

(No Model.)

2 Sheets—Sheet 1.

A. ROOP, F. L. BRANDON & J. S. HART.
BALING PRESS.

No. 543,632.

Patented July 30, 1895.

Fig. 1.

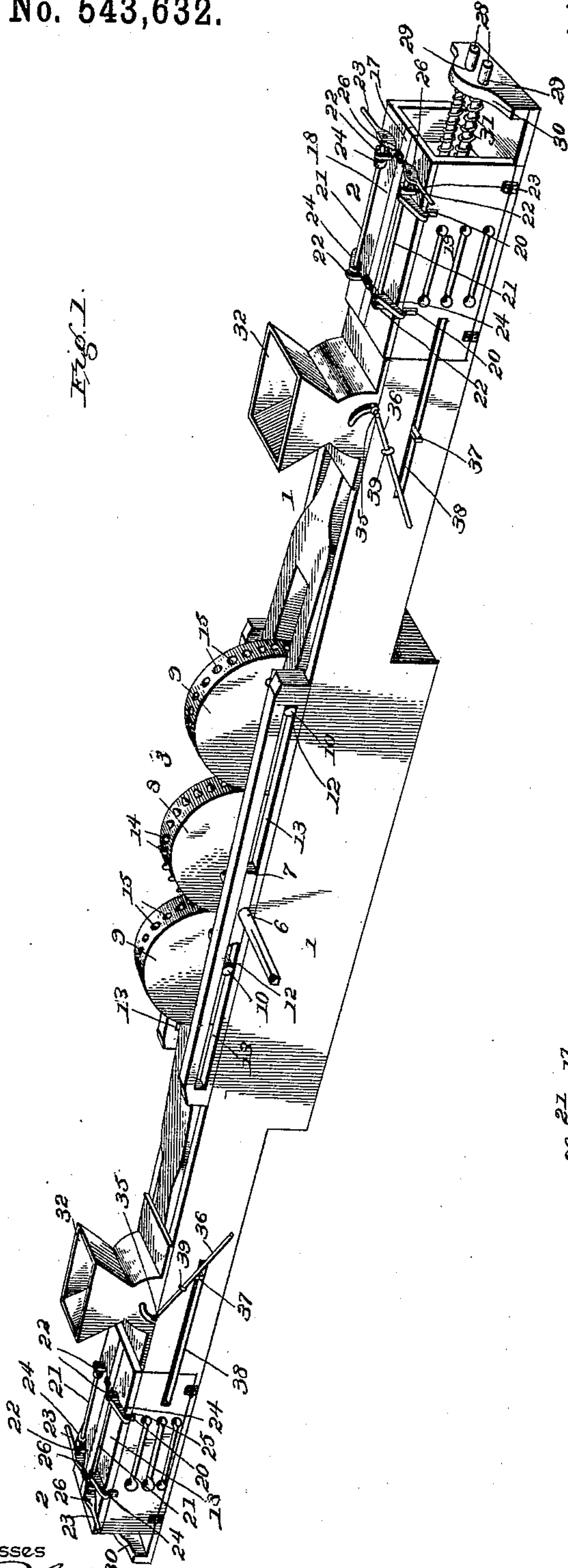
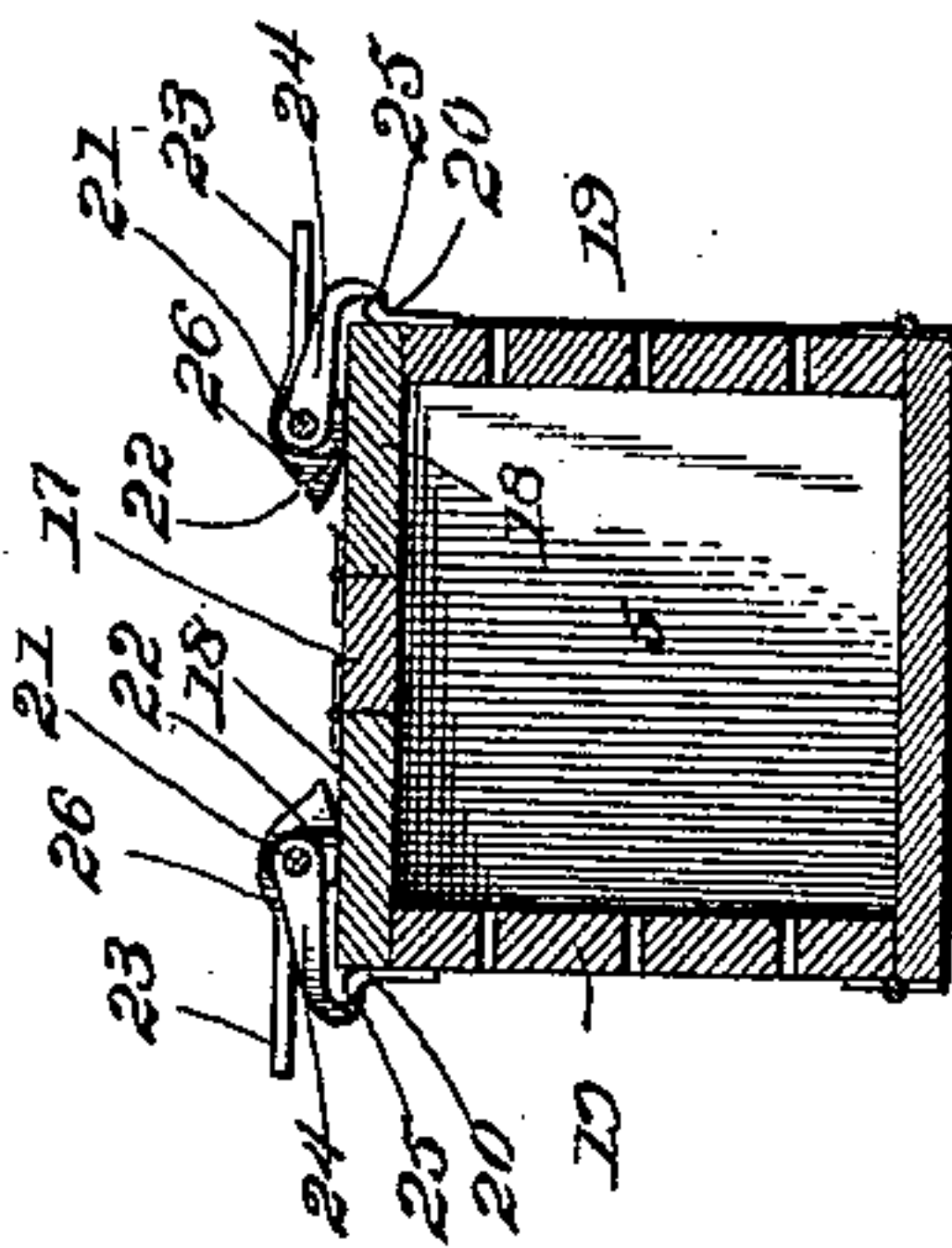


Fig. 5.



Witnesses

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By their Attorneys,

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

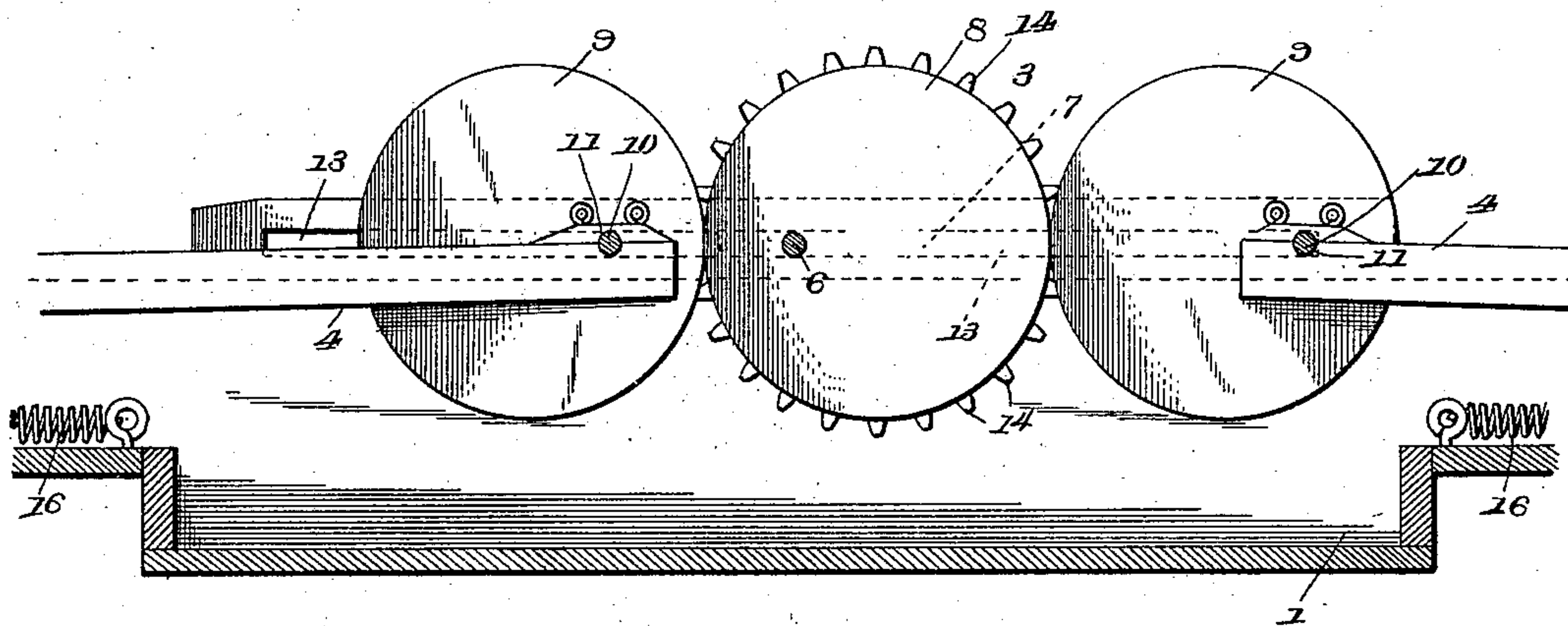


Fig. 3.

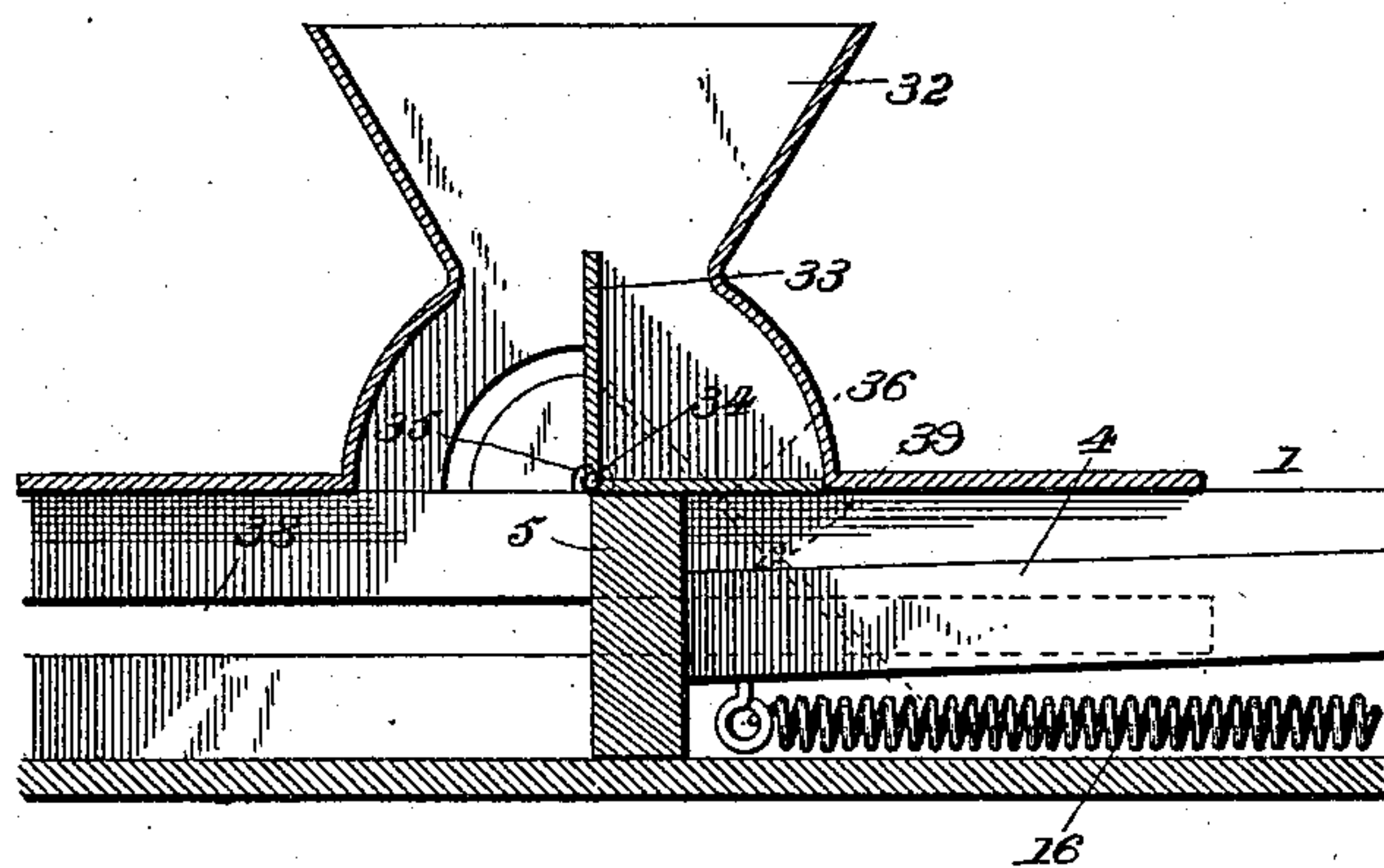
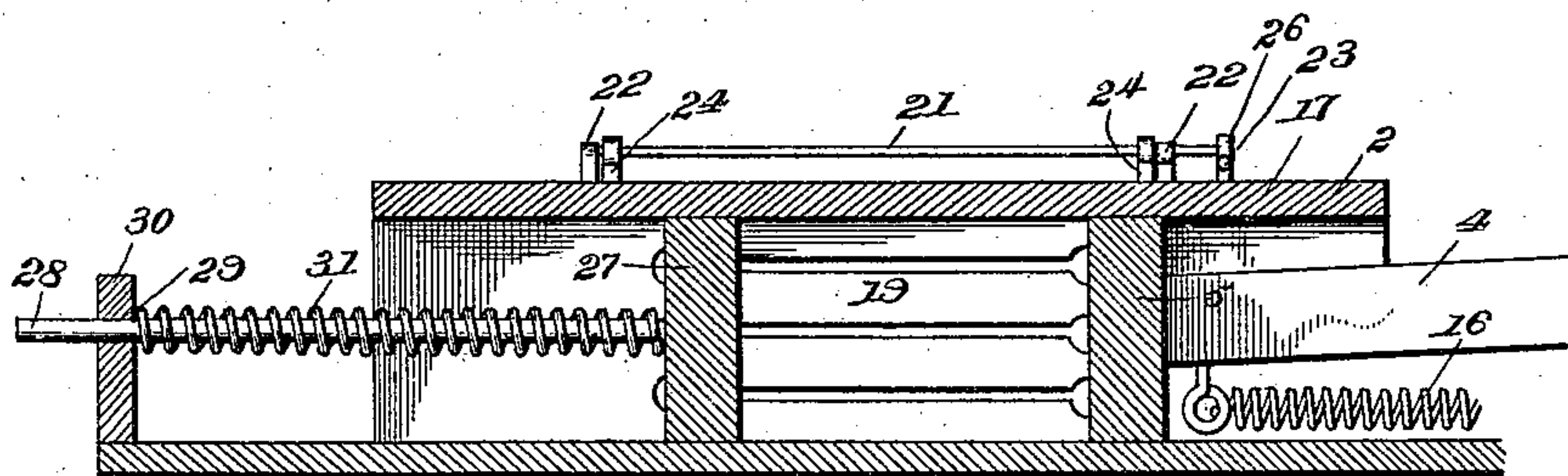


Fig. 4.



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UNITED STATES PATENT OFFICE.

AMOS ROOP, FRANCIS L. BRANDON, AND JOHN S. HART, OF HICKSVILLE, OHIO.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 543,632, dated July 30, 1895.

Application filed September 18, 1894. Serial No. 523,415. (No model.)

To all whom it may concern:

Be it known that we, AMOS ROOP, FRANCIS L. BRANDON, and JOHN S. HART, citizens of the United States, residing at Hicksville, in the county of Defiance and State of Ohio, have invented a new and useful Baling-Press, of which the following is a specification.

Our invention relates to baling-presses particularly adapted for baling hay, and the objects in view are to provide a simple, direct, and efficient power for operating baling-presses; to provide means for baling in opposite directions alternately or with both motions of the plungers, whereby uniformity of the resistance to the plunger is obtained; to provide an automatic feed mechanism for the baling-chamber, and, furthermore, to provide an improved construction of baling-chambers to facilitate the removal of the bales after completion.

Further objects and advantages of our invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

In the drawings, Figure 1 is a perspective view of a baling-press embodying our invention. Fig. 2 is a detail view, partly in section, taken longitudinally, of the mechanism for transmitting motion from the driving-shaft to the plungers. Fig. 3 is a detail longitudinal section of the automatic feed mechanism. Fig. 4 is a similar view of the baling-chamber proper. Fig. 5 is a transverse vertical section of the same, showing the means for securing the parts of the chamber in their closed or operative positions.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates the parallel-sided frame of the machine, at the extremities of which are arranged the baling-chambers 2, and 3 represents the power or operating mechanism, which is arranged at a point between said baling-chambers and communicates motion to the rods 4 of the plungers 5.

6 represents the driving-shaft, which is mounted in bearings 7 in opposite sides of the frame 1, any suitable means being provided for the communication of rotary movement to the said shaft. Fixed to the driving-

shaft is a master eccentric 8, which co-operates with auxiliary eccentrics 9, carried by spindles 10, which are mounted in bearings 11 in the bifurcated inner ends of the plunger-rods. The spindles 10 are extended laterally to form guide-pins 12, which fit in horizontal guide-slots 13 in the sides or walls of the frame 1.

Any suitable means may be provided for the communication of rotary movement from the master eccentric to the auxiliary eccentrics during the contact of the latter with the former, but in the construction illustrated in the drawings we employ peripheral spurs 14 on the master eccentric for engaging peripheral sockets or notches 15 in the auxiliary eccentrics. In this connection we also employ retraction or rebounding springs 16, attached at one end to the framework below the plunger-rod and at the other end to the plunger, whereby an even pressure of the auxiliary eccentrics upon opposite sides of the master eccentric is maintained throughout the operation of the machine.

The master and auxiliary eccentrics are of equal diameters, whereby each of the auxiliary eccentrics makes a complete revolution during one revolution of the master eccentric, and the auxiliary eccentrics are disposed respectively in opposite positions, or with their enlarged portions or major diameters extending in opposite directions. Also, the master eccentric is so arranged with relation to the auxiliary eccentric that when its major diameter is in a horizontal position it is in alignment with the major diameter of one of the auxiliary eccentrics. Thus, as the enlarged portion of the master eccentric is presented successively to the two auxiliary eccentrics, the major diameters of said auxiliary eccentrics are presented successively to the major diameter of the master eccentric. In this way the plungers which carry the auxiliary eccentric are alternately advanced or moved outward from the power or operating mechanism, the advanced movement of one of the plungers being accompanied by the return movement of the other plunger.

Extending longitudinally over the baling-chamber 2 at each end of the framework is a beam 17, and to this beam are hinged the horizontal portions 18 of the slotted sides or

walls 19, said horizontal portions combining to form the top or cover of the press-box. The side walls proper, or the vertical portions thereof, are hinged at their lower edges to the base of the framework, and the horizontal parts of the top or cover are provided with locking devices for engaging upstanding ears or studs 20 on the side walls proper. These locking devices may consist, as shown in the drawings, of a spindle 21, mounted in bearings in suitable brackets 22, and provided with a handle 23, said spindle carrying tongues 24, provided with terminal shoulders 25, to engage said ears or studs 20. The operating-handle 23 is provided with a cam-head 26 to bear upon the upper surface of said top or cover, whereby the locking-tongues are held out of engagement with the ears or studs on the side walls of the press-box.

Arranged in each of the press-boxes is a spring-actuated or rebounding follower 27, fitting snugly in the box and provided with parallel guiding-rods 28, which fit in guide-openings 29 in a terminal standard or block 30. Coiled upon these parallel rods and bearing at opposite extremities against the follower and the bracket or block are the springs 31.

In addition to the above-described mechanism, we also employ an automatic feeding device, one for each press-box, the same being provided with a hopper 32 and an oscillatory packer 33, which is arranged in the lower portion of the hopper, and is adapted to depress the material to be baled and force it into the path of the plunger. This packer is provided with a horizontal spindle 34, mounted at its extremities in bearings 35 in the opposite sides of the framework, and motion is communicated to the packer from the plunger by means of sliding-fulcrum levers 36 arranged respectively on opposite sides of the framework, with their lower ends respectively in the paths of lateral projections 37 of the plunger. These lateral projections operate in horizontal slots 38 in the side walls of the framework, and as the said levers 36 are disposed in relatively-opposite positions they are alternately engaged by the projections to throw the packer in opposite directions, and thus feed the hay or other material from the hopper into the press. Said sliding-fulcrum levers are pivotally connected at their upper extremities to the packer, and the sliding fulcrums are formed by extending the levers through swiveled guide blocks or bearings 39.

From the above description it will be seen that as the oppositely-disposed plungers are alternately advanced and retracted they communicate an oscillatory movement to the packers located in the hoppers or adjacent to the feed-openings of the press-boxes, whereby it is only necessary for the attendant or operator to place the hay or other material in the hopper. Furthermore, it is obvious that, inasmuch as one of the plungers is advanced while the other is retracted, the resistance to

be overcome by the power or operating mechanism is uniform, thus avoiding the intermittent strains common to presses employing a single plunger.

It will be understood that various changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described our invention, we claim—

1. In a baling press, the combination with a reciprocating plunger, of a master eccentric and means for communicating motion thereto, an auxiliary eccentric mounted upon the rod of said plunger and operatively connected with said master eccentric, whereby motion is communicated from the latter to the former, and means for guiding the auxiliary eccentric to cause its center of rotation to reciprocate in a straight line, substantially as described.

2. In a baling press, the combination with a plunger, of a master eccentric and means for operating the same, said master eccentric being provided with peripheral spurs which are tapered toward their extremities, an auxiliary eccentric mounted upon the rod of said plunger with its major diameter in opposition to that of the master eccentric and having peripheral notches or sockets to receive the spurs of the master eccentric whereby relative lateral displacement of the eccentrics is prevented, and means for guiding the auxiliary eccentric to cause its center of rotation to reciprocate in a straight line, substantially as described.

3. In a baling press, the combination with oppositely disposed, aligned baling chambers, and plungers mounted for reciprocation therein, of a master eccentric arranged between the baling chambers, auxiliary eccentrics mounted for rotation upon the rods of said plungers, the faces of the main and auxiliary eccentrics being constructed to intermesh, whereby rotary motion may be communicated from the master to the auxiliary eccentrics, means for guiding the auxiliary eccentrics to cause their centers of rotation to reciprocate in a common horizontal plane and resilient devices attached to the plungers for normally holding the auxiliary eccentrics in operative relation with the master eccentric, substantially as described.

4. In a baling press, the combination with a plunger and operating mechanism, of a baling chamber having hinged side walls, a divided top or cover having its parts or members hinged at their adjacent inner edges and means for locking said hinged parts in their closed or operative positions, such means consisting of shouldered tongues, ears or studs on the side walls for engagement by the tongues, a spindle mounted in brackets upon the top or cover and carrying said tongues, and an operating handle attached to the spindle and provided with a cam head for maintaining

the tongues out of engagement with the ears or studs, substantially as described.

5 In a baling press, the combination with a plunger and operating mechanism, of a baling chamber provided with movable walls for facilitating the removal of a bale, and a resilient spring-pressed follower arranged in the chamber and having parallel rods fitting in guide openings in a fixed standard or block, and actuating springs coiled upon said rods and bearing at opposite extremities against the follower and said standard or block, substantially as described.

15 6. In a baling press, the combination with a baling chamber, a plunger and operating mechanism, of feed mechanism having an oscillatory packer arranged adjacent to the feed opening of the baling chamber, sliding-fulcrum levers connected to the packer, and projections on the plunger for engaging and communicating motion to the said levers, substantially as described.

20 7. In a baling press, the combination with a baling chamber, a plunger and operating

mechanism therefor, of an oscillatory packer 25 arranged adjacent to the feed opening of the baling chamber, a hopper communicating with and inclosing said packer, sliding-fulcrum levers pivotally connected at their upper extremities to the packer and fitted to 30 slide at intermediate points in swivel bearing blocks, said levers being disposed in opposite directions and upon opposite sides of the baling chambers, and lateral projections on the plunger for engaging and communicating motion to the levers, said projections 35 operating in slots in the sides of the baling chamber, substantially as described.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures 40 in the presence of two witnesses.

AMOS ROOP.

FRANCIS L. BRANDON.

JOHN S. HART.

Witnesses:

WESLEY DOWELL,

JAS. E. STOFFORD.