Dec. 20, 1960

H. L. HAINES

2,965,017

EJECTOR FOR BALING PRESSES

Filed Aug. 12, 1957

3 Sheets-Sheet 1

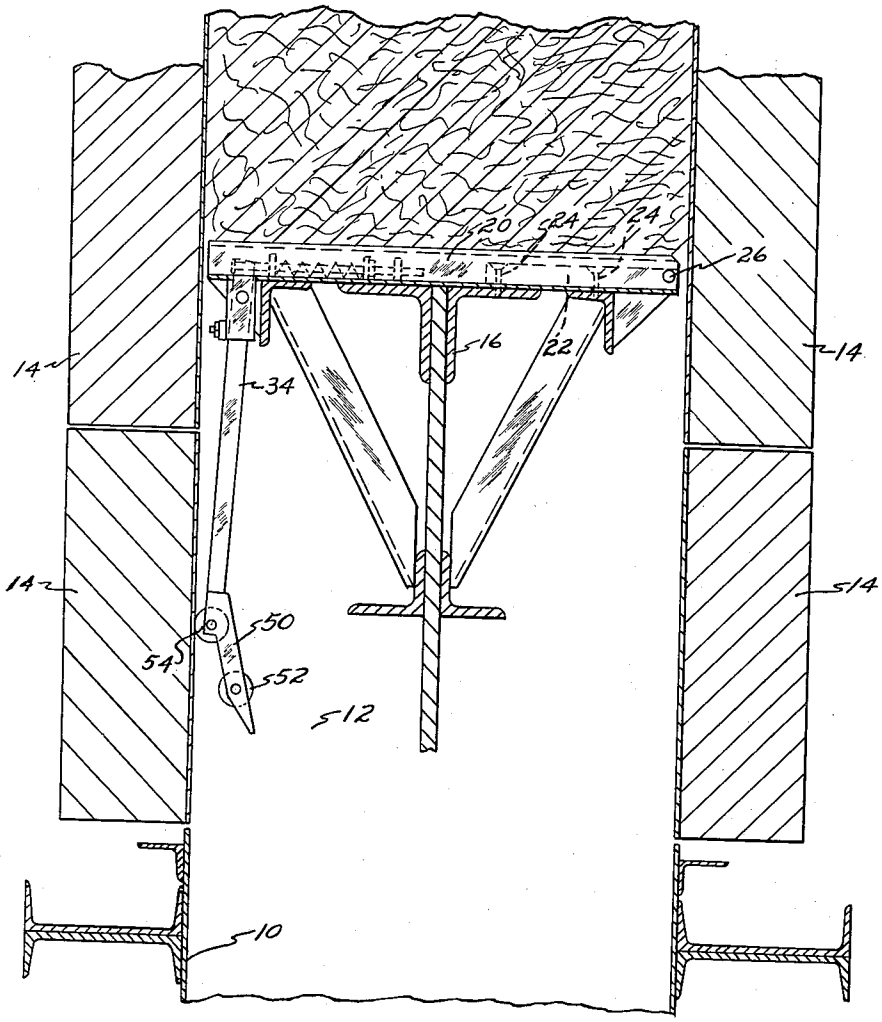


Fig 1

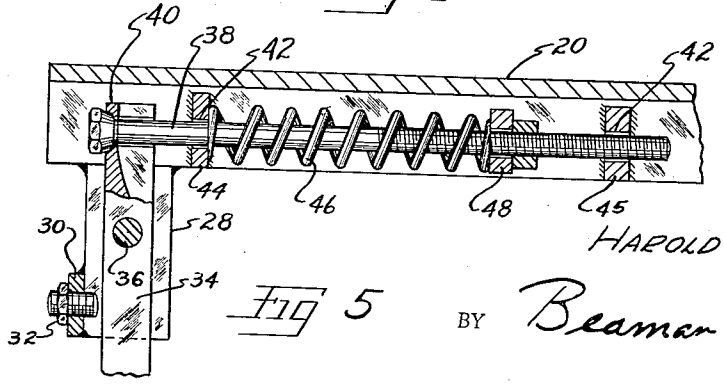


Fig 5

INVENTOR

HAROLD L. HAINES

BY Beaman & Beaman

ATTORNEY

Dec. 20, 1960 H. L. HAINES 2,965,017

EJECTOR FOR BALING PRESSES

Filed Aug. 12, 1957 3 Sheets-Sheet 2

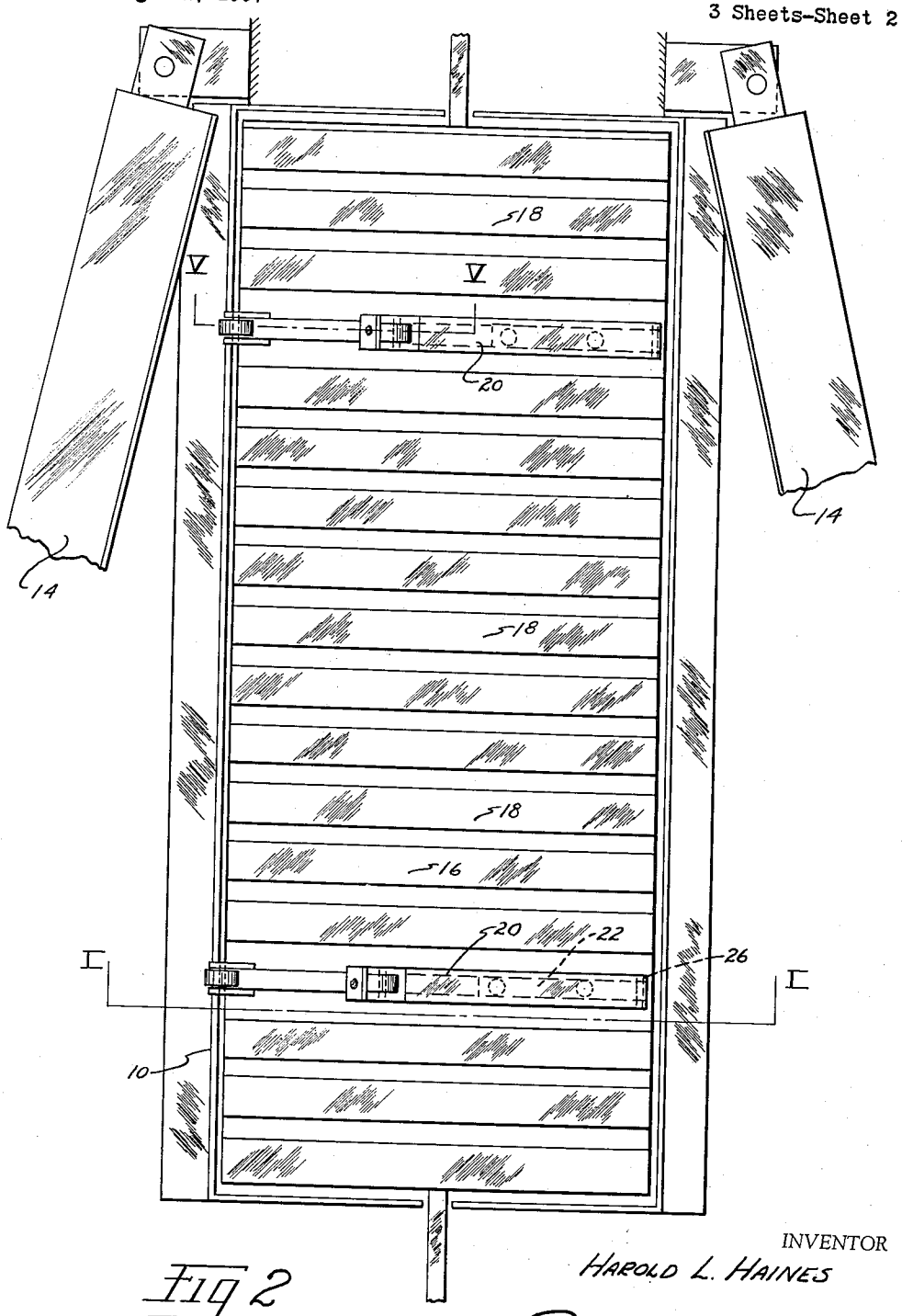


Fig 2

INVENTOR
HAROLD L. HAINES

BY Beaman & Beaman

ATTORNEY

Dec. 20, 1960 H. L. HAINES 2,965,017

EJECTOR FOR BALING PRESSES

Filed Aug. 12, 1957 3 Sheets-Sheet 3

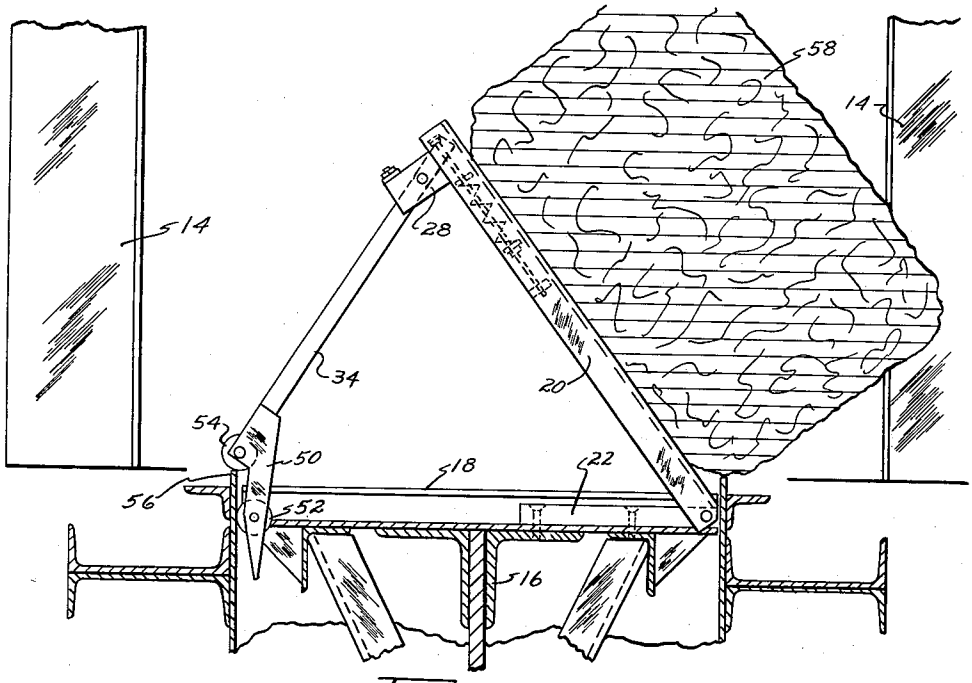


Fig 3

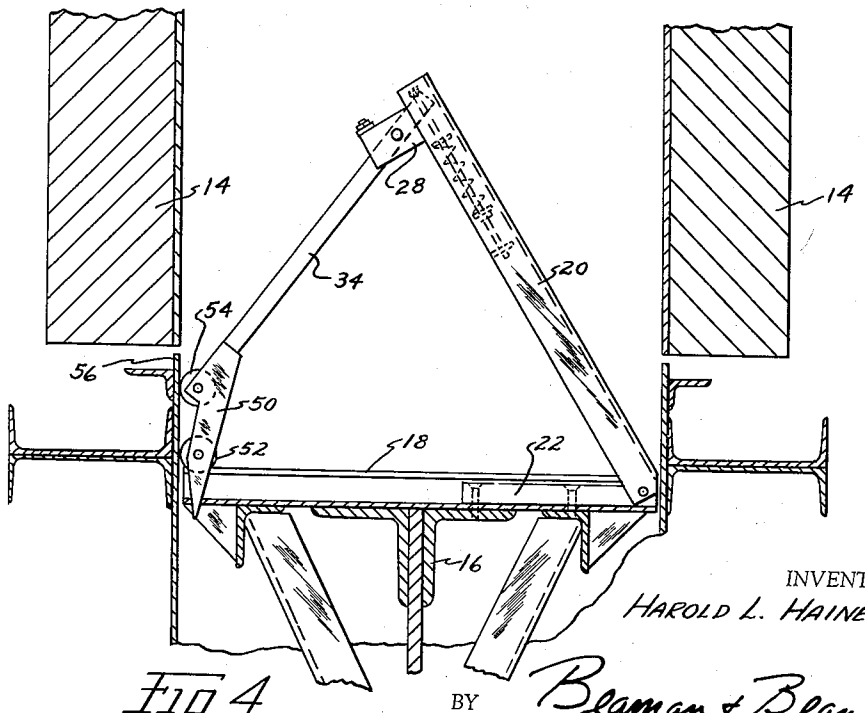


Fig 4

INVENTOR
HAROLD L. HAINES

BY Blaman & Blaman

ATTORNEY

United States Patent Office 2,965,017 Patented Dec. 20, 1960

2,965,017

EJECTOR FOR BALING PRESSES

Harold L. Haines, Ann Arbor, Mich., assignor to Economy Baler Company, Ann Arbor, Mich., a corporation of Michigan

Filed Aug. 12, 1957, Ser. No. 677,511

3 Claims. (Cl. 100—218)

The present invention relates to improvements in baling presses, being particularly concerned with mechanism for automatically ejecting the bale in an up stroke type of press upon the lowering of the platen.

According to the invention, a portion of the platen upon which the tied bale rests, is pivotally mounted and automatically actuated upon lowering of the platen. The actuation is accomplished through lever mechanism which engages with a fixed abutment upon initial lowering of the platen and which is automatically displaced from the abutment as the lowering of the platen is continued following ejection of the bale from the platen.

Thus, an object of the invention is to provide an automatic, inexpensive and serviceable bale ejector for up stroke baling presses.

Another object is to provide a bale ejector that may be readily applied to up stroke baling presses to eject the bale from either side of the press.

A further object of the invention resides in the provision of a bale ejector which is actuated by the lowering of the platen to eject the bale with the continuous lowering movement of the platen following bale ejection function to release the ejector for automatic return to its inoperative position.

A still further object of the invention is to provide an automatic bale ejector which remains inoperative with the side doors of the press closed and which becomes fully automatic upon opening the side doors, following bale compression, upon lowering of the platen.

A still further object is to provide an ejector for baling presses comprising essentially of a pair of lever arms, one arm being pivoted adjacent one edge of the platen, the other arm being pivoted to the opposite end of the first arm and adjacent the opposite side of the platen, the second arm being spring urged toward a fixed abutment for engagement therewith to act as a prop to pivot the first arm about its pivot with the platen as the platen is lowered relative to the fixed abutment; the second arm being displaced from the fixed abutment upon continuous lowering of the platen following bale ejection by the pivotal action of the first arm.

These and other objects and advantages of the invention will more fully appear from the following specification and claims.

In the drawings,

Fig. 1 is a fragmentary vertical section, taken on line I—I of Fig. 2, of a baling press embodying the invention with the platen on the completed up stroke,

Fig. 2 is a plan view of the platen showing the bale ejector elements,

Fig. 3 is a view similar to Fig. 1 showing the platen on the down stroke and the bale being ejected,

Fig. 4 is similar to Fig. 3 showing the platen just after bale ejection and the ejector released for return to its position of Fig. 1, and

Fig. 5 is an enlarged detail of the spring actuator for the prop arm of the bale ejector, taken on line V—V of Fig. 2.

Referring to the illustrated embodiment of the invention, the improvement in bale ejectors has been shown applied to an upstroke baling press having a lower chamber 10, an upper chamber 12 defined by individually hinged doors 14 located upon opposite sides of the press and a vertically reciprocated platen 16 having a bed defined by horizontal slats 18 upon which the material to be baled is supported and compressed. In practice, with the door 14 closed and the platen 16 lowered into the bottom of the chamber 10 the loose material to be baled is placed in the chambers 10 and 12. Thereafter the platen 16 is raised to the position shown in Fig. 1 to compress and form the bale ready for ejection through the doors 14.

The automatic ejector mechanism, according to the present invention, comprises one or more arms 20 replacing one or more slats 18 in the bed of the platen 16. While the loose material is being loaded into the press and during the baling operation the arms 20 will be horizontally disposed in the plane of the slats 18 as shown in Fig. 1. The arms 20 may be of channel sections to nest over elongated supports 22 rigidly attached to the platen 16 by fasteners 24 and each having a cross hole at its outer end to carry a pin 26 upon which one end of the arm 20 is pivotally supported. The supports 22 also function to locate and support the arms 20 in the plane of the slats 18.

At the opposite end of each arm 20 from the pin 26 a depending support 28 is provided having spaced members welded to the sides of the arm 20 and connected by a cross bar 30 carrying an adjustable stop 32. The prop arm 34 is pivotally carried on a cross pin 36 in the support 28. To continually spring urge the arm 34 clockwise, as shown in Fig. 5, a spring bolt 38 engages the upper end 40 of the arm 34. The bolt 38 is supported for axial movement in opening 42 defined in the cross members 44, 45 welded between the sides of the arm 20. A spring 46 on the bolt 38 is compressed between the member 44 and the adjustable abutment 48. The stop 32 determines the position of the arm 34 under the stress of the spring 46.

At the lower end of each prop arm 34 is a latch bracket 50 angularly disposed to the arm 34 and carrying a pair of rollers 52 and 54. With the door 14 closed as the platen is raised and lowered the arm 34 will remain in the inoperative position shown in Fig. 1 with the roller 54 engaging the side defining structure of the chambers 10 and 12. When it is desired to eject a bale, the doors 14 are thrown open. As the platen 16 is lowered from the position shown in Fig. 1, the roller 54 will latch over the abutment 56, having been urged into the vertical plane of the abutment 56 by the spring 46 and aligned by the stop 32. Until actual engagement between the abutment 56 and roller 54 takes place the arm 20 will remain in the plane of the slats 18. Thereafter, as the platen 16 continues to lower the arm 20 will spring upwardly toward the position shown in Fig. 3 to eject the bale 58.

Following ejection of the bale 58 the arm 20 will continue to swing clockwise as the platen continues downwardly until the arms 34 and 20 assume a position at which the roller 52 becomes a fulcrum on the side of the chamber 10 and the roller 54 is drawn from the abutment 56 whereupon the arms 34 and 20 and their associated structure drops by gravity to dispose the arm 20 again in the plane of the slats 18, as shown in Fig. 1.

In practice, it is convenient to have the abutment 56 defined by the doorway structure. However, this is optional and any other suitable abutment may be provided for supporting the arm 34. If the door 14 associated with the abutment 56 is closed with the prop arm 34 in supported position, the door 14 will act to trip the arm 34

to return the arm **20** to the plane of the slats **18**. This is, likewise, optional and might be termed a manual release of the ejector mechanism whereas the normal release and actuation of the ejector is completely automatic upon lowering of the platen.

It will be understood that two sets of ejector arms **20** and **34** may be employed hinged upon opposite sides of the platen **16** so that bales may be ejected from either side of the press by merely adjusting the stops **32** to render the desired arms **34** operative. For example, if the stops **32** of one set of ejectors are adjusted inwardly to keep the rollers **54** thereof from engaging the abutment **56** of the side at which the bale is to be ejected the arms **20** of the set selected to be inoperative will not be actuated.

I claim:

1. In an up stroke baling press of the type described, in combination with a chamber structure having a wall, a platen reciprocable in said chamber structure to form a bale, said platen having a bed upon which the bale is formed, a bale ejector mechanism comprising an arm disposed in the plane of said bed beneath the formed bale and pivotally connected at one end to said bed along one edge thereof, a second arm pivotally connected at its upper end to the opposite end of said first arm, said second arm normally depending beneath said bed and adjacent the wall of said chamber structure, an abutment disposed along the wall of said chamber structure, a shoulder upon the lower end of said second arm for engaging with said abutment upon downward movement of said platen to rock said first arm out of the plane of said bed to eject a formed bale, means continuously acting to urge said second arm toward said wall to bring said shoulder into engagement with said abutment upon movement of said platen in said chamber, an angularly disposed extension at the lower end of said second arm and having a wall engageable portion thereon spaced from said shoulder in an outwardly direction with respect to the pivotal axis of said arms, predetermined pivotal movement of said second arm about said shoulder while resting on said abutment bringing said wall engaging portion into engagement with said wall with an accompanying shift of the fulcrum point of said second arm from said shoulder to said wall engageable portion to withdraw said shoulder from said abutment whereby said second arm is disposed along said wall and out of engagement said abutment with said bale ejector returned to the plane of said bed.

2. In the combination of claim 1 wherein said shoulder is disposed in off-set relation to a straight line extending from the pivot between said arms and the wall engageable portion of said means whereby with said shoulder engaging said wall the wall engageable portion of said means is out of engagement with said wall.

3. In the combination of claim 2 wherein said shoulder and said wall engageable portion means are in the form of rollers.

References Cited in the file of this patent

UNITED STATES PATENTS

215,450	Gilman	May 20, 1879
235,294	Riesel	Dec. 7, 1880
236,609	Miller	Jan. 11, 1881
1,121,571	Sheppard	Dec. 15, 1914