(No Model.) 5 Sheets—Sheet 1.

W. S. REEDER.

BALING PRESS.

No. 379,414. Patented Mar. 13, 1888.

Fig. 1.

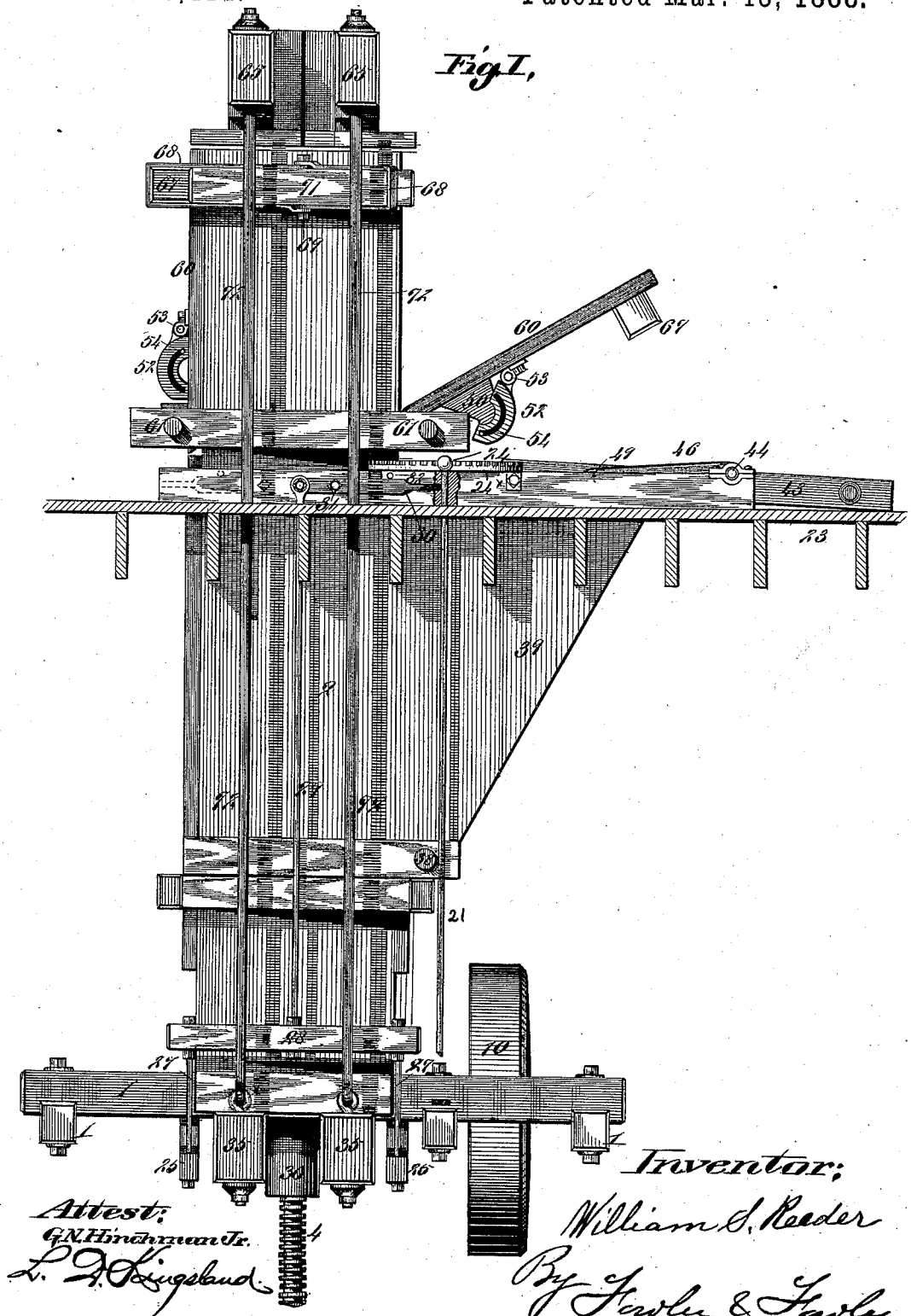

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Fig. II.

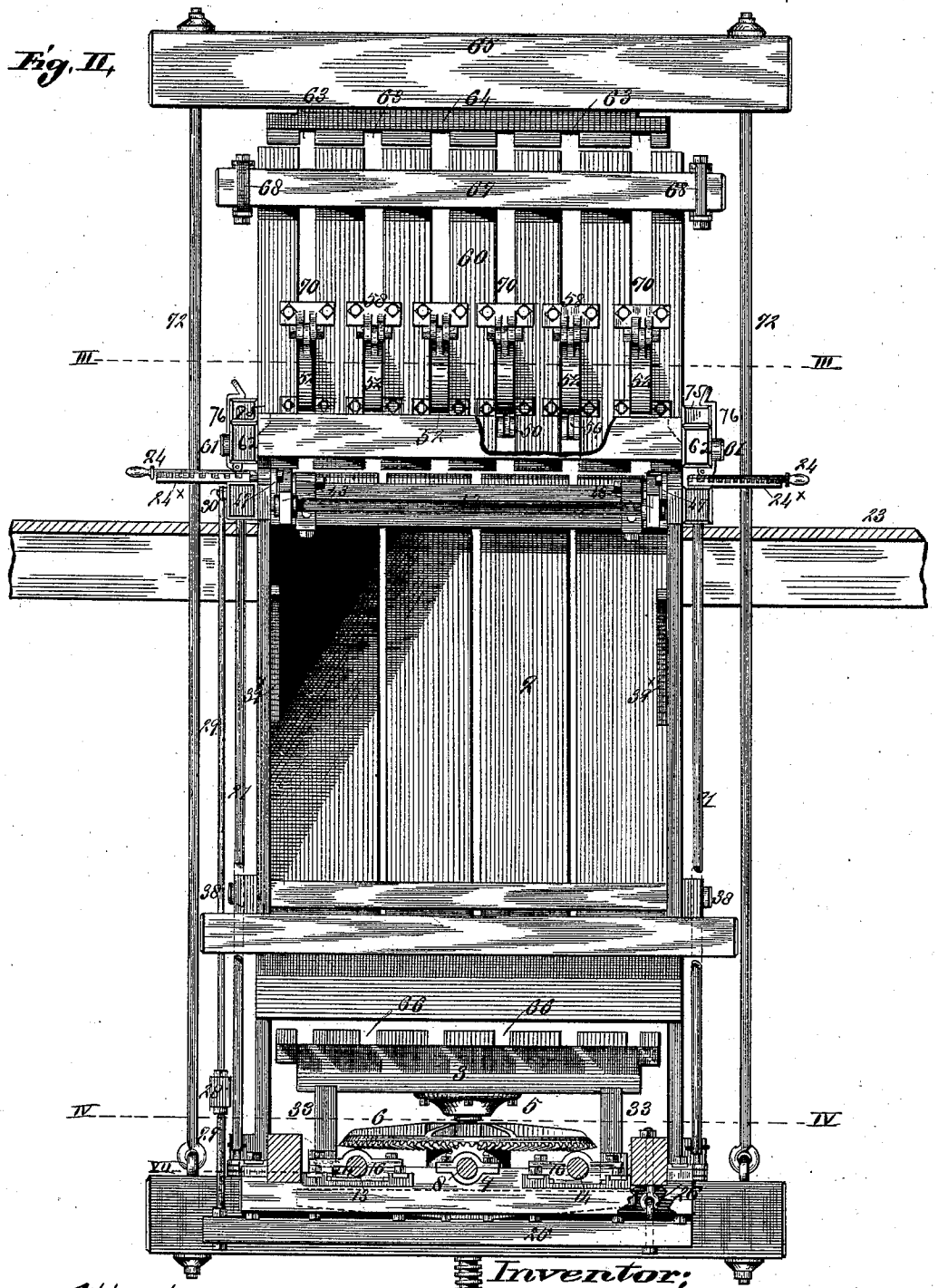

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Fig. III.

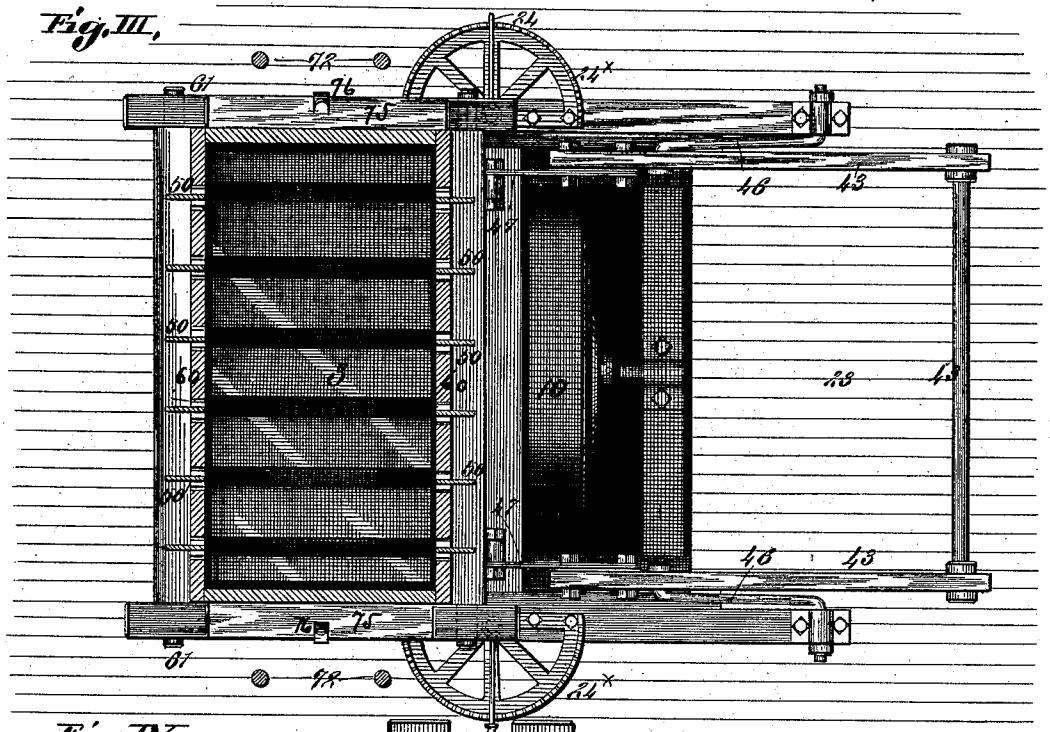

Fig. IV.

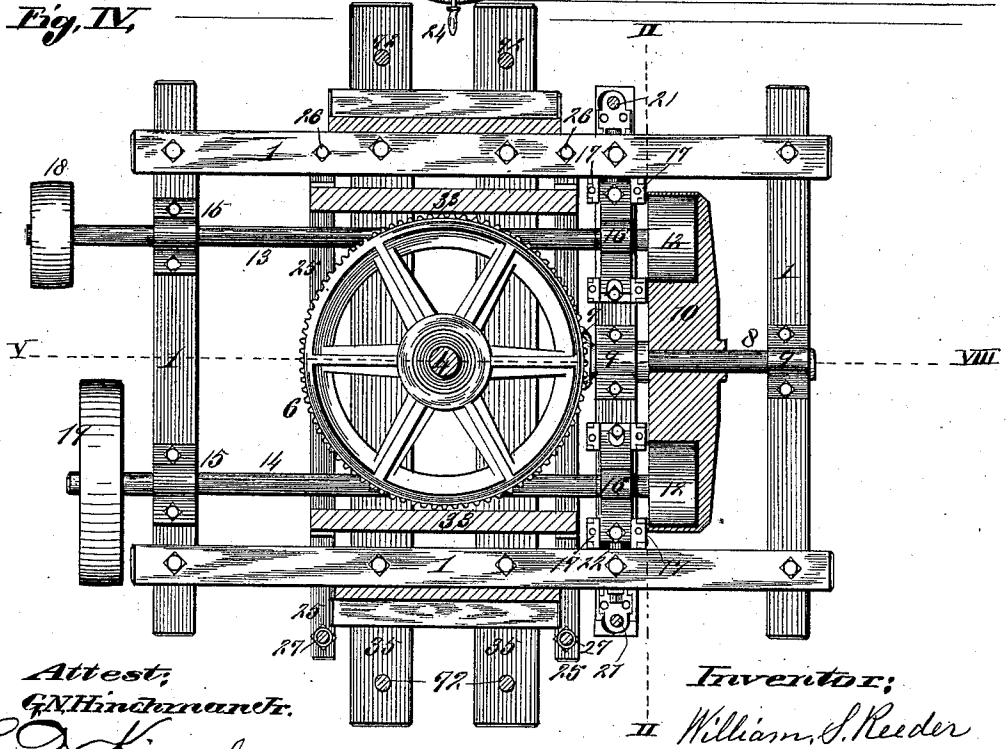

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Fig. V.

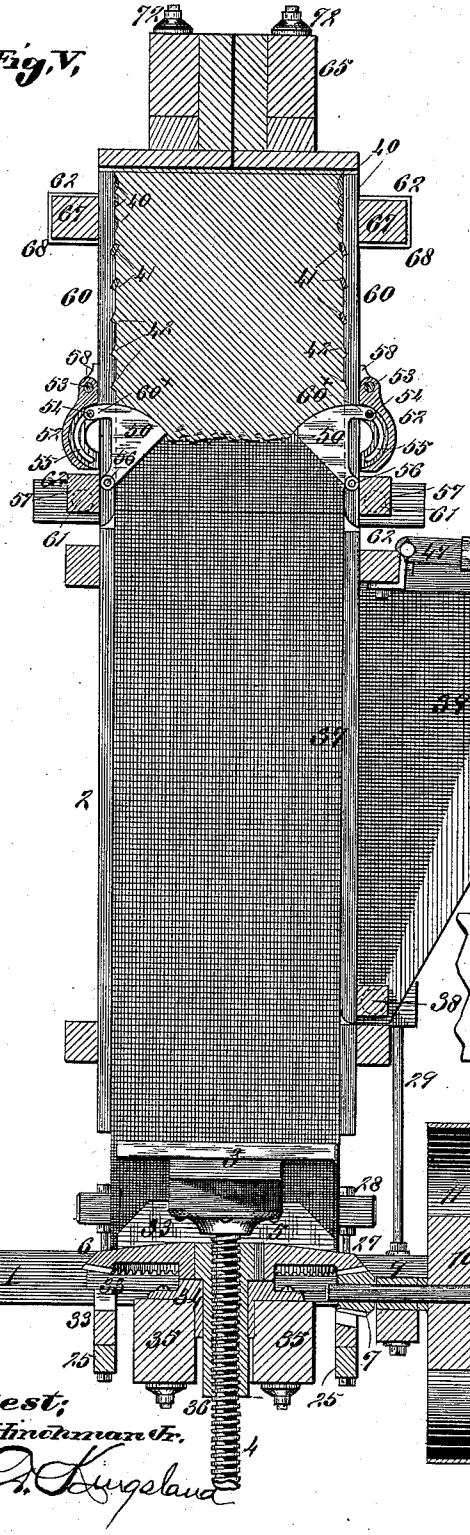


Fig. VI.

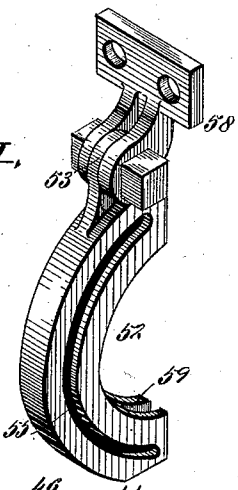
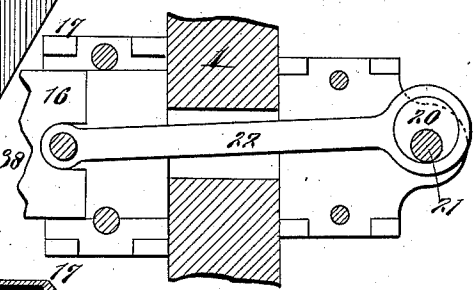


Fig. VII.



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BALING PRESS.

No. 379,414. Patented Mar. 13, 1888.

Fig. VIII.

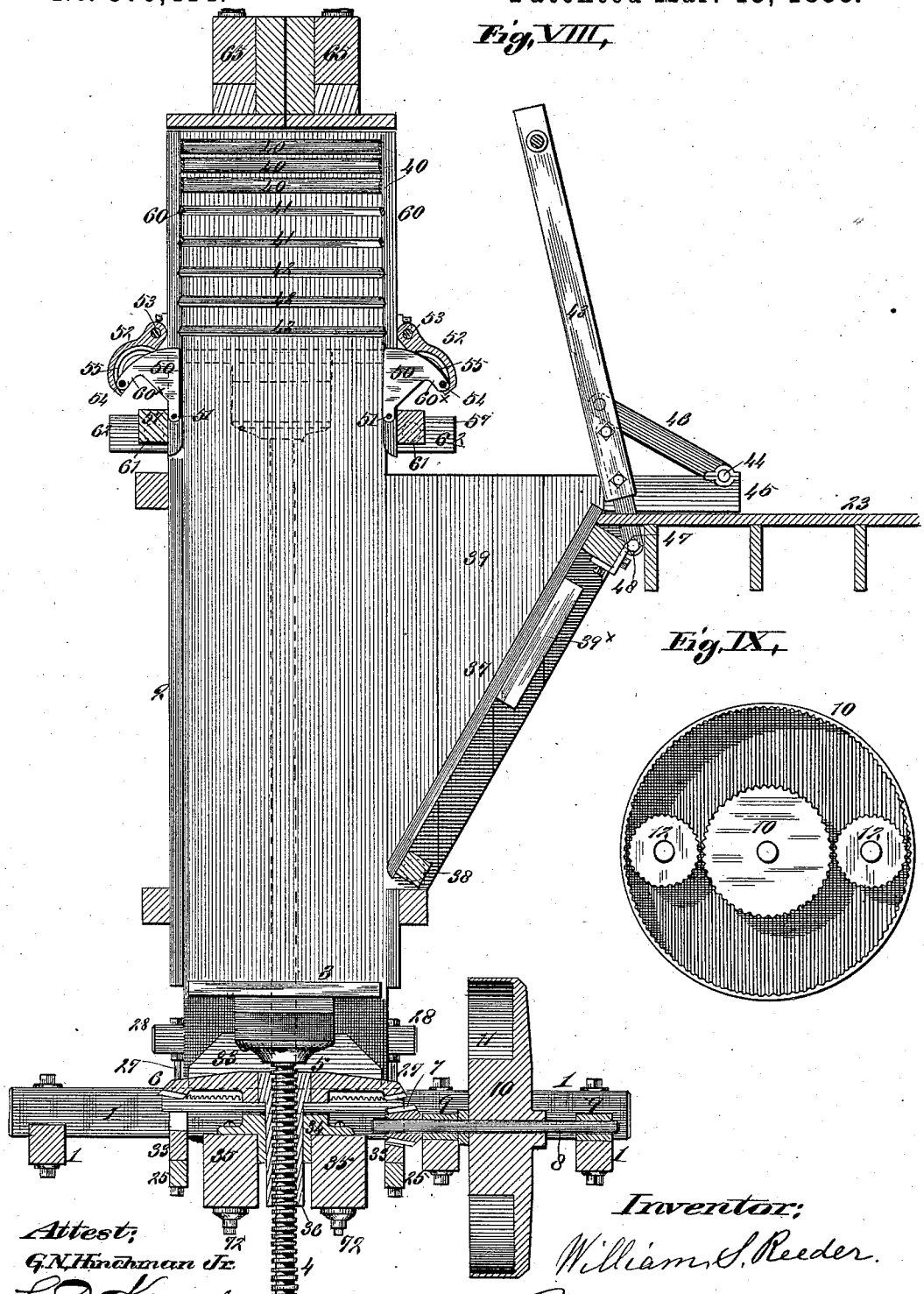

Fig. IX.

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UNITED STATES PATENT OFFICE.

WILLIAM S. REEDER, OF ST. LOUIS, MISSOURI.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 379,414, dated March 13, 1888.

Application filed February 16, 1887. Serial No. 227,825. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. REEDER, of the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Baling-Presses, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure I is an end view of my improved press with one of the doors of the baling-chamber partly open. Fig. II is a side elevation of the upper part of the press and a vertical section of the lower part, taken on line II II, Fig. IV. Fig. III is a horizontal transverse section taken on line III III, Fig. II. Fig. IV is a horizontal transverse section taken on line IV IV, Fig. II. Figs. V and VIII are vertical longitudinal sections taken on line V VIII, Fig IV, Fig. V showing a bale in the upper portion of the chamber and showing the doors closed and the traverser in its lower position, and Fig. VIII showing the traverser in its lower position in full lines and its upper position in dotted lines, and showing the hinged door of the press that forms a chute in its open position. Fig. VI is an enlarged perspective view of one of the pivoted levers of the retaining pawls or weights. Fig. VII is an enlarged detail section of the eccentric mechanism of one side of the press for moving the sliding boxes of that side of the press which carries the shaft of the friction-rolls. This section is taken on line VII VII, Fig. II. Fig. IX is a side view of a modification of the driving mechanism.

My invention relates to improvements in presses intended more particularly for use in baling cotton, but which may also be used for baling wool, hay, and other material, and in which two or more chargers may be made to form a bale. The primary object is to avoid the manual labor of packing the material into the press by means of tramping—a method heretofore practiced—and also to accomplish the work within the shortest possible time consistent with the power required to form a sufficiently heavy bale.

My invention consists in features of novelty, hereinafter fully described, and pointed out in the claims.

Referring to the drawings, 1 represents the frame of the press, upon which rests an upright baling-chamber, 2. 3 represents a traverser, which is moved vertically in the chamber 2 by a screw, 4, to which it is connected at 5, and upon which fits a cog-wheel, 6, meshing into a pinion, 7, on the inner end of a counter-shaft, 8, journaled in boxes 9, secured to the frame 1. (See Figs. IV, V, and VIII.) On the shaft 8 is a disk, 10, rigidly secured thereto, and which is grooved out circumferentially on its inner face at 11. Within the groove 11 fit rollers 12—one on each side of the frame—secured to the inner ends of main-driving shafts 13 and 14, journaled in fixed boxes 15 at one end and sliding boxes 16 at the other end, the boxes being secured to the frame 1, and the sliding boxes being at the ends of the shafts next the disk 10. These boxes are held in guides 17 to permit them to be moved back and forth to bring the rollers 12, respectively, against the outer or inner faces of the grooves 11, in which they fit. If the traverser is to be raised, the rollers would be moved against the outer face of the groove, and if the traverser is to be lowered they would be moved against the inner face of the groove, or vice versa, and if the traverser is to be stopped the wheels would be moved to a position where they would not touch either face. It will be seen that one of these rollers alone would accomplish the throw of the traverser; but I prefer to use two and to place a small pulley, 18, on one of the shafts and a large pulley, 19, on the other shaft, the former to be used to cause the downward and the first part of the upward movement of the traverser when speed is desired, and the latter to be used at the last part of the upward movement of the traverser when power is required to complete the pressing. I am thus enabled to obtain both speed and power when each is required, that unite in forming a quick and powerful press.

The boxes are moved, as above stated, by means of eccentrics 20 (see Figs. IV and VII) on shafts 21. (See Figs. I and II.) The eccentrics are connected by links 22 to their respective boxes 16, so that it will be seen that as the shafts are turned the boxes will be moved back and forth, and consequently the rollers 12. The shafts 21 preferably extend

up above the floor 23 of the building, and are provided with levers 24, by which they are turned.

24× represents racks secured to the ends of the baling chamber, with which the levers 24 engage to hold the shafts, and through them and the eccentrics and link the boxes 16 and rollers 12, to any desired adjustment.

In Fig. IX is shown a modification of the rollers 12 and disk 10, the difference between this and the other form being that in this case the parts are provided with cogs to insure a positive movement in cases where it is preferred.

25 represents two timbers or strips pivoted to the frame 1 by jointed bolts 26, (see Figs. II and IV,) by which they are supported at one end, and they are supported at the other end by rods 27, connected to a bar, 28, and by a rod, 29, which is also connected to the bar 28, at its lower end and to a lever, 30, at its upper end. The lever is pivoted to the baling-chamber at 31 and engages under a pin, 32, at its free end. (See Fig. I.) The traverser 3 rests on the timbers 25, with a suitable framework, 33, between them to form a space for the wheel 6, as shown. Now, it will be understood that when the ends of the timbers 25 are raised by the lever 30 the traverser-wheel 6 and screw 4 will also be raised, and at such times the wheel 6 is disengaged from the pinion 7, as shown in Fig. VIII, the object being to provide a means for throwing the wheel out of engagement with the pinion to stop the traverser at any desired point, the means of stopping the traverser being in addition to that of moving the rollers 12. When the timbers 25 are raised to disengage the wheel 6 from the pinion, the lever 30 is made to engage under the pin 32, if desired, so that the wheel will be held out of engagement with the pinion without the operator keeping hold of the lever. Then, when it is desired to engage the wheel with the pinion again, the lever is allowed to descend, the wheel coming down upon a base-plate, 34, upon which it rests when in working position. The base-plate is supported by timbers 35 of the frame 1.

The wheel 6 is preferably provided with an elongated neck, 36, through which the screw 4 passes and which passes through the base-plate 34. (See Fig. VIII.)

The door 37 of the baling-chamber of the press is hinged at 38, so that it may be moved into the position shown in Fig. VIII to form a chute while the press is being filled, and the ends of one side of the press are provided with extensions 39, which form the sides of the chute when the latter is turned out, and which have stops 39×, against which the chute opens.

The material to be baled is thrown into the press when the door 37 is opened and slides down the chute thus formed, and when a sufficient amount to form a charge has been put in the door 37 is brought back into a vertical position and the traverser caused to make its upward movement. Each time a charge is thus pressed it is retained in the upper part of the baling-chamber by suitable means formed upon the inner surface of the upper part of the baling-press. This means may consist of oval ribs 40 or of inclined ribs 41 or of notches or grooves 42, or both combined, as shown in Fig. VIII. When a charge has thus been pressed, the traverser is lowered again, the door 37 opened, another charge inserted, and the traverser made to ascend, and so the operation is continued until a bale of sufficient size is produced, these successive operations of the traverser dispensing with the tramping heretofore necessary to form a bale of sufficient size. The side 37 thus forms a hinged or pivoted door.

As a means for operating the door 37 to open and close, I have shown a frame, 43, pivoted at 44 to a horizontal fixed frame, 45, by links 46. The frame 43 is connected by arms 47 to the door 37 at 48. Now, it will be seen that when the frame 43 is raised into the position shown in Fig. VIII the door 37 will be open, and when the frame is lowered again into the position shown in Figs. I and V the side will be closed, and when the side is closed it will be seen that the pivot-points 49 of the arms 46 are beneath the pivot-points 44, so that no strain brought upon the door 37 when it is closed will cause the frame 43 to be elevated, and thus the door is rigidly held in its closed position, the frame 43 resting, when down, upon the floor of the building in which the press is located. When a bale has been completed, and before it is tied, it is prevented from expanding downward (when the traverser recedes) by means of stops 50, pivoted at 56 to the sides of the baling-chamber and working in slots of the chamber, and when in their inner position entering the chamber, as shown in Fig. V, beneath the bale. Each time the traverser reaches its upper position they are forced outward, thereby allowing the material to pass, and as soon as the traverser recedes they are forced inward by means of weights 52, hinged at 53 to the door of the chamber, the weights being connected to the stops by means of pins 54, fitting in slots 55 of the levers. By pivoting the stops farther outward than shown at 56 in Fig. V—as, for instance, pivoting them to the cross-timber 57 (shown in said figure)—their upper ends would drop into the baling-chamber each time by gravity; but an objection to this would be that by moving on the arc of a circle the center of which is located so far from the inner wall of the chamber they would, when they reached their inner position, be at so great an inclination as to materially detract from their strength, and also would leave more room for the expansion of the bale downward. These two objections are obviated by pivoting the stops at the point I have shown them and providing the weights to insure their inward movement each time the traverser recedes.

An enlarged view of the pivoted weights and

bracket 58, by which they are secured to the side of the press, is shown in Fig. VI. Each weight has preferably a slot, 59, made transversely to the slot 55 and extending inward thereto, in which fits an extension, 60^{x}, of its stop, as shown in Fig. V. There are a number of the stops 50 and weights 52, as shown in Figs. II and III, the stops working in slots 70 in the sides of the baling-chamber. The sides 60 of the upper part of the baling-chamber form doors, which are hinged at 61 to the frame 62 of the upper part of the press. Either one or both of these doors may be opened, as shown in Fig. I, to tie and eject the bale. When a bale has been completed, it is tied by passing the ties through notches 63 of a plate, 64, depending from the top timber, 65, of the frame 62, (see Fig. II,) and by passing them through similar slots or openings, 66, in the upper face of the traverser.

The doors 60 are made of slats, forming the spaces 70, in which the stops 50 fit, and the slats are connected by timbers 67, and are held in their closed position by clamps 68, pivoted at 69 to end timbers, 71, and which engage over the cross-pieces 67. (See Figs. I and II.) By simply swinging these clevises or clamps around, as shown on the right-hand side of Fig. I, the doors may be opened.

72 represents tie-rods connecting the lower frame, 1, to the upper frame, 62, thus tying the two parts of the frame together. The ends of the upper part of the baling-chamber have strips 75, which may be connected to the frame 62, to prevent the upward movement of the ends, by means of catches 76.

What I desire to claim and secure by Letters Patent of the United States, is—

1. A baling-press having a hinged door, as 37, forming one of its sides, and extensions 39, whereby when the door is opened a chute is formed for the material, a frame pivoted to said door, and a link pivotally connecting said frame to a fixed object, all arranged and combined substantially as set forth.

2. In an upright baling-press, the combination of the chamber, traverser for baling the material in the upper part of the chamber, hinged door, and mechanism for operating the door and holding it closed against the pressure of the traverser, said mechanism consisting of frame 43, with arms 47, pivoted to said door, and locking-links 46, substantially as and for the purpose set forth.

3. In a baling-press, the combination of a traverser, a finishing or compressing chamber, a receiving-chamber having a hinged door, and levers for opening and closing said door, which levers also hold said door locked when closed independently of other devices, substantially as described.

4. In an upright baling-press, the combination of the chamber, traverser for baling the material in the upper portion of the chamber, hinged door, and mechanism for operating the door and holding it closed against the pressure of the traverser, consisting, essentially, of a hinged frame and connecting links, said frame and links firmly locking the door in place when closed thereby, substantially as set forth.

5. In an upright baling-press, the combination of the chamber, traverser for baling the material in the upper part of the chamber, pivoted triangular stops 50, and pivoted weights 52, bearing against said stops, the two being swiveled together at their free ends, substantially as and for the purpose set forth.

6. In an upright baling-press, the combination of the chamber, traverser for baling the material in the upper part of the chamber, screw on the upper end of which a traverser is secured, cog-wheels 6, through which the screw passes, pinion 7, engaging the wheel, shaft 8, to which the pinion is secured, grooved wheel 10 on said shaft, friction-wheels 12 in said groove, and shafts 13 14, carrying, respectively, a small pulley, 18, and a large pulley, 19, either of which is adapted to be operated at will, whereby a differential speed and power can be obtained, substantially as and for the purpose set forth.

7. In an upright baling-press, the combination of the chamber, traverser, screw on the upper end of which the traverser is secured, cog-wheel 6, through which the screw passes, pinion 7, engaging the wheel 6, vertically-movable frame on which the traverser rests, lever 30, and connection between said lever and frame, whereby the cog-wheel may be thrown out of engagement with the pinion, substantially as and for the purpose set forth.

8. A baling-press having a grooved roller, as 10, with rollers 12 12 extending therein for actuating the pressing mechanism, in combination with sliding boxes, as 16 16, for the shafts carrying said rollers, eccentrics and connecting-rods for said boxes, and shafts or rods extending from said eccentrics to an accessible point for operating said boxes to throw one or the other roller in engagement with the grooved roller, to actuate the mechanism in one or the other direction to increase or decrease the speed and power, or both rollers out of engagement therewith, as desired, substantially as described.

9. The combination, in a baling-press, of power-supplying mechanism, sliding boxes journaling the shafts thereof and adapted, when actuated in one or the other direction, to change the action of the press, eccentrics and connecting-rods for said sliding boxes, rods extending from said eccentrics above the floor for operating the same, and means for locking said parts in any required position, substantially as specified.

10. A baling-press having a traverser actuated by a screw operated by a wheel, as 6, a driving-gear, as 7, for the latter, and rods extending from the support of said wheel to an accessible point for raising said traverser and screw and disengaging said wheel from said driving-gear to stop the traverser at any desired point.

11. A baling-press having a traverser actu-

ated by a screw operated by a wheel, as 6, a driving-gear, as 7, engaging the same, rods for disengaging said wheel from said driving-gear, a grooved wheel, 10, constituting part of said driving mechanism, rollers 12 12, extending into the groove therein for supplying the power, and means for moving said rollers to engage the grooved wheel, so as to actuate the machine in either direction or to disengage said grooved rollers and take off the power, whereby the traverser may be stopped by either of the above mechanisms, substantially as described.

In testimony whereof I have hereunto set my hand and seal, this 7th day of February, 1887, in the presence of two subscribing witnesses.

WILLIAM S. REEDER. [L. S.]

Witnesses:

G. N. HINCHMAN, Jr.,

L. F. KINGSLAND.