(No Model.)

G. ERTEL.

BALING PRESS.

No. 386,063. Patented July 10, 1888.

Fig. 1.

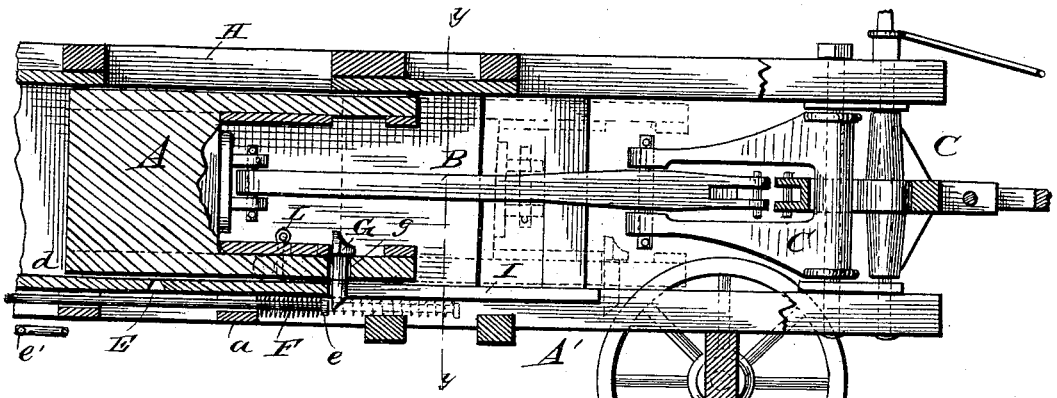


Fig. 2.

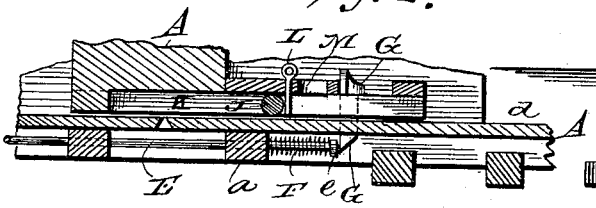


Fig. 3.

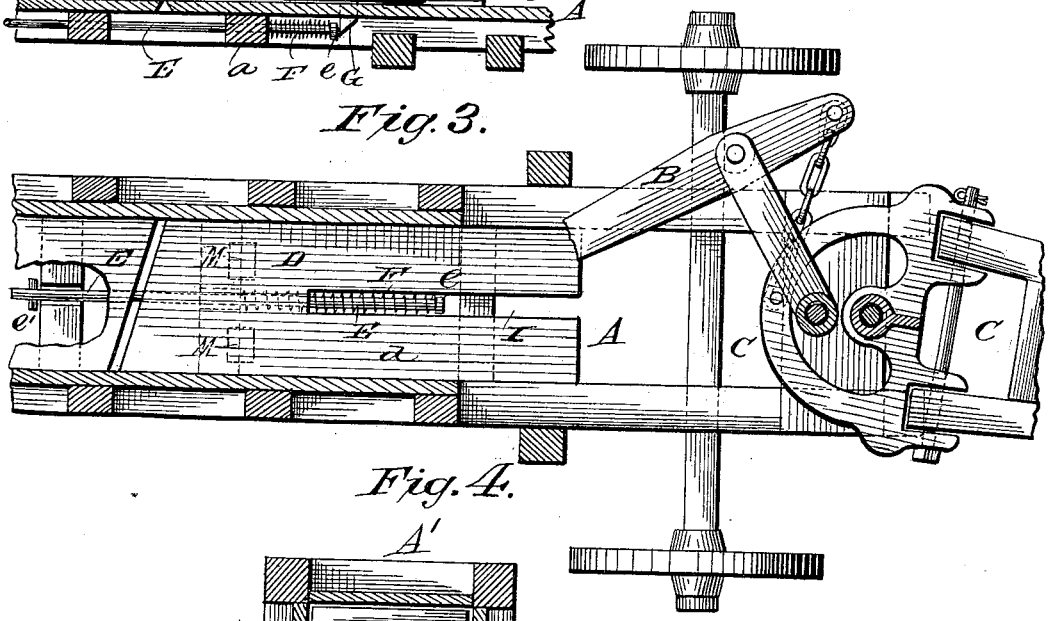
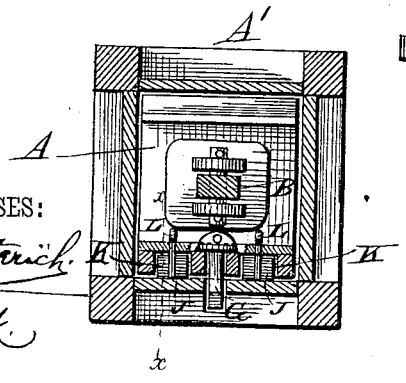


Fig. 4.



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GEORGE ERTEL, OF QUINCY, ILLINOIS.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 386,063, dated July 10, 1888.

Application filed March 7, 1888. Serial No. 266,408. (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 Baling-Press, of which the following is a full, clear, and exact description.

My invention relates to baling-presses of that class in which hay, straw, or other material is pressed into bales in successive increments or charges by a plunger operated by a sweep mechanism, allowing full or partial retraction of the plunger by the expansion against it of successively-pressed charges in the bale-chamber when or after the outer end of the plunger-pitman passes the axis of the sweep; and the invention has for its object to assure proper retraction of the plunger while pressing light, medium-weight, or heavy bales by or in the same machine, and in a simple and effective manner.

The invention consists in certain novel features of construction and combinations of parts of the baling-press, all as hereinafter described and claimed.

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

Figure 1 is a sectional side elevation of the front parts of a baling-press embodying my improvement. Fig. 2 is a detail vertical sectional elevation of the press, taken on the line *x x*, Fig. 4. Fig. 3 is a plan view partly broken away and in section and with the plunger removed from the baling-box, and Fig. 4 is a vertical transverse section taken on the line *y y* in Fig. 1.

The plunger A of the baling-press is operated by a pitman, B, pivoted at one end to it, and which may be connected at its other end with any approved mechanism operated by a sweep or otherwise, and which will allow free backward movement or rebound of the plunger after the outer end of its pitman passes the center or an imaginary line drawn lengthwise through the center of the plunger. The sweep mechanism C shown is fully described in Letters Patent No. 336,305, issued to me February 16, 1886, and need not be herein further explained.

I employ a self-acting mechanism for assuring rebound of the plunger when the expansion of the last lightly-pressed charge of material is insufficient of itself to carry the plunger back far enough to clear the baling-box feed-opening to allow the next charge or increment of material to be fed into the baling-box in front of the plunger. These plunger-retracting devices are very simple and effective, and may be briefly described as follows: In the timbers of the press-frame A′, and below the floor *d* of the baling-box D, is fitted loosely a longitudinally-ranging rod or bar, E, which at one end has a head, *e*, between which and the press-timber *a* is placed (preferably upon the rod itself) a spiral spring, F, which tends normally to force the rod back toward the sweep mechanism, and the rod E is provided with a pin, *e′*, which limits its backward movement by the spring. The plunger A is provided with a slot, *g*, in its floor, to which a key or stop pin or device, G, is loosely fitted in a position to cause it to strike the rod E or its head and move it forward and compress the spring F as the plunger moves forward for its effective stroke in the baling-box.

It is manifest that a compression of the spring F by the plunger-key, as above described, will store up the power of the normally-expanded spring, so that as the back end of the plunger-pitman passes the center of its sweep or movement the power of the spring will at once be exerted to assist a slow or feeble expansion of the last-pressed charge of material to carry the plunger back clear of the feed-opening H of the baling-box D of the press. When the key or stop G is removed from the plunger, which may be done in a moment, the rod E will not be forced forward by and with the plunger to compress the spring F, as above described, and this auxiliary plunger-retracting device will then be inoperative. The floor of the press-case is provided with a longitudinal slot, I, in and along which the key G moves, as will readily be understood.

I propose using the above-described auxiliary plunger-retracting device preferably in connection with anti-friction rollers carried by or placed under the plunger to relieve the friction of its movement on and along the baling-box floor, and the arrangement of anti-friction rollers I prefer to employ in this manner is that shown, described, and claimed by

me in a prior patent, No. 362,884, and dated May 10, 1887, and which comprises rollers J, preferably two in number and placed loosely below the plunger, and preferably in grooves K of the plunger, and held against displacement backward from beneath the plunger by pins L crossing said grooves, and behind which pins the plunger is provided with slots or holes M, through which the rollers J may be almost instantly removed when the pins are taken out, all as will be understood most clearly from Figs. 2 and 4 of the drawings.

It is obvious that a baling-press constructed with a spring-actuated auxiliary plunger-retracting device which may be rendered inoperative, and anti-friction rollers fitted beneath the plunger to ease its backward travel, and which rollers may also be readily removed, has great advantages, in that provision is made for pressing heavy, medium-weight, and light bales with ease and dispatch. For instance, the key G will be removed and the rollers J will be taken out when heavy bales are to be pressed, as the expansive force of the pressed charges of material will be sufficient and at times more than is necessary to assure full backward movement or retraction of the plunger after each effective stroke of it, the plunger then lying directly on the floor of the baling-box. When medium-weight bales are to be pressed the rollers will then be applied beneath the plunger to assure the full backward movement of it by the moderate expansion of the successively-pressed charges of material; and when very light bales are to be pressed the key G will be applied to the plunger to bring the force of the spring F into play to effect full backward movement or retraction of the plunger, which would not be caused by the expansion of the pressed material alone, as will readily be understood from the aforesaid description.

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

1. In a baling-press, the combination, with the press-case and a plunger fitted therein, of a spring supported near the plunger, and a removable key or stud fitted to the plunger and causing tension or compression of said spring as the plunger moves forward on its effective stroke, and against which key or stud the expansive force of the spring is exerted to assist the retraction of the plunger, and allowing the auxiliary plunger-retracting spring to be rendered inoperative by removing the plunger key or stud, substantially as herein set forth.

2. A baling-press constructed with a case, a plunger fitted therein, a spring supported near the plunger, a removable key or stud fitted to the plunger and causing a tension or compression of the spring as the plunger moves forward on its effective stroke, and against which key or stud the expansive force of the spring is exerted to assist the retraction of the plunger, and one or more anti-friction rollers supporting the plunger, substantially as shown and described, whereby when the plunger, key, or stud is removed and the auxiliary plunger-retracting spring is rendered inoperative the plunger will move back on the anti-friction rollers while medium-weight bales are being pressed, and when the key or stud is applied to the plunger the latter will be assisted in its backward movement on the rollers by the auxiliary retracting spring device while light bales are being pressed, as herein set forth.

3. A baling-press constructed with a case, a plunger fitted therein, a spring supported near the plunger, a removable key or stud fitted to the plunger and causing a tension or compression of the spring as the plunger moves forward on its effective stroke, and against which key or stud the expansive force of the spring is exerted to assist the retraction of the plunger, and one or more removable anti-friction rollers adapted to support the plunger to assist its free backward movement, substantially as shown and described, whereby when the plunger, key, or stud and the anti-friction roller or rollers are removed the plunger will rest on the press-case to be retracted by the expansive force of the pressed charges of material while heavy bales are being pressed, and when the rollers are placed beneath the plunger it will be retracted more easily on them while medium-weight bales are being pressed, and when the rollers and key or stud are applied to the plunger it will be fully retracted on the rollers by the operation of the auxiliary spring retracting device, as and for the purposes herein set forth.

GEORGE ERTEL.

Witnesses:
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