

No. 667,371.

Patented Feb. 5, 1901.

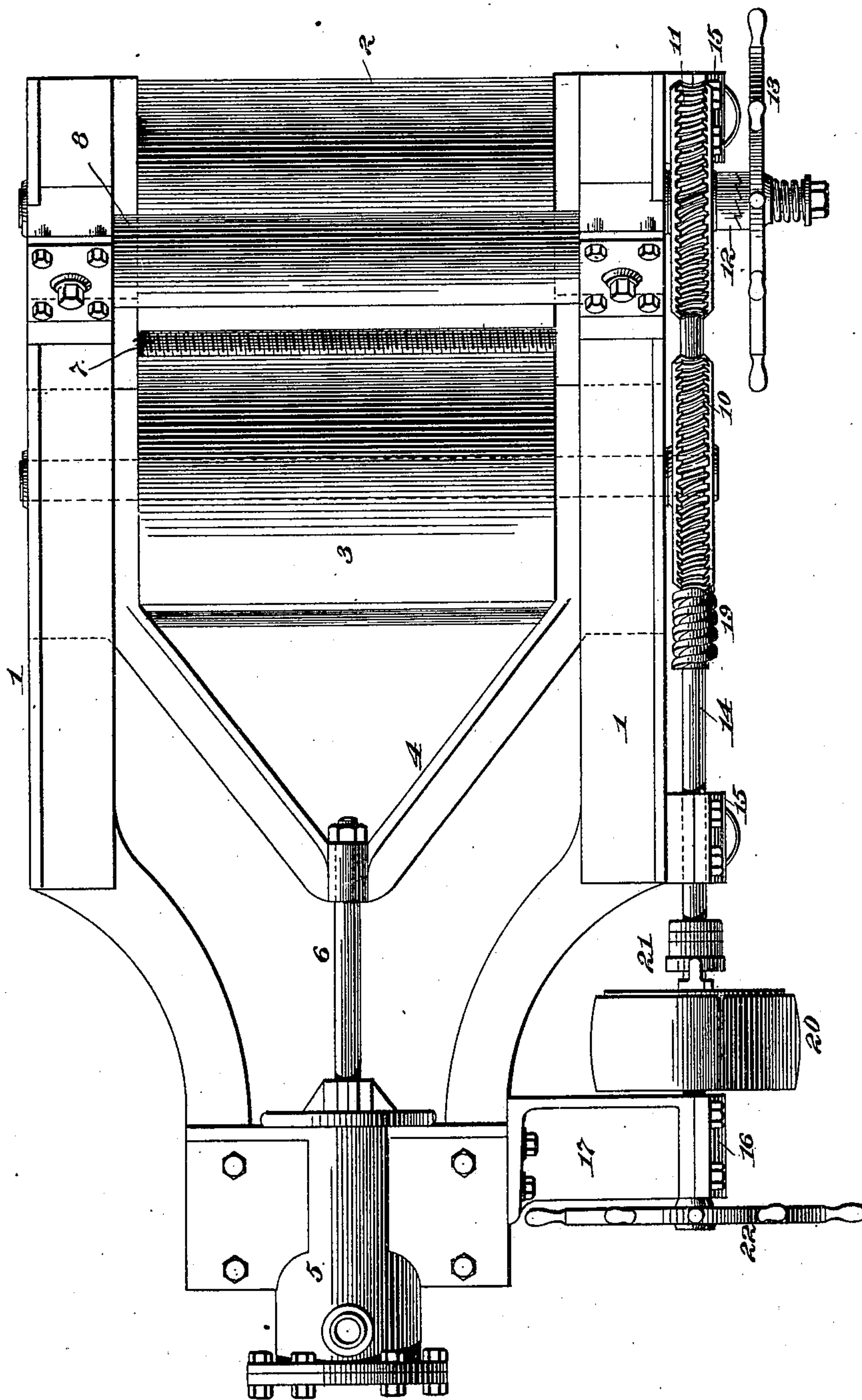
M. SWENSON.
COTTON PRESS.

(Application filed Mar. 3, 1897.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1



Witnesses.

J. Coleman
Archie G. Rice

Inventor

Magnus Swenson
by Frank L. Rice

Att'y.

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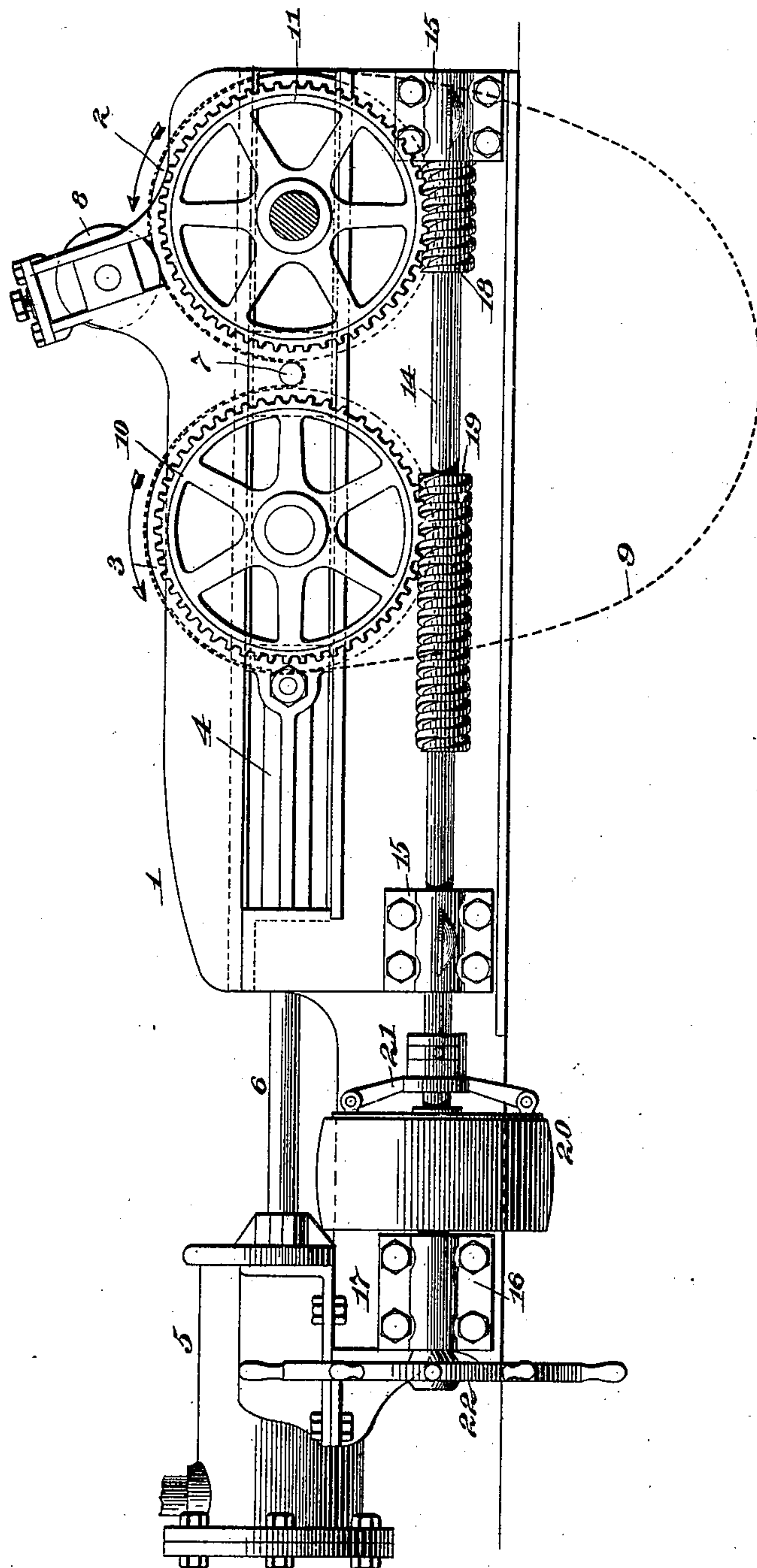
M. SWENSON.
COTTON PRESS.

(Application filed Mar. 8, 1897.)

(No Model.)

2 Sheets—Sheet 2.

Fig. 2



Witnesses.

F. Holman
Archie G. Reese

Inventor

Magnus Swenson
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UNITED STATES PATENT OFFICE.

MAGNUS SWENSON, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE AMERICAN COTTON COMPANY, OF NEW YORK, N. Y.

COTTON-PRESS.

SPECIFICATION forming part of Letters Patent No. 667,371, dated February 5, 1901.

Application filed March 3, 1897. Serial No. 625,866. (No model.)

To all whom it may concern:

Be it known that I, MAGNUS SWENSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Cotton-Presses; and I do hereby declare the following to be a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in cotton-presses for making cylindrical bales by convolutionally winding a sheet or bat under pressure, and the improvements relate generally to the driving mechanism for the baling-rolls of such presses.

The object of the invention is to provide driving mechanism of simple construction and by which the baling-rolls may be easily controlled in the baling operation.

My improved driving mechanism is especially adapted for use with the two-roll horizontal press invented by me, and particularly when a belt is used with such a press, as described in my application for Letters Patent filed October 16, 1896, numbered serially 609,148, and by employing my improved driving mechanism therewith the press will be simpler in construction, more compact and durable, and the baling-rolls may be easily started, stopped, or reversed, as may be necessary in the formation and removal of the bales.

In order that my invention may be better understood, attention is directed to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a plan view of a horizontal two-roll press, showing my improved driving mechanism applied thereto; and Fig. 2, a side elevation of the same.

In both of these views corresponding parts are represented by the same numerals of reference.

The cotton-press shown in the above drawings comprises, essentially, a framework 1, a baling-roll 2, mounted in fixed bearing-blocks in the framework, a baling-roll 3, mounted in sliding bearing-blocks in said framework, a yoke 4, connected to said sliding bearing-blocks, a pressure-producing mechanism co-

operating with said yoke, comprising, preferably, a water-cylinder 5, with its piston-rod 6 connecting with said yoke, and a core 7, mounted in sliding bearing-blocks between the baling-rolls 2 and 3.

In order to compress the sheet or bat before it is wound up on the core 7, I provide a compression-roller 8, forced by means of elastic buffers against the baling-roll 2. Preferably the press is provided with a belt 9, (shown in dotted lines,) passing between the baling-roll 2 and the compression-roller 8 and thence down and under the core 7 and over the baling-roll 3, as described and shown in my said application before mentioned.

In the operation of a press of this type it is desirable, first, that during the baling operation the baling-rolls 2 and 3 should be driven at the same or approximately the same surface speed and in the same direction, so as to wind up the sheet or bat on the core 7; second, that the baling-rolls 2 and 3 should separate relatively, so as to accommodate the enlarging bale; third, that one of the baling-rolls should be stopped and the other baling-roll allowed to continue to rotate, so as to drive the finished bale either downward or upward from between the rolls; fourth, that when a belt is used the roll 3 in being returned toward the roll 2 for the formation of a new bale should also rotate, so as to loop the belt down under the line of the core, as described in my said application, and, fifth, that provision should be made for separating the baling-rolls when desired. My improved driving mechanism enables me to perform all of these operations, while it is at the same time of the simplest possible character.

With a press of the type shown I mount on the baling-roll 3 a worm-gear 10, keyed to the shaft of said roll. Mounted loosely on the shaft of the baling-roll 2 is a worm-gear 11, the same size as the gear 10. Interposed between the shaft and the baling-roll 2 is a clutch 12 of any suitable construction. Preferably, though not necessarily, I mount on the shaft of the baling-roll 2 a hand-wheel 13 or similar device, by means of which the baling-roll 2 may be turned independently of the driving mechanism for the purpose to be presently explained.

14 is the main driving-shaft, mounted in heavy boxes 15 15 on one of the side frames of the machine and also preferably in a bearing-box 16, carried on a bracket 17. This main shaft extends on a line below or above and at right angles to the shafts of the baling-rolls. Keyed to this shaft 14 are two worms 18 and 19, the former engaging the worm-gear 11 and the latter engaging the worm-gear 10. The worm 19 is elongated, as shown, so that the gear 10 may be moved laterally with respect to the same and at the same time be continuously driven thereby.

20 is the main driving-pulley on the shaft 14. There is preferably interposed between the shaft 14 and pulley 20 a friction-clutch 21 of any suitable construction. In order that the shaft 14 may be turned independently of the pulley 20, I preferably mount on its extreme end a hand-wheel 22 or other suitable device.

The operation of my improved driving-gear, assuming that it is used with the press shown and that a belt is employed, is as follows: Power being applied to the driving-pulley 20, the shaft 14 will be rotated and the worms 18 and 19, engaging the worm-gears 11 and 10, respectively, will drive the baling-rolls 2 and 3 in the same direction. The cotton in the shape of a sheet or bat is now introduced between the baling-roll 2 and the compression-roller 8 and is wound up on the core 7 in the usual way. With the enlargement of the bale the baling-roll 3 is forced slowly backward against the tension of the pressure-producing device, by which pressure will be imposed on the bale in course of formation. As this baling-roll is thus forced backward with the enlarging bale the worm-gear 10 moves longitudinally with respect to the worm 19 in the same way that a gear works on a rack, as will be understood, while at the same time it will be continuously driven in the proper direction. When the bale has been finished and covered, it may be removed by first arresting the rotation of the roll 2, which will be then kept stationary by the pressure of the compression-roller 8 thereon, (or when said roller is not used the baling-roll 2 is to be kept stationary in any other way, such as by the friction in its boxes,) and the baling-roll 3 continuing to operate will elevate the looped portion of the belt, so as to stretch it between the two rolls, to thereby either eject the bale or to enable the bale to be removed. It is of course understood that before this is done the core is to be disengaged from its centers. When a belt 9 is not used, the stopping of the baling-roll 2 and the continued rotation of the baling-roll 3 serve to move the bale from between said baling-rolls in the same way, or instead the baling-roll 3 may be stopped and the baling-roll 2 continued to operate, so as to eject the bale from beneath said rolls, as will be understood. After the bale has been removed from the press the baling-roll 3 is forced toward its preliminary position, which may

be done by admitting water into the water-cylinder 5, behind the piston therein. This movement of the baling-roll 3 causes the gear 10 to roll on the worm 19, and thereby loops the belt 9 down into its proper position, after which the core is inserted. Should this rotation of the baling-roll 3 carry the belt below the line of the core, the belt may be brought up into contact with the core by a slight rotation of the baling-roll 3, the roll 2 being kept stationary, as will be understood. If, on the other hand, this backward movement of the baling-roll 2 is not sufficient for any reason to loop the belt down to its proper position, then the baling-roll 2 may be moved slightly forward by means of the hand-wheel 13 or other suitable device.

I find in practice that it is sometimes necessary after the baling-roll 3 has been moved over into contact with the core that said baling-roll should be withdrawn, and heretofore this separation of the baling-rolls has been a very difficult operation owing to the pressure imposed upon them. With my improved device this may be done by first disengaging the driving-pulley 20, then blocking the baling-roll 3 in any way, and finally by turning the hand-wheel 22. This will turn the worm 19, and, since the gear 10 cannot rotate, it will be moved relatively to the worm, thereby retracting the baling-roll 3.

Although I prefer to make use of an elongated worm with respect to which the movable roll of a cotton-press may travel, as explained, I am not confined to such a construction, since good results may be obtained by the use of a worm splined to the main shaft and movable longitudinally thereon with the movable roll, provision being made, such as by connections with the moving bearing-blocks, for effecting the proper travel of such a worm on the shaft.

Having now described my invention, what I claim as new therein, and desire to secure by Letters Patent, is as follows:

1. In a cotton-press for making cylindrical bales, the combination of relatively movable baling-rolls, a core between said baling-rolls, means for producing pressure between said rolls, a worm-gear for driving each of said baling-rolls, a main driving-shaft extending at right angles to the axes of said rolls, worm-threads on said shaft engaging with and driving said gears, and a clutch interposed between one of said gears and the baling-roll driven thereby to allow rotation of said baling-roll to be arrested without affecting the other baling-roll, substantially as set forth.

2. In a cotton-press for making cylindrical bales, the combination of a baling-roll, means for driving the same, a second baling-roll movable relatively to the first baling-roll, an endless belt passing over said rolls and under the bale in the process of formation, a main driving-shaft extending parallel with the plane of movement of the second roll, a worm-gear for driving the second baling-roll, and

an elongated worm on said shaft with which said gear engages, substantially as set forth.

3. In a cotton-press for making cylindrical bales, the combination of a baling-roll, means for driving the same, a second baling-roll movable relatively to the first baling-roll, an endless belt passing over said rolls and under the bale in the process of formation, a main driving-shaft extending at right angles to the axes of said rolls, a worm-gear for driving the second baling-roll, a worm on said shaft with which said gear engages, and means for arresting rotation of the first baling-roll without affecting the second baling-roll, substantially as set forth.

4. In a cotton-press for making cylindrical bales, the combination of a baling-roll mounted in stationary bearing-blocks, a second baling-roll mounted in sliding bearing-blocks, a core between said rolls, a worm-gear for driving each of said baling-rolls, a main driving-shaft extending at right angles to the axes of said rolls, a worm on said shaft engaging with and driving the worm-gear of the first roll, an elongated worm on said shaft engaging with and driving the worm-gear of the second roll and with respect to which said gear may move, and a clutch interposed between one of said worms and the baling-roll driven thereby, to allow rotation of the said baling-roll to be arrested without affecting the other baling-roll, substantially as set forth.

5. In a cotton-press for making cylindrical bales, the combination of a baling-roll, means for driving the same, a second baling-roll movable relatively to the first roll, an endless belt passing over said rolls and under the bale in process of formation, a main driving-shaft extending at right angles to the axes of said rolls, a worm-gear for driving the second baling-roll, an elongated worm on the said shaft with which said gear engages, and with respect to which said gear may move, and means for arresting rotation of the first baling-roll without affecting the second baling-roll, substantially as set forth.

6. In a cotton-press for making cylindrical bales, the combination of two relatively movable baling-rolls, a core between said baling-rolls, means for producing pressure between said rolls, an endless belt passing over said rolls and under said core, a worm-gear for driving each of said baling-rolls, a main driving-shaft extending at right angles to the axes of said rolls, worm-threads on said shaft engaging with and driving said gears, the extent of such threads being sufficient to allow for the relative separation of the baling-rolls, and means for arresting rotation of one baling-roll without affecting the other baling-roll, substantially as set forth.

7. In a cotton-press for making cylindrical bales, the combination of a baling-roll mounted in stationary bearing-blocks, a second baling-roll mounted in sliding bearing-blocks, a core between said rolls, an endless belt passing over said rolls and under said core, a worm-

gear for driving each of said baling-rolls, a main driving-shaft extending at right angles to the axes of said rolls, a worm on said shaft engaging with and driving the worm-gear of the first roll, and an elongated worm on said shaft engaging with and driving the worm-gear of the second roll and with respect to which said gear may move, substantially as set forth.

8. In a cotton-press for making cylindrical bales, the combination of a baling-roll mounted in stationary bearing-blocks, a second baling-roll mounted in sliding bearing-blocks, a core between said rolls, an endless belt passing over said rolls and under said core, a worm-gear for driving each of said baling-rolls, a main driving-shaft extending at right angles to the axes of said rolls, a worm on said shaft engaging with and driving the worm-gear of the first roll, an elongated worm on said shaft engaging with and driving the worm-gear of the second roll and with respect to which said gear may move, and means for independently rotating said first roll, substantially as set forth.

9. In a cotton-press for making cylindrical bales, the combination of a baling-roll mounted in stationary bearing-blocks, a second baling-roll mounted in sliding bearing-blocks, a core between said rolls, an endless belt passing over said rolls and under said core, a worm-gear for driving each of said baling-rolls, a main driving-shaft extending at right angles to the axes of said rolls, a worm on said shaft engaging with and driving the worm-gear of the first roll, an elongated worm on said shaft engaging with and driving the worm-gear of the second roll and with respect to which said gear may move, and a hand-wheel for independently rotating said first roll, substantially as set forth.

10. In a cotton-press for making cylindrical bales, the combination of a baling-roll, means for driving the same, a second baling-roll movable relatively to the first roll, a main driving-shaft extending at right angles to the axes of said rolls, a worm-gear for driving the second baling-roll, an elongated worm on said shaft with which said gear engages and with respect to which said gear may move, a main driving-pulley on said shaft, and independent means for rotating said shaft, substantially as set forth.

11. In a cotton-press for making cylindrical bales, the combination of a baling-roll, means for driving the same, a second baling-roll movable relatively to the first roll, a main driving-shaft extending at right angles to the axes of said rolls, a worm-gear for driving the second baling-roll, an elongated worm on said shaft with which said gear engages and with respect to which said gear may move, a main driving-pulley on said shaft, and a hand-wheel for rotating said shaft, substantially as set forth.

12. In a cotton-press for making cylindrical bales, the combination of relatively movable

bal-ing-rolls, a core between said rolls, means
for producing pressure between said rolls, a
worm-gear for driving each of said bal-ing-
rolls, a main driving-shaft extending at right
5 angles to the axes of said rolls, a worm-shaft
engaging with and driving said gears, and a
clutch interposed between one of said gears
and the bal-ing-roll driven thereby to allow ro-
tation of said bal-ing-roll to be arrested with-

out affecting the other bal-ing-roll, substan- to
tially as set forth.

This specification signed and witnessed this
1st day of February, 1897.

MAGNUS SWENSON.

Witnesses:

A. W. WALBURN,
B. A. JOHNSTON.