

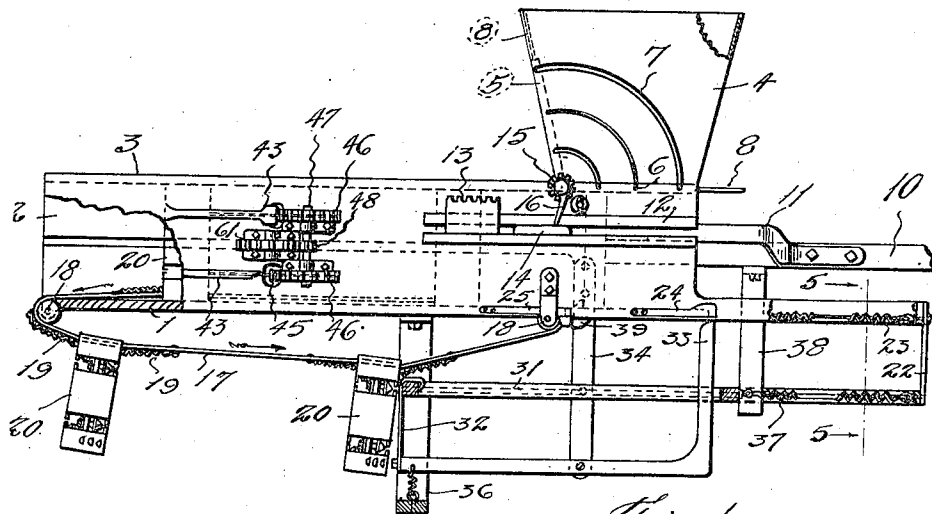


Fig. 1.

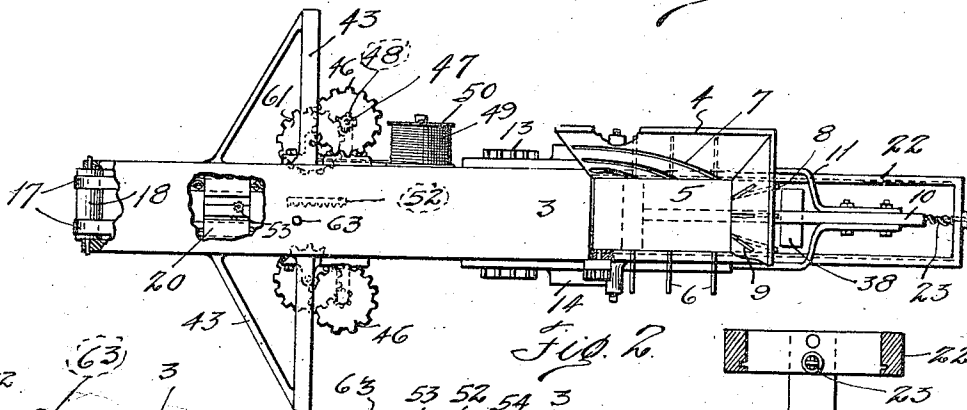


Fig. 2.

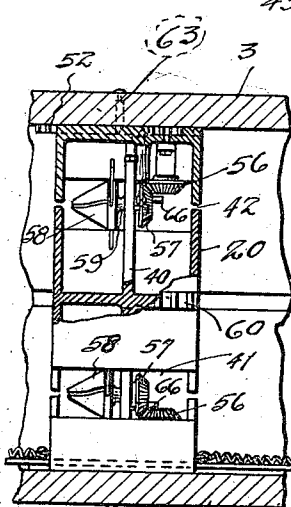


Fig. 4.

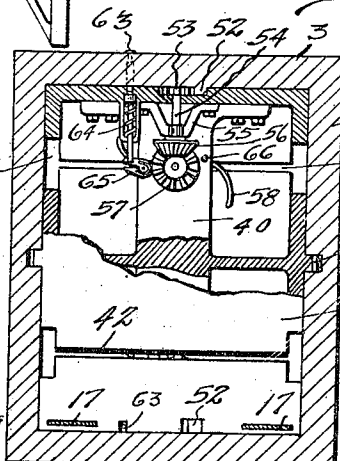


Fig. 3.

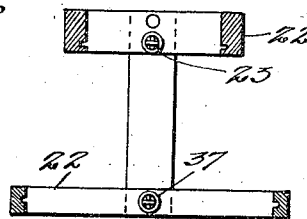


Fig. 5.

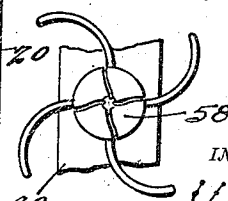


Fig. 6.

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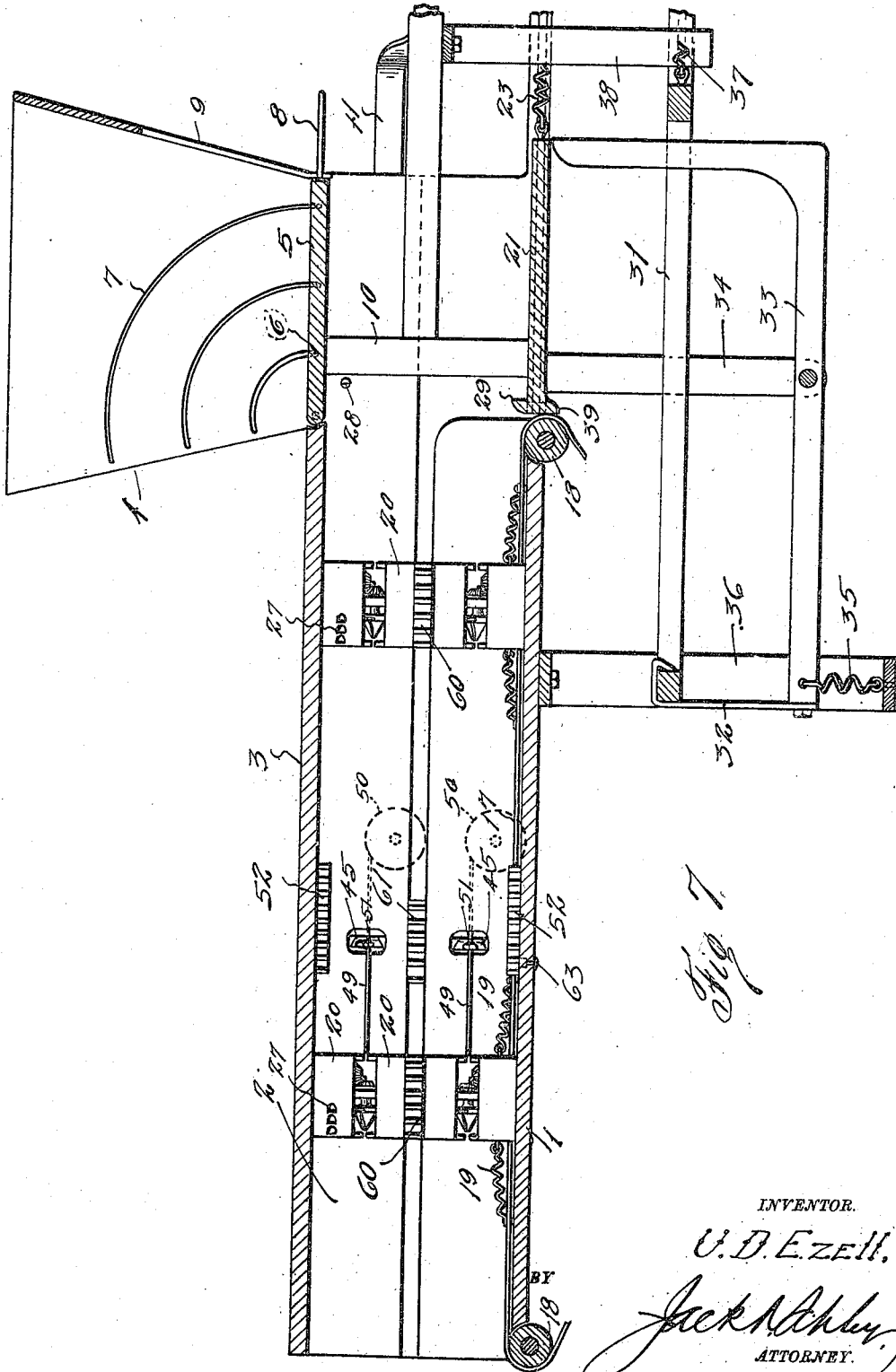
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1,237,495.

U. D. EZELL.
BALING PRESS.
APPLICATION FILED DEC. 11, 1916.

Patented Aug. 21, 1917.
4 SHEETS—SHEET 2.



INVENTOR.

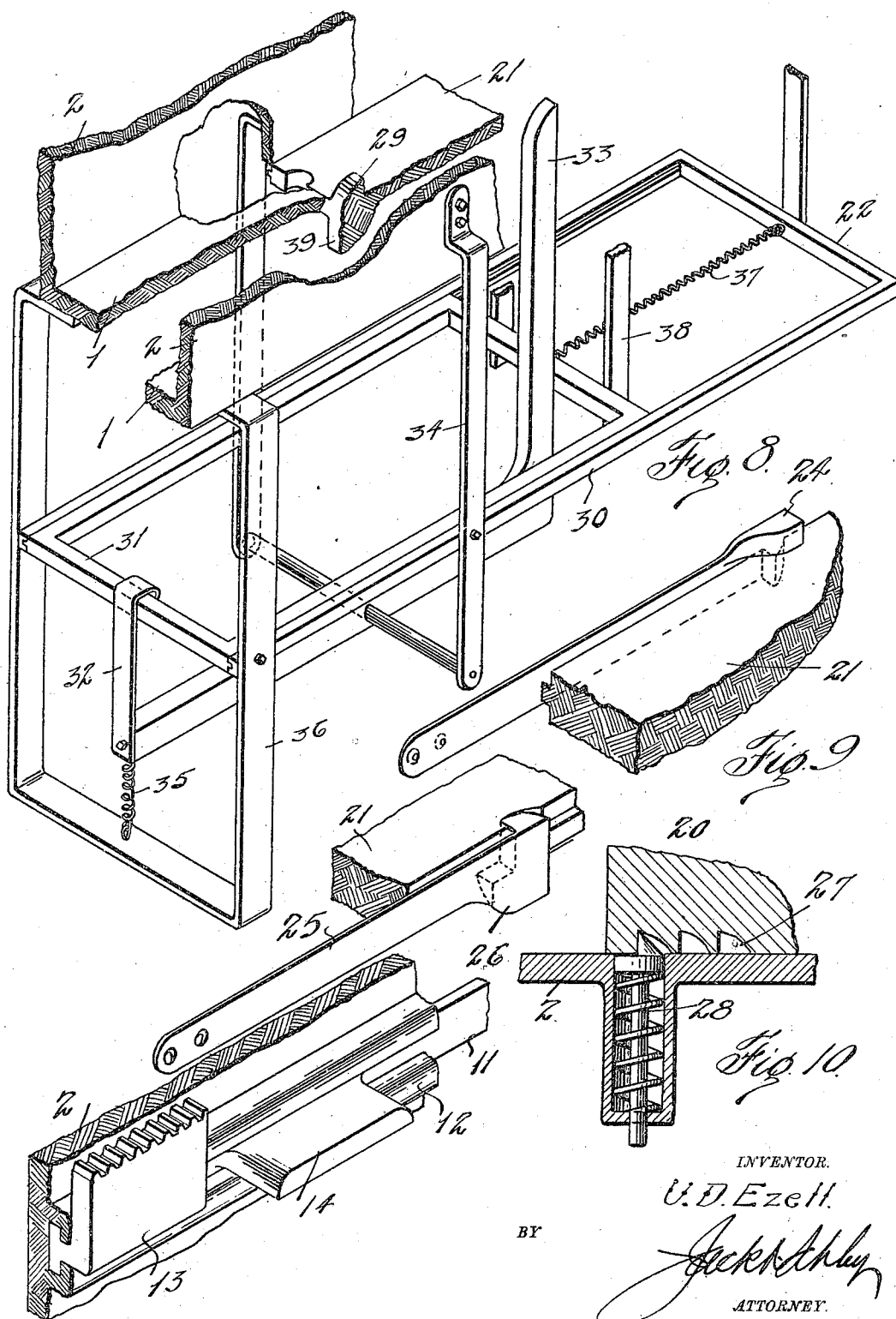
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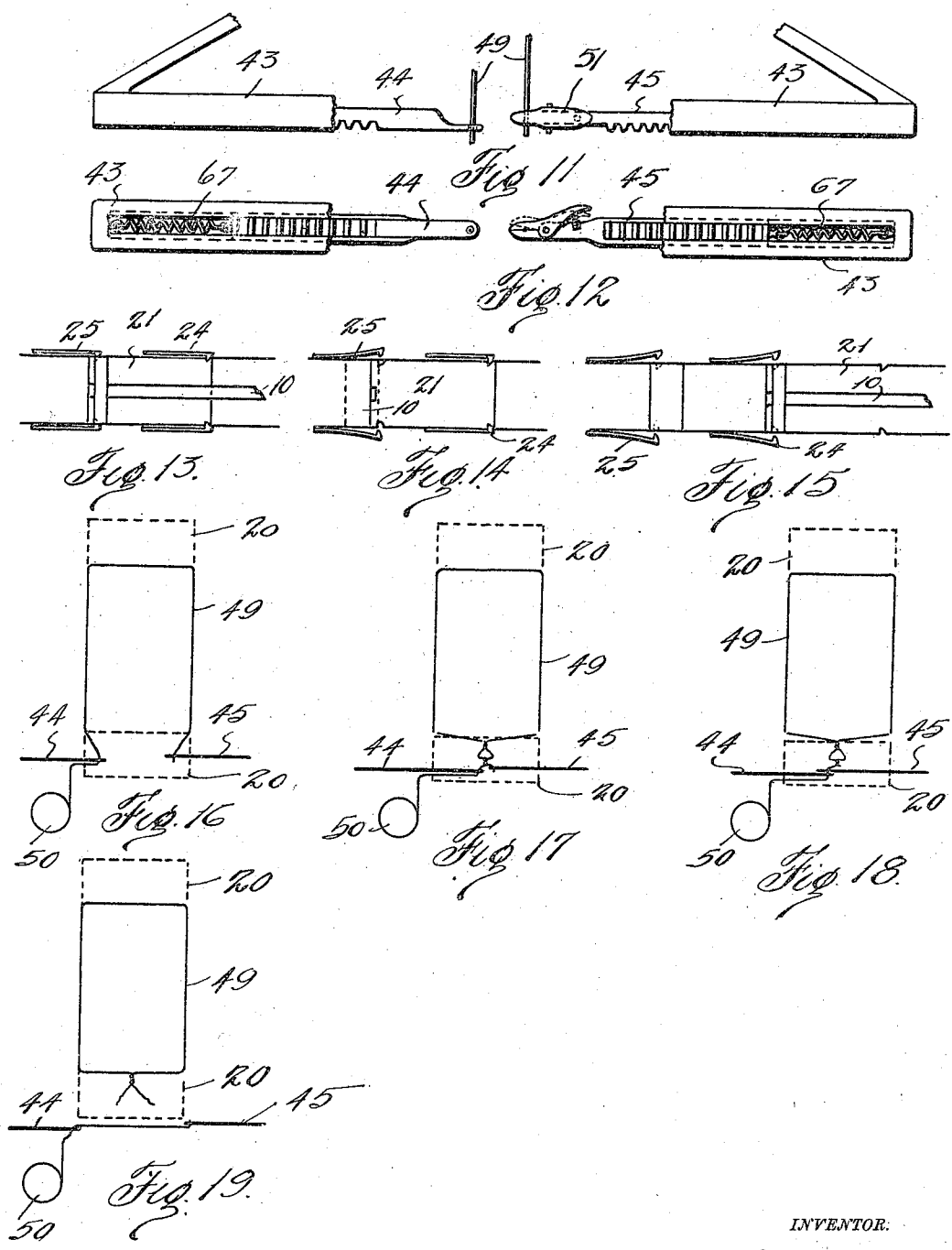
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BALING-PRESS.

1,237,495.

Specification of Letters Patent.

Patented Aug. 21, 1917.

Application filed December 11, 1916. Serial No. 136,143.

To all whom it may concern:

Be it known that I, UBERTO D. EZELL, a citizen of the United States, residing at Kimball, in the county of Bosque and State of Texas, have invented certain new and useful Improvements in Baling-Presses, of which the following is a specification.

My invention contemplates a baling press having a plurality of blocks mounted on an endless connection and operating in conjunction with a tying mechanism operating through the blocks which are hollow for this purpose.

In carrying out the invention a press is built with a plunger and a hopper over the baling chamber. A feeding device in the hopper whereby a maximum load is fed to the chamber is operated by the plunger. An endless belt carrying flexibly mounted blocks travels through the press and co-operates with mechanism whereby the blocks are brought into position at the proper time. The blocks are made hollow so that tying plungers may operate freely through the same.

The invention will be more readily understood from a perusal of the following specification and by reference to the accompanying drawings, in which an example of the invention is shown, and wherein:

Figure 1 is a side elevation of the press,

Fig. 2 is a plan view,

Fig. 3 is a transverse vertical sectional view of one of the blocks,

Fig. 4 is a sectional detail showing a portion of the press and one of the blocks,

Fig. 5 is a sectional view taken on the line 5-5 of Fig. 1,

Fig. 6 is a detail of the wire twisting head,

Fig. 7 is a longitudinal sectional view of the press,

Fig. 8 is an isometrical view of the door mechanism and component parts,

Fig. 9 is a similar view of the door,

Fig. 10 is a sectional detail of the block latch,

Fig. 11 is a detail of the tying plungers in plan,

Fig. 12 is a side elevation of the same parts,

Figs. 13, 14 and 15 are diagrammatical views indicating the successive stages of the release of the door, and

Figs. 16 to 19 inclusive are diagrammatical views depicting the successive stages of the tying operation.

In the drawings the numeral 1 designates the bottom of a press, which is also provided with side walls 2 and a top 3. A hopper 4 is mounted on one end of the press and is provided with a swinging feeding plate 5 which has an area substantially equal to that of the opening at the bottom of the hopper. Pins 6 project laterally from the sides of the plate and engage in segmental slots 7 in the sides of the hopper; while fingers 8 radiate from the front edge and engage in correlated slots 9 in the front wall of the hopper. By this means when the plate is swung down it carries with it a load having a greater area, in fact it acts on the whole area of the upper portion of the hopper.

The press is provided with a reciprocating plunger 10 operated by suitable means (not shown) and having side brackets 11 attached thereto. These brackets operate in guide ways 12 on the outside of the press walls 2 and each carries a head 13 having gear teeth. A pinion 15 is fixed on each end of the pivot shaft of the plate 5 and as the plunger is driven into the box the heads engage the pinions in such time as to swing the plate 5 down and press the load into the path of said plunger. As the heads ride from mesh with the pinions dogs 16 also fastened on the shaft of the plate are engaged by lugs or wings 14 projecting from the brackets, whereby the plate is held against swinging upward until the heads engage the pinions on the backward stroke of the plunger.

In the baling chamber of the press travels an endless connection comprising two endless belts 17 passing over rollers 18, the return run of the belts passing under the bottom 3. These belts having sliding engagement with baling blocks 20; while coiled springs 19 attached to each side of the blocks have their outer ends secured to the belts. In this way the blocks are resiliently held on the belt and may slide relatively of the same when subjected to pressure. Normally the blocks occupy the positions shown in Figs. 1 and 7. When hay is dropped into the path of the plunger 10 and is forced against the block just beyond the hopper, said block is moved forward whereby motion is imparted to the belts. As the bale is formed the blocks are moved until the first block under the press is brought up against a door 21 forming the floor of the press box.

This door is mounted to slide rearwardly sufficiently to permit the block to swing up into the press box. A frame 22 extends rearwardly from the press and a coiled spring 23 attached to this frame and also to the door tends to pull the door rearward. The door is held in its closed position by two pairs of spring latches 24 and 25 respectively mounted in the side walls 2 and engaging the side edges of the door. The latches 24 as shown in detail in Fig. 9 have bosses disposed in the path of the plunger which are engaged by the latter at the end of its back stroke, whereby the latches are spread apart. The other latches 25 have bosses 26 projecting below the bottom 3 and in the path of the blocks.

As the hay is packed against the block in its path the belts will be moved and the block nearest the door and under the bottom 3 will be carried toward the door. The frame 22 has a horizontal guide 30 in which a kicker frame 31 is mounted to slide. This frame is held forward by a latch 32 mounted on the end of a bell-crank lever 33 pivoted in a hanger 34. A coiled spring 35 attached to the forward end of the lever and also connected to a hanger 36, tends to pull the lever downward. As the belts move they carry the block above mentioned over the front edge of the kicker frame into which said block swings. A coiled spring 37 is attached to the rear end of the frame 31 and has its opposite end attached to the frame 22. When the door reaches the end of its opening movement a lug 39 on its underside engages and swings the lever 33 whereby the latch 32 is raised and the kicker frame released. The spring 37 suddenly pulls the frame rearward so that the block in its path is virtually "kicked" up into the press box.

Before the door can be opened the latches 25 must be spread and this is accomplished by the block being carried between the bosses 26 by the belts. Fig. 13 indicates the normal position of the door and the latches; Fig. 14 shows the latches 25 spread and Fig. 15 shows the latches 24 also released and the door opened. The plunger carries a depending yoke 38 which acts as stop for the rearward movement of the door and the kicker frame. When the plunger is moved forward the yoke moves the door and said frame to their closed positions. On each side of each block is a series of notches 27 which are engaged by plungers 28 projecting from the side walls 2, when the block is swung up into the press, whereby the block is prevented from falling back through the opening. A lug 29 on the door engages the plunger head and limits the rearward movement of the door.

As the baling advances the blocks are carried outward toward the end of the press.

The blocks as before stated are hollow and each comprises a central web 40 which unites the parts. Each block is virtually separated into three sections by slots 41 and slits 42. At each side of the press needle guides 43 are mounted and carry transversely operating needles 44 and 45 respectively, there being two needles 44 in superposed order on one side, and two needles 45 in opposed relation thereto on the other side. Each needle has gear teeth along one edge engaged by a pinion 46 fixed on a shaft 47 which in turn is revolved by a pinion 48. As the operation of the upper set of needles is the same as the lower set, a description of one will do for both.

In Fig. 16 I have shown how the baling wire 49 from a spool 50 on the wall 2 is led through the eye of the needle 44 and looped across the baling chamber to the clamp 51 on the end of the needle 45. As the hay is pressed against the wire the same is drawn through the eye so that it surrounds the bale on three sides. Within the baling chamber is mounted a pair of gear racks 52, one on the bottom 1 and the other the under side of the top 3. The rack 52 is positioned so as to be engaged by a pinion 53 counter-sunk in the top of the block, when said block arrives between the needles. The block also has gear racks 60 on each side which engage gears 61 mounted in mesh with the pinions 48.

As the block advances the shafts 47 are revolved whereby the needles are driven into the blocks through the slots 41 and the wire carried through the slits 42. The pinion 53 is fixed on the upper end of a vertical shaft 54 mounted in a bracket 55 within the block and on one side of the web 40. A bevel gear 56 on the lower end of the shaft meshes with a bevel gear 57 which is attached to a wire twister 58 mounted on the opposite side of the web and having a neck 59 behind its arms. As the needles approach each other the twister is revolved and the wires twisted together at the apex of the twister and around the neck 59, the twist around the neck being unwound to release the twister.

The block is finally moved to such position that a boss 63 on the wall of the press is engaged by a spring pressed plunger 64 mounted in the block and attached to the ledger blade of a pair of shears 65. When the plunger is depressed the shears are operated and the wire cut. In the mean time the needles have advanced to an overlapping point and the clamp 51 has been opened by engagement with a pin 66 on the web 40. One end of the twisted wire is released by the clamp and the other end is cut off by the shears, thus leaving the end of the untwisted wire in the clamp. When the needles are driven into the blocks they extend

coiled springs 67 which return the needles to their normal position when the racks 60 ride out of mesh with the gears 61. When the bale is pushed out of the press it is complete.

What I claim, is:

1. The combination in a baling press of a plurality of baling blocks, an endless connection on which the blocks are mounted, and means for introducing the blocks into the press at a predetermined time in the operation of the press including a door normally closing the block entrance.

2. The combination in a baling press of plurality of baling blocks means for traversing the blocks longitudinally of the press, means for compressing a bale between the blocks, and a bale tying mechanism operated by each block in successive order.

3. In a baling press, a press box, a hopper above the box, a feeding device swinging in the hopper and having projections covering the greatest area of the contents of the hopper, means for displacing the load from the press box, and means for baling the load.

4. In a baling press, the combination with a plurality of baling blocks each carrying a wire tying device, of wire needles mounted on the press, means for driving the needles into the blocks, said needles cooperating with the tying device, and means for operating the tying device.

5. The combination in a baling press of a baling box, a plurality of baling blocks, means for connecting the blocks together and traversing them through the press box, a closure normally barring the entrance of blocks into the box, a plunger operating through the box, means for opening the closure, and means for giving an accelerated movement to the block adjacent the closure when said closure is opened, whereby said block is introduced into the press box.

6. In a baling press, a press box, a carrier traveling through the box, a plurality of blocks mounted on the carrier and arranged to be successively introduced into the box, and a spring pressed device engaging and throwing the blocks into the press box.

7. In a baling press, a press box, a carrier traveling through the box, a plurality of baling blocks mounted on the carrier, a sliding door normally closing the block entrance to the box, means for opening the door, means holding the door closed arranged to be operated by blocks, a plunger operating through the box, a spring pressed throwing frame mounted adjacent the door for throwing the blocks through the opening of the door when the latter is open, the door being closed by the plunger and the thrown device being restored by the door.

In testimony whereof I affix my signature.

UBERTO D. EZELL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."