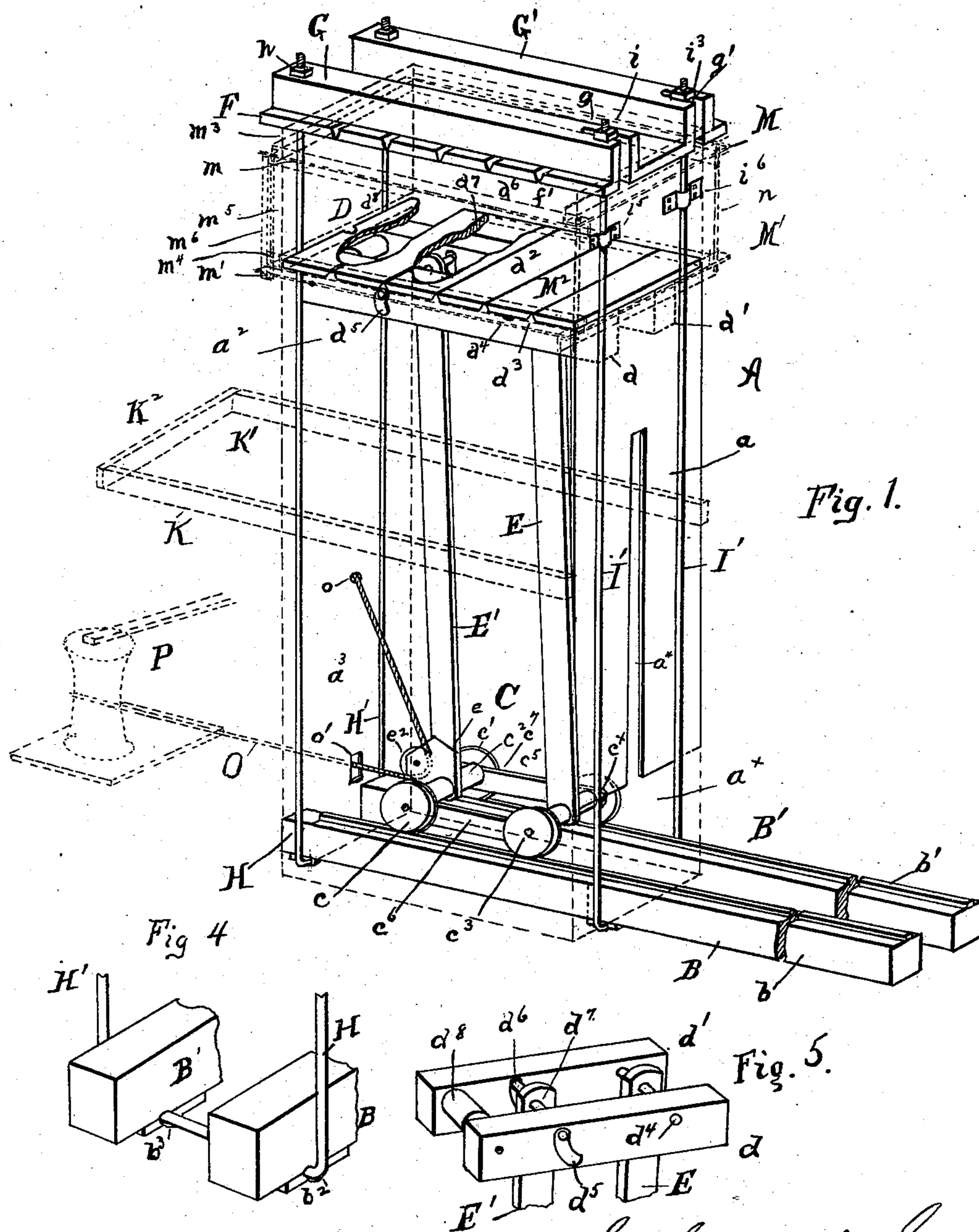
Patented Nov. 15, 1898.

E. C. SOOY.
BALING PRESS.

(Application filed Nov. 9, 1897.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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 & C. Nichols

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 By ^{By} Richard Manning ^{Attorney}

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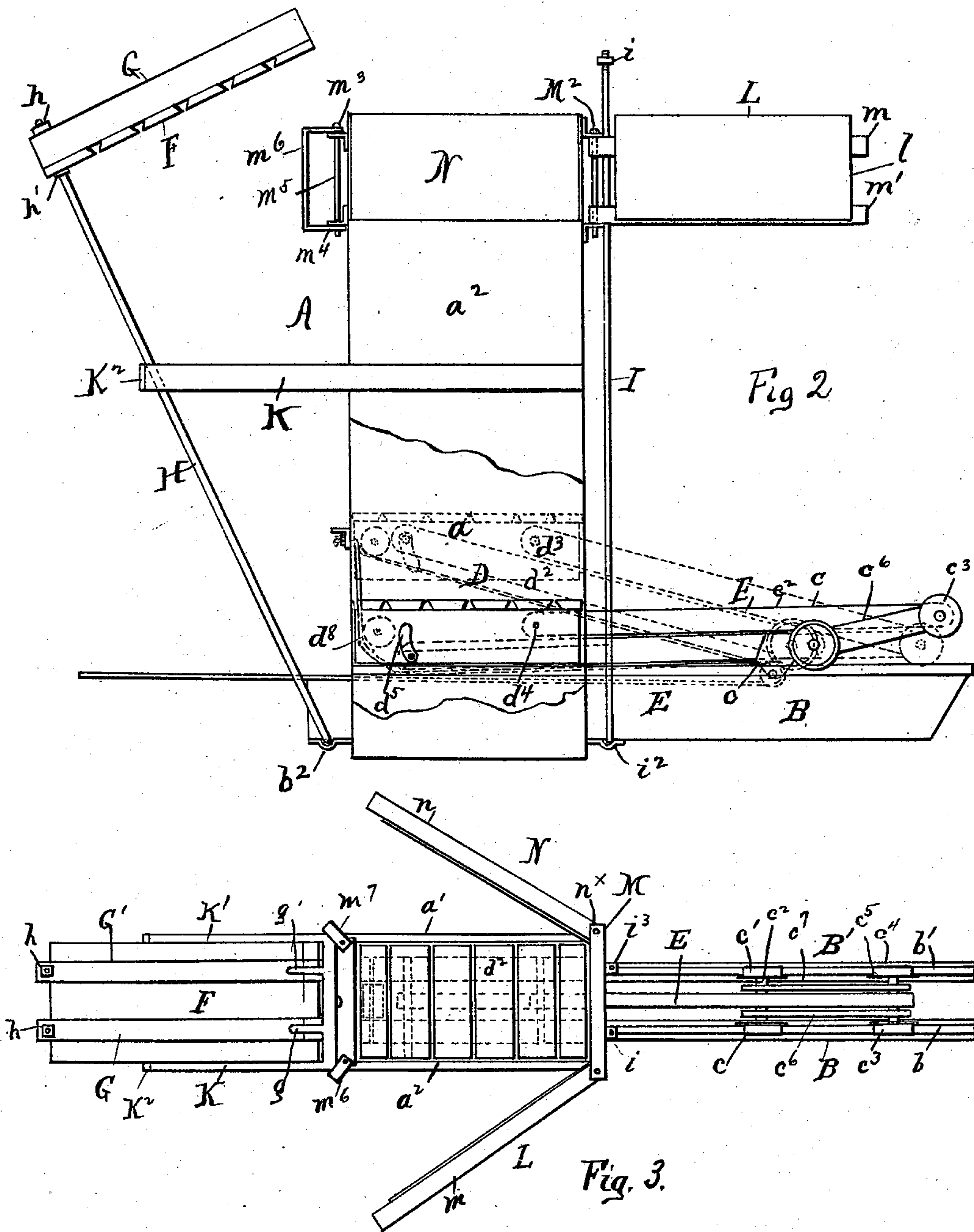
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UNITED STATES PATENT OFFICE.

EPHRAIM C. SOOY, OF KANSAS CITY, MISSOURI.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 614,140, dated November 15, 1898.

Application filed November 9, 1897; Serial No. 657,973. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIM C. SOOY, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Baling-Presses; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to that class of baling-presses which are designed for the baling of cotton, rice-straw, leather trimmings, &c., in which the baling-chamber is capable of receiving large quantities of loose material of such nature as to admit of great compressibility; and it has for its objects, first, the initial movement of the folding pitman from an alinement with the head-block, and, second, to maintain the horizontal position of the head-block in its various movements.

My invention consists in the novel construction and combination of parts, such as will be first fully described, and specifically pointed out in the claims.

In the drawings, Figure 1 is a view in perspective of the improved baling-press, showing the head-block at the highest position in the baling-chamber, the chamber being shown in dotted lines. Fig. 2 is a side view of the improved baling-press with a portion of the side removed, showing the head-block at its lowest position in the baling-chamber and the various movable parts at the delivery end of the press being shown in an open position. Fig. 3 is a plan view of the improved baling-press as seen in Fig. 2. Fig. 4 is a detail broken view of the ends of the stringers, showing the journaled ends of the vibration-rods carrying the top of the baling-press.

Similar letters of reference indicate corresponding parts in all the figures.

Referring to the drawings, A represents the baling-chamber of the press, which consists of an upright case of considerable height for the reception of the material to be baled and is preferably rectangular in form.

In one end a of the case A and extending upwardly from the bottom of the case a short distance and also from one side a' of the

press to the other side a^2 is a transverse opening a^x .

Within the case A is a track string or beam B, secured to the bottom portion of the case and extending through the inner side portion of the end a^3 of case A and a short distance beyond the outer side portion of said end and also through the opening a^x in the other end a of the press adjacent to the inner portion of the side a^2 of the case A and also a considerable distance from the outer side portion of the end a of the case A.

Within the case A and adjacent to the inner portion of the side a' is a stringer B', which extends through the end a^3 and also through the opening a^x in the other end of the case and the same described distance from the outer side portion of the end a as described of the stringer B. Upon the upper side portion of the stringer B is a track-rail b , and upon the upper side of the stringer B' is a track-rail b' , extending from the inner side of the end a^3 the described length of said stringers. Upon the track-rails $b b'$ is a tilting carriage C, composed of the front flanged wheels $c c'$, which are connected by the rod or axle c^2 , and the rear flanged wheels $c^3 c^4$, which are connected together by the rod or axle c^5 . With the rod c^2 , near the wheel c , is connected one end of a bar c^6 , the other end of which bar is connected with the rod c^4 near the wheel c^3 . Upon the other side of the carriage C is a connecting-bar c^7 , which is connected with the rods $c^2 c^4$ at its respective opposite ends near wheels $c' c^4$ in the same manner as described of the bar c^6 .

D is the head-block for compressing the material to be baled, which consists of separate beams $d d'$, which are arranged a short distance apart in a horizontal position and parallel with each other and extend from the inner side of the end c^3 nearly to the inner side portion of the end a . Secured rigidly to the upper side of the beams $d d'$ is a compressing-plate d^2 , which is the same length as the beams $d d'$ and extends from the inner side portion of the side a' nearly to the inner portion of the side a^2 in width. In the plate d^2 , extending in a direction transverse to the beams $d d'$, is a slot d^3 , the sides of which are inclined toward the beams $d d'$ at opposite angles and through which the baling-wire is

passed, as hereinafter described. Other slots are made in the plate d^2 parallel with the slot d^3 and a described distance apart.

Through the beams d d' , near the ends in the direction of the end a of the case A, is extended a rod d^4 . With rod d^4 , at a point equidistant from beams d d' , is pivotally connected one end of a pitman or bar E, which pitman extends in length nearly two-thirds the described height of the case A or so far as is necessary to compress the material in the upper part of the baling-chamber. The other end of the pitman E is pivotally connected with the axle c^4 of the carriage C and at a point equidistant from wheels c^3 c^4 . In the beam d and a short distance from the end in the direction of the end a^3 of case A is a curved slot d^5 , extending downwardly from the under side of the plate d^2 . In the beam d' , at the same described distance from the end of the beam as described upon beam d , is a curved slot d^6 . In the slot d^5 is extended the reduced portion of a rod d^7 , the other portion of which rod is also reduced in size and extended within the slot d^6 in beam d' . With the rod d^7 , at a point equidistant from the beams d d' , is pivotally connected one end of a pitman or bar E', which is the same in length as the bar E, the other end of which pitman is pivotally connected with the axle c^2 of the carriage C at a point equidistant from the wheels c c' . Between the ends of the beams d d' and close in position to the inner side of the end a^3 of case A is a roller d^8 , which is journaled horizontally in the inner side of said beams. The top of the case A is movable in position and consists of the plate F, which extends a short distance beyond the outer edge of the upper portion of the respective ends a a^3 of the case A in length and also an equal distance beyond the outer edge of the upper portion of the respective sides a' a^3 .

Secured to upper side of the plate F are the separate brace-beams G G', both of which extend in the longitudinal direction of the plate F and are of the same length as said plate. In the plate F is a slot f , extending in a transverse direction to the beams G G and directly above the slot d^3 in the plate d^2 of the head-block D, the sides of which are inclined toward said beams at an angle opposite to each other, as described of slot d^3 . Other slots are made in plate F parallel with slot f , at like distances apart, in the direction of the other end of the plate F and directly above the slots in plate d^2 . Upon the outer side portion of the end a^3 of the case A is a vibrating rod H, one end of which is screw-threaded and extends upwardly through the projecting end of the plate F and the beam G and is provided with a nut h , which is turned down upon the beam, and also a nut h' on the under side of plate F, and which plate is countersunk to receive the nut. The other end of rod H extends downwardly upon the outer side of the stringer B and is bent at right angles and extended beneath said

stringer and is held pivotally in place by the journal-box b^2 on the under side of the end portion of stringer B extending through the end a^3 of case A.

Through the plate F and the beam G is extended the upper screw-threaded end of rod H', which is provided with a securing-nut in precisely the same manner as the upper end of rod H. The lower end of rod H extends downwardly upon the outer side of the extended end portion of beam B' and is bent at right angles and extended beneath said beam and connected with the opposing end of rod H by welding or other means. The said bent portion of rod H is journaled in a box b^3 on the under side of the extended end portion of the beam B' of the case as described of the bent portion of the rod H.

In the end of beam G which extends past the end a of case A is a vertical slot g , which extends through said end and the plate F in the direction of the other end of said beam a short distance. In the end of the beam G' opposite to that having slot g is a vertical slot g' , which extends through the end of said beam and plate F in the same direction as the slot g . In the slot g is the upper screw-threaded end of an upright stationary rod I, which extends a short distance above the upper side of beam G and is provided with a securing-nut i . The other end of rod I extends downwardly upon the outer side portion of the end a of case A to a point in line with the lower edge and outer side portion of the stringer B and is bent at right angles and extended beneath said beam, said bent portion being secured to said beam by a journal-box i^2 on the under side of said beam. In the slot g' in beam G' is the upper end portion of a rod I', which is screw-threaded and provided with a nut i^3 in the same manner as the upper end of rod I. The lower end of rod I extends downwardly to a point in line with the lower edge of the outer side portion of beam B and is bent at right angles and extended in the direction of the bent end portion of rod I and the opposing ends of said rods welded together in the usual manner. The said bent end of rod I' is secured to the under side of beam B' by a journal-box secured thereto in the same manner as described upon beam B. The rod I is further secured in an upright position by a strap i^5 , extending over said rod near the upper edge portion of the end a of case A and secured to said end. A strap i^6 is extended over the rod I and secured to the end a of case A in the same manner as the strap i^5 .

With the outer portion of the side a^2 of case A, at a point a little over one-half the described distance from the bottom portion to the top of the case A, is connected one end of a bar K, the other end of which bar extends horizontally past the end a^3 of the case A a considerable distance. Upon the other side a' of case A is a bar K', which extends in the same direction and a like distance as the

bar K. With the outer ends of the bars K K' is connected a transverse bar K². In the end a of case A, at a point equidistant from the sides a^2 a^3 of said case, is a slot a^4 , which extends from the opening a^x in an upward direction a little over one-half the described distance from the bottom portion to the top of case A.

In the side of the case A at the upper end portion is an opening for the delivery of the baled material, which extends from the inner side of the end a^3 of case A in one direction and from the under side of the top plate F downwardly to the level of the upper surface of the plate d^2 of the head-block D when in an elevated position. Over the opening is extended a door L, which is hinged to the case A in the following manner: Upon the outer side portion of the end a of case A, in line with the upper edge of the said end, is an angle-plate M, which extends horizontally a short distance beyond the plane of the outer surface of the side a^3 in one direction and the same distance beyond the outer surface of the side a' in the other direction. A short distance below the angle-plate M and secured to the end a of case A in a reversed position is an angle-plate M', which is the same in length as plate M. Through the outwardly-extended outer end portion of the angle-plates M M', upon the side a^3 of case A, is extended a bolt M².

The door L is composed of a single plate l , and upon the outer side portion and in line with the upper edge of said plate is connected an angle-bar m , the ends of which angle-bars extend in both directions a short distance beyond the respective opposite ends of the plate. Below the angle-bar m is an angle-iron m' , which is the same in length as the angle-iron m , the lower edge of which angle-iron extends a short distance below the line of the lower edge of the plate l , for the purpose hereinafter described. The angle-irons m m' , at one end of the plate l , are hinged to the bolt M² on the end of case A.

Upon the outer side portion of the end a^3 , at the upper end of case A, are the angle-bars m^3 m^4 , which are the same in length and secured to the said end in nearly the same position as described of the angle-irons M M' on the end a of case A, these angle-bars, however, being reversed in position to that of the angle-bars M M'. Through the outer ends of the angle-bars m^3 m^4 , extending beyond the side a^2 of the case A, is extended a bolt m^5 . Pivotaly connected with the bolt m^5 is a swinging keeper m^6 , which consists of a bar bent at each end at right angles and the separate ends of bent portions connected pivotally with the bolt m^5 , so as to be thrown over the ends of the angle-irons m m' on the door L when the door is closed. Upon the other side of the press is an opening of the same size as the opening in the side a^2 of the press, which is closed by a door N, provided with angle-irons n n' , which are the same as

the angle-bars m^3 m^5 and are hinged to a bolt n^x , extending through the other ends of the angle-irons from that on which the door L is hinged. Said door is secured in a closed position by a swinging catch m^7 , which is the same as the catch m^6 and which is pivotally connected with a bolt on the ends of the angle-bars m^3 m^4 as described of the catch m^6 .

On the opposite sides of the lower end of pitman E' is a plate e , which plate extends at right angles to and a short distance from the side of the pitman in the direction of the end a^3 of the case A when the pitman is in an upright position. Pivotaly connected with and between the plates e e is a grooved roller e^2 .

In the end a^3 of the case A, at a point about one-third the described distance from the bottom of the case to the top of said case, is an opening o , through which is extended one end of a rope O, which is secured by a knot made in said end on the outer side portion of the end a^2 of case A. The other end of the rope O is extended over the grooved pulley e^2 on the pitman E' and thence extended through an opening o' in the lower portion of the end a^2 of the case A, which opening is nearly in line with the axle of the carriage C.

P is a capstan a short distance from case A, around which is extended the free end of the rope O.

For the purpose of receiving the material to be baled the top G of the case A is removed in the vibration of the supporting-rods H H rearwardly against the cross-bar K, and the doors L and N on both sides of the case A are closed and fastened by the keepers m^6 m^7 , which are swung over the adjacent ends of the angle-bars m m' and n on the respective doors L and N. The head-block D is at the bottom of the baling-chamber, and the pitmen E E' extended horizontally in position, as seen in Fig. 2, the rear end of the carriage C being thereby in an elevated or tilted position, and the rod d^7 , with which the pitman E' is connected, being at the lowest position in the slots d^5 d^6 in the beams d d' . In this position of the various parts of the baling-press the material to be baled is placed within the opening in the upper end of case A, which falls upon the head-block D and in sufficient quantity to fill the baling-chamber. Between each charge of the material the material is compressed by the feet of the operator or by mechanical means, (not herein shown,) so that the material may be crowded into the smallest space permissible under the application of moderate weight. As soon as the baling-chamber is filled with the material the cover or top F is moved forward and the top of the case A covered, the slots g g' in the ends of the beams G G' admitting the respective rods I I', and the nuts i i^3 on said rods turned down upon the upper surface of said beams. It will therefore be perceived that the top is held by the rods H H' upon one end and the rods I I' upon the other end of the baling-press, which extend beneath and

obtain a purchase upon the under side of the beams B B' and at both ends of said beams and which afford resistance to the pressure in the compressing of the material to be baled. The head-block D being forced to the bottom of the baling-case, leverage is applied to the tilted end of the carriage C sufficient to force the said end down upon the track-rails and give an initial upward movement to the head-block D, forcing said head-block into a position from an alinement of the pitmen E E' with the head-block and in readiness for the operation of the cable. Power is then applied to the capstan P and the end of rope O around said capstan to raise the head-block D. In this movement of one end of the rope O the other end, which is secured to the inner side of the end a^3 of the case A above the position of the upper surface of the head-block and passes over the roller d^8 , affords an upward movement to be given to the head-block until the head-block is moved in position to a point above the securing-point of said end of rope O, as shown in dotted lines in Fig. 2, in which position of the head-block the rear end of carriage C rests upon the track-rails $b b'$, and the carriage is moved forward to a position in the direction of the opening a^x to obtain a direct upward thrust of the pitmen E E', the rod d^7 , with which the pitman E' is connected, moving to the upper end of the slots $d^5 d^6$ in the beams $d d'$ and the pitmen through slot a^4 and the compression given to the material to be baled, this compression increasing in power to the highest point of altitude, as seen in Fig. 1, the carriage in this position being drawn to a position nearly perpendicular to the head-block, the angle-bars on the lower edge of the doors preventing the sides of the case from bulging outwardly. The curved slots $d^5 d^6$ in the beams $d d'$, it will be observed, being in a vertical position affords an adjustment of the rod d^7 to compensate for the long sweep of the pitman E' compared with that of the pitman E to raise the head-block. When the head-block is at the bottom of case A, the rod d^7 is at the lower end of the slots $d^5 d^6$ and the carriage C tilted in position. The doors L N are then opened and one end of the baling-wire passed through the slot d^3 in the plate d^2 beneath the bale and the other end through the slot f' on the top plate F above the bale and both ends twisted together in the usual manner. As soon as the remaining baling-wires are placed around the bale the tension in the rope O is released, the top F removed, and the bale forced through the opening in the side of the press. The doors L and N are then closed and the carriage C drawn through the opening a^x and the head-block permitted to fall into the position as seen in Fig. 2, the pitman folding edgewise together, and the baling-chamber is then prepared to receive the material for the formation of another bale, in which the operation is repeated as heretofore described.

The operation of the press may be accomplished when in a horizontal position, as when in its normal position, as seen in the drawings, without modification. 70

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

1. In a baling-press comprising a vertical case, having transverse openings at the bottom of said case and a longitudinal slot extending upwardly from one of said openings of track-rails extending through the said openings a head-block within said case having upwardly-extended curved slots and a rod within said slots and separate pitmen operating said head-block one of which is connected at its upper end with the rod in said slots and the other pitman pivotally connected with said head-block in rear of the aforesaid pitman and a tilting carriage and traction-wheels therefor upon said track-rails supporting the lower ends of said pitmen, and with which carriage the said lower ends of said pitmen are pivotally connected, and means for operating said carriage upon the track-rails. 75 80 85 90

2. In a baling-press comprising a vertical case, having a removable cover at the top of said case, and transverse openings at the bottom of said case, and a longitudinal slot extending upwardly from one of said openings, of stringers extending through said transverse openings, and a track-rail upon said stringers, a carriage upon said track-rails, a head-block within said case having upwardly-extended curved slots and folding pitmen, one pitman at one end having a sliding rod extending within the slots of said head-block, and the other pitman having a direct pivotal connection with said head-block, and the other ends of said pitman pivotally connected with the respective front and rear end portions of said carriage a pulley upon and pivotally connected with the lower end of one pitman and also upon the head-block, and an operating-cable having one end connected with the inner side of the said baling-case above the position of the head-block at its lowest normal position in said case, and the other end extending over said pulley upon the lower end of said pitman and also through the baling-case, and the opening beneath the point of attachment of said cable with the baling-case. 95 100 105 110 115 120

3. In a baling-press, the combination with an upright baling-case, having a suitable transverse opening in the ends of said case, of a head-block having upwardly-extended curved slots and power actuating mechanism for said head-block, comprising a track in the lower end of said case, extending through said transverse opening and a tilting carriage upon said track having front and rear axles and folding pitmen pivotally connected with the respective front and rear axles of said carriage pivoted respectively to said head-block within the said slots, and also directly 125 130

with the said head-block, and a pulley upon
said head-block and the lower end of one of
said pitmen, and a cable connected with the
inner side of said baling-case at a point above
5 the bottom of said case, and the lowest normal
position of the head-block when retracted,
and extending over the pulley upon said head-

block, and also through the said case beneath
the point of attachment thereto of said cable,
and having a suitable source of power.

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