

UNITED STATES PATENT OFFICE.

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BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 554,689, dated February 18, 1896.

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To all whom it may concern:

Be it known that I, HALVOR O. HEM, of Kansas City, Wyandotte county, Kansas, have invented certain new and useful Improvements in Baling-Presses, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to baling-presses, and my object generally is to improve the construction of this class of machines, the particular object being to make the feeding of all baling material in advance of the plunger more positive and reliable.

The invention consists in certain novel and peculiar features of construction and combinations of parts, as will be hereinafter fully described and claimed.

In order that the invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 represents a side elevation of a part of a baling-press embodying my invention. Fig. 2 represents a vertical longitudinal section taken on the line 2 2 of Fig. 3. Fig. 3 represents a top plan view, and Fig. 4 represents a detail perspective view of the folding apron.

In the said drawings, 1 designates a baling-press comprising the usual baling-chamber, consisting of the sheet-metal top, bottom and side walls 2, secured relatively to each other by the usual angle-irons 3, and provided also with a feed-hopper. This feed-hopper comprises the side walls 5 5, the front plate 6, connecting said side walls, and the guard-plate 7, which forms substantially a continuation of the plate 6. Said plate is pivotally mounted at its upper end upon the transverse bolt 8 to swing in a vertical plane, and is limited as to outward movement by the stop-lug 9, projecting internally of the hopper.

10 designates a vertical series of castings, which are arranged at the outer sides of the baling-chamber at the rear end of the feed-opening, or the point of communication with the hopper. The middle casting is provided with a pair of lugs 11, which are bolted securely to the side of the baling-chamber, while the upper and lower castings are arranged snugly against the lower and upper edges,

respectively, of the upper and lower angle-irons, and are provided at their lower and upper sides, respectively, with similar lugs 11, through which bolts extend to secure them firmly to the side walls of the baling-chamber. The retainers 12 are pivotally mounted in said castings, and are projected, under the action of the springs 13, into the baling-chamber through the registering slots 14 in the customary manner. The baling-chamber is secured firmly and reliably in fixed relation to the axle 15 by the U-shaped bolt or clip 16, which embraces said axle and projects upwardly through the lowest casting 10, the projecting ends of said bolt being screw-threaded to receive the clamping-nuts 17. The foot-plate or casting 18 rests upon the top of the baling-chamber, just to the rear of the feed-opening, and is clamped firmly in position by means of the bolts 19, which extend through said foot-plate and also through the upper casting 10, and are engaged at their lower ends by clamping-nuts 20.

The preceding description refers to only one side of the baling-chamber, as illustrated, but it is to be understood, of course, that said parts are duplicated at the opposite side of the machine.

From the foregoing it will be apparent, owing to the fact that the lower and upper castings bear against the upper and lower edges, respectively, of the angle-irons and are clamped firmly in such position by the bolts 16 and 19 and their clamping-nuts, that it is not necessary to employ more than one bolt for each casting in securing them to the side wall of the baling-chamber. The middle casting, having no bearing at its upper and lower edges, must, of course, be secured to the baling-chamber by two or more bolts. By clamping the foot-plate firmly down upon the top of the baling-chamber it prevents the charge of material, under the action of the plunger, forcing upwardly the sheet-metal top wall of the chamber, as is often done in machines not provided with means to secure and brace the front end of said top wall.

21 designates a tucker, which depends into the baling-chamber at the rear end of the feed-opening, and is pivoted externally, as at 22, to the machine. It is held normally in its lowest position, with a yielding pressure, by

means of the spiral springs 23, which are mounted upon guide-rods 24 and bear at their opposite ends against lugs 25 and 26 of the tucker and the hopper, respectively, through which said rods extend.

27 designates the plunger, which is mounted to reciprocate on the bottom of the press with as little friction as possible, and is mounted upon the pitman 28 in the customary manner. Said plunger is connected to a fixed point at the front end of the hopper by means of the folding apron 29. Said apron comprises three sections 30, 31, and 32. The section 30 is of thin sheet metal, and is stamped near one end to form the countersink 33 to receive the head of the bolt 34, which pivotally connects it to the plunger at its front end, and as it exceeds greatly the length of the upper side of the plunger its rear end is supported by the brace-bar 35, which is also pivotally mounted at its front end upon the bolt 34, and is bolted at its rear end, as at 36, to said section 30. The section 31 is hinged, as at 37, to the rear end of the section 30, and fits telescopically in the section 32, which is channeled and is pivotally mounted at its upper end upon the transverse bolt 38, arranged a suitable distance below and parallel with the bolt 8. The section 31 is of such length that when it occupies a vertical position it projects above the upper end of the channeled section and nearly to the transverse bolt 8.

In operation, as the plunger reciprocates back and forth the channeled section 32 swings upon its pivot, and the section 31 reciprocates or slides within said channeled section. As the plunger begins its forward stroke, the sections 31 and 32 occupy the positions shown in Fig. 1. When half the stroke is completed the said sections are vertical, as shown in full lines, Fig. 2, and when the limit of forward movement of the plunger has been reached, as shown by dotted lines in Fig. 2, the sections 31 and 32 occupy the positions shown in dotted lines, Fig. 2. When the plunger advances, the section 31 comes in contact with and swings the guard-plate 7 to the position shown in dotted lines, where it will be noticed that it forms practically a continuation in the same inclined plane of the plate 6, so that all of the baling material in the hopper will pass freely down upon the plunger while advanced. When the plunger recedes the guard-plate 7 swings back to its original position, and, having its lower end adjacent to the top of the plunger, in effect sweeps all of the material from the top of the plunger down through the feed-opening and upon the bottom of the press, and thereby positively and reliably insures that all of the material placed in the hopper will reach the baling-chamber after each withdrawal of the plunger.

One other advantage, it will be noticed, that this press embodies over others of this class

is the pivoting of the section 30 of the apron to the plunger. By pivoting this plate I am enabled to make it so wide that it nearly touches the side walls of the baling-chamber, and therefore prevents any of the charge getting between the side walls and the plunger, and thereby interfering with the free movement of the latter, owing to the fact that the slight lateral or twisting movement of the plunger, due to the varying positions of the pitman, has no effect upon the section 30, which is fixed as to lateral movement by its hinged connection with the section 31. With machines having the plate 30 rigidly connected to the plunger it must be made sufficiently narrow to accommodate the slight twisting movement of the plunger. The tucker acts in the usual manner—that is, as the material is forced forward by the plunger it yields to the pressure and rises, and as the plunger withdraws it drops again and tucks the material down into the baling-chamber.

From the above description it will be apparent that I have produced an apron which effectually closes the feed-opening each time the plunger is advanced, and a guard-plate which insures a deposit of all of the material to be baled into the baling-chamber each time the plunger withdraws. It is also apparent that I have produced a baling-press which is strong, durable, and comparatively inexpensive of manufacture.

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

1. In a baling-press, the combination of a suitable baling-chamber, a communicating hopper, having an opening at its front end, a reciprocating plunger, an apron connecting the plunger with the front end of the hopper, and a pivoted guard-plate within the hopper end and covering the opening of the same, and adapted to swing inward from pressure applied by the apron, when the plunger advances, substantially as shown and described.

2. In a baling-press, the combination of a suitable baling-chamber, a plunger therein, a communicating hopper, having an opening at its front end, a bolt extending transversely of said opening, a plate pivoted at its upper end upon said bolt and flanged inward at its sides, a second plate embraced loosely between said plate and said flanges, a third plate hinged at its rear end to the lower end of the sliding plate, and a vertical bolt pivotally connecting the front end of said plate with the plunger, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

HALVOR O. IEM.

Witnesses:

G. Y. THORPE,
F. G. FISCHER.