No. 735,267.

PATENTED AUG. 4, 1903.

I. V. JONES.

BALING PRESS.

APPLICATION FILED AUG. 16, 1901.

NO MODEL.

3 SHEETS—SHEET 1.

Fig. 1

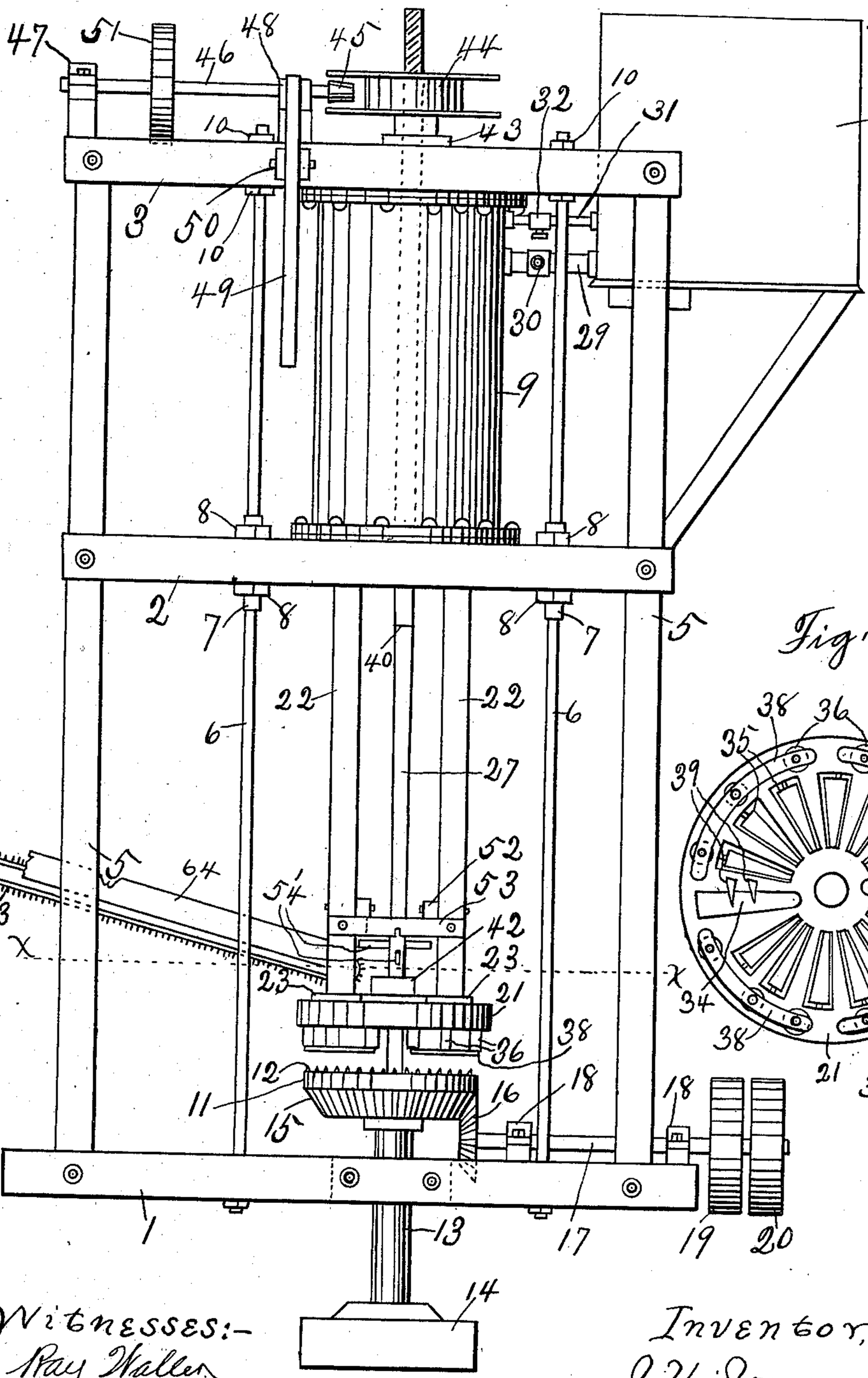

Fig. 2

Witnesses:-
Ray Waller
H. C. Fly

Inventor,
I. V. Jones,
By A. L. Jackson,
Attorney.

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NO MODEL. 3 SHEETS—SHEET 2.

Fig. 3

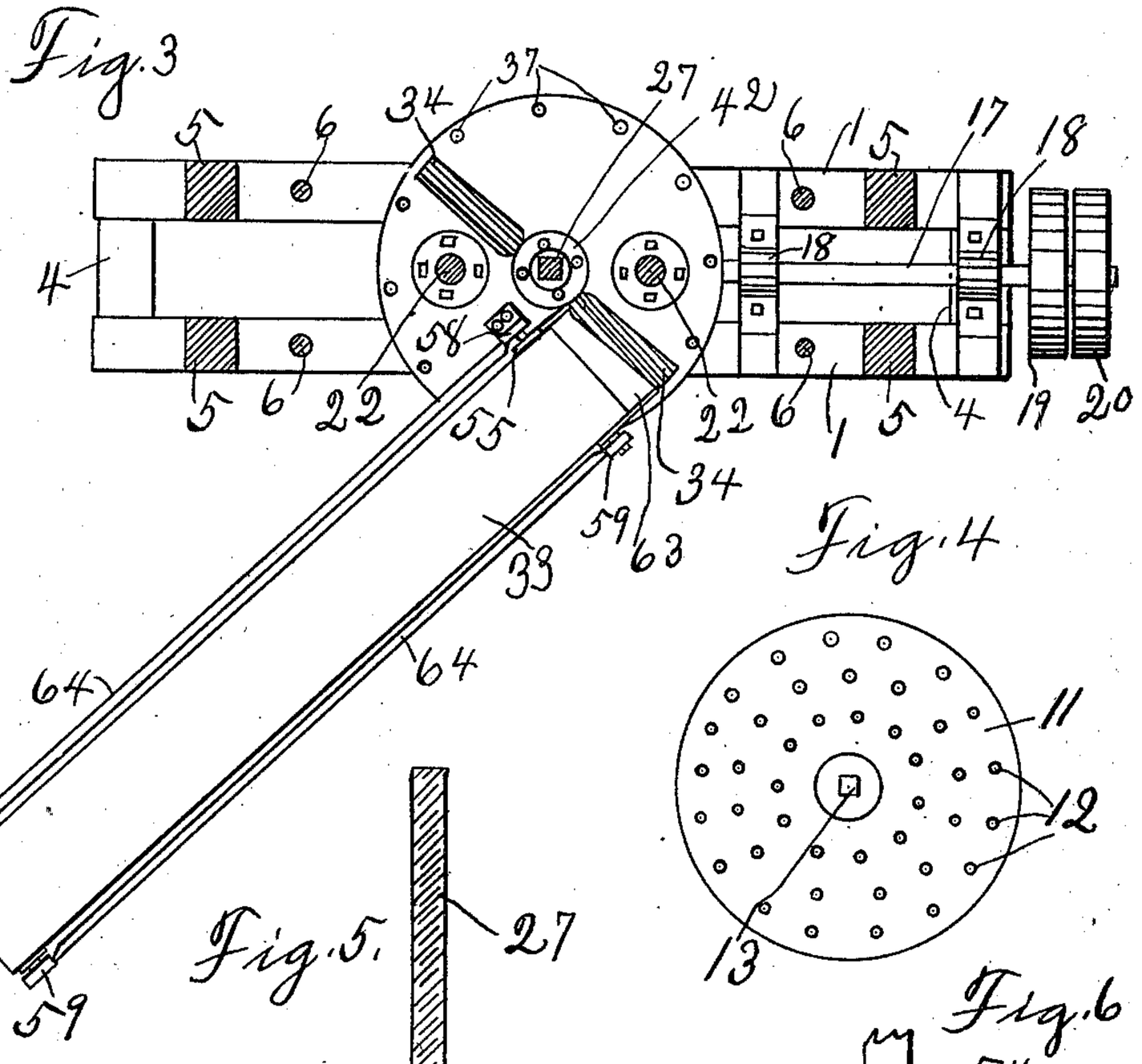


Fig. 4

Fig. 5.

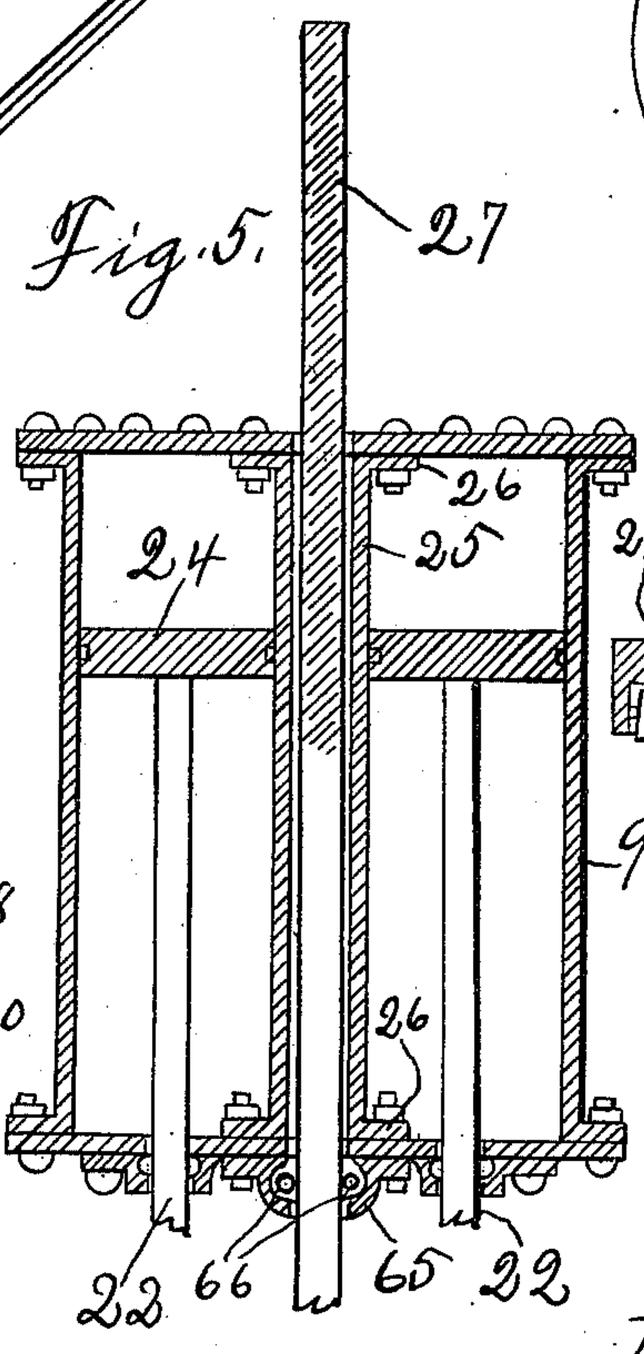


Fig. 6

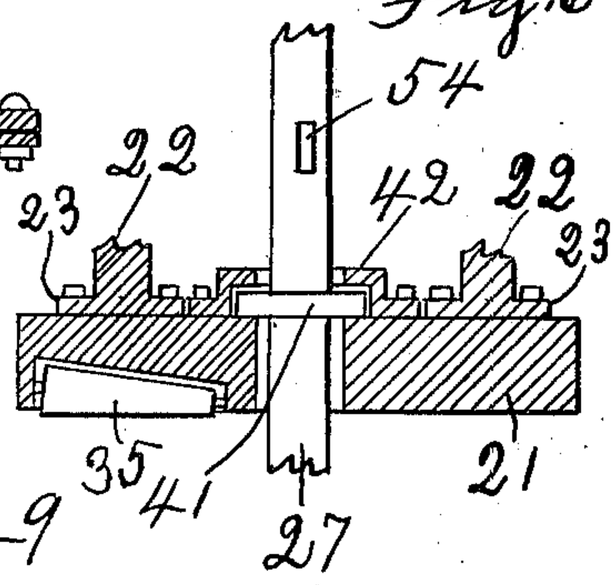
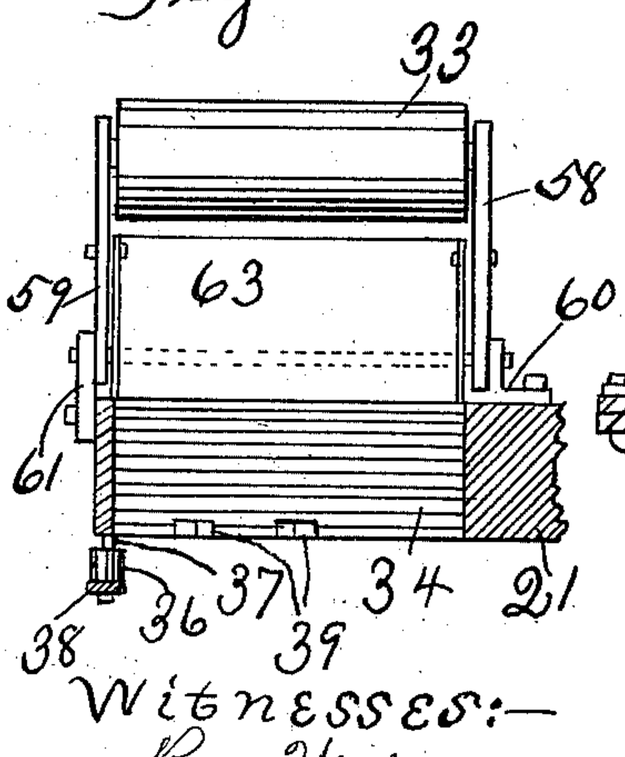


Fig. 7



Witnesses:—
Ray Walker
H. C. Fahy

Inventor,
I. V. Jones,
By A. L. Jackson,
Attorney.

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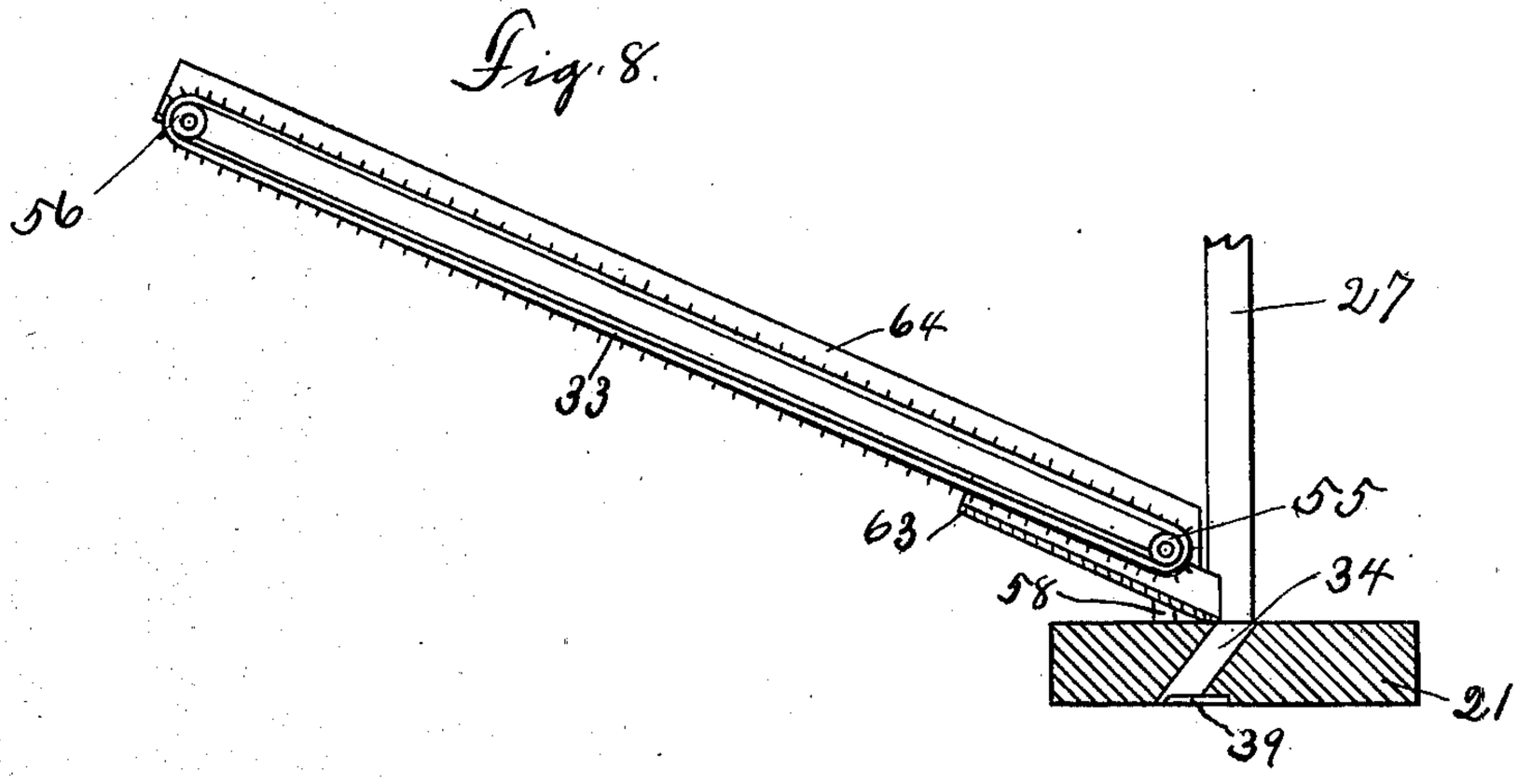
BALING PRESS.

APPLICATION FILED AUG. 16, 1901.

NO MODEL. 3 SHEETS—SHEET 3.

Fig. 8.



Witnesses:—

J. W. Stull.

Geo. W. Lutzmann.

Inventor,
I. V. Jones,
By A. L. Jackson,
Attorney

No. 735,267. Patented August 4, 1903.

UNITED STATES PATENT OFFICE.

ISAAC V. JONES, OF KOLLS, TEXAS.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 735,267, dated August 4, 1903.

Application filed August 16, 1901. Serial No. 72,218. (No model.)

To all whom it may concern:

Be it known that I, ISAAC V. JONES, a citizen of the United States, residing at Kolls, in the county of Bell and State of Texas, have invented a new and Improved Baling-Press, of which the following is a specification.

This invention relates to a press for making cylindrical bales of cotton or other fibrous material; and the object is to construct a baling-press which will receive the cotton from a gin or condenser as fast as the cotton is ginned, so that the bale will be completed at the moment the ginning is completed or which will compress any other fibrous material which is delivered to the press by a continuous feed.

The invention will be fully described in the following description and more particularly pointed out in the claims.

Reference is had to the accompanying drawings, which form a part of this application and specification.

Figure 1 is a side elevation of the press, the feeding mechanism being broken away. Fig. 2 is a bottom view of the presser-feeder. Fig. 3 is a horizontal sectional plan view along the line *x x* of Fig. 1. Fig. 4 is a plan view of the revolving platform on which the bale is formed. Fig. 5 is a vertical section of the hydraulic cylinder, the parts of the piston-rods below the cylinder and the part of the vertical shaft below the cylinder being broken. Fig. 6 is a broken sectional view illustrating the manner of attaching the pistons and the bearing for the vertical shaft to the presser-feeder. Fig. 7 is a detail view of the feeding mechanism and the manner of attaching the same to the presser-feeder, a broken section of the presser-feeder being shown. Fig. 8 is a broken sectional view showing the opening through the presser-feeder and showing the manner of delivering the cotton to the opening through the presser-feeder.

Similar characters of reference are used to indicate the same parts throughout the several views.

The press is provided with a suitable frame consisting of the pairs of sills or cross-beams 1, 2, and 3 and the connecting-beams 4 and the uprights 5. The frame is further braced by the four rods 6. These rods have enlarged portions 7, which pass through the sills 2, and nuts 8 are placed on said rods above and below the sills 2, by which these sills are firmly braced for supporting the hydraulic cylinder 9. Nuts 10 are placed on rods 6 above and below the sills 3 for holding these sills firmly braced. The hydraulic cylinder 9 is securely bolted to these two pairs of sills or cross-beams.

A novel feature of this invention is that I make the bales without the use of a cylinder or baling-chamber. The bales are formed on a rotating circular platform 11. This platform has pins or points 12 projecting upward for the purpose of catching the first cotton that is fed to the platform. The platform 11 is mounted on a vertical shaft 13, which is provided with a suitable socket 14. The platform 11 is driven by beveled gearing. Beveled cogs 15 are made integral with the platform and a beveled pinion 16 is mounted on a shaft 17 for driving the cog 15. Shaft 17 is provided with boxes or bearings 18, which are mounted on the sills 1. A fast pulley 19 is mounted on shaft 17 for driving said shaft, and a loose pulley 20 is mounted on said shaft, so that the driving-belt may be shifted thereon for stopping the driving mechanism. The press may be driven by any suitable power. The bales are formed under a circular presser-feeder 21, which is made to rise or yield as the bale is being formed or as the cotton accumulates under the feeder. The yielding motion of the presser-feeder is resisted by hydraulic power. Two piston-rods 22 are attached to the upper part of the presser-feeder, the piston-rods having flanges 23, by which the piston-rods are bolted to the presser-feeder. These piston-rods are connected at their upper ends to a piston 24. The cylinder 9 has a central opening therethrough for a tube 25, and the piston 24 also has a corresponding opening for tube 25. This tube extends from end to end of the cylinder and is provided with flanges 26, by which the tube may be bolted to the inner ends of the cylinder. This tube forms a passage-way for the vertical shaft 27. This shaft serves as a guide for the presser-feeder 21, and it also serves as a guide for the bale rather than as a core for the bale. The operation of the piston 24 is similar to the operations of pistons with one piston-rod. The cylinder 9 is supplied with

water or other fluid from a tank 28, mounted at any suitable place. The drawings show this tank mounted on one end of the frame of the press. The liquid is admitted to the cylinder 9 from the tank 28 by means of a large pipe 29, which is connected to the tank and to the cylinder and is provided with a cock 30. Cylinder 9 is also provided with a small pipe 31, which is provided with a cock 32. This pipe is to allow the liquid to escape gradually from the cylinder 9 as the bale is being formed. The pipes 29 and 31 enter the upper part of the cylinder 9 and are adapted to let water in the cylinder above the piston 24. It is with the cylinder 9 and the piston-rods and the liquid in the cylinder that the yielding motion of the presser-feeder is controlled. The presser-feeder is adapted to feed the cotton to the bale and press the cotton to form the bale as it feeds the cotton to the forming bale. Cotton is delivered to the presser-feeder by a traveling apron 33 from a condenser or gin. The presser-feeder has two openings 34 therethrough for the cotton. These openings are slanting, as shown by Figs. 3 and 7. The openings are slanting in the direction that the rotary platform 11 rotates, so that the cotton will be easily started under the presser-feeder by the rotation of the platform 11. The presser-feeder does not rotate, but has a vertical motion and yields as the cotton accumulates thereunder. The rotary movement of the platform causes the cotton to accumulate in spiral layers. The fingers 39 are attached to the under side of the presser-feeder and project somewhat in the passage formed by the openings 34, but project in the plane of the under surface of the presser-feeder. These fingers are of flat spring metal and are countersunk in the surface of the presser-feeder, as shown by Fig. 7. The manner of feeding and pressing the cotton causes the cotton to accumulate into a cylindrical bale. The vertical rollers 36 extend far enough down to press on two or three layers of cotton, and the effect of these rollers is to make the curved surface of the bale smooth and compact. Cotton may be fed through one or both of these openings. The under side of the presser-feeder has antifriction-rollers 35 mounted in the surface thereof to prevent the friction of the cotton against the bottom of presser-feeder. These rollers prevent the generation of heat in the cotton as it is pressed into a bale. Depending from the outer rim of the presser-feeder are vertical rollers 36. These rollers are for pressing on the outside of the curved surface of the bale. They are mounted on bolts 37, which pass through the outer edge of the presser-feeder. Braces 38 are mounted on the lower ends of the rods or bolts 37 to hold the rollers firmly against the bale. In this way the cotton is pressed into the bale and the surface of the bale is made smooth. The presser-feeder is further provided with fingers 39, which are attached to the under side thereof and project partly under the openings 34 and prevent the cotton from rising up in the openings and interfering with the feeding of the cotton. The bale is formed around a central vertical shaft 27, which has the part around which the bale is formed square in cross-section, as shown in Fig. 3, and the square portion extending as far up as the line 40. (Shown in Fig. 1.)

In the top part of the shaft 13 is a cavity, square in cross-section, to receive the lower end of the shaft 27. The shaft 13 engages the shaft 27 as a wrench engages a nut or other object to be turned and rotates the shaft 27 as the platform 11 rotates. The shaft 27 passes through the presser-feeder and the presser-feeder is guided in its upward motion by this shaft, which extends up through the cylinder 9 and down into the shaft 13. The presser-feeder and the shaft 27 are held and guided by a bearing 41, which has an opening conforming to the contour of the shaft 27 and through which this shaft may pass freely in its upward and downward motion. This box with the square opening rotates in another box 42, which is bolted to the presser-feeder. In this manner the presser-feeder is protected from the sharp edges of the shaft and the presser-feeder and the shaft are braced and the bale is made symmetrical. The shaft 27 passes loosely through a box 43, mounted on the sills or cross-beams 3. Means are provided for raising and lowering the shaft 27 independently of the bale. The part of shaft 27 to be engaged by the bale is tapered downward, so that it may be easily taken from the bale. The upper part of shaft 27 is threaded and a friction-nut 44 is mounted on the shaft. A friction-wheel 45 is mounted on a shaft 46 for operating the nut 44. A stationary bearing 47 is mounted on the sills 3 for this shaft and an adjustable bearing 48 is provided for the other end of the shaft. This bearing is attached to a lever 49, which has a fulcrum 50 on one of the sills 3. By the use of the lever 49 the friction-wheel 45 can be made to operate on either the upper or lower flange of the friction-nut 44, and thus drive this nut in either direction desired for raising the shaft or lowering the shaft. The shaft 46 is driven all the time the press is running by the pulley 51, and in its normal position the wheel 45 does not touch either flange of the friction-nut 44 unless that nut starts to move upwardly on the shaft 27. As the bale is being formed the nut 44 rests on block 43, and the shaft 27 being rotated by the shaft 13 turns in the nut, passing up through the nut. The friction between the nut 44 and the block 43 will generally prevent the nut 44 from turning as the shaft 27 turns. If for any reason the nut should start to moving upwardly on the shaft or should commence to turn with the shaft, and thus rise with the shaft, the friction-wheel 45 will engage the lower flange of the nut and bring the nut back to its normal position. When the bale is completed, something is needed to

raise the presser-feeder from the bale, so that the bale may be taken out of the press. I have means by which this may be done by the shaft 27. Cross-beams 52 and 53 are bolted to piston-rods 22. Two slots 54, one at right angle to the other, are made in the shaft 27, and keys 54′ are inserted in these slots. When it is necessary to raise shaft 27, the nut 44 is rotated by means of friction-wheel 45, which may be adjusted by the lever 49. This will raise the shaft 27. The keys 54′ being inserted will catch under the cross-beams 52 and 53 and raise the piston-rods, which are bolted to the presser-feeder. Both pipes 29 and 31 must be opened when it is necessary to raise the presser-feeder, so that water will pass out easily and quickly. Then when it is necessary to lower the shaft the friction-wheel 45 is made to engage the opposite flange of the friction-nut. The bars 52 and 53 may have notches cut therein to receive the keys 54′. The keys 54′ are straight bars and project far enough through the vertical shaft to engage the cross-beams 52 and 53 when the keys are carried upward by the shaft.

The belt for feeding the cotton to the press is mounted on pulleys 55 and 56, which are provided with suitable bearings 57 and 58 and 59. The bearing-arms 58 and 59 are pivotally attached to the presser-feeder 21. The bearing-arm 58 is pivotally mounted on the bracket 60, which is bolted to the top of the presser-feeder, and the bearing-arm 59 is pivotally mounted in the bracket 61, which is bolted to the side of the presser-feeder. The object of this construction is to allow the belt or apron 33 some movement relative to the presser-feeder. When the bale is being formed, the presser-feeder is constantly changing position. The bearing-arms 58 and 59 will allow sufficient movement of the apron or belt 33 for the purpose of feeding the presser-feeder in its constant changing position. A small chute 63 is pivotally attached to the bearing-arms 58 and 59 to deliver the cotton from the belt 33 to the opening 34 in the presser-feeder. The cotton is prevented from falling from the belt 33 by means of the side frame-pieces 64 and small points projecting from the belt, as shown by Fig. 1. The belt 33 travels on the pulleys 55 and 56, one of which may be driven by any suitable driving-gear. The traveling belt or apron 33 has a pivotal bearing in the pulley 56, which is mounted in stationary bearings. The other end of the belt or apron being attached to the presser-feeder will change position as the presser-feeder changes position. Consequently this apron cannot always deliver cotton to the opening 34, because the distance of the opening 34 from the bearing 56 will be radially different at different positions of the presser-feeder, and when the apron is farthest from the opening 34 the cotton will be delivered to the opening 34 by the chute 63, which is pivotally attached to the swinging bearing-arms 58 and 59.

The vertical shaft 27, which passes through the central part of the bale, the cotton being wound in superposed layers around said shaft to form the bale, thereby leaving an opening through the bale, is prevented from touching the tube 25 by means of a suitable bearing attached to the bottom of the cylinder. I have attached a box 65 with balls 66 in said box. This bearing serves as a guide for the shaft 27.

From the above description only a brief description of the operation is necessary. The cylinder 9 is filled with water from the tank 28, the presser-feeder being down practically against the rotating platform 11. The platform 11 being driven, as heretofore described, by the pulley 19, cotton is delivered by belt 33 to one of the openings 34 in the presser-feeder, which feeds the cotton to the platform 11 as it is rotated. The cotton will be caught on the rotating platform and accumulate thereon and be pressed into a bale by the presser-feeder, which must yield as the cotton accumulates. In order to allow the presser-feeder to yield, the cock 32 may be opened slightly for the water in the cylinder 9 to retreat gradually into the tank 28. It will be understood that the amount of pressure to be exerted on the bale will be regulated by the cock 32. When the bale is completed, it may be bound in any suitable manner while under pressure. The pressure is taken from the completed bale by driving the friction-nut 44 by means of the friction-wheel 45. This will raise the shaft 27 and carry the presser-feeder by reason of the piston-rods 22 being attached to the presser-feeder, the keys 54′ carrying the piston-rods by means of the cross-beams 52 and 53.

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

1. In a baling-press for making cylindrical bales of cotton, a presser-feeder consisting of an upright shaft having a base for pressing on the cotton, said base having openings therethrough for directing the cotton thereunder, means for pressing on the sides of the forming bale, means for retaining and rotating the cotton until a complete bale is formed, and means for controlling the receding and approaching motion of said presser-feeder.

2. In a baling-press for making cylindrical bales of cotton, a presser-feeder consisting of an upright shaft having a base for pressing on cotton, said base having an opening therethrough for directing cotton thereunder, a hydraulic cylinder around said shaft provided with a suitable piston and suitable piston-rods attached to said piston and to said base for controlling the receding and approaching motion of said presser-feeder, and means for receiving and rotating the cotton until a complete bale is formed.

3. In a baling-press provided with a rotating platform for making cylindrical bales; a presser-feeder consisting of a shaft having a base and an opening through said base for directing cotton therethrough whereby cotton is accumulated between said platform and said base, and a hydraulic cylinder around said shaft provided with means for controlling the receding motion of said base.

4. In a baling-press for making cylindrical bales of cotton or other fibrous material provided with a rotating platform; a presser-feeder consisting of a shaft and a base, said base having openings therethrough, means for preventing cotton from rising up through said openings, and means for controlling the receding motion of said base from said platform.

5. In a baling-press for making cylindrical bales provided with a rotatable platform and means for rotating the same; a presser-feeder having openings therethrough for directing cotton thereunder, hydraulic power for controlling the receding motion of said presser-feeder from said platform, and means for raising said presser-feeder from the bale and replacing the same to commence a new bale.

6. In a baling-press for making cylindrical bales provided with a rotating platform; a presser-feeder for pressing cotton on said platform and having openings therethrough for directing cotton thereunder, said presser-feeder having rollers depending from the edge thereof for forming a smooth peripheral surface on the bale, and means for rotating said platform.

7. In a baling-press for making cylindrical bales provided with a rotating platform; a presser-feeder for pressing cotton on said platform and having openings therethrough for directing cotton thereunder, a hydraulic cylinder provided with a suitable piston and piston-rods connected to said presser-feeder for controlling the receding motion of said presser-feeder, means for rotating said platform, and means for raising said presser-feeder from the completed bale and replacing the same for commencing a new bale.

8. In a baling-press for making cylindrical bales provided with a rotating platform; a presser-feeder for pressing cotton on said platform and having openings therethrough for directing cotton thereunder, a hydraulic cylinder provided with a suitable piston and piston-rods connected to said presser-feeder, and means for raising said presser-feeder from the completed bale and replacing the same for commencing a new bale consisting of a shaft passing through said cylinder, a friction-nut engaging said shaft, a friction-wheel for operating said nut, bars attached to said pistons, and keys inserted in said shaft for engaging said bars.

9. In a baling-press for making cylindrical bales provided with a rotating platform; a presser-feeder adapted to feed cotton to and press cotton on said platform, a hydraulic cylinder for controlling the receding motion of said presser-feeder provided with a suitable piston and piston-rods attached to said presser-feeder, and means for raising said presser-feeder from the completed bale consisting of a shaft passing through said cylinder, means for rotating said shaft whereby said shaft may be raised or lowered, bars attached to said piston-rods, and keys inserted in said shaft and adapted to engage said bars.

10. In a baling-press for making cylindrical bales provided with a rotating platform; a presser-feeder adapted to feed cotton to and press cotton on said platform, means for controlling the receding motion of said presser-feeder, and means for guiding said presser-feeder consisting of a shaft passing loosely through said presser-feeder in the direction of the receding motion of the presser-feeder, means for preventing frictional contact of said shaft with said presser-feeder, and means for rotating said shaft.

11. In a baling-press for making cylindrical bales provided with a rotating platform; a presser-feeder adapted to feed cotton to and press cotton on said platform, means for controlling the receding motion of said presser-feeder, means for guiding said presser-feeder and the forming bale consisting of a shaft passing loosely through said presser-feeder and means for preventing frictional contact of said shaft with said presser-feeder, and means for rotating said shaft and said platform.

12. In a baling-press for making cylindrical bales provided with a rotating platform; a presser-feeder adapted to feed cotton to and press cotton on said platform, means for controlling the receding motion of said presser-feeder, means for guiding the forming bale consisting of a shaft passing loosely through said presser-feeder, and means for rotating said shaft consisting of a platform-shaft provided with a suitable socket and means for rotating said platform-shaft, said platform being securely mounted on said platform-shaft and said platform-shaft having the upper end flush with the upper surface of said platform and having a cavity in the upper end thereof square in contour to receive the lower end of said first-named shaft.

In testimony whereof I set my hand, in the presence of two witnesses, this 25th day of July, 1901.

ISAAC V. JONES.

Witnesses:
I. E. TIMMINS,
WM. NUNLEY.