

A. WICKEY.
BALING PRESS.
APPLICATION FILED DEC. 29, 1911.

1,025,665.

Patented May 7, 1912.

Fig. 1

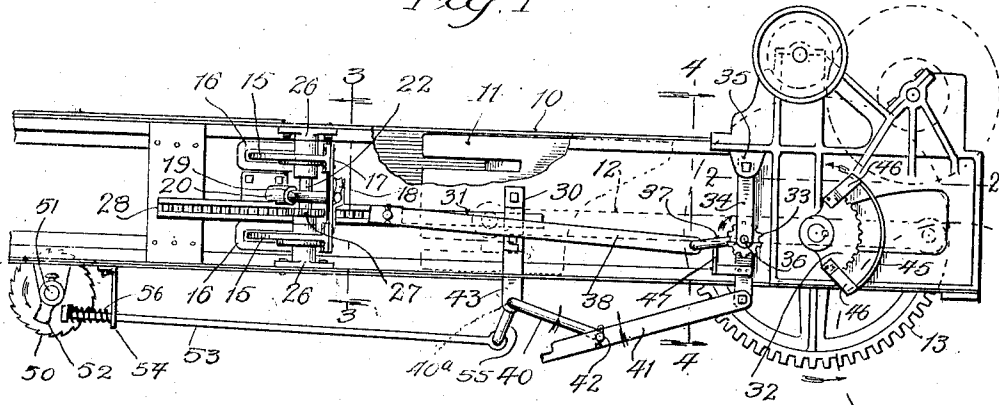


Fig. 2.

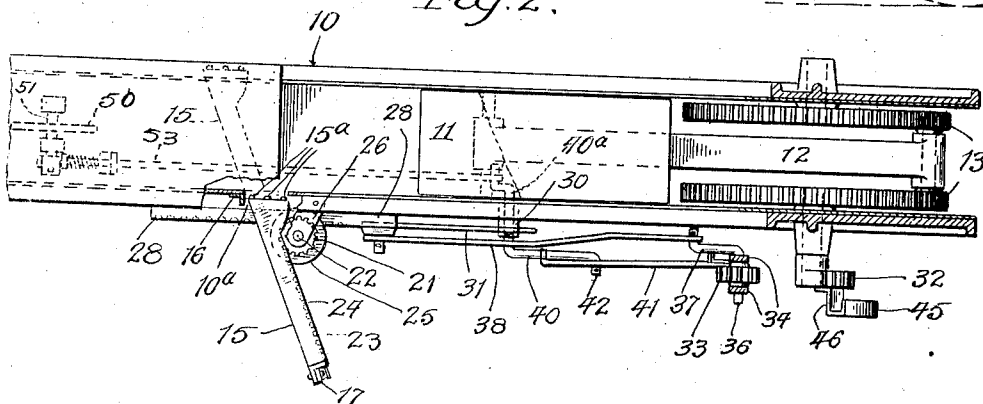


Fig. 3.

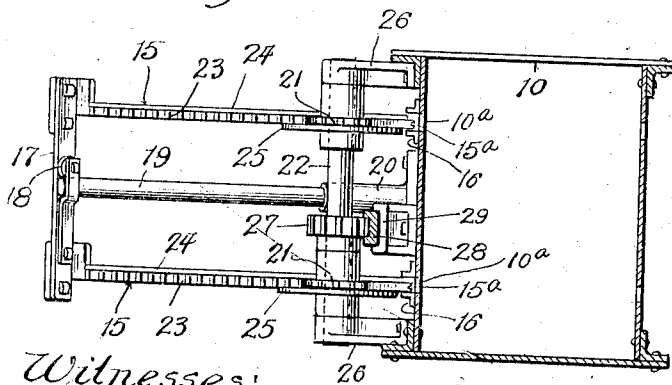
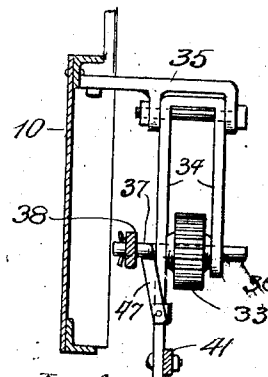


Fig. 4.



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UNITED STATES PATENT OFFICE.

ANDREW WICKEY, OF EAST CHICAGO, INDIANA.

BALING-PRESS.

1,025,665.

Specification of Letters Patent.

Patented May 7, 1912.

Application filed December 29, 1911. Serial No. 668,545.

To all whom it may concern:

Be it known that I, ANDREW WICKEY, a citizen of the United States, residing at East Chicago, in the county of Lake and State of Indiana, have invented new and useful Improvements in Baling-Presses, of which the following is a specification.

This invention relates to baling presses, and more particularly to mechanism for passing bale tie wires through the press, from one side to the other, where the tying is done.

The main object of this invention is to provide wire passing mechanism of novel and improved construction.

Another object is to provide bale tie wire passing mechanism, capable of operating in conjunction with a continuously reciprocating plunger; and timed so as to begin the operation of passing the wire through the press just prior to the time that the plunger comes to the end of certain of its compression strokes, and completing the operation of passing the wire at or about the time that the plunger starts back from such compression stroke.

Other objects and advantages will appear in the course of this specification, and with all of said objects and advantages in view, this invention consists in the several novel features of construction, arrangement and combination of parts hereinafter set forth and particularly defined in the claims.

The invention is clearly illustrated in the drawing furnished herewith, in which—

Figure 1 is a side elevation of a fragment of a press, stripped of mechanical parts that form no part of this invention, and showing my improved wire passing mechanism applied thereto, Fig. 2 is a view thereof, partly in plan and partly in horizontal section, the section being taken on the line 2—2 in Fig. 1, Fig. 3 is a detail, vertical cross section taken on the line 3—3 of Fig. 1 and Fig. 4 is a detail, vertical cross section taken on the line 4—4 of Fig. 1.

Referring to said drawing, which shows one embodiment of the invention, 10, represents the body of a hay baling press. I have illustrated the invention in connection with a press similar to that shown and described in my prior Patent, No. 977,913, dated December 6, 1910, improvements in baling presses, but it is obvious that the invention may be applied to other suitable forms of baling presses. The specification and draw-

ings of said patent fully describe a complete press, consequently no further description of the press is necessary so far as this specification is concerned. As in the press described in my former patent, above referred to, a longitudinally reciprocable plunger 11, is slidably mounted in the body of said press for compressing the hay into bales, said plunger being reciprocated by power transmitting connections, here shown in the form of a pitman 12, running from the plunger 11, to a pair of gear wheels 13, located at the front end of the press and driven continuously in one direction by suitable gearing.

In the form of wire passing mechanism chosen to illustrate the application of the invention, I employ a plurality of wire passers 15, in the form of bars that extend at an oblique angle with respect to the path of travel of the plunger, as seen in Fig. 2. The number of wire passers employed, correspond with the number of bale tie wires that it is desired to use on each bale. The wire passers move through slots 10^a, in the side wall of the press which wall may be reinforced along the slots by U shaped angle irons 16. The plunger is formed with transverse slots leading back from its end face, and in alinement with the wire passers. The working ends of the wire passers have wire receiving fingers 15^a, and the outer ends of said wire passers are connected by a vertical bar 17, which has journaled thereupon a roller 18, arranged to run upon a guide bar or rod 19; secured in a bracket 20, fastened to the side wall of the press. The wire passers are thus guided to move longitudinal of themselves, and their movement is effected at the proper intervals by driving mechanism, operatively connected with the gearwheels 13.

The form of mechanism for intermittently reciprocating the wire passers, as illustrated in the drawing, comprises pinions 21, secured upon a vertically extending shaft 22, and meshing with rack teeth 23, on the wire passer bars. As shown a flange 24, is formed on each bar and overhangs the teeth of the racks, and the pinions 21, are provided at their lower sides with flanges 25, that underhang and partially support the wire passer bars 15. The shaft 22, is journaled in brackets 26, secured to the body of the press and said shaft has secured thereon a pinion 27, which meshes with a

rack bar 28, guided to move longitudinally of the machine, as for instance by means of brackets 29, 30. In the form shown, the rack bar 28, has secured thereto an extension 31, that slides in the bracket 30.

The rack bar 28, is intermittently reciprocated by a segmental rack 32, secured upon the spindle of one of the gear wheels 13, and arranged to engage and rotate a pinion 33, carried upon a swinging support 34. The segmental rack 32, is of such extent as to give one complete rotation to the pinion 33, and its forward end is so located with respect to the pivotal point of the pitman on the gear wheels 13, that it comes into mesh with the pinion 33, at the instant that the forward end of the plunger passes the far end of the wire passers. The movable support 34, for the pinion 33, is shown as fulcrumed at its upper end upon a bracket 35, secured to the press body and is preferably of U-shaped form, as shown in Fig. 4, the two legs thereof straddling the pinion 33, and receiving the shaft 36, which is rigidly secured to the pinion. The far end of the shaft 36, is shown as provided with a crank arm 37, the free end of which is connected by a pitman 38, to the rack bar 28. The proportions of the parts are such that one complete revolution of the crank arm 37, around its fulcrum makes one complete forward and backward movement of the rack bar 28, thereby imparting an oscillatory movement to the pinion 27, shaft 22, and pinions 21, and consequently moving the wire passers through the body of the press and back again to the position shown in full lines in the drawing.

While the support 34, is in the position shown in Fig. 1, the segmental rack 32, may pass by the pinion 33, without engaging the same, but as soon as the plunger 11, is moved forward on the last stroke in compressing a bale, then the pinion 33, is moved into position to be engaged by the segmental rack 32, and mechanism is provided for effecting this result, said mechanism being capable of receiving its motion mechanically, by the action of the press mechanism, or by hand as is desired. In the form shown, I provide a crank arm 40, and a link 41, pivoted together at 42, the shaft 40^a, of the crank arm 40, being journaled in a bracket 43, secured to the underside of the press, and the link 41, being pivoted to the lower end of one of the legs of the support 34. In inoperative position, said crank arm 40, and link 41, lie at an angle to each other as shown in Fig. 1, but when the pinion 33, is to be moved into operative position for engagement with the segmental rack, then the crank arm 40, is swung upward in the direction of the arrow, thereby swinging up the link 41, lengthening the distance between the far ends of

the crank arm and link, and consequently swinging the support 34, upon its fulcrum and moving the pinion 33, over into operative position. I have shown the link 41, as having its free end bent transversely for engagement with the crank arm 40, to limit the upward movement of the crank arm and link. The movement of the support 34, is sufficient to bring the pinion 33, into a position in which the segmental rack 32, will run into mesh therewith, during the next cycle of rotation of the gear wheels 13.

A simple form of mechanism for rocking the crank arm 40, is illustrated in my prior Patent No. 526,883, issued October 2, 1894, for improvements in baling presses, but in the drawing furnished herewith I have simplified that form somewhat and as shown, it comprises a toothed wheel 50, mounted upon a shaft 51, journaled in brackets secured to the under side of the press body, said toothed wheel projecting up into the chamber of the press in position to be engaged by a bale of hay as it is forced through said chamber by the plunger 11. The shaft carries an arm 52, which is arranged to strike against the end of a rod 53, carried by a bracket 54, at one end and connected at its other end with a crank arm 55, of the crank shaft 40^a. A compression spring 56, is shown as confined between an enlargement on the end of the rod 53, and the bracket 54, for returning the parts to the position shown in Fig. 1, after they have been moved by the arm 52. The circumference of the toothed wheel is equal to the length of the bale of hay, and is consequently given one complete rotation by the movement of a bale past the toothed wheel. The parts are so proportioned and adjusted that the arm 52, strikes the rod 53, and throws the pinion 33, into operative position at the time that the plunger 11, is making its last compression stroke to finish a bale.

To guard against injury in case the pinion 33, is accidentally moved toward operative position, I provide a safety device upon the segmental rack which is arranged to prevent the gear pinion from being fully moved into operative position whenever the segmental rack is passing said pinion; the safety device is also arranged to hold the pinion in mesh with the rack at the proper time. In the form shown in the drawing, said safety device comprises a segmental guide strip 45, arranged concentric with respect to the axis of rotation of the segmental rack and supported from the rack as by brackets 46. Said segmental guide 45, is so positioned relative to the axis of rotation, that under normal conditions the guide 45, will pass between the protruding end of the shaft 36, and the shaft of the segmental rack, so that in case the pinion 33, is moved

in the direction to throw it into mesh with the segmental rack while the latter passes the pinion, the guide 45, obstructs such movement by reason of the fact that the protruding end of the shaft 36, strikes against the outer face of the segmental guide 45. When, however, the pinion 33, is moved into operative position after the segmental rack has completely passed by the pinion and before its forward end approaches the pinion, then the guide 45, passes on the far side of the protruding shaft, thereby preventing the accidental disconnection between the pinion and segmental rack until the rack has completed the operation of rotating the pinion.

In connection with the crank arm 37, is shown a dog 47, carried by the support 34, and arranged to prevent the crank arm 37, and pitman 38, from swinging down after the crank arm has made a complete revolution, the dog being so arranged that the crank arm may pass by the same on its upward movement, but is prevented from swinging back.

In the operation of the device, hay is fed into the compressing chamber of the baling press as usual, and the plunger reciprocated by the power transmitting mechanism. The bale tie wires (from the reels) are let in through the slots 10^a, and carried through the press to the opposite side of the machine where they are secured to the wires coming from reels on said opposite side. The hay is it is compressed and forced backward by the plunger, moves said bale tie wires back and in line with the fingers of the wire passers and when the last stroke of the plunger is made to finish the bale, the pinion 33, is moved into operative position, the segmental rack comes into mesh with said pinion, gives the same one complete rotation, thereby reciprocating the rack bar 29, rotating the pinion 27, the shaft 22, and pinion 21, thereon, in a forward and reverse direction, consequently moving the wire passers 15, through the slots of the plunger, through the body of the press and back again, thereby passing a loop of the wire through the press to the other side where said loop is thereafter severed in two and the severed ends knotted or otherwise secured to the ends of the other wire on the opposite side of the press. It is to be noticed that inasmuch as the end face of the plunger passes the extreme end of the wire passers before they begin their movement across the machine, the entire movement of the wire passers forward and back takes back of the end face of the plunger, and that all of said movement takes place during the time that the end face of the plunger travels from a position near the end of its compression stroke to the extreme limit of its stroke and back again. By reason of the fact that the

wire passers extend on an oblique angle with respect to the plane of the press, it is possible to pass the wires to the proper point on the opposite side of the press by movements of said wire passers which are comparatively slow, and without bringing the plunger to a position of rest for any length of time at the end of its compression stroke, and this is particularly desirable in presses of this type.

I realize that various alterations and modifications of this device are possible without departing from the spirit of my invention, and I do not therefore desire to limit myself to the exact form of construction shown and described.

I claim as new and desire to secure by Letters Patent:

1. In a baling press having a reciprocable plunger, wire passing mechanism comprising a reciprocable wire passer extending at an oblique angle to the path of movement of the plunger, and wire passer actuating mechanism arranged to act synchronously with central compression strokes of the plunger.

2. In a baling press, a reciprocable plunger having one or more transverse slots leading back from its end face, one or more reciprocable wire passer bars extending at an oblique angle to the path of movement of said plunger, and arranged to travel in said oblique line, and mechanism for reciprocating said wire passer bars synchronously with said plunger, during certain of its compression strokes, said mechanism being so timed that the reciprocating movements of the wire passer bars, takes place at or near the end of such compression strokes.

3. In a baling press, a reciprocable plunger having a plurality of transverse slots leading back from its end face, a plurality of reciprocable wire passer bars extending at an oblique angle to the path of movement of said plunger and arranged to travel in said slots, mechanism operating synchronously with certain strokes of said plunger for reciprocating said wire passer bars, said mechanism being timed to act at and near the end of said compression strokes.

4. In a baling press, reciprocable wire passers extending at an oblique angle to the path of movement of the plunger of the press, guiding means for guiding said wire passers to move in their oblique lines, a vertical rotary reciprocatory shaft journaled at the side of the press, pinions thereon meshing with toothed racks on the wire passers and power transmitting mechanism actuated by an element of the press mechanism for rotating said shaft forward and back.

5. In a baling press, reciprocable wire passer bars having teeth thereon and movable at an oblique angle to the path of move-

ment of the plunger of the press, a vertical, rotary reciprocatory shaft journaled at the side of the press, pinions thereon meshing with the rack teeth of said wire passer bars, a driven pinion on said shaft, a reciprocable rack bar meshing with said last named pinion, and means for intermittently reciprocating said rack bar.

6. In a baling press, a plurality of reciprocable wire passers, a reciprocable element operatively connected to said wire passers and arranged to effect their reciprocation, a pinion having a crank shaft connected to said reciprocable element, a continuously rotating segmental rack, and means for throwing said pinion and rack into mesh.

7. In a baling press, reciprocatory wire passers, actuating mechanism therefor, including a continuously rotating segmental rack, a bodily movable pinion, a support therefor, and means for moving said pinion into and out of mesh with said rack.

8. In a baling press, reciprocable wire passers, a reciprocable element, and gearing between said wire passers and reciprocable element for transmitting the movement of the one to the other, a continuously rotating segmental rack driven by an element of the gearing of the press, a bodily movable pinion, a movable support therefor and mechanism for shifting said support to bring the pinion into and out of mesh with said rack.

9. In a baling press, a fulcrumed, movable support, a bodily movable pinion having its shaft journaled in said support, a continuously rotating segmental rack, a segmental guide strip carried thereby and arranged to obstruct the bodily movement of the pinion whenever the rack is in position for engagement with the pinion, and means for moving said pinion into and out of mesh with said rack.

10. In a baling press, a reciprocable plunger having transverse slots leading back from its end face, reciprocable wire passer bars extending at an angle to the path of movement of said plunger, a bodily movable rotary pinion, operative connections between said pinion and wire passer bars, a gear wheel operatively connected to said plunger, a segmental rack driven by said gear wheel, and having a hold-back device for the pinion, and means for shifting said pinion into and out of mesh with said segmental rack.

In witness whereof, I have hereunto signed my name at East Chicago, Lake county, Indiana, this 26 day of December 1911.

ANDREW WICKEY.

Witnesses:

MINNIE E. PETERSON,
J. E. FRANCIS.