

G. ERTTEL.  
BALING PRESS.

Patented July 29, 1890.



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# UNITED STATES PATENT OFFICE.

GEORGE ERTEL, OF QUINCY, ILLINOIS.

## BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 433,278, dated July 29, 1890.

Application filed January 18, 1890. Serial No. 337,368. (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 useful Improvement in Baling-Presses, of which the following is a full, clear, and exact description.

My invention relates to baling-presses, and has for its object to improve the press for which Letters Patent No. 336,305 were granted to me February 16, 1886, and in such manner as to obviate all jamming of the power mechanism by the chain or link connections between the sweep-head and the plunger-pitman, thereby preventing breakage of parts of the press.

The invention consists more particularly in the construction and arrangement of a triple-link connection between the sweep-head and the plunger-pitman, 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 vertical sectional elevation of a portion of a baling-press, illustrating my improvement. Fig. 2 is a sectional plan view thereof, and Fig. 3 is an enlarged perspective view of the metal link-connection between the sweep-head and plunger-pitman.

This invention consists in the peculiar formation and arrangement of three links A B C, which are connected to each other and to the sweep-head and plunger-pitman, as hereinafter explained.

The sweep-head D and the pitman E, driving the plunger F, have a substantially similar form to corresponding parts shown and described in my aforesaid prior patent. The head D is pivoted on a vertical shaft G, and has a semi-annular interior opening H, which plays around the hub of a yoke I, which is pivoted on a vertical shaft J, which, like the parallel shaft G, is journaled or held in the frame K of the baling-press. The upper and lower arms of the yoke I receive between them the outer end of the plunger-pitman E, which is pivotally connected by a pin L with the ends of the yoke-arms, and is slotted horizontally from and at its end, as shown at e, to receive the link B of the power-connection,

which link is held pivotally to the pitman by a pin M, while the other end link A is held by a pin N to and between a pair of lugs d' d' formed on the sweep-head.

The hubs d i of both the sweep or power head D and yoke I are fitted fairly between the top and bottom of the press-frame, or between metal wear-plates held thereto; hence the sweep-head and yoke have but little vertical play, and as the sweep is turned the link-connection A B C between it and the end of the pitman E will cause the pitman and yoke to swing around toward one side and the other of the press-frame, each half-turn of the sweep giving one complete effective stroke to the plunger, which by its rebound carries the pitman, the yoke, and the link-connection to extreme backward positions, ready for action thereon of the sweep or power head for giving the next effective stroke to the plunger.

In my prior patent the sweep-head and pitman are connected by an ordinary chain formed of a series of common links, which would operate well so long as the other parts of the press mechanism worked well; but should the full rebound of the plunger be prevented for any reason this old chain link-connection was liable to buckle on itself and catch and lock onto the lower arm of the yoke, and also between the end of the pitman and the outer edge of the sweep-head, thereby jamming the press and occasionally causing breakage of the power castings or chain. A series of experiments has developed the improved chain or link connection A B C, which entirely obviates these difficulties, and which I particularly describe as follows: The link A has a head portion a, preferably made flat at opposite faces, so as to fit quite snugly between the pair of lugs d' d' on the sweep-head, and the pin N passes through and fits closely in a hole n of the link-head a, which, while allowing the link to turn easily on the pin N and clear of the adjacent edge wall of the sweep-head, always holds the link up level, or nearly so, or allows it to sag but little, if any, at its other end, to which one end of the intermediate link C is connected by passage through a hole c only about large enough to receive it easily. The center of the link A, between the holes n c, is preferably filled in solid and by



a web  $a'$ , somewhat thinner than the outer parts of the link, as shown in Fig. 3 of the drawings; but the center filling of the link may be its full thickness, as represented in Fig. 2. The link B is made with a long loop portion  $b$ , preferably made flat at opposite faces and adapted to fit closely between opposite walls of the pitman-slot  $e$ , while the connecting-pin M passes through the interior opening or slot  $b'$  of the link. Across this link, near its end  $c'$ , where the intermediate link C is connected, I prefer to provide a cross bar or piece  $b^2$ , which has for its object to prevent drawing of opposite sides of said link B toward each other, and contracting the width of the link-slot  $b'$  by the heavy strains to which the link-connection is subjected, and always giving ample room in said slot for the free slipping of the pitman-pin M therein in whatever position the pitman may be or may take during the operation of the press, and irrespective of light or heavy strains put upon the power mechanism. Should the link B be made heavy enough or of steel or other substance which will resist contraction of the width of the link-slot  $b'$  by the strains of working the press, the link cross bar or piece  $b^2$  may be dispensed with, as will readily be understood.

As the press is operated, the link B will be held level, or nearly so, by its loop  $b$  entering the pitman-slot  $e$ , and as the link A is held about level in the sweep-head there can be no sagging or buckling of the link-connection A B C, which will allow it to catch in the sweep-head, the yoke, or the pitman, and all danger of clogging or jamming the press or breaking its power mechanism or other parts is obviated.

I prefer to arrange or place the pitman-slot  $e$ , in which the link B has play, as close as may be to the pivot-pin L, which connects the pitman to the yoke or arm I of the power mechanism to gain advantage in applying the power of the sweep-head to the plunger with the very short and substantial triple-link connection herein described, and which carries the pin M of the pitman much closer to the power-head D than does the long chain coupling shown between the power-head and pitman in my prior patent aforesaid, and gives greatly improved results in the efficient and time-saving application of the power in operating the press.

All three links of the improved coupling shown herein may be made of round iron or steel, the same as the middle link C, and any suitable bearing may be provided for the two end links, which will retain the entire link-coupling between the sweep-head and pitman

in approximately horizontal position; but the two end links made flat at opposing faces, where they connect with the sweep-head and pitman, are preferred, as they better maintain approximately horizontal position of the entire link-coupling than if otherwise formed.

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 pivoted sweep-head, the plunger-pitman, and a pivoted yoke or arm coupled to the pitman, of a coupling between the sweep-head and pitman, consisting of two end links held about horizontally to the sweep-head and pitman, respectively, and an intermediate link connecting said end links, the link connected to the pitman-pin having an elongated opening or slot, through which said pin passes, substantially as herein set forth.

2. In a baling-press, the combination, with the pivoted sweep-head, the plunger-pitman, and a pivoted yoke or arm coupled to the pitman, of a coupling between the sweep-head and pitman, consisting of two end links held about horizontally to the sweep-head and pitman, respectively, and an intermediate link connecting said end links, the link connected to the pitman-pin having an elongated opening or slot, through which said pin passes, and provided, also, with a cross-piece or brace-bar next the intermediate link, substantially as herein set forth.

3. In a baling-press, the combination, with the pivoted sweep-head, the plunger-pitman, and a pivoted yoke or arm coupled to the pitman, of a triple-link connection A B C between the sweep-head and pitman, the link A, having a head  $a$ , receiving the pivot-pin and provided with opposite flat faces, and the link B, having an elongated part  $b$  provided with opposite flat faces, and a slot  $b'$ , through which slot the pitman-pivot passes, substantially as herein set forth.

4. In a baling-press, the combination, with the pivoted sweep-head, the plunger-pitman, and a pivoted yoke or arm coupled to the pitman, of a triple-link connection A B C between the sweep-head and pitman, the link A, having a head  $a$ , receiving the pivot-pin and provided with opposite flat faces, and the link B, having an elongated part  $b$  provided with opposite flat faces, and a slot  $b'$ , through which slot the pitman-pivot passes, and also having a cross bar or brace  $b^2$  next the intermediate link, substantially as herein set forth.

GEORGE ERTEL.

Witnesses:

RICHARD JANSEN,  
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