No. 860,284. PATENTED JULY 16, 1907.

C. W. DEATON.

HAY PRESS.

APPLICATION FILED AUG. 4, 1906.

3 SHEETS—SHEET 1.

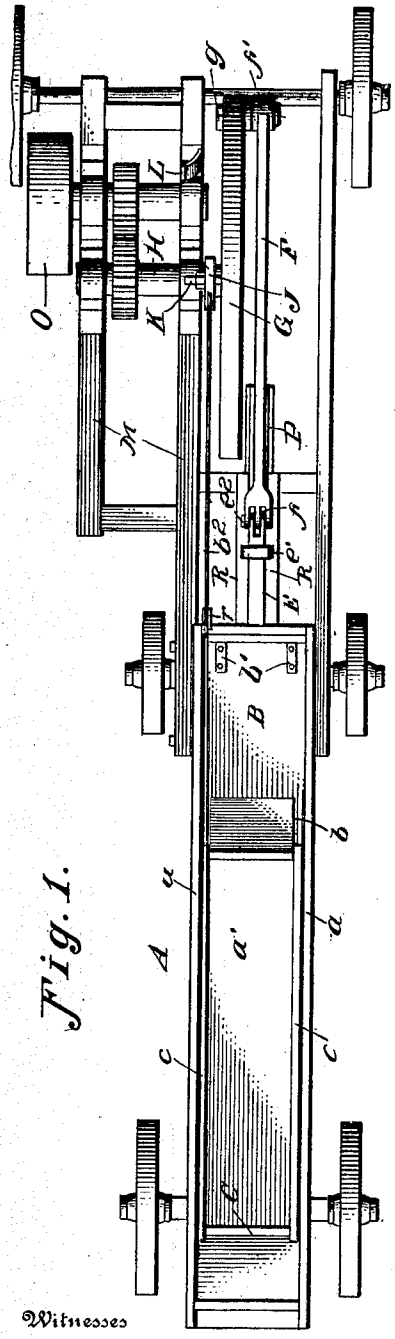


Fig. 1.

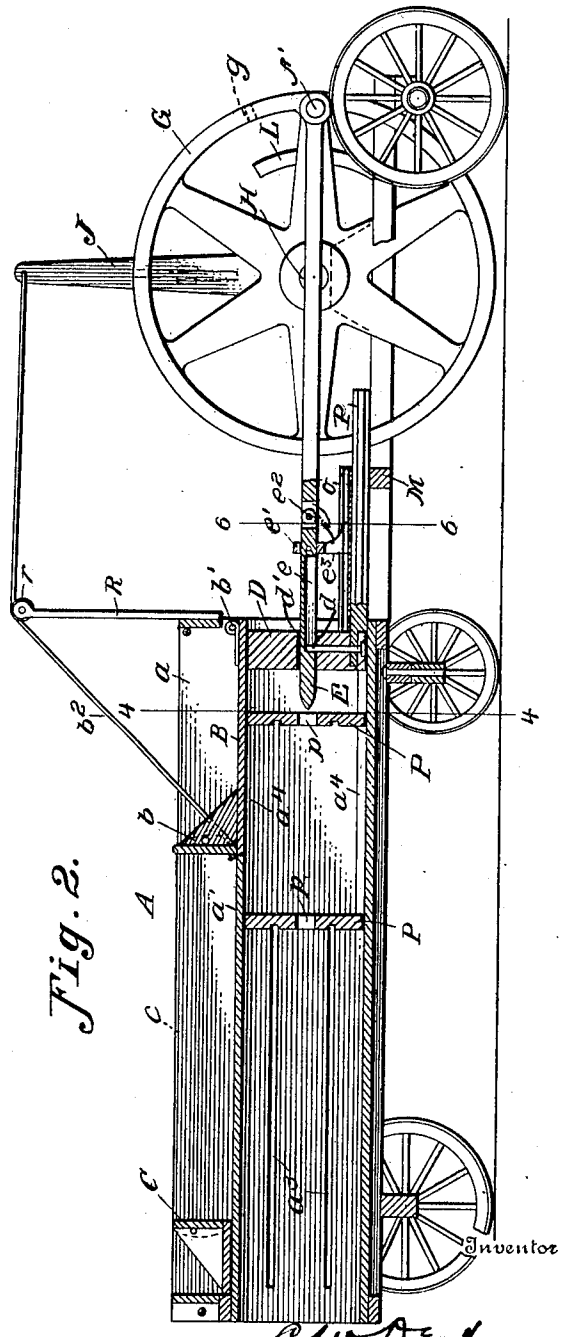


Fig. 2.

Witnesses

Edwin L. Yewell

R. F. Bishop

Inventor

C. W. Deaton

By Davis & Davis

Attorneys

THE NORRIS PETERS CO., WASHINGTON, D. C.

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3 SHEETS—SHEET 2.

Fig. 3.

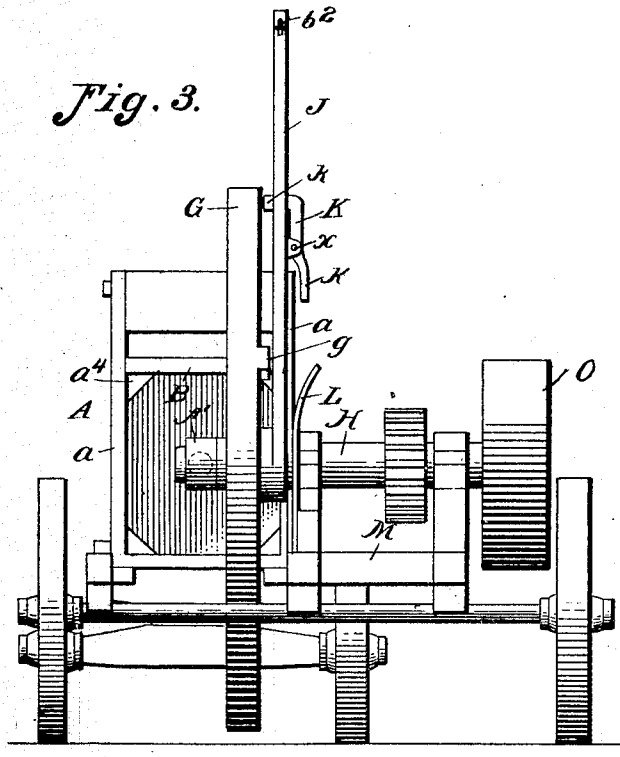


Fig. 4.

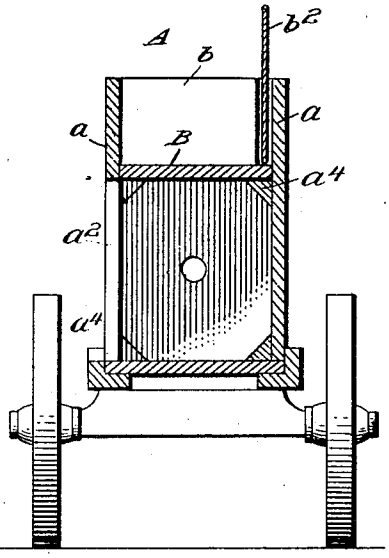


Fig. 5.

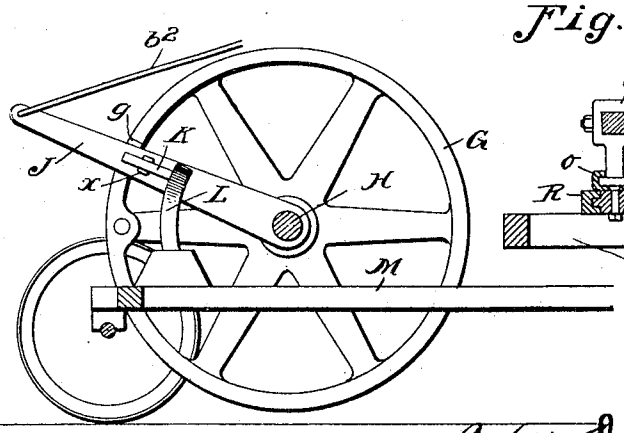


Fig. 6.

Witnesses

Edwin L. Yewell

R. W. Bishop

Inventor

C. W. Deaton

By Davis & Davis

Attorneys

THE NORRIS PETERS CO., WASHINGTON, D. C.

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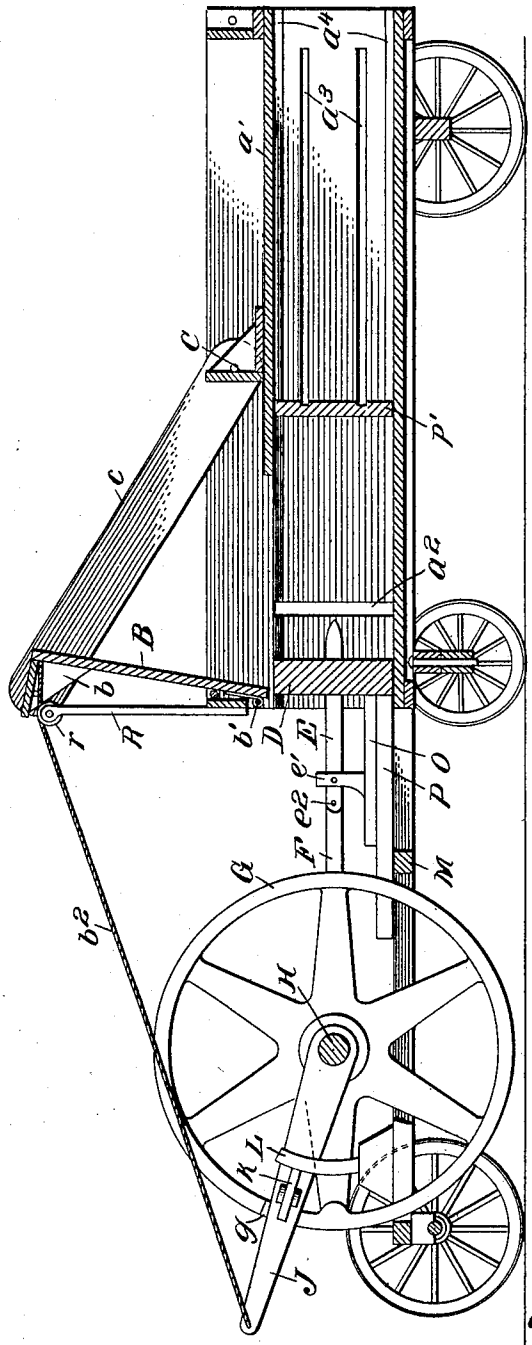
C. W. DEATON.

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3 SHEETS—SHEET 3.

Fig. 7.



Witnesses:

F. C. Gibson.

R. H. Bishop

Inventor,

Charles W. Deaton,

By Davis & Davis

Attorneys.

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES W. DEATON, OF SALEM, VIRGINIA.

HAY-PRESS.

No. 860,284. Specification of Letters Patent. Patented July 16, 1907.

Application filed August 4, 1906. Serial No. 329,242.

To all whom it may concern:

Be it known that I, CHARLES W. DEATON, a citizen of the United States of America, and resident of Salem, county of Roanoke, State of Virginia, have invented certain new and useful Improvements in Hay-Presses, of which the following is a full and clear specification.

The object of this invention is to provide a baling press in which a bale will be formed especially adapted for ventilation and avoiding the formation of mold while stored in the warehouse.

A further object of the invention is to provide a baling press in which the charge will be covered at all times prior to its discharge from the press so that the entire quantity of the hay or other material will be pressed into the bale.

With these objects in view and such other incidental objects as will hereinafter appear the invention consists in certain novel features of the apparatus illustrated in the accompanying drawings as will be hereinafter fully described and then particularly pointed out in the claims.

In the drawings—Figure 1 is a plan view of a press constructed in accordance with my invention; Fig. 2 is a longitudinal sectional view of the same; Fig. 3 is an end elevation of the press; Fig. 4 is a transverse vertical section taken through the plane of the slot through which the division block is fed into the press; Fig. 5, is a detail elevation of a portion of the operating mechanism; and Fig. 6 is a detail sectional view on the line 6—6 of Fig. 2. Fig. 7 is a longitudinal sectional view of the press looking in the opposite direction from that shown in Fig. 2 and showing some of the parts in a different position.

The press A may be of any suitable dimensions and is mounted upon wheeled axles so that it may be readily moved from place to place. The sides a of the press are extended somewhat above the plane of the top a' and one side is provided with a vertical slot a^2 near the front end of the press through which division blocks are inserted into the baling chamber. The baling chamber is formed by the sides, top and bottom, and slots a^3 are provided in the sides of the baling chamber to permit the insertion of the tie-wires after the bale is formed. In the corners of the baling chamber are secured longitudinal triangular strips a^4 so that the bale when formed will have its corners cut away and will be of an octagonal shape to give ventilation between bales when packed in ware room. The front portion of the top is movable so as to constitute a door B which is provided with a weight b at its rear or free end and is hinged or pivoted at its front end between the sides of the press as shown at b', the rear or free end of the door being turned up to present a rail or partition which will constitute the end of a hopper as will be presently more fully explained. A cord b^2 is secured to the free weighted end of the door and passes forward to a trip-lever J by means of which the door is raised in the operation of the press so as to permit the entrance of the charge into the baling chamber. The intermediate portion of the cord b^2 passes over a pulley r at the upper end of a standard R erected on the end of the press as clearly shown in Fig. 2. Resting upon the top of the press is a slide C which is connected to the weighted end of the door B by longitudinal boards c having their opposite ends pivoted respectively to the door and the slide. The slide and the upturned end of the door as well as the boards fit closely within the sides of the press so as to form therewith a hopper to receive a charge of feed, hay or other material, it being understood that the press may be moved close to a stack in the field or other point of supply, so that a quantity of material sufficient to fill the mouth of the chamber may be placed in this hopper while a bale is being formed in the baling chamber. This arrangement assures uniformity in size of the bale and also avoids loss of time in feeding a charge into the baling chamber.

A plunger D is fitted in the front end of the baling chamber between the door B and the bottom of the press and has a central opening d' through which a needle E plays, the needle being held against entire withdrawal by a pin d in the plunger block passing into a longitudinal slot e in the needle, as clearly shown in Fig. 2. A block or stop e' is provided on the needle to limit the independent movement of the needle by coming into contact with the plunger D so that after the contact of the plunger and the said stop or block the plunger will be moved with the needle. The distance in which the needle is allowed to move prior to the movement of the plunger is about equal to the length of the charge so that the needle will go through the entire charge and form a central opening in the same and thereby provide for the thorough ventilation of the completed bale. The block e' has its lower end e^3 fitted to slide in cleats O which are secured on top of a slide P affixed to the plunger D and working in guides R which are secured on the frame M presently described.

The needle is pivoted at its outer end by means of a pin or bolt e^2 to the knuckle f of a pitman F having its outer end pivoted on a crank-pin f' provided on a driving-wheel G. This driving-wheel G is secured on the end of a shaft H which is mounted upon a frame M and is geared to a band-pulley O which may be connected to an engine or other suitable motor. The frame M is rigidly secured to the press when the same is to be operated and its outer end is supported by a wheeled axle so that it may be readily moved from place to place and may be disconnected from the press to economize storage space when not in use.

The trip-lever J which has been hereinbefore mentioned is loosely mounted upon the shaft H and carries a dog K which is pivoted between ears x on the outer side of the lever and has one end k extending transversely through the lever into the path of a lug g on the rim of the driving wheel G. A trip plate or cam L rises from the frame M near the front end of the same and in the path of the lower end of the dog K so that as the said lever J is carried downward the free end of the dog will be brought into contact with the said trip plate or cam and will be thereby forced toward the lever so that the opposite end of the dog will be disengaged from the lug g whereupon the lever will return to its initial position under the influence of the weight b. This operation will be readily understood upon reference to Figs. 2, 3 and 5.

The division blocks P′ are provided with the usual grooves for the insertion of the tie-wires and are also provided with central openings p to permit the passage of the needle in the operation of the machine and the baling chamber may be provided with the usual retarding springs and alarm bell.

The construction and arrangement of the several parts of the apparatus being thus made known it is thought that the operation will be readily understood. A quantity of hay, cut feed, straw or other material sufficient to form a bale of the desired size is placed in the hopper formed by the top a', sides a, the door B and the slide C and the press is then started, it being understood, of course, that division blocks are placed in the baling chamber before any material is fed therein and in practice I place paper caps against the faces of the division blocks so that the ends of the completed bale will be more thoroughly protected. When the driving-wheel G is set in motion the lug g thereon will be brought around so as to impinge against the end of the dog K and thereby carry the lever J around with the wheel. This movement of the lever J pulls upon the cord b^2 so as to raise the door B and this movement of the door B will in turn pull upon the boards c so as to cause the slide C to move forward over the top of the press and thereby push the charge into the baling chamber. The movement of the parts is so timed that the cam or trip plate L will release the dog K from engagement with the lug g just after the charge has been pushed into the baling chamber whereupon the door will fall under the influence of its own weight and the weight b so as to pack the charge into the baling chamber and close the opening in the top of the same so that the bale or the charge will be confined on all sides. Immediately after the door B closes the pitman F will begin to act on the needle E so as to force the same inward through the charge to form the central ventilating opening therein and this movement will continue until the block or stop e' strikes against the plunger D, as before stated, after which the plunger will move inward and compress the bale in the usual manner. While the bale is being thus compressed a second charge is placed in the hopper and the continued movement of the drive-wheel will return the needle and the plunger to their initial positions and again open the door B, as will be readily understood. The arrangement of guides shown in Fig. 6 maintains the needle in its horizontal position and thereby prevents bending or breaking of the same.

From the foregoing it will be readily seen that I have provided a press of simple construction with which the baling operation may be carried on continuously and rapidly with a minimum of attention on the part of the operator.

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

1. A press comprising a baling chamber, a plunger and means for operating it, and a needle having a movement independent of the plunger and actuated by the plunger-actuating mechanism, whereby a ventilating opening is formed in the bale during the act of pressing it.

2. A baling press provided with a plunger and with a needle arranged to form a central ventilating opening in the completed bale and means for operating said needle independently and in advance of the plunger.

3. In a baling press, the combination with the baling chamber of a plunger mounted therein, a needle playing through the plunger and arranged to actuate the plunger, and suitable operating mechanism.

4. In a baling press, the combination with the baling chamber of a plunger mounted therein, a longitudinally slotted needle passing centrally through the plunger, a pin in the plunger passing into the slot of the needle, a stop on the needle arranged to impinge against the plunger, and suitable operating mechanism.

5. In a baling press, the combination with the baling chamber of a door arranged to close the top of the chamber, a slide mounted on the top of the press, connections between said slide and the door, and automatic means for opening and closing said door.

6. In a baling press, the combination with the baling chamber of a door arranged to close the top of the said chamber, a driving-wheel, a trip-lever, connections between said lever and the door, and automatic means whereby the lever will be actuated by the driving-wheel during a portion of its rotation.

7. In a baling press, the combination with the baling chamber and suitable supporting frame, of a door arranged to close the top of the baling chamber, a driving-wheel, a lever, connections between said lever and the door, a dog on the lever arranged to engage the driving-wheel, and a trip plate on the supporting frame arranged to disengage the said dog from the driving-wheel.

8. A baling press having filling strips in the angles of the baling chamber whereby an octagonal bale will be formed.

9. In a baling press, the combination with the baling chamber, of a plunger working therein, a needle playing through the plunger, and means for actuating the plunger through the medium of the needle, substantially as described.

10. In a baling press the combination with the baling chamber, of a door arranged to close the top of said chamber, means for opening and closing the door, and an auxiliary hopper connected to said door and arranged to discharge into the press when the door is opened.

11. In combination with a baling chamber having an opening in its top, a weighted gravitating door covering said opening, means for lifting the door and releasing it, and a sliding hopper mounted on top of the press and connected to said door, whereby when the door is opened the hopper will be drawn forward and will discharge into the press.

12. In a baling press the combination of a baling chamber having an opening in its top, a door adapted to close said opening, and a hopper on top of the press consisting of a transverse slide and a pair of side boards connecting said slide to the door, and means for opening and closing the door.

In testimony whereof I hereunto affix my signature in the presence of two witnesses this 23rd day of July 1906.

CHARLES W. DEATON.

Witnesses:
W. A. FRANCIS,
J. S. PERSINGER.