

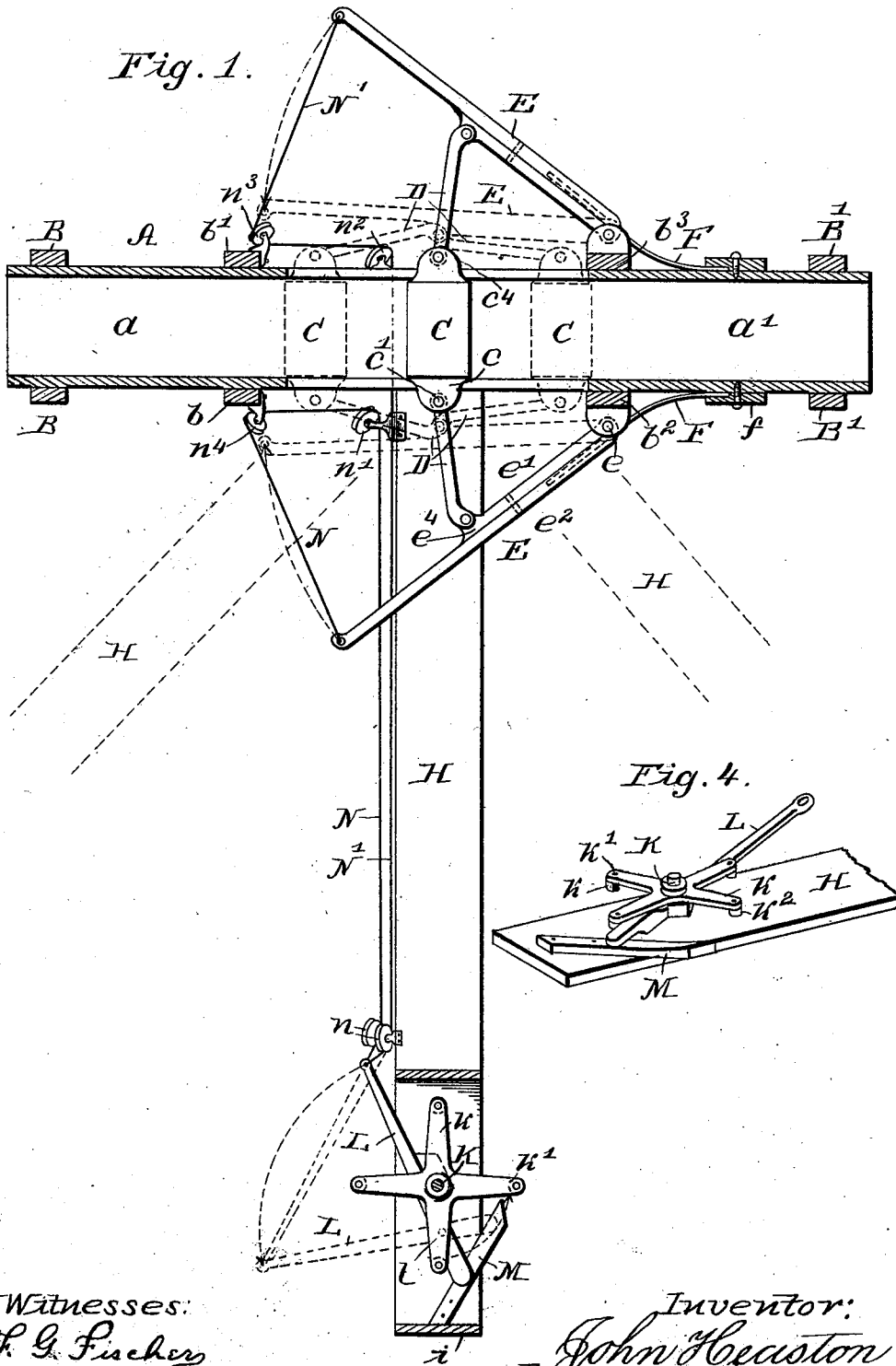
(No Model.)

2 Sheets—Sheet 1.

J. HEASTON.
BALING PRESS.

No. 512,294.

Patented Jan. 9, 1894.



Witnesses:
F. G. Fischer
S. L. C. Hasson

Inventor:
John Heuston
By Rich^d L^y Manning Atty.

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2 Sheets—Sheet 2.

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Fig. 2.

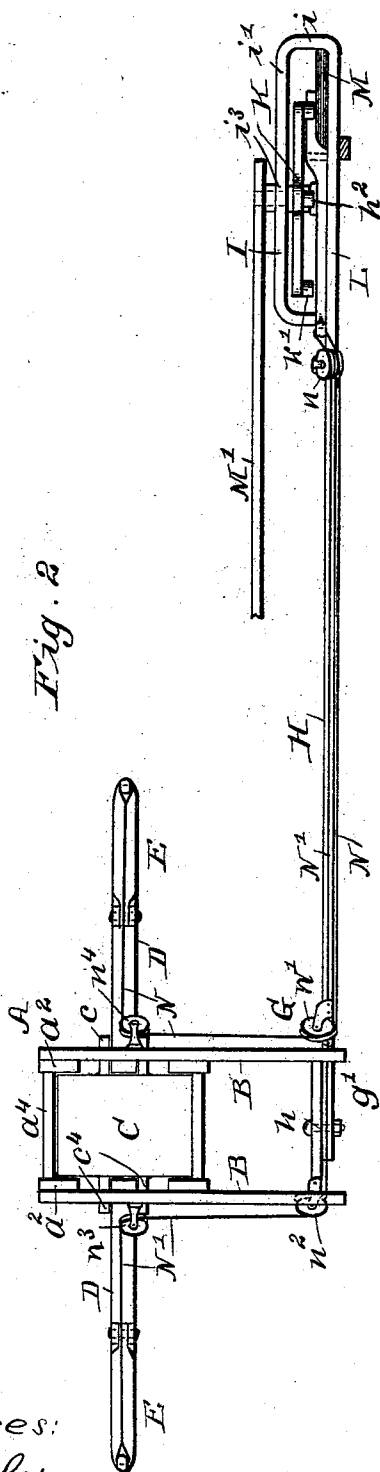
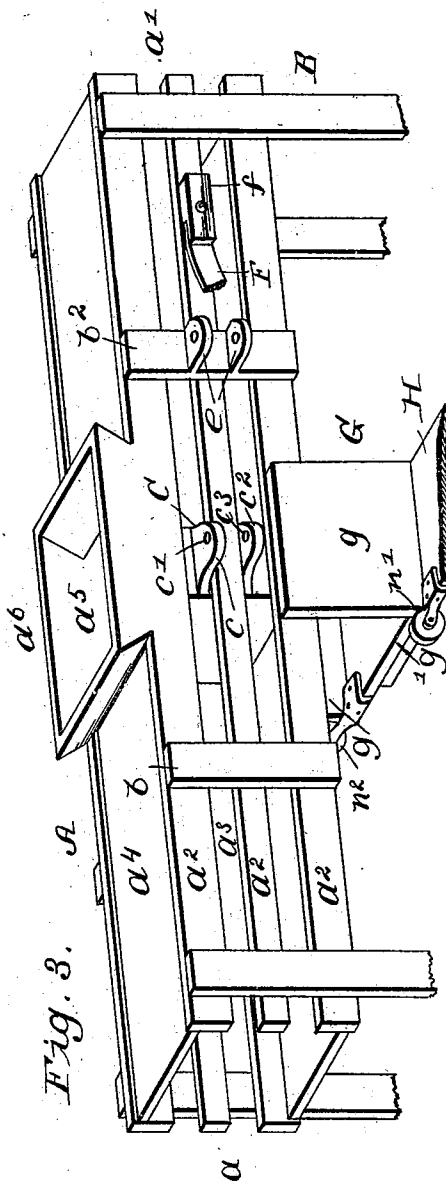


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN HEASTON, OF KANSAS CITY, MISSOURI.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 512,294, dated January 9, 1894.

Application filed February 2, 1893. Serial No. 460,767. (No model.)

To all whom it may concern:

Be it known that I, JOHN HEASTON, 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 thereof, such as will enable others to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

The object of my invention is, first, in a baling press to utilize the cable with the power of a full circle trip lever in compressing the material to be baled; second, to impart power to the plunger on both of its sides and also prevent torsion and the retarding of the plunger by friction; third, to impart additional power to an alternately reciprocating plunger in its rebound to compress the material; fourth, to assist the operation of the levers in throwing the plunger past the dead center.

In the drawings, Figure 1. is a plan view of the press, and power shown partly in horizontal section. Fig. 2. is an end elevation of the press, as seen in Fig. 1., showing the extension beam and the power at the end of the beam. Fig. 3. is a detail view in perspective of the compound baling chambers, showing the feed opening and hopper, and the plunger beneath the feed opening, and a broken view of the power connecting beam. Fig. 4. is a detail view in perspective of the end portion of the connecting beam showing the trip lever and the anti-friction rollers.

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

In the construction of my improved press A. represents a rectangular shaped case of the usual height and width of the chamber of an ordinary baling press, and open at both ends. The sides of the case A. are made to extend in a longitudinal direction increased length so as to afford a baling chamber a , of the usual length in one end of the case A. and a baling chamber a' in the other end of said case. The sides of the case are composed of narrow strips or slats a^2 which are arranged in the longitudinal direction of the press and at short distances apart, and between which slats are longitudinal openings a^3 .

The case A is elevated a considerable distance above the ground and supported by vertical standards B. B. B.' B.' at each end, which standards are upon opposite sides of the case and to the inner side of which the ends of the bars a^2 are attached.

Upon the outer side of the case A. and to the slats a^2 upon the end of the press, having the chamber a , and about one-fourth the distance from the standard B. at the end of said chamber, toward the other end of the case A is attached in a vertical position a cleat b . Upon the other side of the case A. and in a transverse direction to the cleat b , is attached in a vertical position a cleat b' . Upon the outer side of the press and at the end having chamber a' and at the same distance from the standard B' supporting said chamber toward the other end of the case A. as described by the cleat b , from the standard B is attached in a vertical position cleat b^2 . In a transverse direction to and upon the other side of the case A is attached a cleat b^3 which is parallel with the cleat b^2 . In the top a^4 of the case at a point equi-distant from the ends of the case A is made in a vertical direction a feed opening a^5 which extends from one side of the case to the other, and the proper distance in the longitudinal direction of the press to receive the material to be baled. Extending around the sides of the feed opening a^4 is a hopper a^6 . Beneath the feed opening a^5 , and within the case A, between the respective chambers a a' is arranged a reciprocative plunger C, which consists of a heavy casting, which extends across from the inner surface of one side of the case A to the other, and in a vertical direction from the inner surface of the bottom of the case, nearly to the inner surface of the top of said case. To one side of the plunger C is attached rigidly a lug c , which extends through the longitudinal opening a^3 between the bars a^2 near the top of the case A, and a short distance beyond the outer side of said bars, and is perforated in a vertical direction as at c' . A similar lug c^2 extends from the side of the plunger through a similar longitudinal opening a^3 between the bars a^2 near the bottom of case A, and which lug is perforated at c^3 in a vertical line with the perforation c' in the lug c . Upon the other side of the plunger C are the lugs c^4 c^4 ,

which extend through longitudinal openings in between the slats, the same distance as described by the lugs c , c^2 , and are perforated in like manner. Between the lugs c , c^2 is pivoted on the pivot d , one end of a short toggle or arm D, which extends horizontally from said lugs and the outer end is curved toward the cleat b^2 in a slight degree. To the cleat b^2 on the same side of the case A, are attached the lugs e , e^2 , to which is pivoted one end of a toggle or arm e' , the other end of which arm is pivotally attached to the outer end of the toggle D, thus forming a toggle lever the end portion of which arm e' is curved invertedly to receive the curved end of the arm D. To the outer side of the toggle e' is removably attached by means of the screws or pins e^2 the operating lever E, which extends in length from the cleat b^2 opposite the chamber C, on the side of the baling chamber a .

To one of the slats a^2 , between the standard B' , at the end of the case A, having the chamber a' , and the cleat b^2 is attached a turn button f . Between the toggle e' , and the inner end of the lever E, is clamped one end of a flat spring F, the other end of which spring is extended to and inserted beneath the button f' . Upon the other side of the case A and attached to the cleat b^3 , and the lugs on the plunger C are similar toggle and operating levers, which are constructed and operate in precisely the same manner as described upon the other side.

In the bottom of the case A, at a point equidistant from the ends of the case A, and in line with the said vertical sides of the said case are attached rigidly the sides g , g , of a boxing G, which extend downwardly to within a short distance of the ground, and are connected together by a horizontal plate g' . To the under side of the plate g' is pivoted on the pivot h , one end of the connecting beam H, which extends at right angles to the press or case A, and is made of a considerable length, and at the outer end comes the power for operating the press, which is as follows: Upon the extreme outer end h' of the beam H, is attached rigidly one end i , of a housing plate I, which extends a short distance in an upward direction to obtain the space required, and is bent at right angles and extended toward the outer end of the said beam a considerable distance to form the top i' of said housing, and then bent at right angles in a downward direction and attached rigidly to the beam H. In the end h of the beam H, equidistant from the ends of the housing I is made in a vertical direction a shaft opening h^2 , and in the housing I vertically in line with the opening h^2 is made a shaft opening i^2 , in which openings is arranged the vertical shaft, K. Within the housing I are attached the vertical trip levers K, K, K, K, which extend in pairs in opposite directions from the shaft, and upon the outer end, and under side portion of each arm is a pivot K' , upon each one of which pivots is mounted an anti-friction

roller K^2 . To the upper surface of the end h' of the beam H, within the housing I and a short distance from the shaft K, in the direction of the end i , of said housing I is pivotally attached at e a swinging lever L. One end of lever L extends from the pivot l a considerable distance beyond the outer edge of the beam H, and vibrates to and fro upon the upper surface of said beam, and below the line of travel of the rollers k^2 on the outer end of the top lever K. The other end of the lever from the pivotal point l , is bent in an upward direction a short distance so as to come in contact with the rollers k^2 on the top levers, and extended a short distance from said pivot horizontally, so as to permit the vibrating movement of the longer end of the lever L, and at the same time allow the rollers to slip past the end of the short portion of said lever.

From the inner side i , of the housing I, and attached rigidly to the beam H, is a guard bar M, which bar extends at an angle to the beam H, beneath the short arm of the lever L, and upon which said portion of the lever rides. Upon the shaft K, which extends above the top of the housing I is attached a sweep M' . See Fig. 2.

On the outer edge of the beam H, a short distance from the housing I, toward the baling press, and in the side of the beam upon which the extended portion of the lever L is operated are attached the sheaves n , n , which are upon the same pivot.

Upon the pivoted end of beam H, near the side of the boxing G, and upon the same edge of the beam as the sheaves n , n , is placed at an oblique angle a sheave n' . Upon the extreme end of beam H, near the other side g , of the housing G, and opposite the sheave n' , is attached at an oblique angle to the beam a sheave n^2 . On the upper end of the cleat b' on the case A is attached an obliquely inclined sheave n^3 . On the upper end of the cleat b , on the case A, is attached a sheave n^4 , which is placed at an oblique angle to said cleat.

To the outer end of the extended lever L on the power end of the press is attached one end of a cable N, the other end of which cable is passed under one of the sheaves n , in the beam H, thence to the sheave n' , and over said sheave, thence to and over the sheave n^4 , on the cleat b , and thence to and attached to the outer vibrating end of the operating lever E, in the press. To the same end of the lever L, to which the cable N, is attached is also attached one end of a separate cable N' , the other end of which cable is passed over the sheave n , which is closer in position to the beam H, thence to and over the sheave n^2 , on the rear end of the beam H, thence to and over the sheave n^3 , on the cleat b , thence to and attached to the outer vibrating end of the lever L, on the rear side of the press.

In the operation of the press, the power is applied to the shaft K, through the sweep M' ,

for which animal power is adapted. The beam H, is brought close to the ground and in passing over the beam the path of the animal is not impeded as in the presses operated by a pitman. The sweep M' is caused to describe a full circle and before power is applied to operate the press the position of the several operative parts is as seen in full lines in Fig. 1. The material to be baled is first placed in the hopper a^6 , and forced through the feed opening a^5 , on both sides of the plunger C, and at the entrance to the respective chambers a, a' . In the movement of the sweep M', and in the first quarter of a circle of rotation one of the anti-friction rollers on one of the trip-levers is brought to bear against the outer longitudinal edge of the short end of the lever L, which action throws the outer extended end of the lever L, away from the press and into a position nearly at right angles to the beam H, as seen in dotted lines in Fig. 1, and the draft being simultaneous upon the cables N. N', the operating levers E. E. are drawn toward each other, and the plunger is moved toward and within one of the chambers a, a' , and with it the material to be baled. In the next quarter of a circle of rotation the trip lever n , slips over the end of the short portion of the lever L, and the lever being suddenly released the extended end of the lever moves toward the press and the draft upon the cables being also released, the plunger rebounds under the expansion of the material within the baling chamber in which the material is compressed, and with great violence passes into the outer chamber and at the same time throwing the operating levers E. E. wide apart, and taking up the released cable. In this position of the plunger another trip lever, engages with the short arm of lever L, and the draft applied to the cable and the lever arms E. E. drawn toward each other, and a full compression of the material within the chamber obtained, and the operation repeated as first described. In this manner I obtain during the time the full circle is described by the sweep, two separate compressions of the material in each chamber and utilize the rebound of the plunger to effect a partial compression. During the time that the baling chambers are empty and the material is not sufficient to effect the rebound of the plunger past a portion in which the toggle or arms D, are at right angles to the plunger the springs F, throw the operating levers E. E. outwardly with sufficient force as to place the plunger near the entrance of the

other chamber and in readiness to compress the material.

For the purpose of placing the press between stacks of material, such as hay, or in positions in which the ground is obstructed, I am enabled to move the beam at an angle to the press, the cables N. N', being lengthened as required. When light material such as hay effects an entrance between the plunger and the inner side of the press, the wedging of the plunger is prevented in my press, by applying power to each side of the plunger.

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

1. In a baling press the combination with the baling chamber having longitudinally slotted sides of a rebounding plunger toggle levers pivotally connected at one end to opposing sides of said plunger, operating levers on both sides of said press connected at one end therewith and having each lever fulcrumed upon and pivotally connected with the other end of one of the respective toggle levers and means for drawing the said operating levers toward each other simultaneously, for the purpose described.

2. In a baling press, consisting of a longitudinal case, having baling chambers at each end and an intermediate feed opening, and a plunger adapted to compress the material in each chamber, the combination of a laterally extended power support operating lever on said press, having toggle levers connected with said plunger a pivoted lever on said power support, and a trip lever for operating said pivoted lever, suitable sheaves on said power support and said press, and a table connected with the operating lever for said plunger, and the pivoted lever on said power support as and for the purposes specified.

3. In a baling press, having a suitable support and a baling chamber at one end of said support, having a rebounding plunger, and plunger compressing levers of a pivoted lever at the other end of said support, sheaves in the said support and said press and a cable connected with said plunger compressing lever, and extending over said sheaves and connected with said pivoted lever on said power support, and a trip lever for operating said pivoted lever for the purpose described.

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