

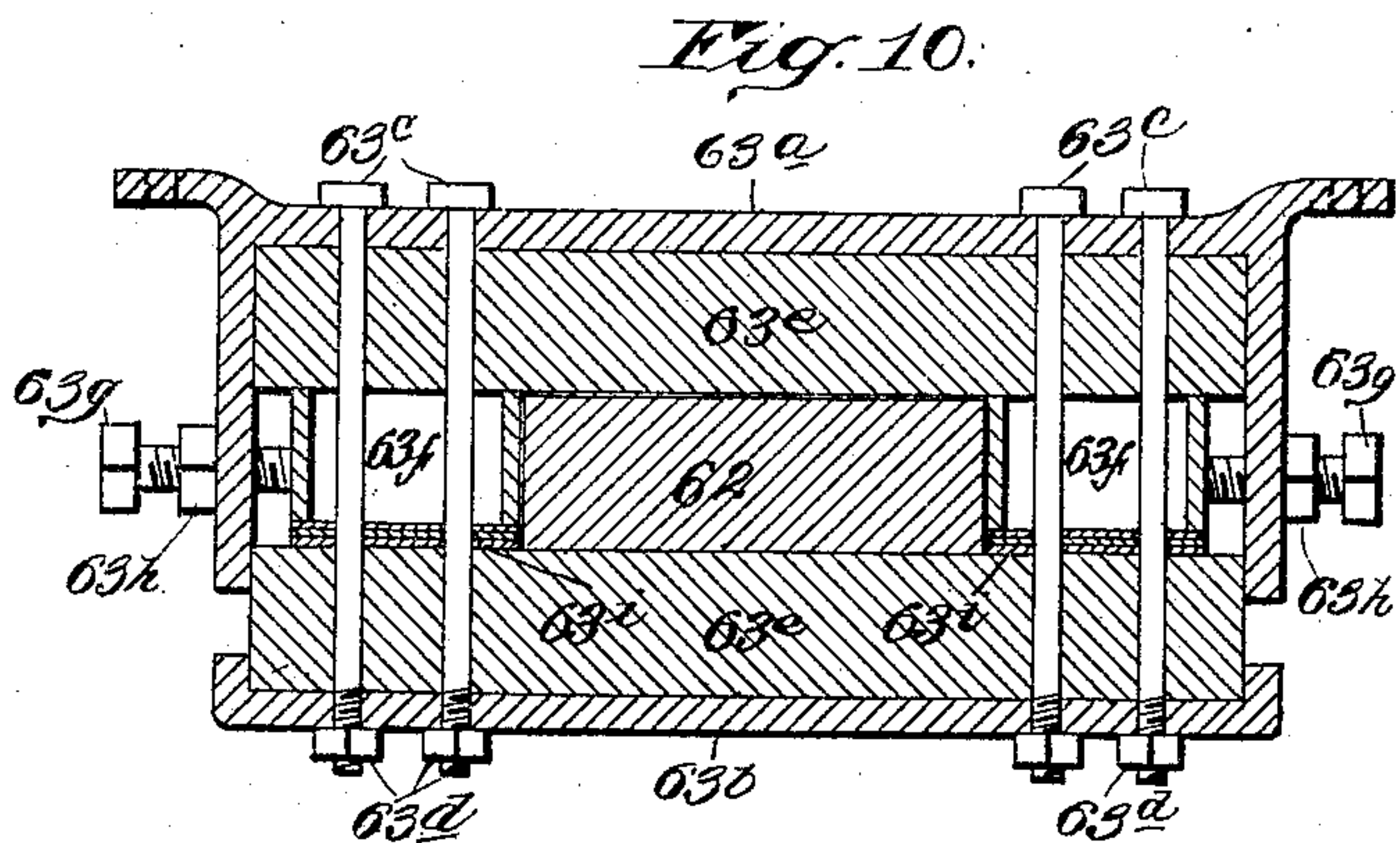
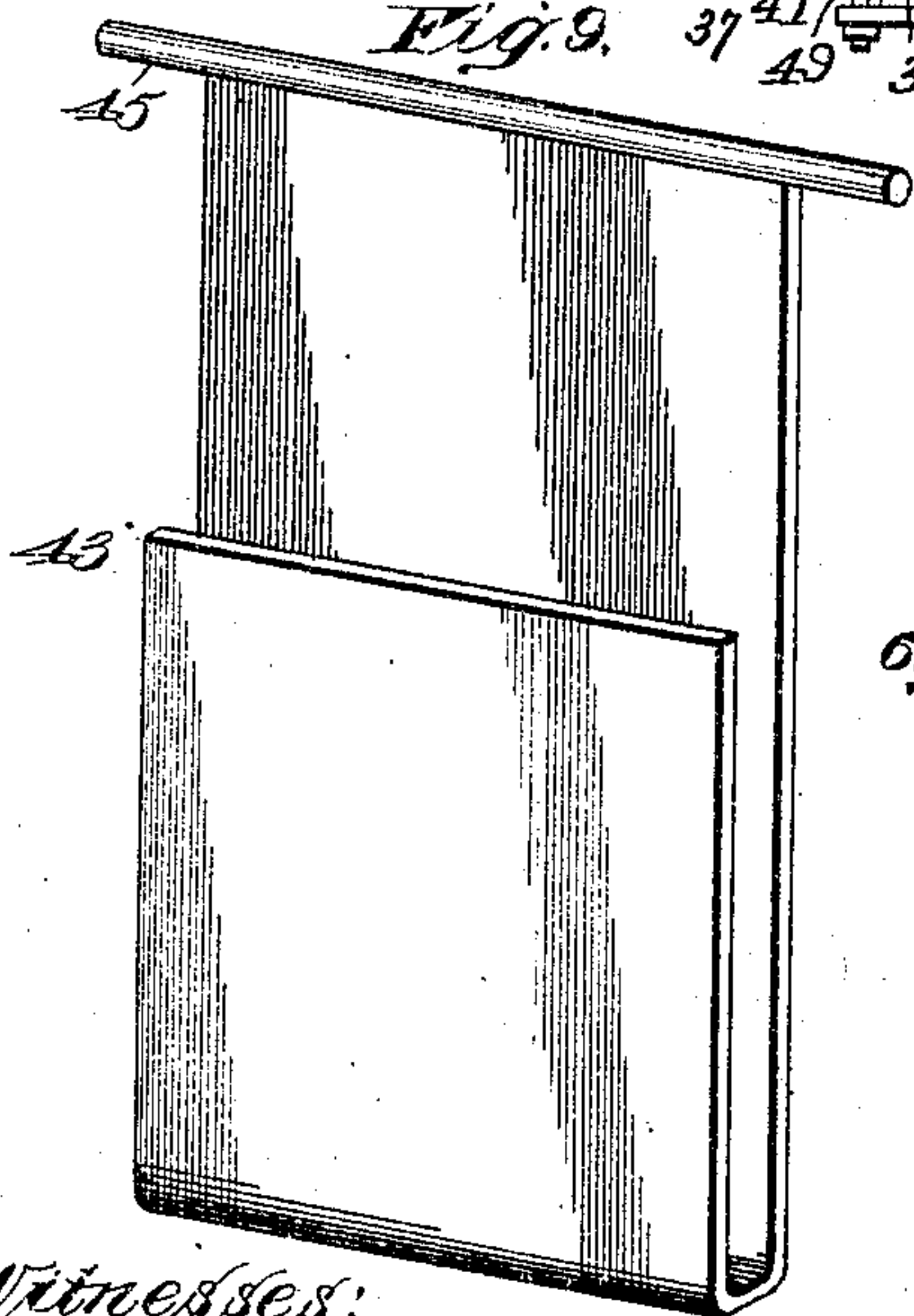
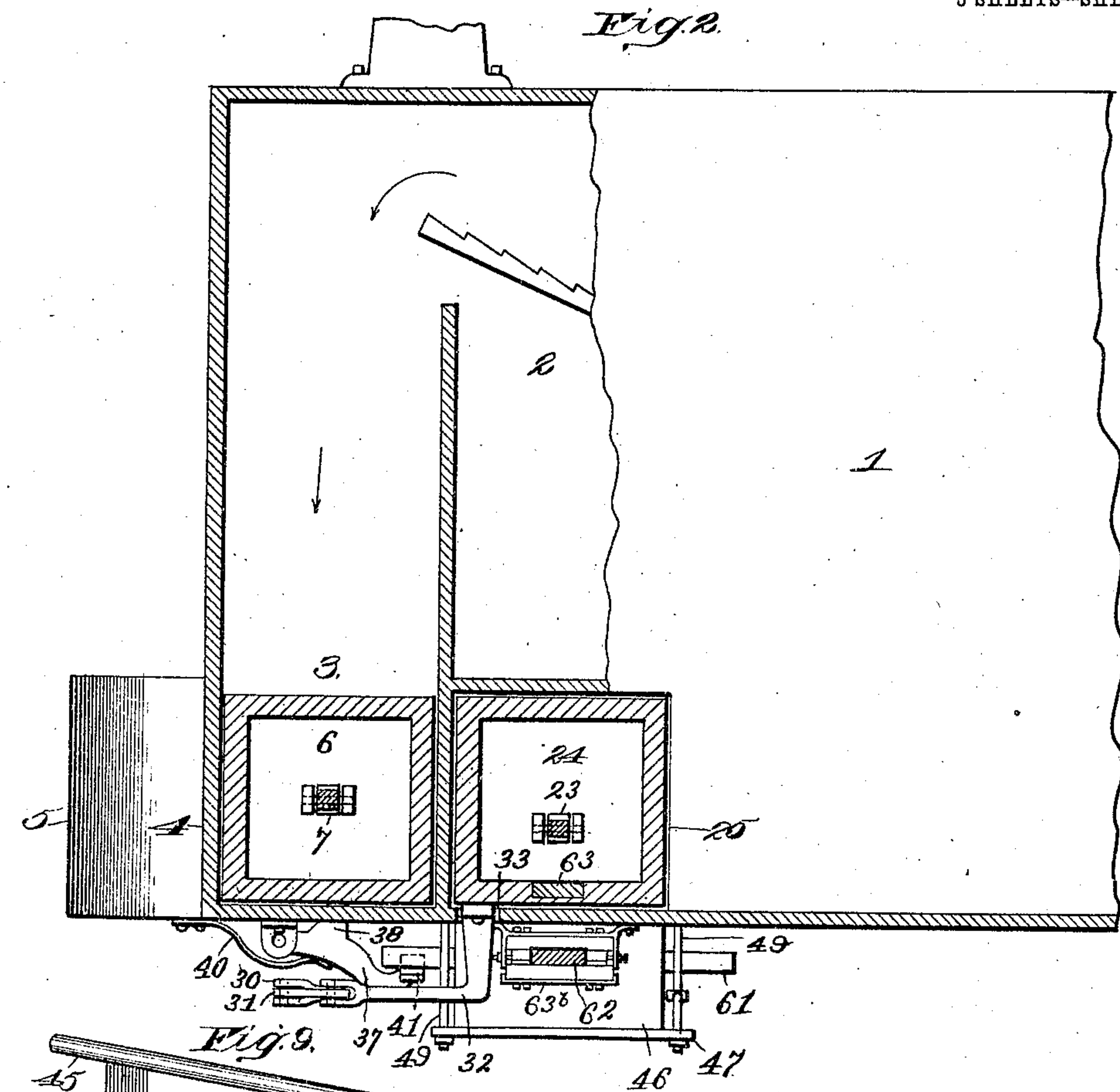
No. 785,519.

PATENTED MAR. 21, 1905.

R. C. REDPATH.
FORCE FEED STACKER.

APPLICATION FILED MAY 27, 1902.

5 SHEETS—SHEET 2.



Witnesses:

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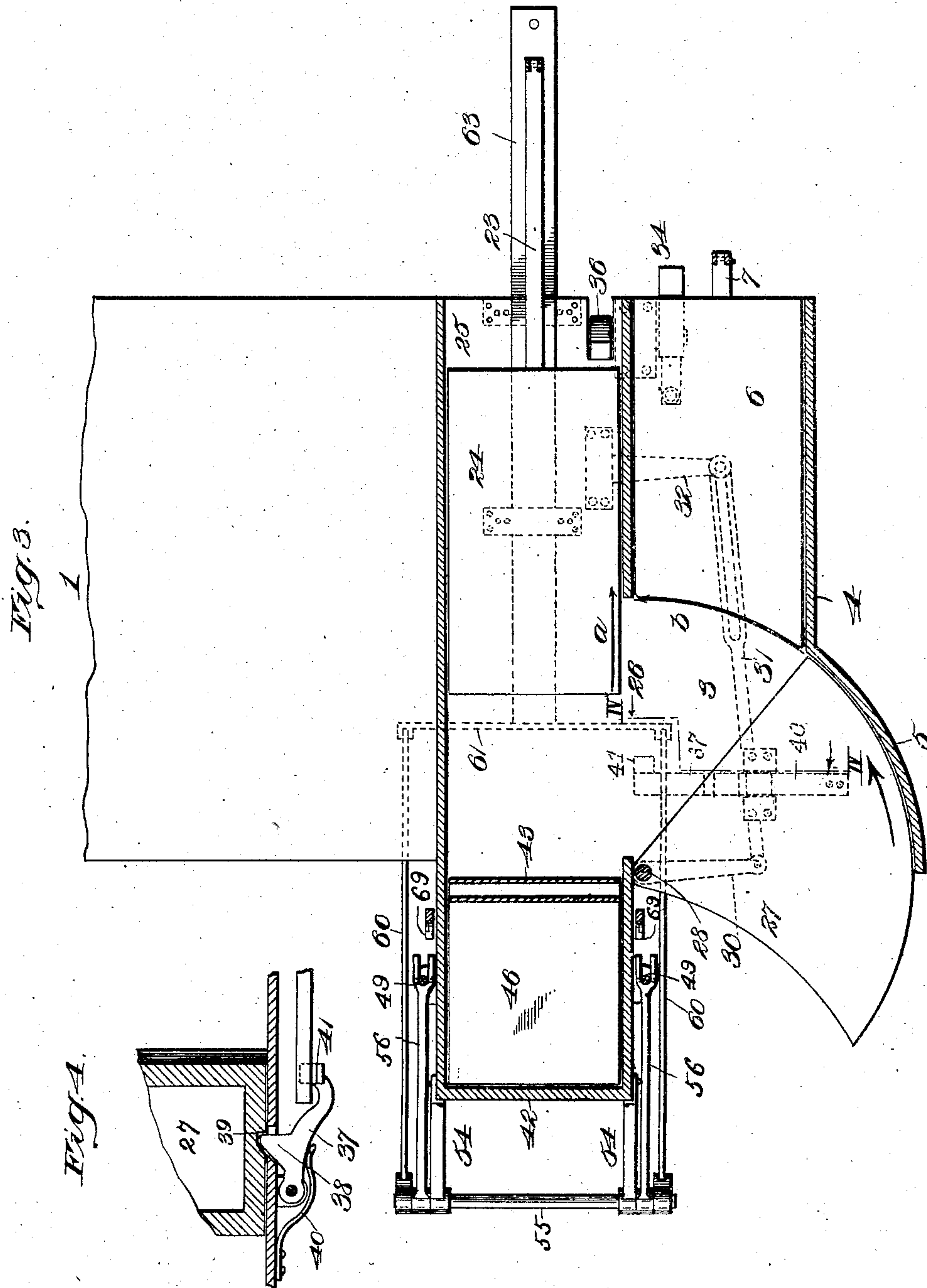
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5 SHEETS—SHEET 3.



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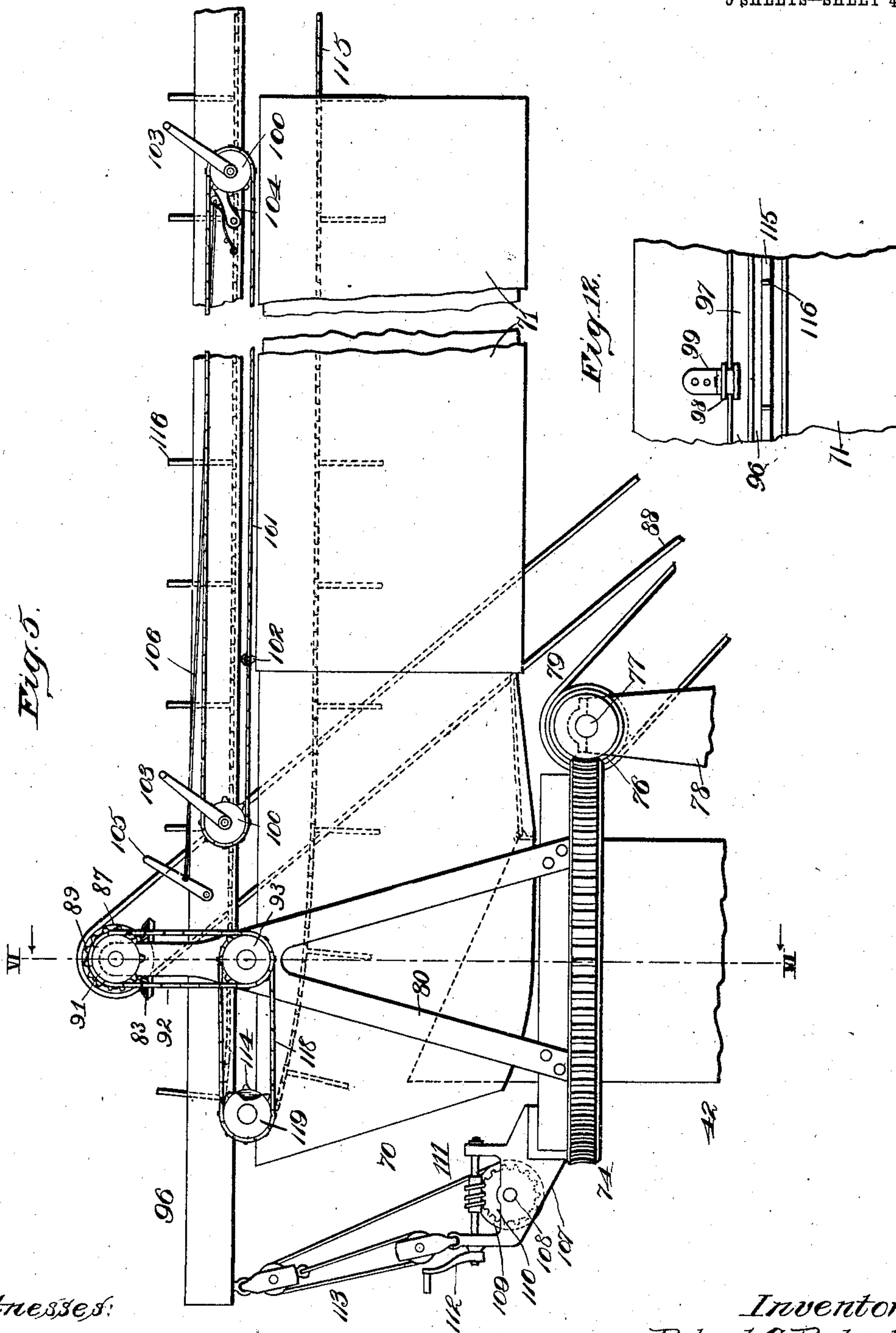
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5 SHEETS—SHEET 4.



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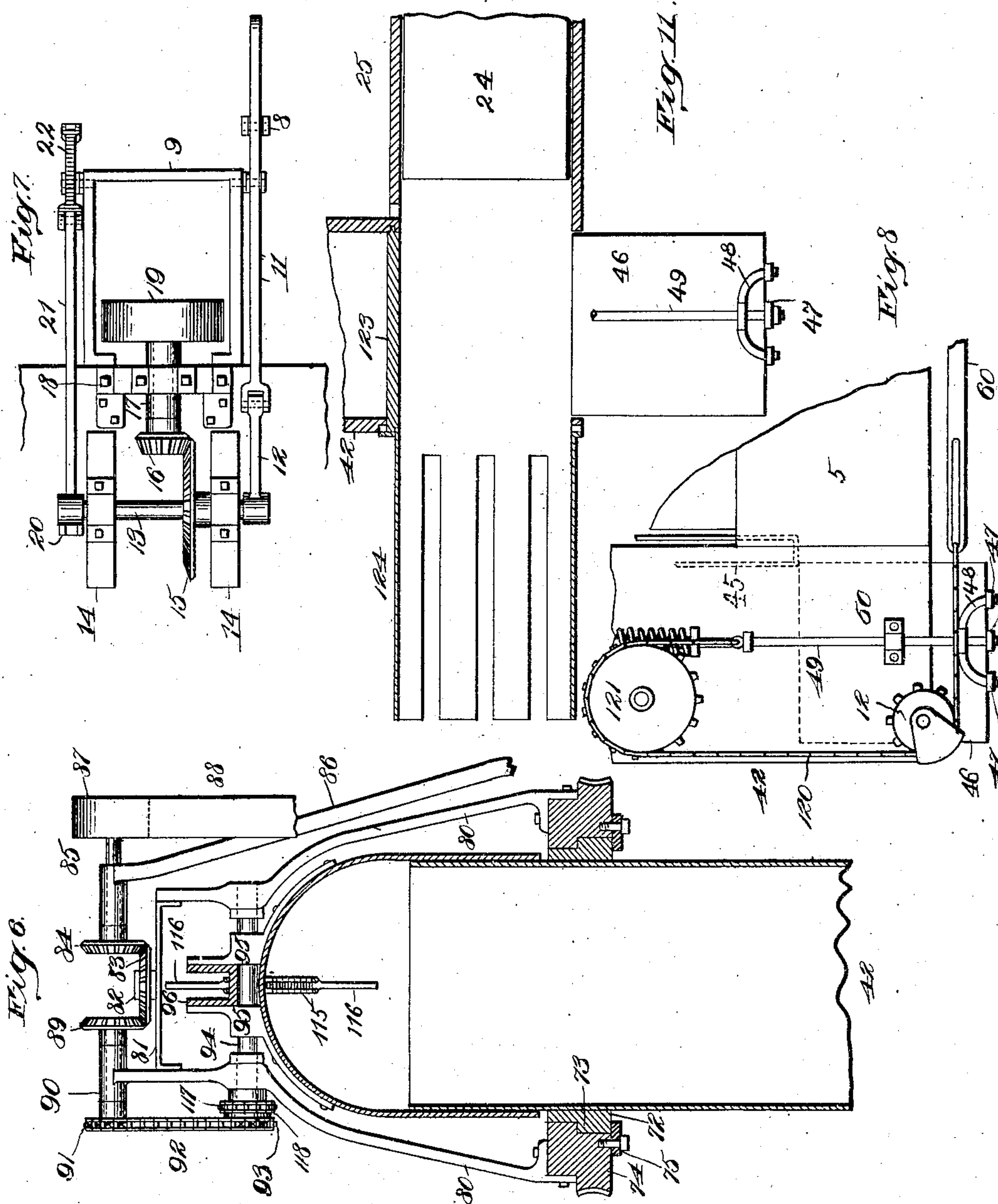
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5 SHEETS—SHEET 5.



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UNITED STATES PATENT OFFICE.

ROBERT C. REDPATH, OF JOHNSON COUNTY, KANSAS.

FORCE-FEED STACKER.

SPECIFICATION forming part of Letters Patent No. 785,519, dated March 21, 1905.

Application filed May 27, 1902. Serial No. 109,240.

To all whom it may concern:

Be it known that I, ROBERT C. REDPATH, a citizen of the United States, residing in the county of Johnson and State of Kansas, have
5 invented certain new and useful Improvements in Force-Feed Stackers, of which the following is a specification.

My invention relates to force-feed stackers, and is designed more especially as an improvement on the similar machine embodied in Patent No. 686,953, issued November 19, 1901, to myself and D. A. Seyler, Jr., my object being to produce a simpler and more efficient and reliable machine than that above referred to.

15 To this end the invention consists in certain novel and peculiar features of construction and combinations of parts, as hereinafter described and claimed, and in order that it may be fully understood reference is to be had to the accompanying drawings, in which—

Figure 1 represents a rear view of a separator equipped with force-feed stacking mechanism embodying my invention. Fig. 2 is a view, partly in side elevation and partly in vertical longitudinal section, of the same, certain parts of the mechanism being omitted. Fig. 3 is a view partly in plan and partly in horizontal section. Fig. 4 is an enlarged vertical section taken on the line IV IV of Fig. 3.
30 Fig. 5 is an elevation showing the upper portion of the stacker and the mechanism for conveying the straw therethrough to the point of discharge. Fig. 6 is a section taken on the line VI VI of Fig. 5. Fig. 7 is a view of the mechanism for operating directly the primary and secondary plungers and indirectly the feeding-plunger and for indirectly effecting the upstroke of the stack or lifting plunger. Fig. 8 is a rear view of the lower end of the
40 vertical portion of the stack and of the communicating end of the baling-chamber, together with the mechanism for operating the elevating-plunger. Fig. 9 is a perspective view of the cut-off between the baling-chamber and stack. Fig. 10 is a rear elevation of the adjustable bearing forming a part of the machine. Fig. 11 is a vertical section showing the machine as adapted for baling straw or other material. Fig. 12 is a top plan view
50 of a portion of the bar or boom and telescopic

stack and shows the latter sustained by and guided upon the former.

Referring now to the drawings in detail, where like reference-numerals designate corresponding parts, 1 designates the rear end of
55 a separator of any suitable or preferred type, the same being closed at its rear end, so as to form a box into which the straw is discharged from the rack 2.

3 designates a hopper into which the straw
60 falls, said hopper having its rear wall composed of the straight portion 4 and the curved portion 5. In the straight portion of said hopper is arranged a reciprocatory primary plunger 6, having its front end slightly con-
65 caved or dished and having an outwardly-projecting stem 7 pivoted to the lower end of the walking-beam 8, mounted on a bracket 9, secured to the box end of the separator, the upper end of said walking-beam being pivotally connected in the slot 10 of a link 11, said
70 link being pivotally connected to the crank-arm 12 of a shaft 13, journaled in a frame 14, mounted on the separator. Said shaft carries a bevel-gear 15, driven by a pinion 16,
75 mounted on a shaft 17, journaled in a bracket-bearing 18, the opposite end of said shaft carrying a belt-pulley 19, adapted to be belted to and operated by the cylinder (not shown) of the threshing-machine or to any other driving
80 means. The shaft 13 is also provided with a crank 20, extending at an angle of forty-five degrees to and in advance of arm 12, and said crank-arm 20 is pivotally connected by a link 21 to the upper end of the walking-beam
85 22, also fulcrumed on the bracket 9, and pivotally connected at its lower end to the stem 23 of the secondary plunger 24, arranged to reciprocate in the baling-case 25 in advance of and communicating with hopper 3 by way
90 of feed-opening 26, said opening being arranged directly opposite the oscillatory plunger 27, fitting snugly in the curved portion of the hopper and adapted to almost scrape the dished front end of the primary plunger when
95 the latter is advanced. This oscillatory or feed plunger is mounted on a vertical shaft 28, journaled in a bracket 29, depending from the hopper, the lower end of said shaft carrying a crank-arm 30, pivotally connected to
100

the slotted link 31, the slotted end of the link pivotally engaging a right-angle arm 32, underlying the hopper and depending rigidly from the secondary plunger through a slot 33 in the bottom of the baling-case 25.

From the foregoing it will be apparent that the operation of pulley 19 causes the plunger 6 to reciprocate a distance approximately equal to its length and that it is momentarily inactive at the beginning and end of each stroke as the crank-arm 12 passes into or out of alinement with link 11. At the moment said plunger occupies its advance position, as shown in Fig. 3, the secondary plunger is moving outwardly at its most rapid pace, such movement continuing until the crank-arm 20 moves into alinement with link 21, at which time the front end of said plunger registers with that side of the feed-opening contiguous to the primary plunger, the latter at the same time moving outwardly at its most rapid pace. By the time the primary plunger has made about half its outward travel the secondary plunger begins to make its instroke and continues such movement for a distance about equal to its length for some time after the primary plunger has started back on its instroke, the secondary plunger again returning to about the position shown in Fig. 3 as the primary plunger attains the position shown in the same figure. It will thus be seen that the quartering relation of the crank-arms 12 and 20 cause said plungers to move inward or outward in the same direction at the same time at every alternate quarter-revolution.

After the secondary plunger has made about one-third of its outward stroke its arm 32 reaches the outer end of the slot of link 31 and draws the latter with it, so that by the time said plunger attains the position shown in Fig. 3 the oscillatory feed-plunger has assumed the position also shown in said figure, continuing this movement across the face or end of plunger 6 as plunger 24 travels the distance of and in the direction indicated by the arrow *a*, so as to force the charge of material previously condensed in the hopper by plunger 6 through the feed-opening and into the baling-case in advance of plunger 24, the movement of the plunger 27 from the position shown in Fig. 3 to the end of the arrow *b* taking place during the period of inaction of plunger 6, so that the dished end of the latter shall form a wall to guide the material in advance thereof through the feed-opening. At the instant the feed-plunger attains the position indicated by the point of the arrow *b* and the secondary plunger becomes practically inactive the primary plunger withdraws and is shortly thereafter followed by the advance movement of the secondary plunger, the latter advancing about two-thirds of its stroke before the feed-plunger begins to swing outwardly, because plunger 24 makes about two-thirds of its stroke before its arm

32 reaches the opposite end of the slot of link 31, the latter part of the advance movement of plunger 24 serving to throw the feed-plunger from its extreme innermost to its extreme outermost position, as will be readily understood.

To prevent plunger 6 being forced outwardly during the instroke of the feed-plunger, which would be apt to take place owing to the pin-and-slot connection between walking-beam 8 and link 11, I pivot to the under side of the hopper a dog 34, having its tooth projected into the path of plunger 6 by spring 35, the latter also serving to hold the arm 36 projected into the path of plunger 24. While the feed-plunger on its instroke is moving past the end of the advanced plunger 6 the latter is held from yielding outwardly under the pressure applied by the dog 34, said dog being instantly depressed out of the path of said plunger as said stroke of the feed-plunger terminates by the outwardly-moving plunger 24 striking arm 36 and swinging it outward and downward against the resistance of spring 35, said arm and dog being held depressed by their respective plungers until the latter again move forward beyond them.

To prevent the feed-plunger from swinging outwardly under the pressure of the material in the baling-case during the first two-thirds of the instroke of plunger 24, I provide a dog 37, pivoted below the hopper and having its tooth 38 projecting up into the hopper and the bevel-walled cavity 39 in the bottom of said plunger, the outer side of the tooth being beveled to permit it to be automatically depressed by said plunger when moving inward, the dog being elevated yieldingly by spring 40, secured to the hopper. To depress the dog to permit the feed-plunger to swing outwardly at the moment arm 32 reaches the end of the slot of link 31 toward which it is approaching, said dog is provided at its inner end with a beveled or cam face 41, operated upon by a part hereinafter described.

Arranged at the discharge end of the baling-case and secured rigidly to the box end of the separator is the vertical portion 42 of a stack, the same opening at its lower end into the baling-case, so as to receive from the latter the material advanced by plunger 24, and having opposite said opening a detachable plate, hereinafter referred to and numbered, said opening being closed upon the withdrawal of plunger 24 by a reciprocatory cut-off 43, consisting of a vertical plate bent to approximately narrow U form, with one arm extending through the top of the baling-case and between the extension thereof and the stack and its other or shorter arm disposed within the stack, as shown most clearly in Figs. 1 and 8.

Above the baling-case the cut-off extends slidably through a suitable guide 44 and at

its upper end is formed with a horizontal arm or handle 45 for a purpose which hereinafter appears. Within the lower end of the stack is a lift-plunger 46, underlying the cut-off and mounted upon cross-bars 47 and between the arched braces 48, connecting the outermost cross-bars. Lift-rods 49 extend through the guides 50 of the stack and said arched braces and are secured to the central cross-bar 47 at their lower ends, being provided at their upper ends with heads 51 and between the upper guides 50 with collars 52, springs 53 interposed and mounted upon the rods, tending to yieldingly resist the upward movement of the plunger.

To elevate the plunger immediately after the cut-off closes the opening above referred to, the following mechanism is provided: 54 represents brackets mounted on the stack, and 55 is a rock-shaft journaled in the brackets and provided with crank-arms 56, having slots pivotally engaging pins 57 of the lift-rods. 58 represents crank-arms depending from the ends of shaft 55 and pivotally engaging the slotted ends 59 of a pair of links 60, pivoted at their opposite ends to the cross-head 61 of a reciprocatory bar 62, the latter being rigidly connected at its opposite end to a bar 63, projecting outwardly from plunger 24, and in order to properly guide and brace the reciprocatory bars 62 and 63 the former extends through an adjustable bearing secured to the under side of the hopper and consisting of an inverted-U-shaped bracket 63^a, depending rigidly from the hopper, and a bracket 63^b, below and connected to the first-named bracket by tie-bolts 63^c, engaged by nuts 63^d, said tie-bolts 63^c extending through filling-blocks 63^e and the interposed filling-blocks 63^f, the latter being longitudinally slotted, so as to be capable of movement toward or from each other, being adapted to be moved inward by set-screws 63^g and locked at the desired point by lock-nuts 63^h. By these sliding blocks 63^f wear between them and the sides of bar 62 may be compensated for, while wear between blocks 63^e and said bar is compensated for by the use of a series of detachable strips or slivers 63ⁱ, arranged between blocks 63^f and one of the blocks 63^e.

Pivoted to the stack at 64 are a pair of triggers 65, each provided with an arm 66, having its lower side beveled, and a pocket 67 in its upper side, springs 68 holding said triggers with their arms in the path of vertical movement of the arms or handles 45 of the cut-off. The lower ends of said levers are provided with break-joint hinge extensions 69, which shall yield to pressure applied at the side corresponding to plunger 24 without affecting the triggers, but shall resist pressure applied in the opposite direction unless sufficient to overcome the pressure of springs 68 of the triggers.

Assuming now that the parts are as shown

in Fig. 1, it will be seen that the outward movement of the secondary plunger 24 is elevating the lift-plunger 46, so as to force upwardly the charge of material forced into the stack by the previous advance movement of said secondary plunger, the upwardly-moving plunger 46 incidentally raising the cut-off. This action continues until said plunger has completely bridged the opening and the arms or handles 45 have by engagement with the beveled sides of trigger-arms 66 forced said triggers aside, the triggers instantly returning to their original positions under the pressure of spring 68 to catch and retain said arms or handles in pockets 67, and thus hold the cut-off elevated as the plunger 46 moves downward, this movement taking place under gravity and the pressure of springs 53 the instant the secondary plunger begins its instroke, this downward movement being more positive and reliable because links 60, advancing with the plunger, will force crank-arms 58 outwardly, if necessary.

Just before the advance movement of the secondary plunger and the descent of plunger 46 is completed the cross-head 61 strikes and passes the break-joint extension 69 of the triggers 65, so that immediately after the secondary plunger begins its withdrawal movement said cross-head shall again strike the break-joint extensions and trip the triggers from under the arms or handles of the cut-off, the latter instantly falling until arrested by the at this time lowered plunger 46, it being understood that the secondary plunger must withdraw a distance about equal to the length of slots 59 before the lifting action of plunger 46 begins.

Referring again to the feed-plunger 27, which is held rigidly by dog 37 in its closed position as a wall for the plunger 24 until the latter has moved about two-thirds of its advance stroke, it will be seen by reference to Figs. 1, 3, and 4 that the cross-head 61 in such advance and at about the time indicated strikes the cam-arm 41 of said dog and withdraws its tooth out of the cavity in the bottom of the feed-plunger, this action taking place at the instant the arm 32 begins to advance link 31, and thus swing the feed-plunger outwardly to its limit of outward movement as the remainder of the advance stroke of the secondary plunger takes place. After the feed-plunger has moved outwardly until it clears the tooth 38 of said dog the latter is again projected upwardly through the bottom of the hopper and in position to be again depressed by the feed-plunger in making its instroke and ready to relock the plunger when it reaches its innermost limit of travel.

It will be seen that the various plungers cooperate together, the feed-plunger first forming a wall against which the loose straw or material is packed by the condensing primary plunger 6. The latter then forms a guide for

the condensed charge forced into the baling-chamber by the feed-plunger, the latter in turn, by closing the feed-opening for about two-thirds of the instroke of the secondary
 5 plunger, forming a wall to prevent straw or material in the baling-case from bulging back into the hopper until it is practically all forced by the secondary plunger into the stack above the lifting-plunger. During the upward
 10 movement of the latter the upwardly-moving cut-off forms a wall to prevent the material being elevated in the stack from bulging back into the baling-case.

Successive operations of the parts described
 15 force the material in a continuous and condensed column through the stack until it enters the rear end of the swinging telescopic stack-arm, composed of the rear portion 70 and the front or slidable portion 71.

20 To support and revolve the telescopic portion of the stack with the vertical portion as its axis, the following mechanism is provided: 72 designates a collar which fits snugly and non-rotatably upon the upper end of the ver-
 25 tical portion of the stack, the external side of said collar being circular and stepped to form a shoulder 73, whereon is stepped and rotatably mounted a worm-wheel 74, a band 75, secured rigidly to the worm-wheel, also under-
 30 lying the collar and holding the former reliably in position. The worm-wheel is engaged by a worm-gear 76 on a shaft 77, journaled in a stationary bearing 78, said shaft being driven, preferably, by a belt-and-pulley
 35 gearing, as at 79, the belt being driven from any suitable point, so that the telescopic stack extension shall swing from side to side during the stacking operation in the usual manner.

80 designates a pair of brackets bolted to
 40 worm-wheel 74 at diametrically opposite points and connected together by a cross-bar 81, having a central stub-shaft 82, on which is journaled a bevel-gear 83, said gear meshing with a bevel-gear 84 on a short shaft 85,
 45 which shaft is journaled in a stationary bearing-bracket 86 and carries a pulley 87 at its outer end, said pulley being driven by a belt 88, operated from any suitable point. Bevel-gear 83 in turn drives a bevel-gear 89 on a
 50 short shaft 90, journaled in the upper end of one of the brackets 80, the opposite end of said shaft carrying a sprocket-wheel 91, connected by a sprocket-chain 92 to a sprocket-wheel 93, secured upon a shaft 94, journaled
 55 in the brackets 80 and in a pair of brackets 95, secured to the top of the telescopic portion of the stack, said brackets also carrying between them a channel bar or boom 96, which parallels the telescopic portion of the stack and is pref-
 60 erably provided with a track 97, engaged by a grooved roller 98, journaled upon an arm 99, projecting from the sliding portion 71 of the stack, so as to form a guide and support for the latter against movement laterally or
 65 vertically independent of said bar or boom,

and in order to extend or contract the swinging portion of the stack by sliding portion 71 upon portion 70 said boom carries a pair of sprocket-wheels 100, connected by chain 101, the chain being in turn connected or linked,
 as at 102, to stack portion 71. Movement is imparted to the chain by one of the handles 103 of the sprocket-wheels, provided the spring-pressed dog 104, pivoted to the bar or boom and pressed yieldingly into engagement
 7 with the outermost sprocket, is first tripped by hand or through the instrumentality of a lever 105, mounted on the bar near its rear end and connected to the dog by a pull-rod 106.

To raise or lower the discharge end of the
 8 telescopic portion of the stack for the usual purpose, the following mechanism is provided: 107 designates a bracket secured rigidly to the worm-wheel 74 diametrically opposite
 8 from sliding stack portion 71, and journaled therein is a shaft 108, carrying a winding-drum 109 and the worm-gear 110, said worm-gear engaging and adapted to be driven by a worm 111, provided with an operating-handle
 9 112. Secured to said bracket and to the rear end of bar or boom 96 is a pulley-and-tackle mechanism 113, one end of the cord or cable of the same being connected to the winding-drum, so that when the handle 112 is turned the bar or boom swings in a vertical plane
 9 with the shaft 94 as the axis, the telescopic portion of the stack of course accompanying such movement. For the purpose of forcing or conveying the material through the tele-
 10 scopic portion of the stack, which is forced therein from the upper end of the vertical stack portion, I provide an endless conveyer, the same consisting of a pair of sprocket-wheels 114, the front one (not shown) being
 11 supported from and at the extreme front end of bar or boom 96 and the rear one near the rear end of and projecting up into said bar or boom, an endless chain or conveyer 115 connecting said sprocket-wheels together and
 12 provided with a series of outwardly-projecting arms 116 to engage and force the straw or other material forwardly through the telescopic stack portions 70 and 71. Said conveyer is operated continuously while the machine is in operation by a sprocket-chain gear-
 13 ing, consisting of a sprocket-wheel 117 on shaft 94, sprocket-chain 118, and a sprocket-wheel 119 on the same shaft as and movable with the rear sprocket-wheel 114.

From the foregoing it will be seen that after the column of material from stack portion 42 enters the rear or pivoted end of the telescopic stack portion it is immediately engaged and advanced in a continuous stream
 14 by the conveyer, the telescopic stack portion swinging from side to side, as hereinbefore explained, during this operation, so as to effect a uniform distribution of the material upon the straw stack. (Not shown.)

In Fig. 8 will be seen an equivalent mech- 1

anism of that shown in Fig. 1 most clearly for operating the lift-plunger. In said Fig. 8, instead of the shaft and arms having a pin-and-slot connection between links 60 and rods 49, I use a flexible connection in the form of sprocket-chains 120, extending around sprocket-wheels 121 and around the sprocket-wheels 122, secured to the stack portion 42. In other respects the mechanism is the same as in Fig. 1.

In Fig. 11 I show a construction whereby the straw or other material passing through the separator may be baled instead of stacked. In this instance the lift-plunger is disconnected from the links 60, so as to be held stationary with its upper side in the plane of the baling-case, and a plate 123, hereinbefore referred to as forming that portion of stack 42 immediately opposite the opening controlled by the cut-off, is displaced and arranged as a partition 123 in the stack portion 42 in the plane of the upper side of the baling-case, the cut-off being also supported in its elevated position, so as to leave the passage between the baling-case and stack portion 42 unobstructed in order that the material may be forced by plunger 24 transversely through stack portion 42 and into the baling-case extension 124. The baling-case extension is adapted for contraction and expansion like the corresponding portion of a baling-press, and the material forced therethrough is adapted to be secured in bales in the usual or any preferred manner.

From the above description it will be apparent that I have produced a machine of the character described which is of simple, strong, and durable construction and possesses the advantages enumerated as desirable in the statement of invention, it being understood that while I have illustrated and described the preferred embodiment of the invention it is susceptible of modification in various particulars without departing from the principle of construction involved.

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

1. The combination of a baling-case having a feed-opening, a hopper, a primary plunger therein, a feed-plunger therein and adapted to form a wall for the material condensed by the primary plunger, and to force the condensed material into the baling-case through the feed-opening, and a secondary plunger in the baling-case.

2. The combination of a baling-case having a feed-opening, a secondary plunger therein, a hopper, an oscillatory feed-plunger to force the condensed material into the baling-case, and a primary plunger to condense the material in the hopper that is forced into the baling-case by the feed-plunger.

3. The combination of a baling-case having a feed-opening, a hopper, a secondary plunger

in the baling-case, a feed-plunger in the hopper to force the condensed material into the baling-case and close the feed-opening thereof, means to lock the feed-plunger in such position during the greater portion of the advance stroke of the secondary plunger, a primary plunger to condense material in the hopper, and means to lock the primary plunger in its advanced position to form a guide while the feed-plunger sweeps past it in forcing the condensed material into the baling-case.

4. The combination of a baling-case having a feed-opening, a hopper, a secondary plunger in the baling-case, a feed-plunger in the hopper to force the condensed material into the baling-case and close the feed-opening thereof, means to lock the feed-plunger in such position during the greater portion of the advance stroke of the secondary plunger, a primary plunger to condense material in the hopper, means to lock the primary plunger in its advanced position to form a guide while the feed-plunger sweeps past it in forcing the condensed material into the baling-case, means movable with the secondary plunger to release the feed-plunger in the advance of the former, and means whereby the withdrawal of the secondary plunger shall effect the release of the primary plunger.

5. The combination of a baling-case having a feed-opening, a hopper, a secondary plunger in the baling-case, a feed-plunger in the hopper to force the condensed material into the baling-case and close the feed-opening thereof, a spring-pressed dog to lock the feed-plunger in such position during the greater portion of the advance movement of the secondary plunger, a primary plunger to condense material in the hopper, and a spring-pressed dog to lock the primary plunger in its advanced position to form a guide while the feed-plunger sweeps past it in forcing the condensed material into the baling-case.

6. The combination of a baling-case having a feed-opening, a hopper, a secondary plunger in the baling-case, a feed-plunger in the hopper to force the condensed material into the baling-case and close the feed-opening thereof, a spring-pressed dog to lock the feed-plunger in such position during the greater portion of the advance movement of the secondary plunger, a primary plunger to condense material in the hopper, a spring-pressed dog to lock the primary plunger in its advanced position to form a guide while the feed-plunger sweeps past it in forcing the condensed material into the baling-case, means advanced with the secondary plunger for tripping the dog holding the feed-plunger, and means actuated by the withdrawal of the secondary plunger for tripping the dog holding the primary plunger advanced.

7. The combination of a baling-case, a plunger therein, an upright stack to receive the material forced through the baling-case, and

a lift-plunger operating in the stack and adapted to force such material upward through the same.

8. The combination of a baling-case, a plunger therein, an upright stack to receive material forced through the baling-case, a lift-plunger, and means actuated by the first-named plunger for forcing the material upward in the stack as the said first-named plunger withdraws.

9. The combination of a baling-case, a plunger therein, an upright stack to receive the material forced through the baling-case, a lift-plunger actuated by the first-named plunger for forcing the material upward in the stack as the said first-named plunger withdraws, and means for depressing the lift-plunger as the baling-case plunger advances.

10. The combination of a baling-case, a plunger therein, an upright stack to receive the material forced through the baling-case, a cut-off to close communication between the baling-case and stack as the baling-case plunger withdraws, and means for forcing upward the material in the stack as such withdrawal action takes place.

11. The combination of a baling-case, a plunger therein, an upright stack to receive the material forced through the baling-case, a cut-off to close communication between the baling-case and stack as the baling-case plunger withdraws, and means, during the withdrawal of the baling-case plunger, for simultaneously lifting the material in the stack and effecting the displacement of the cut-off so as to leave open, communication between the baling-case and stack.

12. The combination of a baling-case, a plunger therein, an upright stack to receive the material forced through the baling-case, a cut-off to close communication between the baling-case and stack as the baling-case plunger withdraws, means, during the withdrawal of the baling-case plunger, for simultaneously lifting the material in the stack and effecting the displacement of the cut-off so as to leave open, communication between the baling-case and stack, and means for holding the cut-off in its inoperative position during the next advance of the baling-case plunger.

13. The combination of a baling-case, a plunger therein, an upright stack to receive the material forced through the baling-case, a cut-off to close communication between the baling-case and stack as the baling-case plunger withdraws, means, during the withdrawal of the baling-case plunger, for simultaneously lifting the material in the stack and effecting the displacement of the cut-off so as to leave open, communication between the baling-case and stack, means for holding the cut-off in its inoperative position during the next advance of the baling-case plunger, and means actuated by the first part of the plunger-with-

drawal movement, for tripping the cut-off and causing it to again close communication between the baling-case and stack.

14. The combination with a baling-case, a reciprocating plunger therein, a stack to receive the material from the baling-case, a reciprocating plunger in the stack, connections whereby the advance of the baling-case plunger is accompanied by the descent of the stack-plunger, and the withdrawal of the baling-case plunger by the ascent of the stack-plunger, a cut-off between the baling-case and stack, which is displaced by the ascending plunger, a trigger to drop and hold the cut-off displaced until the next charge is forced from the baling-case into the stack, and means actuated by the initial part of the baling-case-plunger-withdrawal movement, for tripping said trigger and restoring the cut-off to its operative position preliminary to the succeeding ascent of the stack-plunger.

15. In a machine of the character described, an upright stack, an oscillatory telescopic stack communicating with and extending at an angle from the upright stack, and a mechanical conveyor extending through the telescopic stack portion.

16. In a machine of the character described, an upright stack, an oscillatory telescopic stack communicating with and extending at an angle from the upright stack, a mechanical conveyor extending through the telescopic stack portion, and means for varying the length of the telescopic stack portion.

17. In a machine of the character described, an upright stack, a stack portion communicating with and extending at an angle from the upright stack, means for oscillating the stack portion communicating with the upright stack, means for varying its angle to the upright stack, to raise or lower its discharge end, and a mechanical conveyor extending through the oscillating stack portion.

18. In a machine of the character described, an upright stack, an oscillatory telescopic stack communicating with and extending at an angle from the upright stack, a bar or boom overlying the telescopic stack, provided with a track, a roller carried by the sliding portion of the telescopic stack and engaging said track, means for adjusting the sliding portion of the stack so as to increase or decrease the length of the latter, and a mechanical conveyor extending through said telescopic portion of the stack.

19. In a machine of the character described, an upright stack, an oscillatory telescopic stack communicating with and extending at an angle from the upright stack, a bar or boom overlying the telescopic stack, provided with a track, a roller carried by the sliding portion of the telescopic stack and engaging said track, means for adjusting the sliding portion of the stack so as to increase or decrease its

length, and a mechanical conveyer supported from the bar or boom and extending through the telescopic portion of the stack.

20. In a machine of the character described, an upright stack, an oscillatory telescopic stack communicating with and extending at an angle from the upright stack, a bar or boom overlying the telescopic stack, provided with a track, a roller carried by the sliding portion of the telescopic portion of the stack and engaging said track, means for adjusting the

sliding portion of the stack to increase or decrease the length of the latter, and a driven endless conveyer supported from the bar or boom and extending through the telescopic portion of the stack. 15

In testimony whereof I affix my signature in the presence of two witnesses.

ROBERT C. REDPATH.

Witnesses:

H. C. RODGERS,
G. Y. THORPE.