

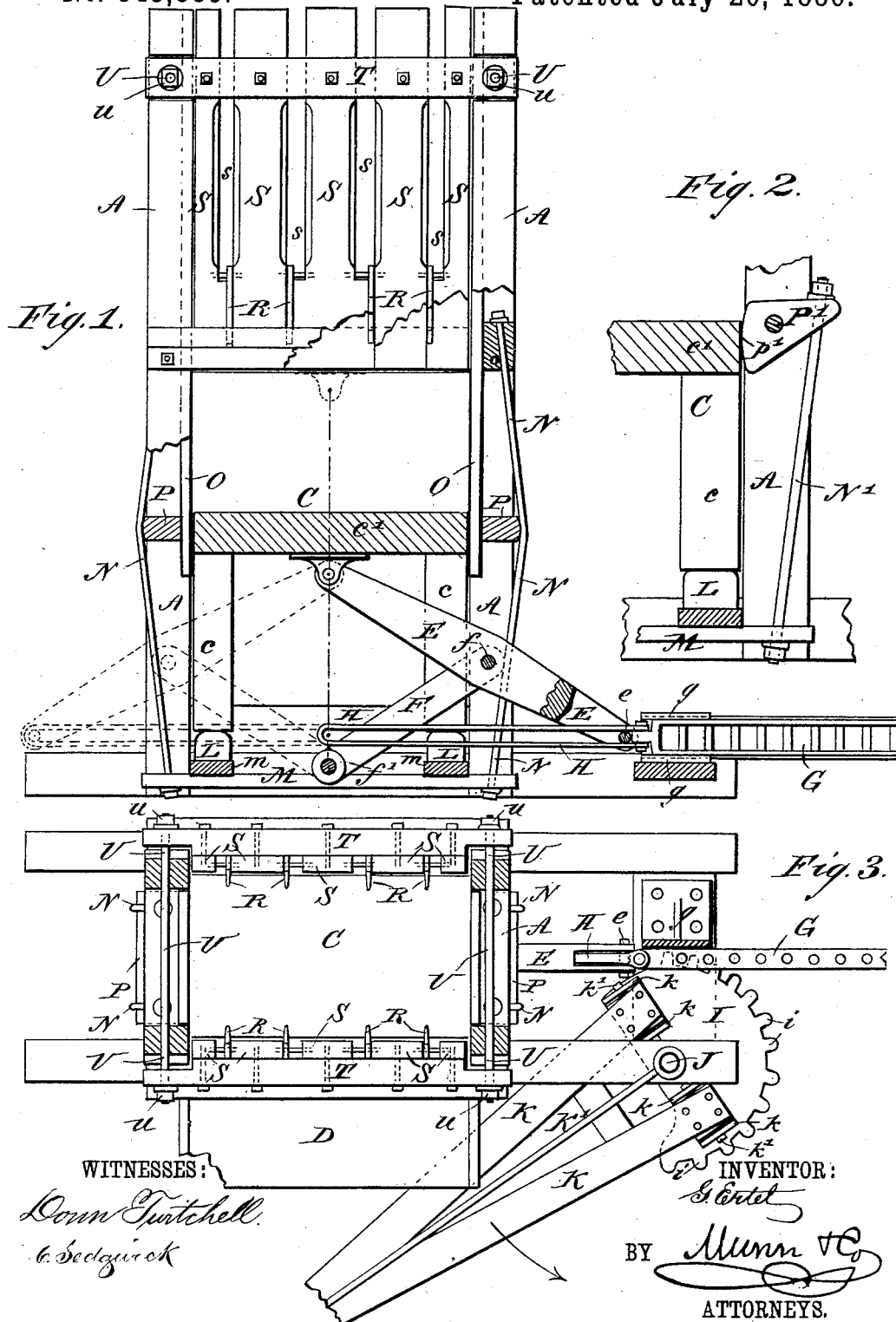
(No Model.)

2 Sheets—Sheet 1.

G. ERTEL.  
BALING PRESS.

No. 345,889.

Patented July 20, 1886.



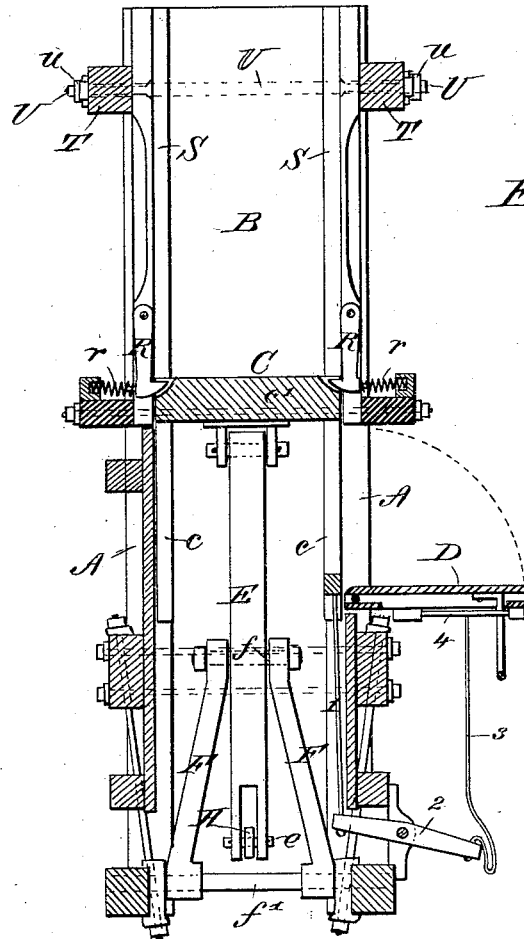
(No Model.)

2 Sheets—Sheet 2.

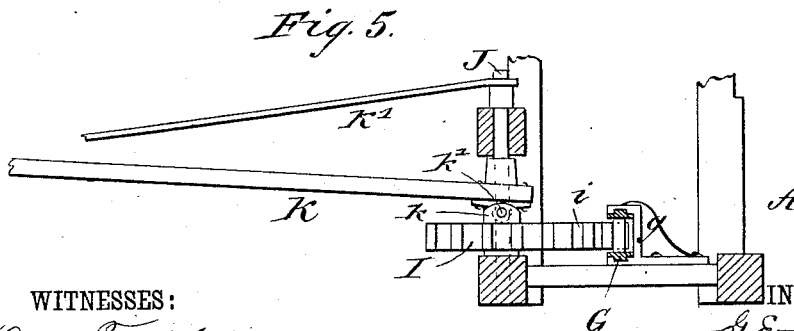
G. ERTEL.  
BALING PRESS.

No. 345,889.

Patented July 20, 1886.



*Fig. 4.*



*Fig. 5.*

WITNESSES:

*Donn Twitchell.*  
*C. Sedgwick*

INVENTOR:

BY

*G. Ertel*  
*Munn & Co.*  
ATTORNEYS.

# UNITED STATES PATENT OFFICE.

GEORGE ERTEL, OF QUINCY, ILLINOIS.

## BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 345,889, dated July 20, 1886.

Application filed February 27, 1886. Serial No. 193,476. (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 having a vertically-ranging case and bale-chamber, and has for its object to improve the construction of the press for which United States Letters Patent No. 261,323 were granted to me July 18, 1882, whereby the press is adapted for the continuous formation of bales from below and their discharge from the top of the press, and a machine occupying very little ground or floor space is made capable of very quick and effective work.

A further object of the invention is to prevent the rebounding of the follower after it falls to receive a new batch of material, thereby saving time and preventing shock and wear of the parts of the press.

A further object of the invention is to provide improved mechanism insuring the positive operation of the follower and allowing an increment of material to be pressed at each movement of the sweep in either direction.

The invention consists in certain novel features of construction and combinations of parts of the press, all as hereinafter fully set forth.

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 side elevation of the press, partly broken away and in section, the sweep and its head being removed. Fig. 2 is a detail view illustrating a modification of the clamp for preventing rebound of the follower. Fig. 3 is a plan view of the press, partly broken away and in horizontal section. Fig. 4 is a transverse vertical sectional elevation of the press-case and adjacent parts; and Fig. 5 is an end view, partly sectional, illustrating the connections of the sweep and its head with the follower-operating mechanism, the sweep being in a position at right angles to the press-case.

As in my former patent, above referred to, the press-case A stands vertically, but unlike

the press-case formerly made in that this case is open at the top above the baling-chamber B, for discharge of the finished bales at the top of the press. The hay or other material is pressed in the chamber B by the follower C in successive increments fed into the case through an opening at one side, closed by a door, D. The follower C is operated directly by means of a lever, E, and toggle-bars F F, which are pivoted at *f* at their one ends to the lever E, and are pivoted at their other ends, at *f'*, to the fixed bed-frame or base of the press.

Instead of using a long link and chains connecting opposite ends of the link with the head of the sweep, I now employ for operating the lever E and toggles F F to lift the follower a rack-bar, G, which is fitted to slideways *g* on the base-frame of the press, and to the end of the rack-bar is held one end of the long link H, within which the pin *e*, fixed at the lower end of the lever E, is adapted to slide, and a head, I, having a series of teeth, *i*, engaging the teeth or pins of the rack-bar G, is pivoted by a strong pin, J, to the press-frame, and has pairs of lugs *k k*, to and between which the inner ends of the bars K K of the sweep are pivoted on pins *k'*. This connection of the sweep with the head I allows the outer end of the sweep to be raised or lowered more or less and held by its brace K' to accommodate the size of the animals hitched to it without disconnecting the head I from the rack-bar or adjusting the head or bar in any way.

As the follower C falls, its pendent corner-posts *c* strike elastic buffers L, to lessen the shock, as in the former construction; but instead of fixing the buffers to a rigid or stationary base-piece of the press-frame as in the former patent, I now attach the buffers to cross-pieces *m m* of a yielding platform, M, to which are connected at each end preferably the one ends of rods or bars N, which pass upward at the ends of the press-case and are connected at their upper ends to cross-timbers of the case, and between the outwardly-bent central parts of the rods N and the yielding or loose lining O of the press-box I place blocks P, which, as the follower falls onto the buffers L, will be forced inward by the rods N against the loose lining O, to press the lining against

the platen *c'* of the follower; hence the buffers *L* relieve the shock of the follower as it falls, and the pull of the yielding platform *M* on the rods *N* forces the blocks *P* inward to clamp the press-case lining *O* to the follower to prevent rebound of the follower. Consequently, as the follower falls it will be clamped in its lowermost position, thereby allowing the hay to be immediately fed into the press-case above the follower, whereby time will be saved in operating the press, and all jar and consequent wear of the parts incident to a rebound or jumping of the follower will be avoided.

This principle of combining a yielding platform against which the follower is projected with a clamping device operated by the impact of the follower on the platform to prevent rebound of the follower may be carried out by other mechanical constructions than that last above described, (see Fig. 2 for an instance,) wherein the rods *N'*, connected to the platform *M*, may be attached at their upper ends to eccentrically-faced or cam blocks *P'* pivoted to the press-frame, whereby the fall of the follower on the platform will cause the cam-faces *p'* of the blocks *P'* to forcibly clamp the edge of the follower-platen *c'*, to prevent rebound of the follower, or the cam-blocks may act on a loose lining, *O*, interposed between them and the follower, as will readily be understood.

In operating the follower, supposing the parts to be in the positions shown by full lines in Figs. 1 and 2, when the sweep is moved around in direction of the arrow in Fig. 2, the head *I* will force the rack-bar *G* inward, and as the pin *e* of lever *E* then rests at the inner end of the link *H*, or next the bar *G*, the lever *E* will be raised by the bar *G* to lift the follower, which assumes its highest position when the lever stands vertically or on the center, and when the lower end and pin *e* of the lever move past the vertical center, the lever and toggle-bars *E F* will swing or fall downward, as indicated in dotted lines in Fig. 1, and the lever-pin *e* will slip through or along the link to the outer end of the link as the follower falls to its lowermost position, and the parts are all ready to cause another upstroke of the follower as the rack-bar *G* is forced outward by a reverse movement of the sweep, the pin *e*, as it passes the vertical center, then slipping outward against the end of the rack-bar *G* to its first described position. The parts thus have a double action to force the follower upward for pressing a charge of hay as the sweep is moved in either direction. As the follower reaches its extreme upward position, it draws on a cord, 1, fixed to it and to a lever, 2, and the lever pulls a cord, 3, connected to a bolt, 4, on the door *D*, and whereby the bolt is withdrawn and the door is opened automatically after each complete upstroke of the follower, substantially as described in my former patent.

Retaining-hooks *R* hold the successive pressed charges of hay while the follower is

down and the hooks are forced inward by springs *r*, which allow the hooks to be pressed outward by the passing division-blocks, (not shown,) which are placed between the successive bales, and are grooved on opposite sides to receive the ties by which the pressed bales are tied in the bale-chamber *B*. The planks or timbers *S*, forming the opposite sides of the bale-chamber *B*, are bolted to upper cross-timbers *T* of the press-case frame, and the opposite timbers *T* are connected by heavy bolts *U*, on the threaded ends of which are placed nuts *u*, which may be adjusted to draw the upper ends of the side timbers, *S S*, toward each other more or less, to narrow or taper the bale-chamber toward its top, and thereby offer the necessary resistance to the upward passage of the bales to control their density to any desired degree. Slots *s* between the planks *S* allow passage of the ties when tying the bales, which are discharged automatically when tied at or from the top of the press-case by the advancing of the bales formed and being formed below them.

I show the press supported on a base or bed frame; but an axle, wheels, and poles or shafts may also be fitted to the press-case in the manner shown and described in my aforesaid Patent No. 261,323, to make the machine a self-contained portable press.

The press is very strong, makes compact and well-finished bales, and is light in weight, allowing it to be hauled over roads inaccessible to larger, heavier machines, and, by the arrangement of the vertical press-case open at the top for self-discharge of the bales thereat, the machine may be operated to great advantage in barns or under other cover, in small space where the use of horizontally-ranging continuous baling-presses would be impossible.

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

1. In a baling-press, the combination, with a lever which operates the follower, of a sliding rack-bar, a toothed head engaging the rack-bar, a long link connected to the end of the rack-bar and a pin on the lever entering the link, substantially as shown and described, whereby as the lever-pin is moved by the rack-bar past the vertical center line of the lever at one end of the link the pin will slide freely to the other end of the link as the follower falls, as and for the purposes herein set forth.

2. In a baling-press, the combination, with the press-case, the follower, and lever *E*, and toggle-bars *F*, pivoted to the follower, to the case, and to each other, substantially as specified, of a pin, as at *e*, at the free end of lever *E*, a rack-bar, *G*, a toothed head, *I*, engaging the rack-bar, means for operating the head, and a link, *H*, held to the inner end of the rack-bar and receiving the pin *e* of lever *E*, substantially as shown and described, and for the purposes herein set forth.

3. In a baling-press, the combination, with the press-case and the follower, of a yielding

platform against which the follower is projected on its backstroke, and a device operating by the impact of the follower on the platform to clamp the follower to prevent its rebounding, substantially as herein set forth.

4. In a baling-press, the combination, with the press-case and the follower, of a yielding platform, rods connecting the platform to the press-case, and blocks operated by the rods to clamp the follower to prevent its rebounding, substantially as herein set forth.

5. In a baling-press, the combination, with the press-case A, having a loose lining, O, and the follower C, of a yielding platform, M, rods N, connecting the platform to the press-case, and clamp-blocks P, interposed between the

rods N and lining O, substantially as herein set forth.

6. In a baling-press, the combination, with the press-case and the follower, of a yielding platform against which the follower is projected on its backstroke, elastic buffers on the platform positioned to be struck by the follower, and a device operating by the impact of the follower against the buffers to clamp the follower to prevent its rebounding, substantially as herein set forth.

GEORGE ERTEL.

Witnesses:

RICHARD JANSEN, Jr.,  
RICHARD JANSEN, Sr.