

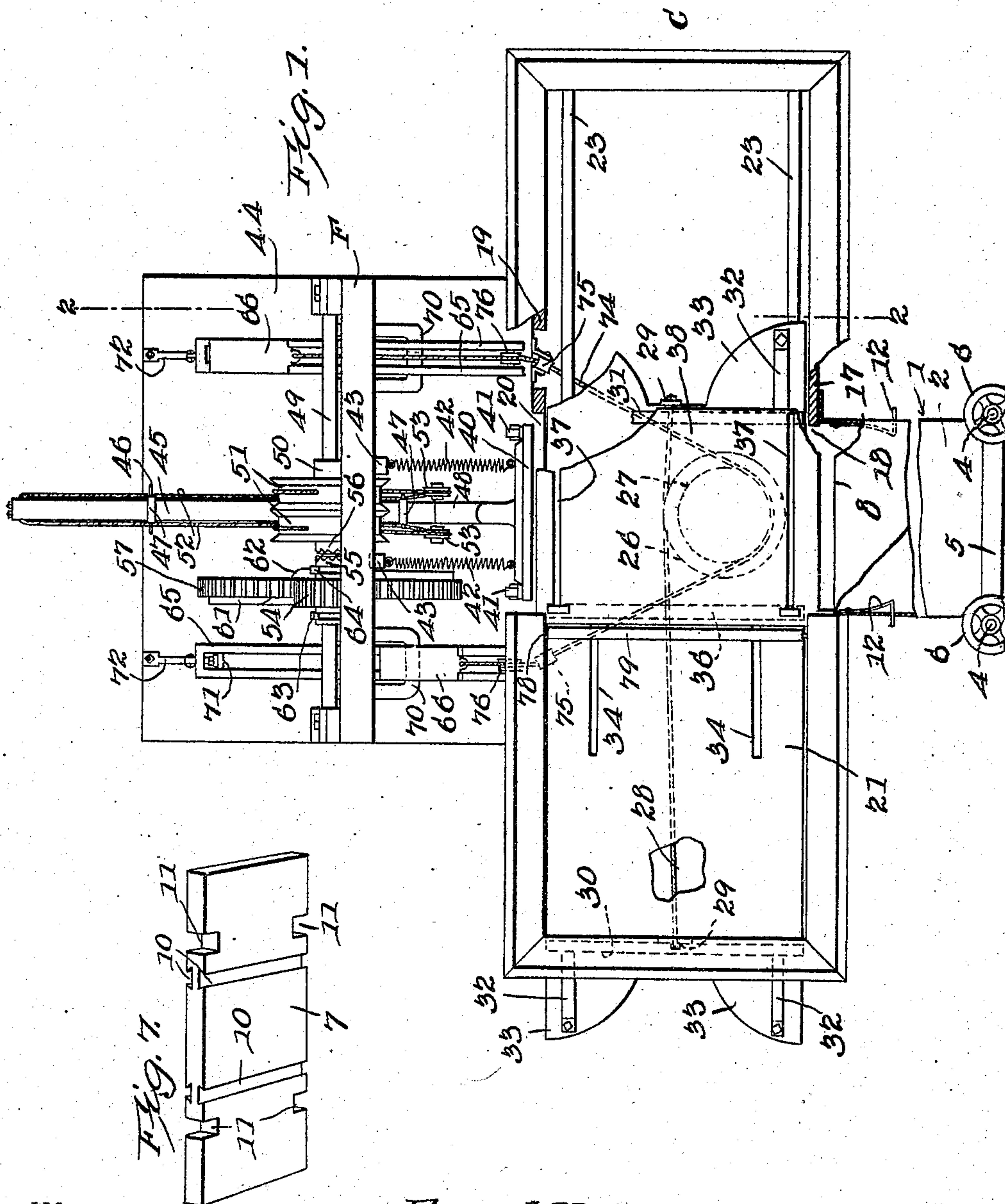
No. 855,015.

PATENTED MAY 28, 1907.

E. H. McMURRY.  
BALING PRESS.

APPLICATION FILED APR. 27, 1906.

3 SHEETS—SHEET 1.



WITNESSES:

*E. H. McMurry*  
*Wm. Bagger*

*Emmet H. McMurry,* INVENTOR.

By

*C. A. Snow & Co.*  
ATTORNEYS

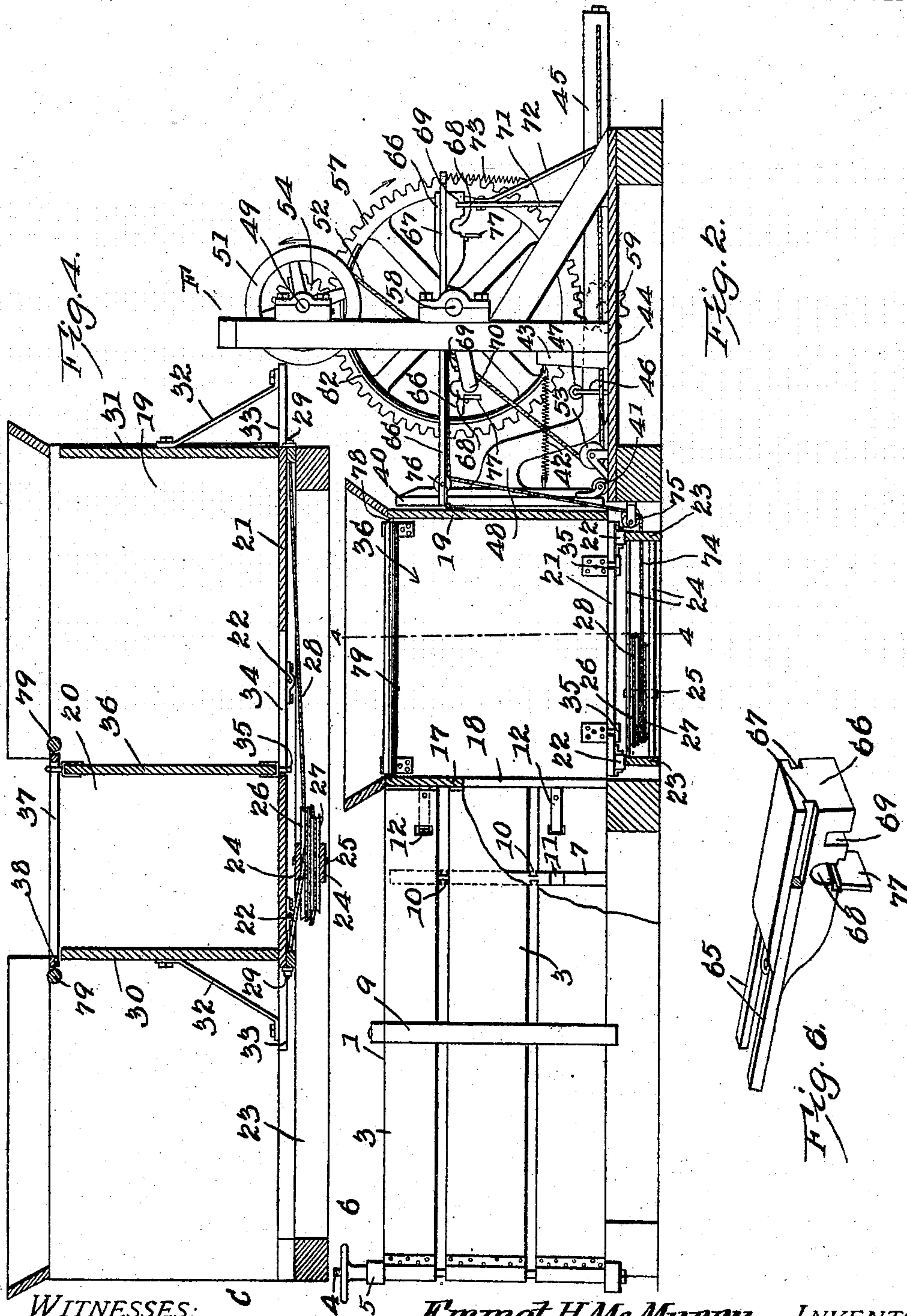
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WITNESSES:

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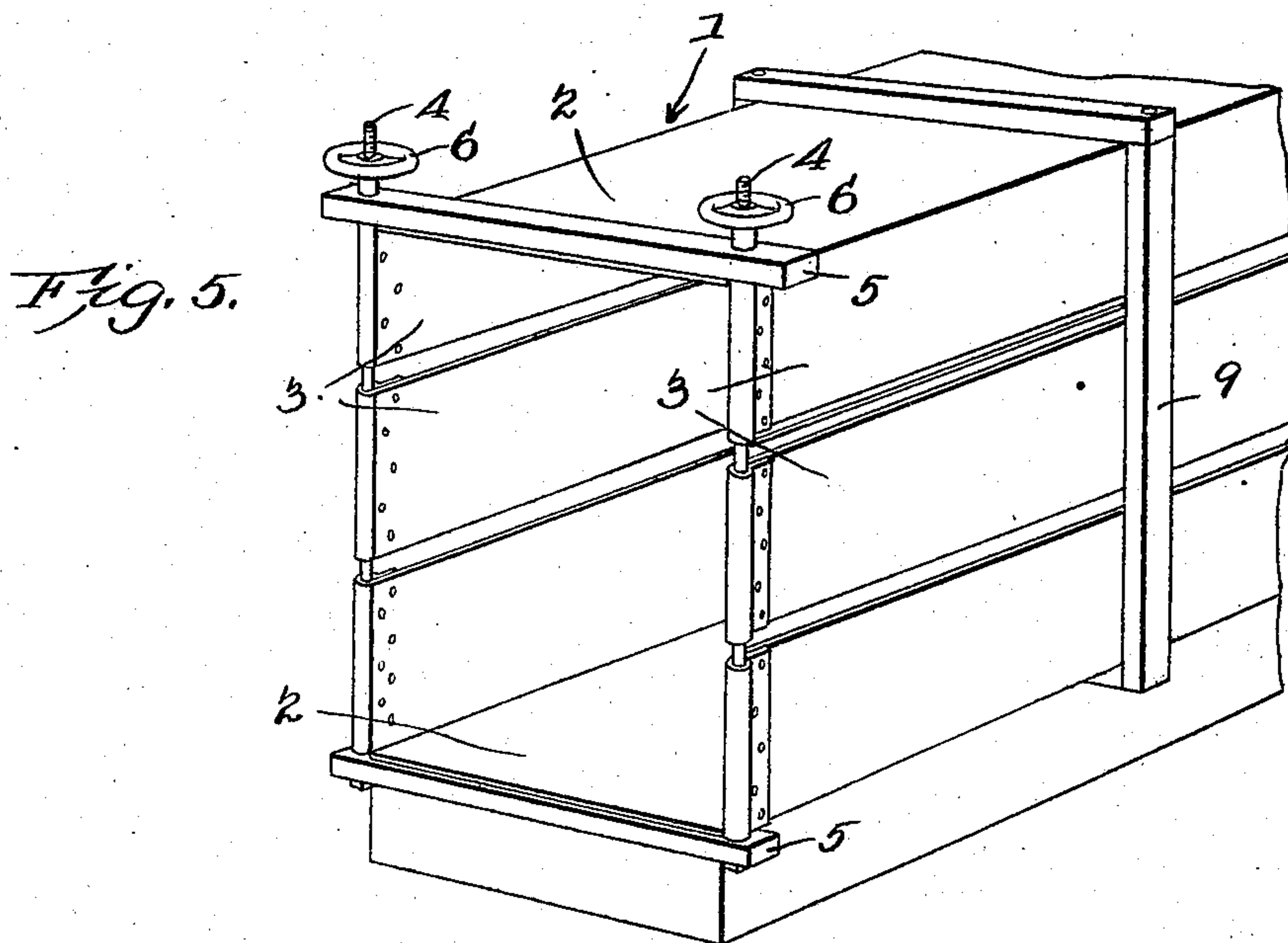
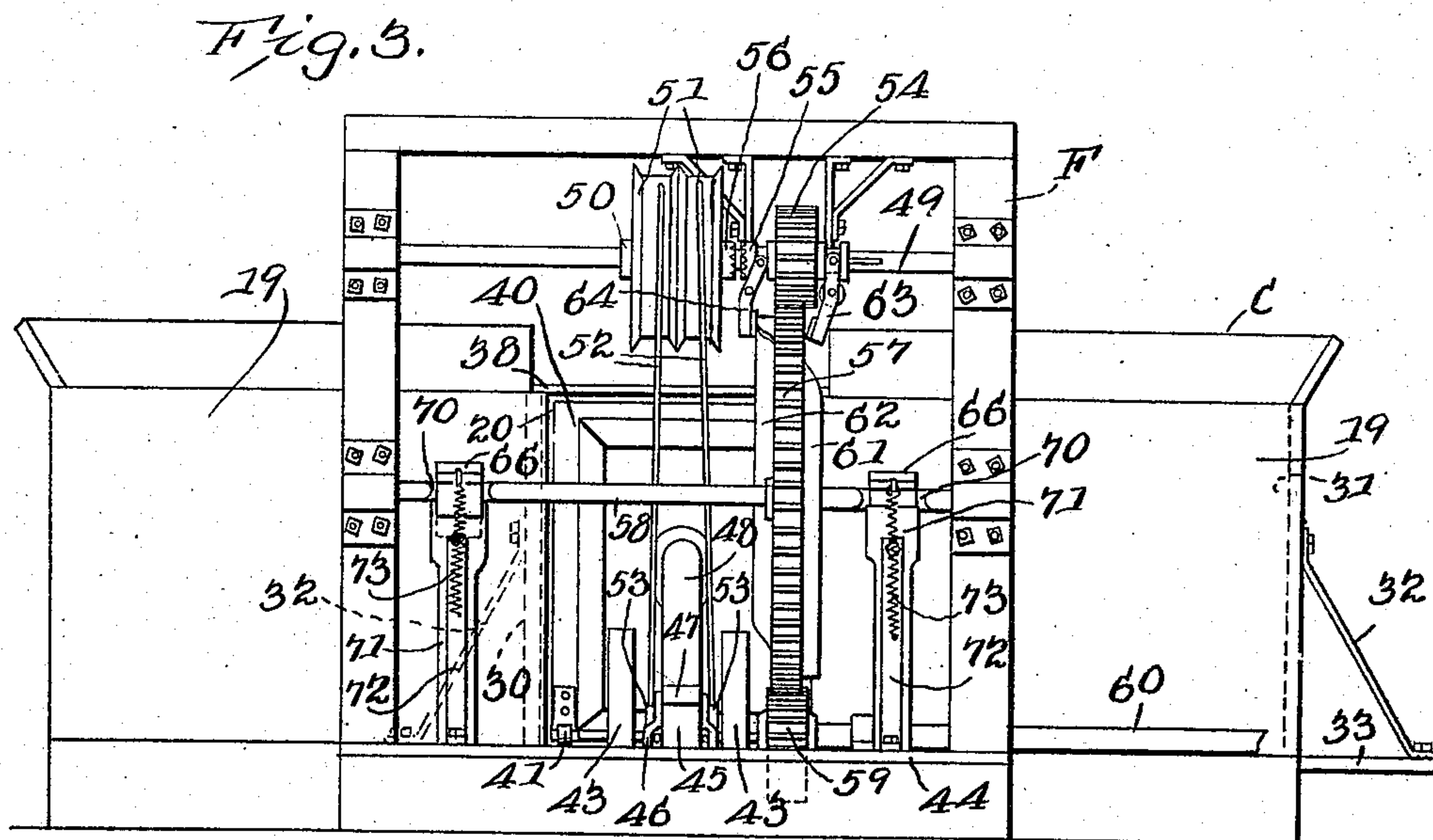
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*Wm. Ragger*

*Emmet H. McMurry,*  
INVENTOR

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ATTORNEYS



# UNITED STATES PATENT OFFICE.

EMMET H. McMURRY, OF PEDEE, ARKANSAS.

## BALING-PRESS.

No. 855,015.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed April 27, 1906. Serial No. 314,074.

*To all whom it may concern:*

Be it known that I, EMMET H. McMURRY, a citizen of the United States, residing at Pedee, in the county of Lee and State of Arkansas, have invented a new and useful Baling-Press, of which the following is a specification.

This invention relates to baling presses, and a principal object of the invention is to largely increase the working capacity and the output of such devices.

Another object of the invention is to provide a novel form of press in which provision is made for imparting initial compression to a charge of material in advance of its entrance into the baling chamber.

A further object of the invention is to provide an initial compression means in which the compression is effected in a direction approximately at a right angle to the compression force exerted by the main plunger within the baling chamber.

A further object of the invention is to provide a novel form of baling press in which an initial compression means is provided with a plurality of feed and compression chambers which are alternately moved to charge receiving positions, so that while the material is being compressed within one of the chambers another quantity of material may be delivered or fed into the other chamber.

A still further object of the invention is to provide novel and improved means for actuating the initial compression means and for securing such initial compression means stationary during the operation of the main plunger.

A still further object of the invention is to provide a novel form of baling chamber or box, and to so construct the same as to permit the ready introduction of head boards or blocks for dividing the material into bales of appropriate sizes.

With these and other ends in view, which will readily appear as the nature of the invention is better understood, the invention consists in the improved construction, arrangement and combination of parts, which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention; it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited,

but that changes, alterations and modifications within the scope of the invention may be made, when desired.

In the drawings, Figure 1 is a top plan view of a baling press constructed in accordance with the principles of the invention. Fig. 2 is a longitudinal sectional view taken substantially on the plane indicated by the line 2—2 in Fig. 1. Fig. 3 is a rear elevation. Fig. 4 is a transverse sectional view taken on the plane indicated by the line 4—4 in Fig. 2. Fig. 5 is a perspective view of the discharge end of the press box drawn on an enlarged scale. Fig. 6 is a detail perspective view of one of the sides of the mechanism for intermittently reciprocating the compressing element in the feed compartment. Fig. 7 is a perspective view of a head block which is introduced between adjacent ends of the bales.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

The baling press forming the subject of the present invention includes in general a stationary press box, open at both ends and connected at one end to the feeding mechanism or feed chambers, provided with means for subjecting the charge to preliminary or initial compression before the charge is directed into the press box.

The press box 1 comprises upper and lower members 2 that are preferably formed of solid sheets of metal, and the sides of the press box are formed of spaced metallic strips, as 3, which are connected at the discharge end by vertically disposed rods 4 that extend through beads formed at the ends of the strips 3 and through compression bars 5 at the end of the press box. The upper ends of the rods 4 are threaded to receive hand nuts 6 which may be turned for the purpose of altering the cross sectional area of the discharge end of the press box, so that the hay or other material which is being compressed may be retarded to any desired extent, in order to form bales under greater or less pressure. The press box is preferably of a length sufficient to contain at least two bales, and the advance bale is held from discharge by the contracted discharge mouth of the press box and forms an abutment against which the following bale is compressed, a header block 7 being introduced between the adjacent ends of the bales; the top of the press box is, for con-



venience, provided with a slot 8 through which the header blocks may be passed to the rear of each bale. The press box is reinforced, when desired, by a strengthening band 9 that extends around said box at a point about midway of its length; but this band may be dispensed with, when desired.

The top and bottom members 2, 2 of the press box are preferably formed integral with the adjacent side strips 3, 3, the latter being in the nature of flanges formed by bending the sheet metal plates of which the top and bottom members are preferably constructed. By so constructing the press box, it is left interiorly smooth and free from crevices, cranks, or openings into which the material that is being compressed might expand, thereby impeding the operation of the machine. Again, under this construction, simplicity, durability, strength, and general efficiency of the machine are promoted, as will be readily understood.

The header blocks 7 are rectangular in contour and corresponding to the cross sectional contour of the press box, and each header block has transversely disposed grooves or slots 10 to permit the passage of the bale wires, there being two or more of such slots in accordance with the size of the bale being made, and the side edges of the head blocks are provided with notches 11 to permit free passage beyond a plurality of resilient retaining fingers or dogs 12 which are carried by the sides of the press box and project within the box in position to engage the successive charges of material and hold the same from rearward movement as the compression plunger recedes.

The inner or feed end of the press box is rigidly secured to a vertical partition 17 which constitutes one wall of the feed compartment, and said partition has an aperture 18 through which the material is forced into the press box.

The feed compartment C of the press box includes the front and rear walls 17 and 19, which latter has an aperture 20 for the passage of the press plunger or follower, to be hereinafter described. The said feed compartment further includes a transversely-movable bottom member 21 the surface of which is in alinement with the lower edge of the feed opening 18. The floor 21 is provided on its under side with suitably supported wheels or rollers 22 for which track beams 23 are provided. These track beams are connected beneath the movable floor by cross bars 24 supporting a shaft 25 upon which a pair of pulleys 26 and 27 are mounted; said pulleys being secured together in any suitable manner so as to rotate in unison. A flexible member, such as a wire rope or cable 28, is wound one or more times upon the pulley 26, so as to insure frictional contact therewith, and the ends of said flexible member are ex-

tended to and connected with the ends of the movable floor 21, as by means of cleats 29 secured upon the underside of the floor and perforated for the passage of the ends of the flexible element, which may be secured or made fast in any suitable manner. The ends of the floor 21 carry the end walls 30 and 31 of the feed compartment; said end walls being secured in an upright position by means of braces 32 the lower extremities of which are made fast upon brackets 33 at the extremities of the floor member. The latter is provided intermediate its ends with slots 34 constituting guides for T-shaped lugs 35 secured at the lower edge of a partition member 36 which is movable with the floor member between the front and rear walls 17, 19 of the feed compartment; that is to say between that portion of the front and rear walls which is provided with the apertures 18 and 20, the extent of the movement of the transverse partition 36 being limited by guide slots 37 in the roof 38 of the feed compartment which extends between the front and rear walls of the latter directly above the apertures 18 and 20.

The distance between the end walls 30 and 31 of the feed compartment, which constitute the followers of the preliminary compression device, is considerably more than twice the width of the feed aperture 18, and it follows that when the independently movable partition member 36 and one of the end walls are in alinement with opposite side edges of the feed aperture, the opposite end wall will cooperate with the front and rear walls 17, 19, the bottom 21 and the said movable partition member to constitute a receiving chamber of larger capacity than the space bounded by the passage communicating with the feed aperture 18; that is to say, the space between the movable partition 36, the end wall which is temporarily adjacent to the apertures 18, 20, the roof 38, and the bottom member 21.

A suitable plunger 40 is disposed for longitudinal movement through the apertures 20 and 18 in the rear and front walls of the feed compartment; said plunger being preferably provided with rotary supporting means, such as rollers 41, in order that undue friction may be avoided; the plunger is connected by means of retracting springs 42 with fixed points, such as uprights or brackets 43 rising from the base 44 of the press. The plunger has a stem 45 which is guided through yokes or guide members 46 upon the base of the press; said guide members carrying anti-friction rollers 47; the forward end of the plunger stem is curved upwardly to form a neck 48 which is connected with the plunger intermediate the upper and lower edges of the latter in order that the pressure of said plunger may be exerted equally throughout its area.



The base of the press supports an upright frame affording bearings for a shaft 49 upon which is loosely mounted a hub 50 carrying a pulley 51 having two independent grooves or faces of the same diameter with each of which is connected one end of a flexible traction member 52 which is carried over suitably disposed rotary guiding means, such as pulleys 53, to the rear extremity of the plunger stem 45 where the terminal ends of said flexible traction members are made fast. The two traction members are guided adjacent to the sides of the plunger stem, so that, when the pulley 51 is rotated upon the shaft, the traction members are wound upon said pulley, the plunger will be forcibly moved in a forward direction against the tension of the retracting springs 42, the extent of the movement being sufficiently in excess of the width of the feed compartment C to enable the plunger 40 to move through the apertures 20 and 18 in the rear and front walls 19 and 17 of said feed compartment. The pulley 51 is rotated through the medium of a pinion 54 which is splined upon the shaft 49; the hub of said pinion being provided with a clutch member 55 adapted to interlock with a clutch member 56 formed upon the hub 50 of the pulley 51. The pinion 54 is constantly in mesh with a spur wheel 57 mounted upon a shaft 58 which is journaled in the supporting frame to which reference has hereinbefore been made and which is generally designated F; said spur wheel 57 is also in mesh with a pinion 59 upon a shaft 60 which is suitably connected with and receives motion from a source of power, not shown.

The spur wheel 57 is provided on its opposite faces with cams 61 and 62 adapted for engagement with shipping levers 63 and 64 which are suitably supported adjacent to the shaft 49 and which are in operative engagement with the hub of the pinion 54 to shift the latter into and out of engagement with the pulley 51 through the medium of the clutch members 55, 56; the cam 61 being adapted for engagement with the shipping lever 63 to move the pinion 54 into locking engagement with the pulley 51, while the cam 62 is adapted for engagement with the shipping lever 64 to move the pinion 54 to the disengaged position illustrated in Fig. 3 of the drawings.

Hingedly supported upon the rear wall 19 of the feed compartment, or adjacent to said rear wall, are a pair of elongated yokes 65 serving as guides for slides 66; said slides being illustrated as consisting of blocks the sides of which are provided with grooves 67 engaging the limbs of the guide yokes. Each of said slides is provided in its under side with transverse grooves or recesses 68 and 69; the forward recesses 68 being adapted for engagement with cranks 70 formed upon the shaft 58, while the rearmost recesses 69

are adapted for engagement with the upper extremities of suitably disposed bracket members 71, which have been shown as rising from the base 44 and as being reinforced by bracket members 72. The latter are connected with the free ends of the guide yokes 65 by means of traction springs 73. A flexible traction member 74 is wound one or more times upon the pulley 27 beneath the floor of the feed compartment, and the ends of said flexible traction member are carried over suitably disposed rotary guiding means, such as pulleys 75 and 76, to the slides 66 with the forward ends of which the extremities of said traction member are suitably connected; the arrangement being such that when one of the slides is at the limit of its movement, either in a forward or in a rearward direction, and the traction member is taut, the other slide shall be at the opposite limit of its movement.

Adjacent to the forward edges of the forward recesses 68 of the slides 66, there are hingedly supported guard plates or lids 77 adapted to swing rearwardly, so as to obstruct the said recesses 68 for the purpose which will be presently set forth.

Upon shafts 78 extending between the front and rear walls 17 and 19 of the feed compartment, there are supported rollers 79 whereby the charges of material to be compressed will be guided beneath the roof 38 of the feed compartment.

The operation of the improved baling press is as follows:—The operator, who is stationed upon the roof 38 of the feed compartment, feeds the material that is to be compressed into the space of the feed compartment which is bounded by the movable partition 36, the front and rear walls 17, 19, the floor 21, and the end wall or plunger 30 or 31, which at the time is distant from the feed passage, whereby is meant the portion of the feed compartment that lies between the apertures 18 and 20 in the front and rear walls and through which the plunger 40 moves. It is assumed that the press is in position for starting, and that the plunger 40 has just been retracted, the cam 62 being just at the beginning of its engagement with the shipping lever 64 whereby the pinion 54 having the clutch member 55 is moved to a non-engaging position with the clutch member 56 of the pulley 51, so that the plunger will have been retracted by the action of the springs 42; the flexible traction members 52 being unwound from the pulley 51. When the parts are in this position, one of the slides 66 will be at the rearward limit of its movement where it is held securely by the bracket 71 engaging the recess 69 in the under side of said slide, while the other slide 66 will be at the forward end of its movement and in readiness to be engaged by one of the cranks 70 of the shaft 58; both cranks 70 being at the



time in a forward position. The direction of rotation of the parts is indicated by arrows. As the cranks 70 move upward and rearward, one of said cranks engages the recess 68 in the under side of the forward slide 66, while the other crank engages the under side of the hinged guide yoke carrying the other slide, moving said guide yoke in an upward direction sufficiently to disengage the slide from the retaining bracket 71. As the shaft continues to rotate, the one slide is carried from a forward in a rearward direction, when, through the medium of the traction member 74, the pulleys 27 and 26 are rotated; the traction member 28 wound upon the pulley 26 and connected with the ends of the movable floor serving to move said floor and its related parts from one end of the compression chamber to the other; the charge of material inserted between the movable partition 36 and one of the end walls will thus be carried into the space or portion of the feed compartment between the apertures 18 and 20, where it is subjected to preliminary compression between the movable partition 36, after the latter reaches the limit of its movement, and the end wall or plunger, which is carried by the movable bottom to the limit of the movement of said bottom. Synchronously with the completion of this movement, the slide 66, which is carried by one of the cranks 70, is deposited by said crank with its groove or recess 69 in engagement with the retaining bracket 71, and the other slide completes its forward movement; it may here be noted, that the forwardly moving slide 66, during its forward progress, encounters one of the cranks 70, said crank striking the lid or guard plate 77 and closing the latter over the recess 68, so that the slide will pass by the crank without danger of being engaged thereby; it will furthermore be noted that the forward ends of both slides are beveled in order to enable them to pass readily over the idle crank without danger of obstructing the movement of the parts. It will furthermore be noted that the springs 73 serve to move the free ends of the yokes carrying the slides in the proper direction for said slides to be engaged by the cranks; said springs, however, may be dispensed with and the weight of the slides and the supporting yokes may be relied upon to move the slides into engaging position with relation to the cranks. At the time when the slides complete their respective movements, and the cranks 70 move in a downward and forward direction, the cam 62 passes out of engagement with the shipping lever 64 and the cam 61 passes into engagement with the shipping lever 63, thus moving the pinion 54 in the direction of the pulley 51 and throwing the clutch members 55, 56 into engagement. The pulley 51 will thus be rotated, with the effect of winding

the traction members 52 upon said pulley, thus forcing the plunger in a forward direction through the feed passage of the feed compartment and into the press box, where a head block has been placed prior to the insertion of the first charge, and where a head block will be subsequently inserted in rear of each bale. While the plunger advances, the operator places a charge in the proper space of the feed compartment, to be subsequently moved into the feed passage and there compressed by the continued operation of the press.

As will be seen from the foregoing description, the operation of this improved press is continuous and uninterrupted. It may be continuously driven by power of any description, and it may be successfully operated by two men; one being stationed upon the roof of the feed compartment for the purpose of feeding the press, while the other will be occupied by placing the head blocks and by tying and removing the bales. The preliminary compression of the charges is an important feature of the invention, since, owing to this arrangement, the mechanism of the press will not be subjected at intervals to excessive strain; the preliminary or initial compression enabling the charges to be projected into the press box with comparatively slight expenditure of power. The press may, for these reasons, be successfully operated with less expenditure of power than is customarily required for presses of light capacity. It will also be quite unnecessary to pack the charges very compactly in the receiving space of the preliminary compression compartment, inasmuch as said space may be made of such dimensions as to compress the charge to any desired extent; it follows that the openings or the insertion of the charges may be made of large area, the advantage of which is obvious. The general construction of the improved baling press is comparatively simple and inexpensive, and it may be successfully operated by ordinary unskilled labor.

While, in the foregoing description, the construction which is generally considered preferable has been described, I desire it to be distinctly understood that I reserve the right to such changes and modifications as come fairly within the scope of the invention, and which may suggest themselves to the skilled mechanic; it is further to be understood that throughout the construction of the press, any suitable materials may be employed.

Having thus described the invention, what is claimed is:—

1. In a baling press, a press box comprising upper and lower plates and side members formed of spaced strips, threaded rods connecting the top and bottom members



and extending through the end portions of the spaced strips, and adjustable nuts mounted on said rods for altering the cross sectional area of the discharge end of the press box.

2. In a baling press, a press box including top and bottom plates and side members formed of spaced strips the ends of which are beaded, compression bars, threaded rods extending through the compression-bars and through the beaded portions of the side strips, and adjusting nuts on the threaded rods.

3. In a baling press, a press box including top and bottom plates having flanges constituting side strips, intermediate side strips, beads on the end of the strips, and means passing through the beads for pressing the top and bottom members toward each other for altering the cross sectional area of the discharge end of the press box.

4. In a baling press, a press box including top and bottom members having flanges constituting side strips having beaded ends, intermediate side strips having beaded ends, compression bars, threaded rods extending through the compression bars and through the beaded portions of the side strips, and adjusting nuts on said rods.

5. In a baling press, a press box, a feed compartment disposed with its length at right angles to the axis of the press box, a reciprocating element in the feed compartment for imparting an initial compression to the charges, a plunger reciprocating transversely through the feed compartment and longitudinally of the press box, a driving mechanism for the plunger, a rotatable means, a flexible element driven by the said means and connected with the reciprocating element for actuating the latter, and a flexible element intermediate the said means and driving mechanism for actuating the former.

6. In a baling press, a press box, a feed compartment at the receiving end thereof, a reciprocating element in the compartment for initially compressing the charges, a plunger for projecting the initially compressed charges into the press box, means for actuating the plunger on its pressing stroke, a separate means for actuating the plunger in the opposite direction, and an intermittently operating device actuated by the first mentioned means for reciprocating said element, said device comprising a pair of members reciprocating simultaneously in opposite directions, a flexible traction member connected with the members to be moved back and forth thereby, a wheel rotated by the traction member, and a mechanism between the wheel and reciprocating compressing element for actuating the latter.

7. In a machine of the class described, a feed compartment, a longitudinally movable compressing element therein, members

mounted for simultaneous reciprocation in opposite directions, means for intermittently actuating the members, a device rotated by the members, and means between the device and said element for moving the latter.

8. The combination with a press box, of a feed compartment open at its top and having a laterally movable bottom carrying end walls and an independently movable partition member arranged to laterally compress the successive charges at the entrance of the press box, a roof member disposed centrally of the compartment to form a platform for the operator, means thereon for limiting the movement of the partition, and a plunger for forcing the compressed charges into the press box.

9. In a machine of the class described, the combination with a press box and plunger, of a feed compartment, a reciprocating element therein, a mechanism for intermittently actuating the plunger, means for actuating the said element during the idle periods of the plunger, said means comprising a wheel, means for oscillating the wheel, a flexible traction member passing around the wheel and connected at its ends with the said reciprocating element, an automatically actuated clutch controlling the plunger, and an automatically actuated device for locking the said element in fixed position during the strokes of the plunger.

10. The combination with a press box and plunger, of a feed compartment having a laterally movable bottom provided with rotary supporting means, tracks for the latter, and a device for reciprocating the said bottom, comprising a rotatable driving member fixed on the compartment, and a flexible element connected with the bottom and engaging the member.

11. The combination with a press box and plunger, of a feed compartment having a laterally movable bottom provided with rotary supporting means, tracks for the latter, cross bars extending between the tracks, a pulley supported for rotation between the cross bars, a flexible traction member wound upon the pulley and having its ends extended to and connected with the ends of the bottom member, and means for intermittently rotating the pulley, alternately in opposite directions.

12. In a baling press, a press box, a feed compartment located at the entrance end of the press box and having a laterally movable bottom member, means carried by the bottom member for effecting preliminary compression of charges placed in the feed compartment, a double pulley supported for rotation beneath the bottom of the feed compartment, a flexible member wound upon one member of the double pulley and having its extremities connected with the ends of the



movable bottom member, a pair of slides supported for reciprocation, a flexible element wound upon the other member of the double pulley and having its extremities connected with the two slides, a shaft supported for rotation and having cranks adapted for alternate engagement with said slides to move the latter alternately in opposite directions, intermittently, a plunger, and means for projecting the plunger through the feed compartment in the direction of the press box during the intervals when the slides are at rest.

13. In a baling press, a press box, laterally movable compression means for effecting preliminary compression of charges to be inserted into the press box, and means for operating the laterally movable compression means including hingedly supported guide members, slides mounted for reciprocation thereon, a suitably guided flexible traction element having its extremities connected with the slides, a shaft supported for rotation, and cranks on said shaft disposed in alinement with each other for alternate engagement with the slides.

14. A reciprocatory compression member and means for operating the same said means including hingedly supported guides, slides movable thereon, a suitably guided flexible traction element having its terminals connected with the slides, a shaft having cranks adapted to engage the slides, and means for moving the free ends of the hinged guides carrying the slides in the direction of the cranks.

15. A reciprocatory compression member and means for operating the same said means including hingedly supported spring actuated guide members, slides movable thereon and having transverse recesses, and a shaft having cranks adapted for engagement with said recesses.

16. A reciprocatory compression member and means for operating the same said means including hingedly supported guide members, slides movable thereon and having recesses, a suitably guided flexible traction element having its extremities connected with the slides, a shaft having cranks adapted for engagement with the recesses in the slides, and means for temporarily retaining either slide in the position to which it is adjusted by the engaging crank.

17. A reciprocatory compression member and operating means for the same including hingedly supported guide members, slides movable thereon, a suitably guided flexible traction element connecting said slides, a shaft having cranks adapted for engagement with the slides to intermittently shift the position thereof, and means for temporarily retaining either slide in the position where it is placed by the engaging crank.

18. A reciprocatory compression member and operating means for the same including hingedly supported guide members slides movable thereon and having transverse recesses in their under sides, lids hinged adjacent to the front edges of said recesses and depending from the slides, a shaft having cranks adapted for alternate engagement with the slides to carry the latter in a rearward direction, means for temporarily securing either slide at the rear limit of its movement, and a suitably guided flexible traction element connecting the slides.

19. A reciprocatory compression member and operating means for the same including hingedly supported guide members, slides movable thereon, a suitably guided flexible traction element connecting the slides, a shaft having cranks adapted for engagement with the slides to intermittently shift the position of said slides, and stationary bracket members adapted for engagement with recesses in the slides to retain the latter in the position where they are placed by the engaging cranks.

20. In a device of the class described, a hingedly supported guide member, a slide movable thereon and having a recess, a shaft supported adjacent to the guide member and having a crank adapted for engagement with the recess in the slide, and spring means for impelling the hinged guide member in the direction of the shaft.

21. In a device of the class described, a hinged guiding yoke, a slide having grooves engaging the limbs of the yoke, a shaft having a crank adapted to engage the slide, and means for impelling the free end of the guiding yoke in the direction of the shaft.

22. In a baling press, a reciprocatory compression member, and operating means for the same including hingedly supported guide yokes, slides movable thereon and having beveled ends and transverse grooves, depending lids hinged adjacent to said grooves, a shaft having cranks adapted for alternate engagement with the grooves in the slides, means for forcing the free ends of the yokes in the direction of the shaft, and a suitably guided flexible traction element connecting the slides.

23. In a baling press, a press box, a feed compartment located adjacent to the entrance end of the press box, preliminary compression means disposed for reciprocation in the feed compartment, means for actuating the reciprocatory compression means including hingedly supported guide members, slides movable thereon, a suitably guided flexible traction member connecting the slides, and a shaft having cranks adapted for alternate engagement with the slides to shift the position of the latter, intermittently; a pulley driven by the flexible traction member, a flexible



element wound upon the pulley and having  
its terminals connected with the ends of the  
reciprocatory compression means, a spring  
retracted plunger, and means for projecting  
5 the plunger through the feed compartment in  
the direction of the press box during the in-  
tervals when the reciprocatory compression  
means is at rest.

In testimony that I claim the foregoing as  
my own, I have hereto affixed my signature 10  
in the presence of two witnesses.

EMMET H. McMURRY.

Witnesses:

W. T. McCLINTOCK,  
E. M. PERFECT.