No. 646,345. Patented Mar. 27, 1900.

E. F. BATES.

ROLLER BALING PRESS.

(Application filed Aug. 26, 1899.)

(No Model.) 4 Sheets—Sheet 1.

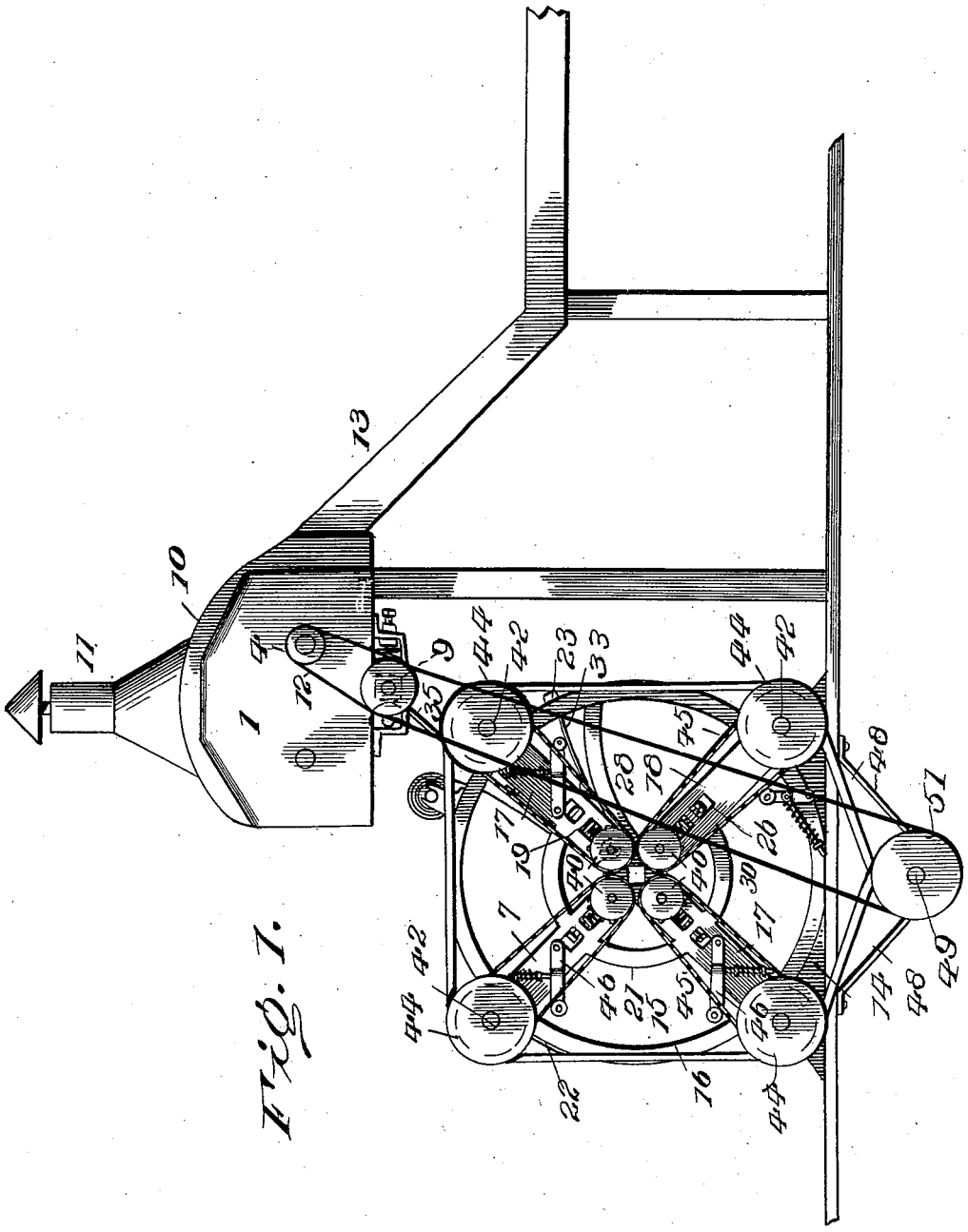

Fig. 1.

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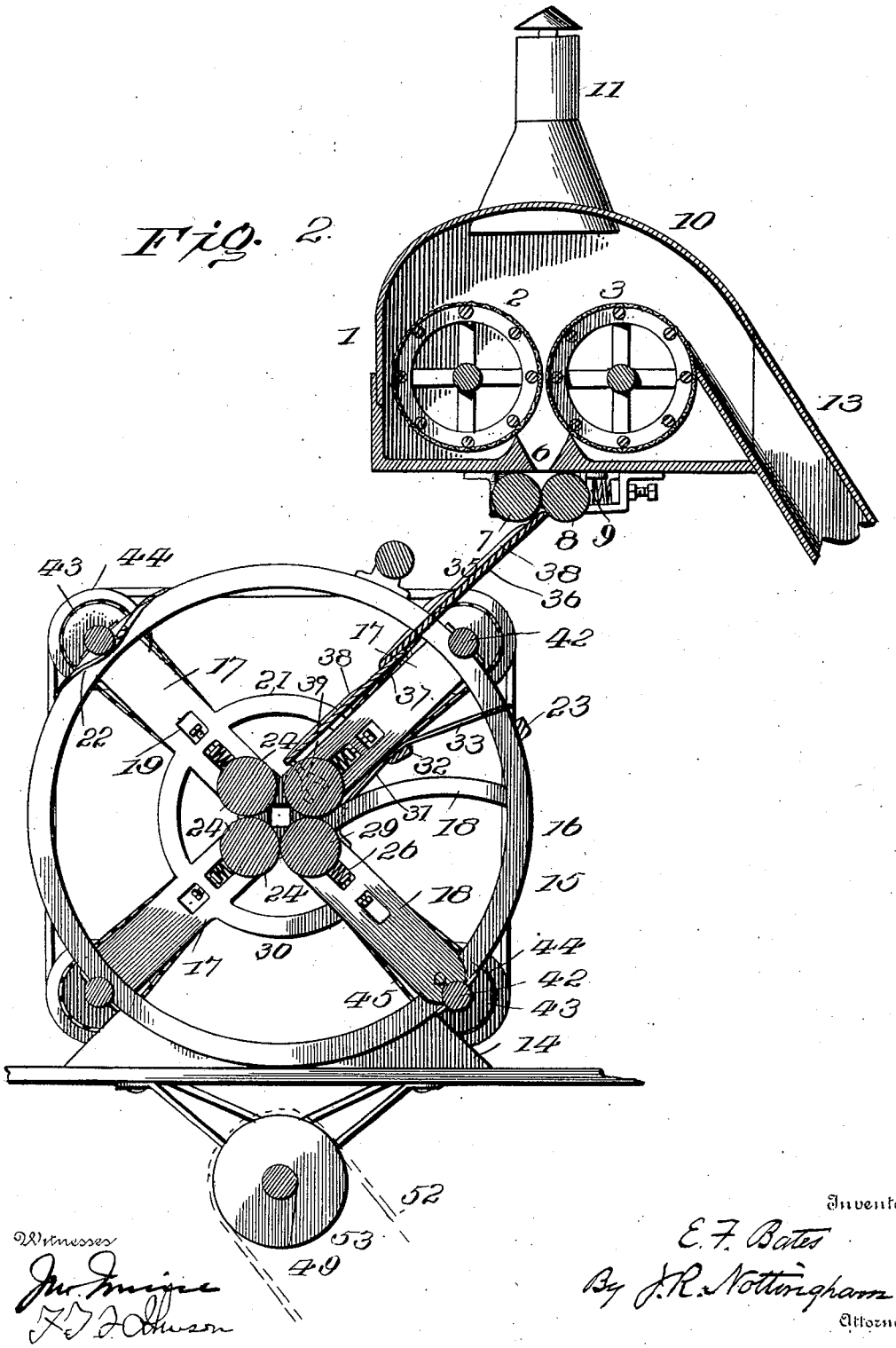
Fig. 2.



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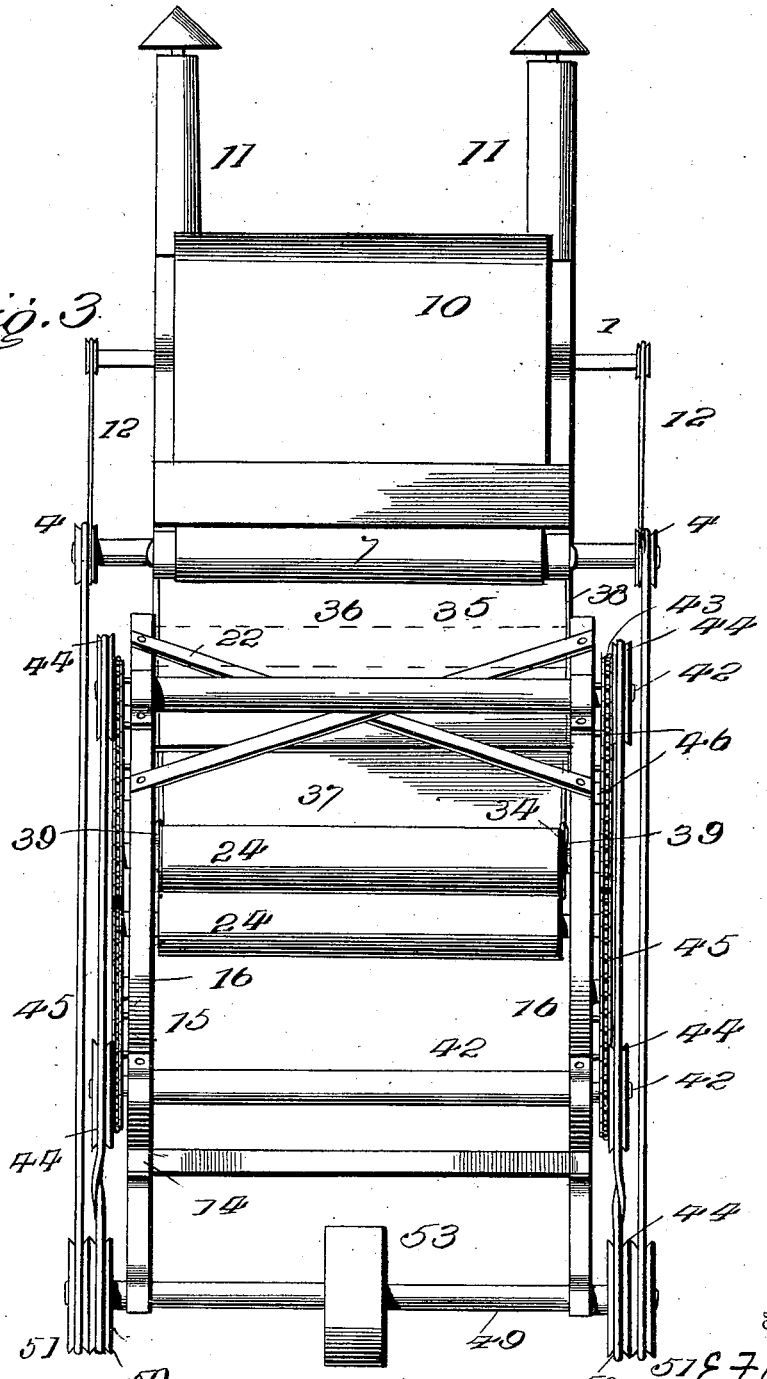
(No Model.) 4 Sheets—Sheet 3.

Fig. 3.



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ROLLER BALING PRESS.

(Application filed Aug. 26, 1899.)

(No Model.) 4 Sheets—Sheet 4.

Fig. 4.

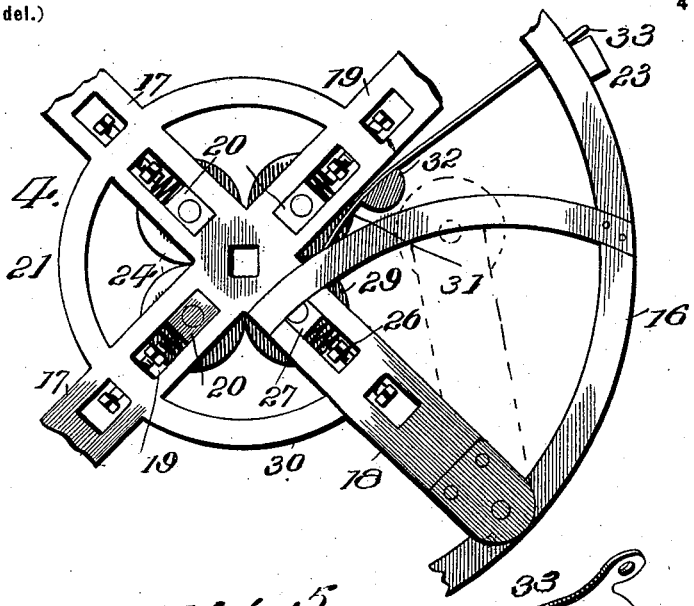


Fig. 5

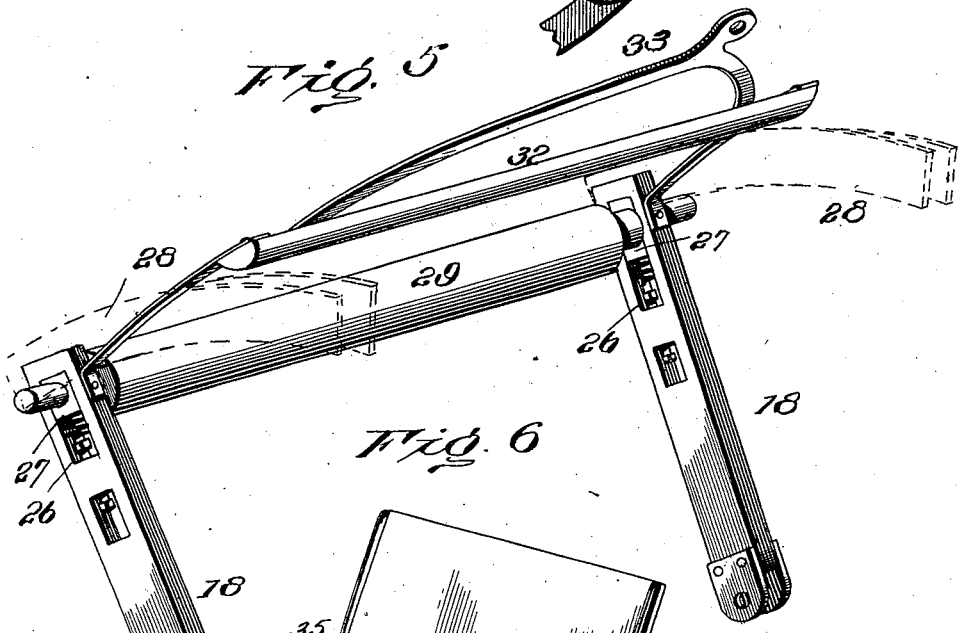
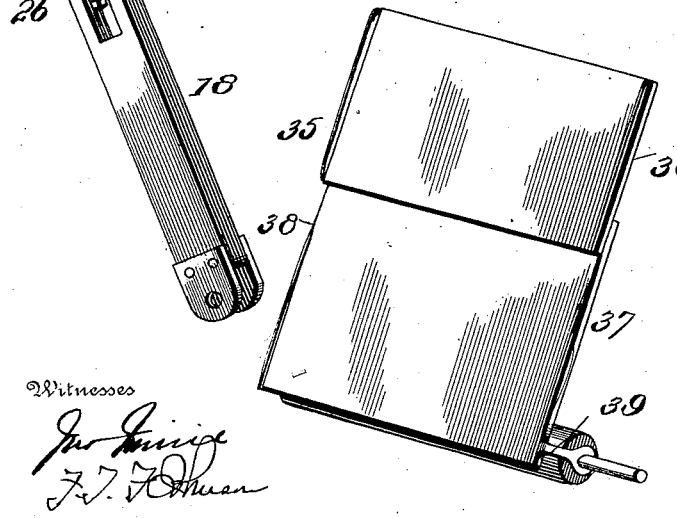


Fig. 6



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UNITED STATES PATENT OFFICE.

EDMOND FRANKLIN BATES, OF LLOYD, TEXAS.

ROLLER BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 646,345, dated March 27, 1900.

Application filed August 26, 1899. Serial No. 728,596. (No model.)

To all whom it may concern:

Be it known that I, EDMOND FRANKLIN BATES, a citizen of the United States, residing at Lloyd, in the county of Denton and State of Texas, have invented certain new and useful Improvements in Roller Baling-Presses; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to that class of baling-presses employing rollers to compress the cotton or other material into a cylindrical form without the use of a core or former; and it consists, essentially, of a condenser-box provided with two condenser-cylinders and two bat-rollers, the former operating to feed the cotton lint to the latter, of four yielding journaled presser-rollers revolving in the same direction for receiving the bat from the bat-rollers, of mechanism for operating said presser-rollers, of an adjustable bat-board arranged between the bat-rollers and the presser-rollers, and of mechanism arranged to operate one of the presser-rollers to release the finished bale.

My invention further consists of the general arrangement and combination of the several mechanisms, as will be hereinafter more fully described, and particularly set forth in the claims.

One object of the invention is principally to provide a baling-press by means of which a coreless cylindrically-shaped bale may be produced.

Another object of the invention is to simplify and cheapen the cost of construction without in the slightest degree impairing either the durability or efficiency of the machine.

Other objects of the invention will become apparent upon a more detailed description of the device.

In the accompanying drawings, Figure 1 is a side elevation of the machine complete, showing a portion of the lint-flue; Fig. 2, a vertical longitudinal sectional view of the same; Fig. 3, a front elevation; Fig. 4, a side elevation of the presser-roller frame with the driving-gearing removed, showing in full lines the normal position of the presser-roller which is moved to release the bale and in dotted lines its moved position; Fig. 5, a detail perspective view of the bale-releasing presser-roller, and Fig. 6 a perspective view of the self-adjustable bat-board.

For convenience of description I will describe the various mechanisms and parts comprising the machine as a whole under the following heads, viz: the condenser-box, the presser-roller frame, the presser-rollers, the self-adjustable bat-board, the presser-roller-driving gearing, and the main driving-gear.

In the several views like reference-numerals indicate like parts.

The condenser-box.—The numeral 1 indicates a condenser-box of any suitable construction in which is journaled two condenser-cylinders 2 and 3, preferably constructed of skeleton frames covered with wire-cloth. Each cylinder is journaled in suitable bearings in the respective ends of the condenser-box, and the shaft of one of them has one of its ends extending through the side of the condenser-box and provided with a band-pulley 4, driven by a suitable band, to be hereinafter described, the other cylinder being driven by friction or may be provided with a band-pulley and driven by a band.

The bottom of the condenser-box, in line with the space between the cylinders, is provided with an opening or slot 6, having outwardly-flaring sides, and below the opening are journaled two bat-rollers 7 and 8, each being positively driven by suitable belts, as hereinafter described. One of these rollers 8 is yieldingly journaled in suitable spring-pressed journal-boxes 9 to prevent "choking" in feeding the cotton or other material. The condenser-box is provided with a removable cover 10, and at each side thereof is arranged a dust-flue 11. The cylinder 3 and the bat-roller 8 are connected together by a band 12, and cylinder 2 and bat-roller 7 are preferably connected by a band 12', as shown in Fig. 3.

In operation the cotton lint or other material to be baled passes through the flue 13 to the cylinders 2 and 3, which gather and feed it in condensed form to the bat-rollers.

The presser-roller frame.—The numeral 14 indicates the base of the press-frame, upon which are mounted and secured the sides 15. Each side is composed of a circular rim 16, having three rigidly-secured arms 17 and one

pivoted arm 18 radiating from its inner periphery. The inner ends of the arms 17 are securely joined together, as shown, and are provided with closed slots 19, in which are secured spring-pressed journal-boxes 20, which may be provided with roller or ball bearings, the springs being provided with tensioning devices whereby the pressure on the rollers may be regulated. The arms 17 are firmly braced by curved braces 21, which are preferably arranged concentric with the rim 16. The upper portions of the two sides are firmly braced together by means of a cross-brace 22 and a bar-brace 23. Journaled in the boxes 20 are presser-rollers 24, the upper two being slightly separated and the lower or third one in light contact with the one immediately above it. The arm 18 is also provided at its inner end with a closed slot 26, in which is secured a spring-pressed journal-box 27, which may also be provided with roller or ball bearings. The arms 18 are pivoted to the rims 16, one to each rim, and the free end of each arm is arranged to move backward and forward in a curved slotted guideway 28. Journaled in the boxes 27 is a presser-roller 29. The roller in its normal position is in light contact with the presser-roller immediately above it and with the one in the same parallel plane, but is capable of being rocked away from its normal position, as will be explained later on. Rigidly secured to the rear edge of each of the two lower radiating arms 18 is a curved stop 30, against which the free ends of the pivoted arms 18 normally rest and are prevented from further downward movement. Attached to the free end of each arm 18, at a right angle thereto, is a stud or arm 31. The outer ends of these studs are connected together by a bar 32, and attached to this bar 32 is an angular lever 33, by means of which the pivoted arms and the roller journaled therein may be pulled away from the rollers 24 to release the finished bale and moved forward to normal position. Each of the upper rollers is provided at each end with a flange 34, one of said rollers being so represented, as shown in Fig. 3, to serve as guides for the side edges of the bat as it is fed to the rollers in forming the bale.

The self-adjustable bat-board.—The numeral 35 indicates the bat-board, which is made in two sections, a stationary section 36 and a sliding section 37. Each section has upturned side edges 38, and any suitable means of connection may be employed which will permit the sliding section to freely slide upon the stationary section. The stationary section may be firmly supported from the bottom of the condenser-box in any well-known manner, preferably by brackets. The lower end of the sliding section at each corner is provided with an arm 39, the lower end of which partially or wholly encircles the shaft of the presser-roller 29, so that when said roller is moved to and fro either in forming the bale or in releasing it when finished the sliding section will receive a corresponding movement, the necessity of this movement of the sliding section being perfectly apparent.

The presser-roller-driving gearing.—The ends of each of the four presser-rollers are preferably provided with a sprocket-wheel 40, and mounted in suitable bearings secured to the outer periphery of each rim 16 are four shafts 42, each carrying at its ends a sprocket-wheel 43 and a band-pulley 44. The shafts 42 are situated one opposite the outer end of each radiating arm, and the sprocket-wheels of the presser-roller and shaft of each respective arm are geared together by a sprocket-chain 45, so that when motion is imparted to the band-pulleys 44 all of the presser-rollers will be caused to move in one direction. Each sprocket-chain is provided with a tensioning device 46 to take up the slack when the presser-rollers are moving outward in forming the bale. These tensioning devices consist each of an arm pivoted to the rim and having a yoke end $46'$, in which is journaled a grooved pulley, a spring 46^2 serving to press the roller against one side of the chain.

The main driving-gear.—Supported in suitable brackets 48 is the main driving-shaft 49, and mounted thereon at each end are two driving-wheels 50 and 51. The wheels 50 are connected with the band-pulleys 44 and the wheels 51 with the double band-pulleys on one end of each of the rolls 7 and 8, which are in turn connected by bands with pulleys 4, as shown. Any suitable power may be employed to drive the shaft 49, preferably a belt 52, running over drive-pulley 53.

In placing the press in position upon the floor I prefer to locate it a sufficient distance in advance of the condenser-box so that the bat-board will be at an angle of about forty-five degrees, which appears to be the desired angle for a free and unobstructed movement of the bat as it leaves the bat-rollers.

The operation of the device will be readily understood without further description other than to state that as the bat reaches presser-roller 29 it will be fed by said roller down upon the two lower presser-rollers, which will receive the end of the bat and roll it up upon itself, continuing the operation until the bale is of the desired size to require wrapping, which is accomplished by hand. The bagging or other wrapping material is placed upon a shaft 56, situated upon the rim above and slightly to one side of the upper presser-rollers, and at the proper time for wrapping the end is drawn down until caught by the presser-roller, when it will be wrapped around the bale. When the bale is sufficiently wrapped, the bagging is cut, and by pulling upon lever 33 the presser-roller 29 is drawn a sufficient distance away from the other presser-rollers to permit the finished bale to drop from between said rollers.

I do not wish to limit my invention to the exact construction herein shown and de-

scribed, as various modifications may be made therein without departing from the principle thereof—such, for instance, as changing the mechanism for driving the presser-rollers from chain and sprocket to intermeshing gears and other changes of a like character.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a roller baling-press, the combination of the stationary side rims provided with three rigid arms radiating from a common center, presser-rollers yieldingly journaled in said arms, a frame pivoted to the side rims and carrying a yieldingly-journaled presser-roller, and means for rocking the pivoted frame to move its presser-roller from the others, whereby the finished bale may be released.

2. In a roller baling-press, the combination of the stationary side rims provided with three fixed arms radiating from a common center, presser-rollers yieldingly journaled in said arms, a frame pivoted to the side rims and carrying a yieldingly-journaled presser-roller, means for rocking the pivoted frame, and means for driving all of the presser-rollers in the same direction to form a coreless bale.

3. In a roller baling-press, the combination with the side rims mounted upon a suitable base and braced together, three fixed arms radiating from each of said rims to a common center, presser-rollers yieldingly journaled in the fixed arms, and a rockable frame, carrying a yieldingly-journaled presser-roller, pivoted to the side rims, of sprocket-wheels mounted in suitable bearings upon said side rims, sprocket-wheels mounted on each end of the presser-rollers, sprocket-chains connecting the rim and presser-roller sprocket-wheels together, and means for driving the rim sprocket-wheels, as and for the purpose set forth.

4. In a roller baling-press, the combination with the side rims provided with three fixed arms radiating from a common center, presser-rollers yieldingly journaled in said arms, and a frame pivoted to the side rims and carrying a yieldingly-journaled presser-roller, of sprocket-wheels mounted on each roller and connected with oppositely-placed sprocket-wheels by suitable chains, tensioning devices for said chains, and means for driving said sprocket-wheels to rotate the presser-roller.

5. In a roller baling-press, the combination with the stationary side rims provided with arms radiating from a common center, presser-rollers yieldingly journaled in said arms, a rockable frame pivoted to the side rims and carrying a yieldingly-journaled presser-roller, of a stop for limiting the inward or downward movement of said frame and its presser-roller, and means for rocking the frame and roller away from the other presser-rollers, to release the completed bale.

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

EDMOND FRANKLIN BATES.

Witnesses:

S. L. McREYNOLDS,

A. KILLIAN.