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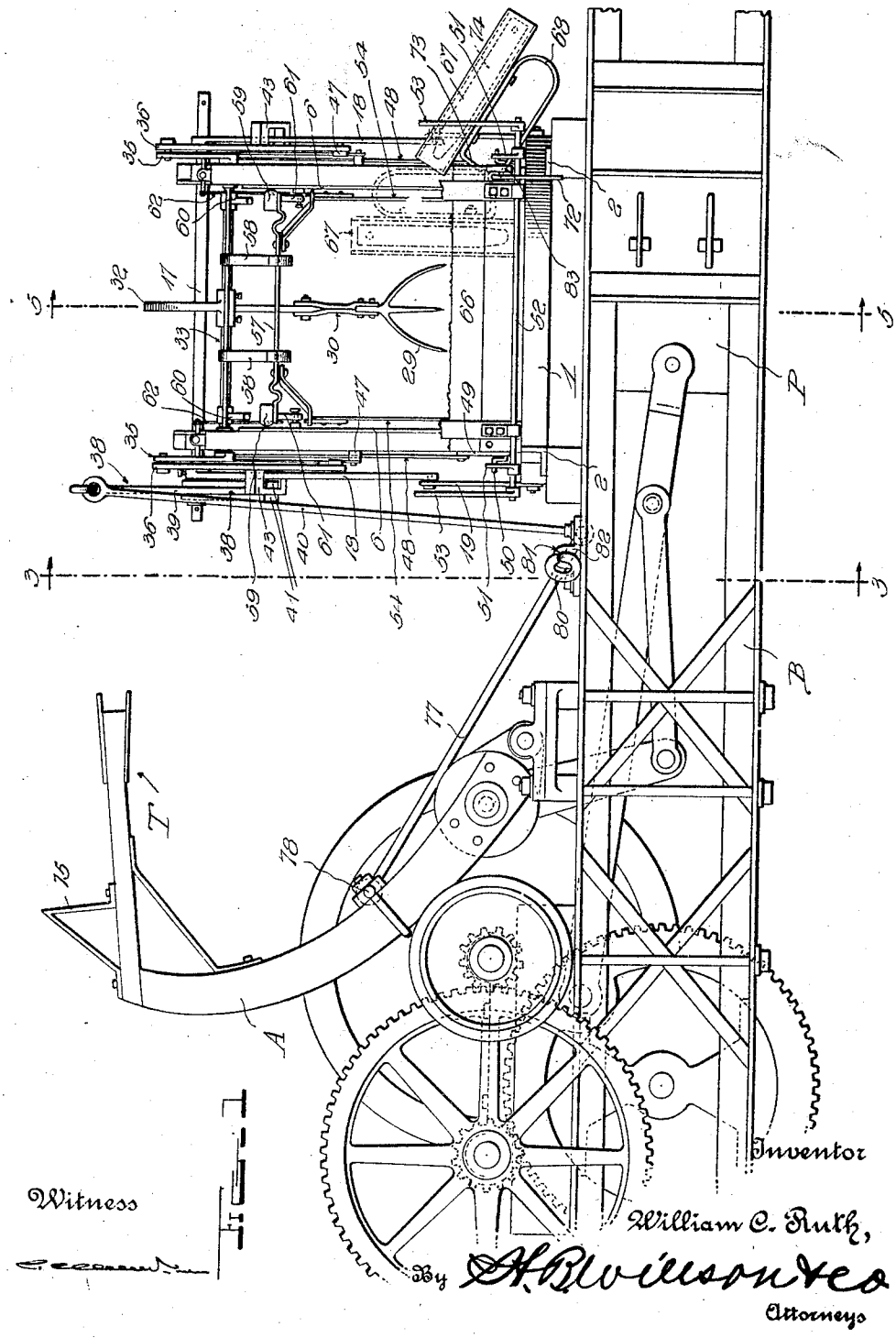
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W. C. RUTH

BALING PRESS FEEDER

Filed June 18, 1925

5 Sheets-Sheet 1



Witness

Inventor

William C. Ruth,

By H. B. Williamson & Co

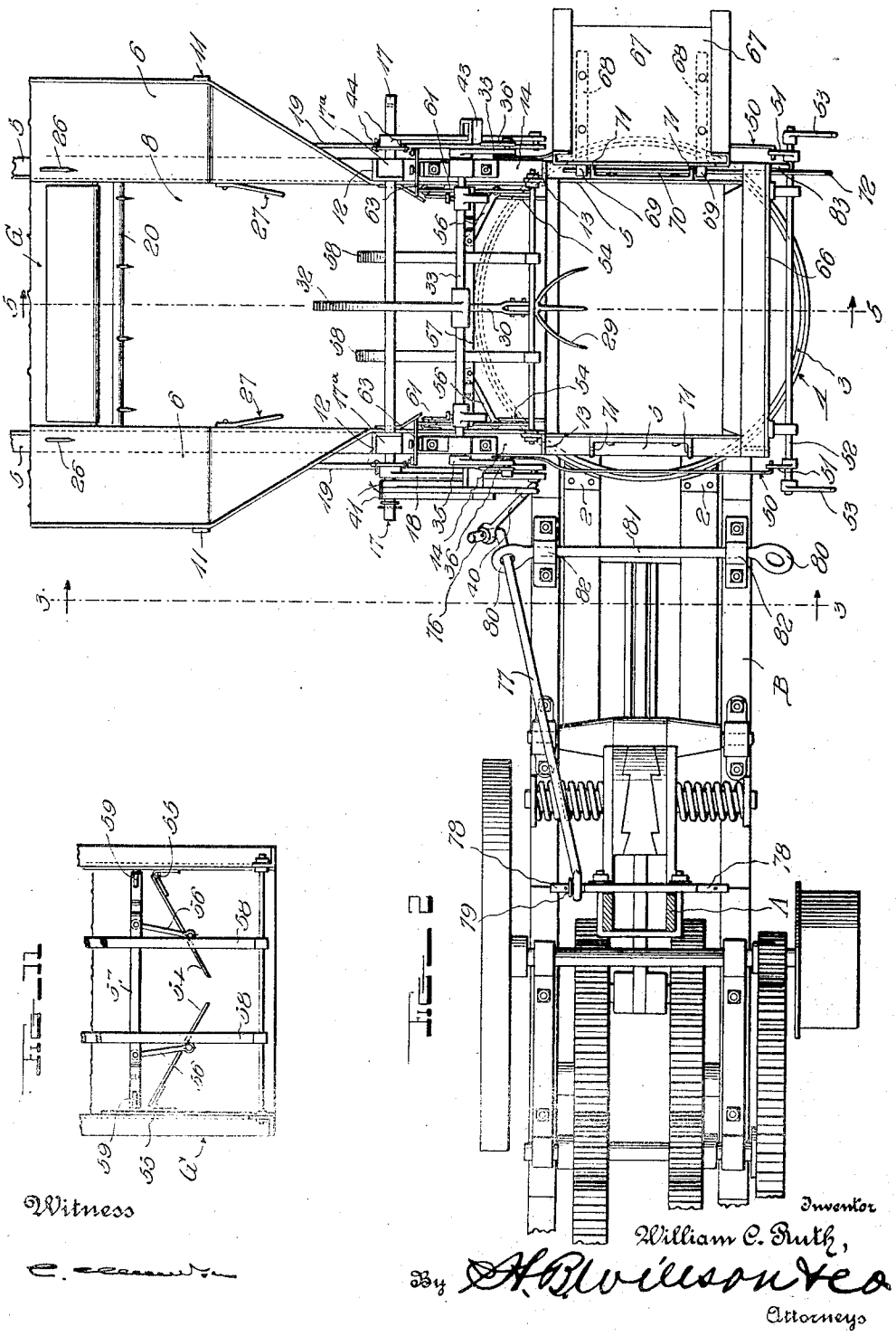
Attorneys

Feb. 2, 1926. **1,571,437**

W. C. RUTH

BALING PRESS FEEDER

Filed June 18, 1925 5 Sheets-Sheet 2



Witness

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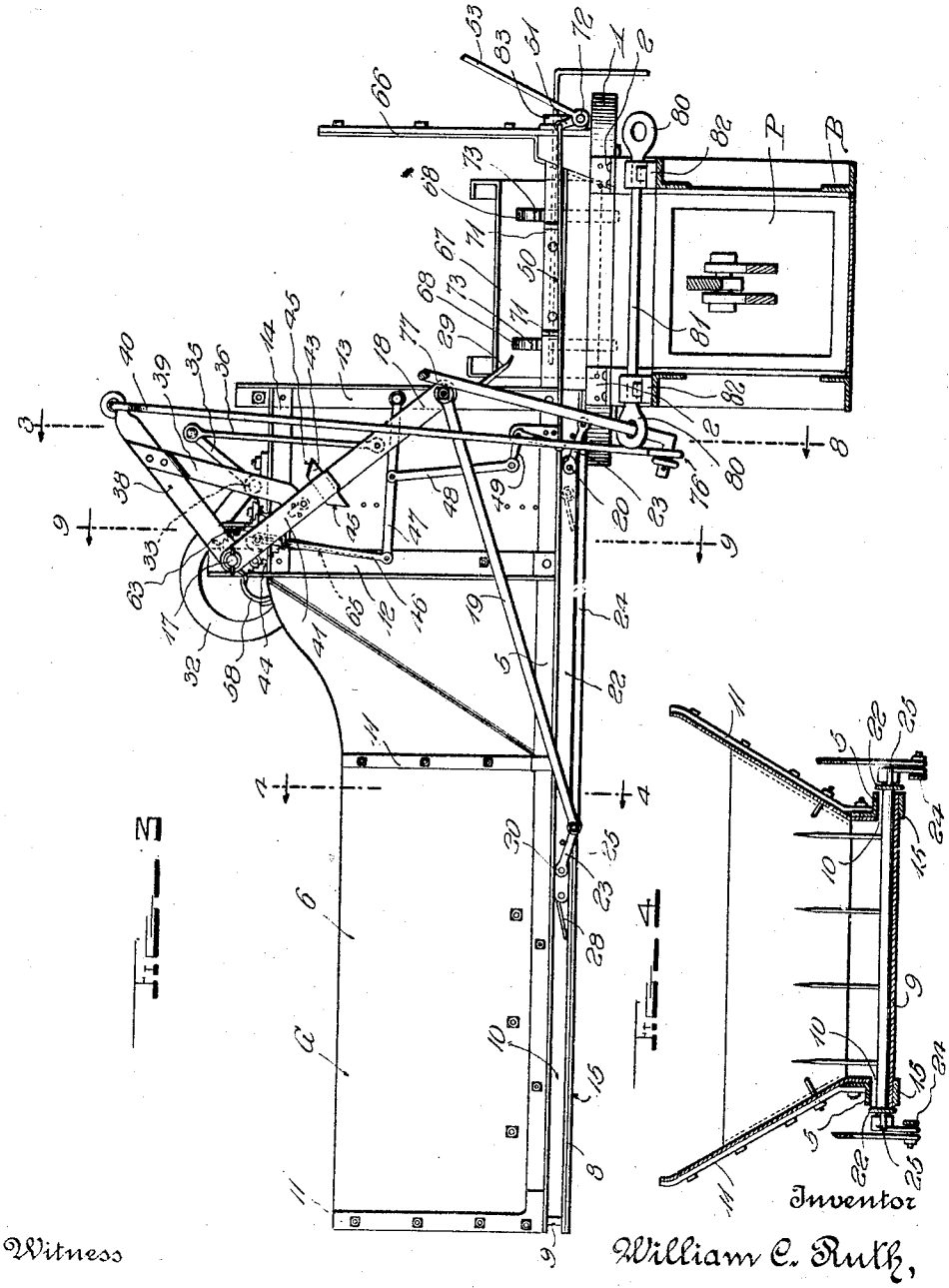
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Feb. 2, 1926. 1,571,437

W. C. RUTH

BALING PRESS FEEDER

Filed June 18, 1925 5 Sheets-Sheet 3



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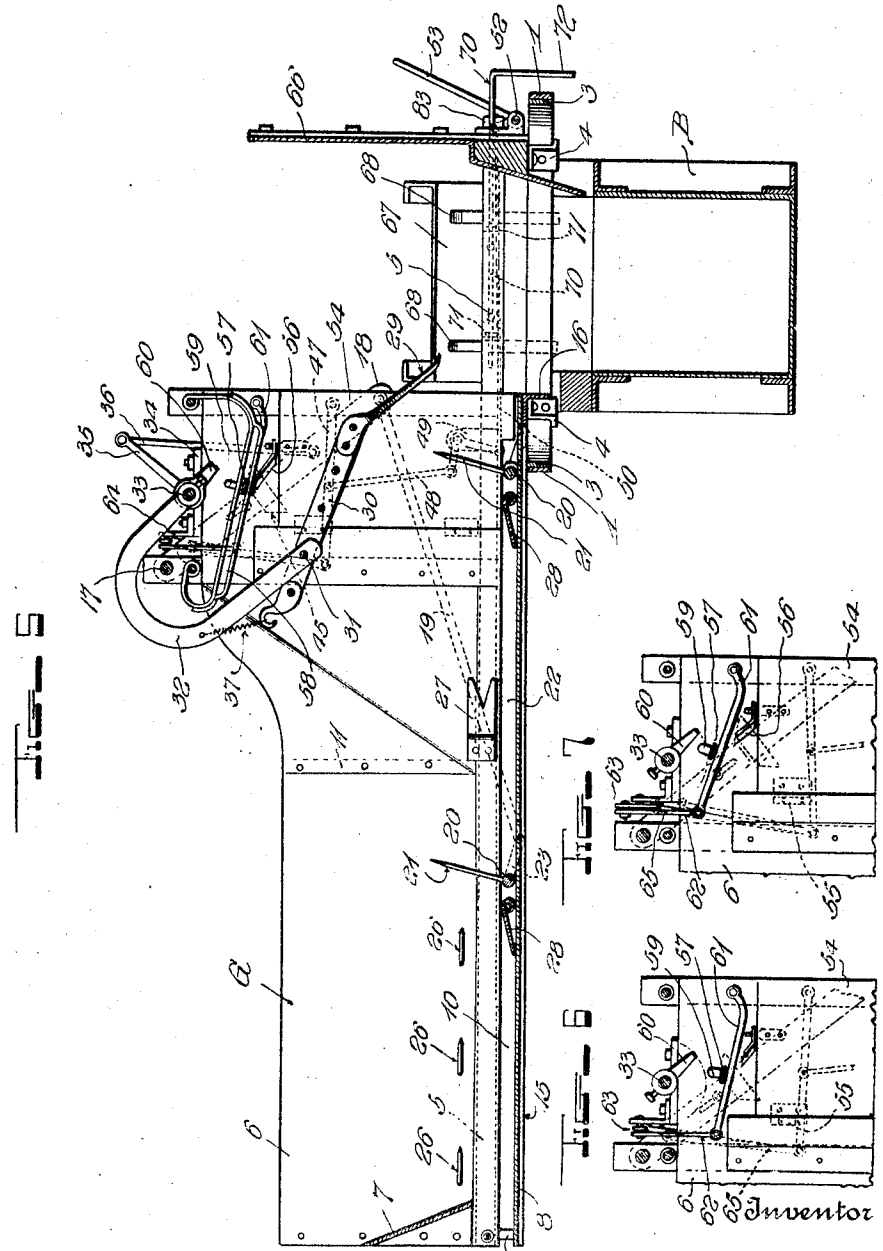
Attorneys

Feb. 2, 1926. 1,571,437

W. C. RUTH

BALING PRESS FEEDER

Filed June 18, 1925 5 Sheets-Sheet 4



Witness

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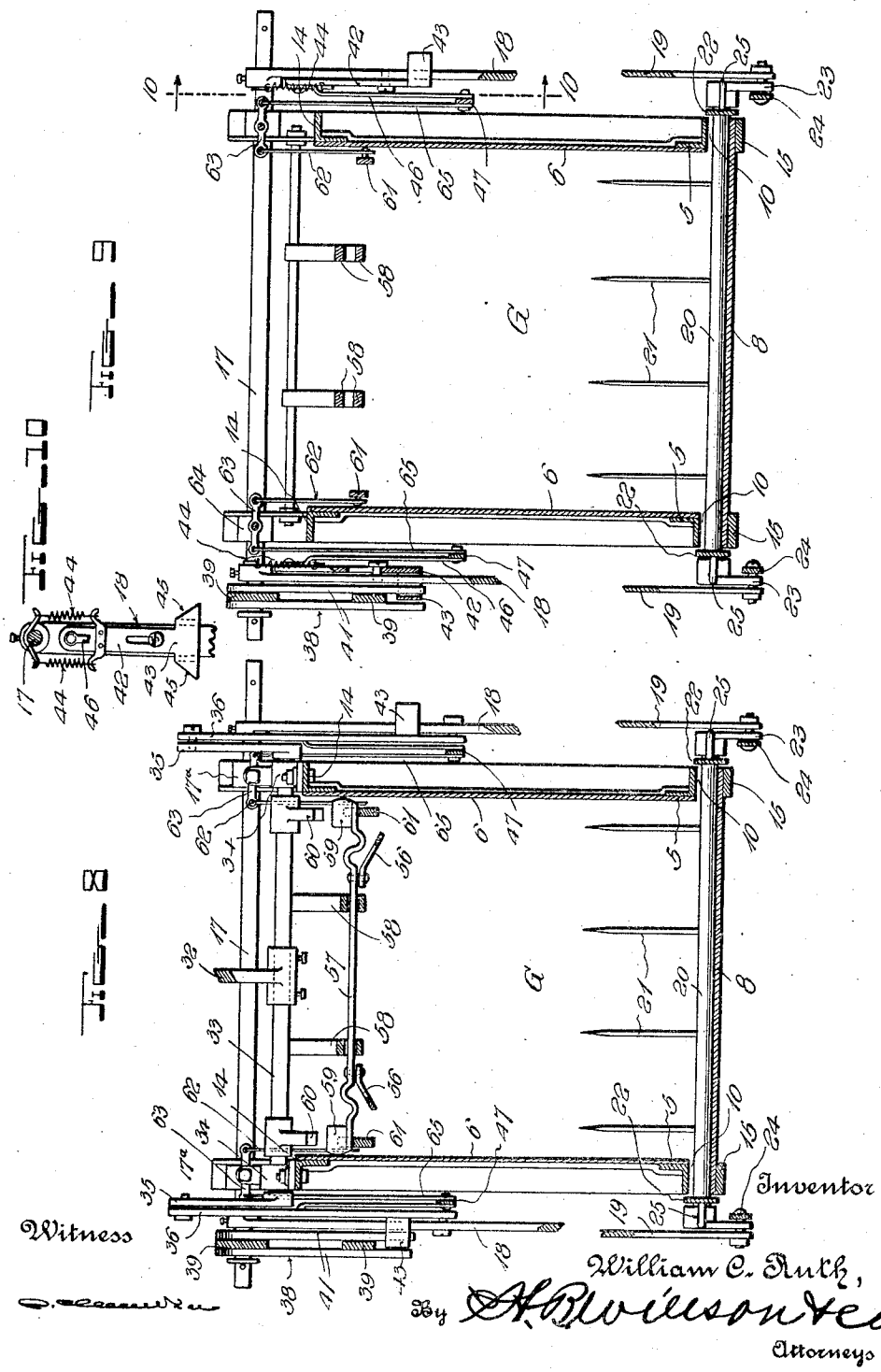
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Feb. 2, 1926. 1,571,437

W. C. RUTH

BALING PRESS FEEDER

Filed June 18, 1925 5 Sheets-Sheet 5



Witness

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Patented Feb. 2, 1926. 1,571,437

UNITED STATES PATENT OFFICE.

WILLIAM CHESTER RUTH, OF GAP, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO HOWARD L. RUTTER, OF GAP, PENNSYLVANIA.

BALING-PRESS FEEDER.

Application filed June 18, 1925. Serial No. 38,033.

To all whom it may concern:

Be it known that I, WILLIAM C. RUTH, a citizen of the United States, residing at Gap, in the county of Lancaster and State of Pennsylvania, have invented certain new and useful Improvements in Baling-Press Feeders; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in baling press feeders of a type which can be projected laterally from either side of the baling press, and certain features thereof also relate to feeders which need not necessarily be mounted in this manner. This application is a continuation in part of my application Serial No. 359, filed January 3, 1925.

One object of the invention is to provide a unique association of parts for utilizing the movements of the usual baling press tamper, to operate the feeder.

A further object is to provide a feeder embodying improved feeding means for advancing the hay, straw or the like toward the delivery end of a guideway into which it is thrown, and in this connection, a still further object is to provide a mechanically actuated fork which will effectively discharge the material from said guideway.

Another aim of the invention is to make unique provision for driving or stopping the feeding mechanism at the will of the operator, while permitting an oscillatory actuator for said mechanism to continue in its movements.

A still further aim is to provide a gate for the delivery end of the material guideway provided with unique operating means whereby it is closed prior to throwing the feeding means entirely out of play.

A further object of the invention is to make provision whereby a number of parts may have their positions changed to efficiently operate, regardless of the direction in which the feeder is extended from the baling press, and yet another aim is to utilize a portion of the feeder as supporting means for a division block holder, which holder is adapted to position a division block to be struck by a portion of the tamper and forced into the throat of the baling chamber, thereby.

With the foregoing and minor objects in view, the invention resides in the novel subject matter hereinafter described and claimed, the description being supplemented by the accompanying drawings.

Figure 1 discloses a side elevation of a portion of a baling press and an end view, partly broken away, of the feeder.

Figure 2 is a top plan view of the feeder and press, partly broken away and in section.

Figure 3 is a vertical transverse sectional view through the baling press as indicated by line 3—3 of Figs. 1 and 2, disclosing a side elevation of the feeder.

Figure 4 is a transverse sectional view through the feeder as indicated by line 4—4 of Fig. 3.

Figure 5 discloses a longitudinal sectional view of the feeder and a transverse section through a portion of the baling press, this view being cut substantially as indicated by the lines 5—5 of Figs. 1 and 2.

Figures 6 and 7 are fragmentary sectional views similar to a portion of Fig. 5 but showing different positions of parts.

Figures 8 and 9 are vertical transverse sectional views through the feeder as indicated by lines 8—8 and 9—9 of Fig. 3.

Figure 10 is a detail vertical sectional view on line 10—10 of Fig. 9.

Figure 11 is a fragmentary plan view illustrating the gate in substantially closed position.

In the drawings above briefly described, B designates a portion of a baling press including the plunger P, vertically swinging tamper T and operating mechanism for said plunger and tamper. Suitably secured upon the top of the body B, around its inlet throat, is a track 1 of annular form, appropriate brackets 2 being shown for securing said track to the baling press. Within this track, is a ring 3 which is held in engagement therewith by appropriate guides 4. A horizontally elongated guideway G is secured in any adequate manner at its delivery end to the ring 3 and this ring permits the guideway to be swung to either side of the baling press. This guideway may be of any preferred construction, but that described below is preferably followed.

Two main angle iron sills 5 have their front ends appropriately mounted on the ring 3, said sills supporting a pair of up-

standing side walls 6, a rear end wall 7 and a bottom 8, the latter being spaced below the sills 5 by appropriate spacers 9 so as to provide longitudinal slots 10 for the guideway G, between its sides and bottom, for a purpose to appear. The side walls 6 are preferably formed of sheet metal and to effectively hold them in the desired positions, rigid bars 11 are secured thereto and to the sills 5. Also, at the front ends, these side walls are secured to vertical standards 12 and 13 which rise from the sills 5, the upper ends of the standards at each side of the guideway being connected by longitudinal bars 14 which are disposed at the upper edges of the walls 6. To appropriately stiffen and support the bottom 8, heavy metal bars 15 preferably underlie its longitudinal edges, and an angle bar 16 secured to the ring 3 underlies and is secured to the front end of said bottom.

A transverse rock shaft 17 is disposed at the upper portion of the guideway G, over the delivery end of said guideway and is mounted in appropriate bearings 17ª carried by the standards 12. The ends of this rock shaft are provided with downwardly projecting arms 18 which are rigidly secured to said shaft, the lower ends of said arms being pivoted to links 19 which actuate reciprocatory feeding means at the bottom of the guideway G. In the present showing, this feed means comprises two transverse rock shafts 20 resting upon the bottom 8 and passing through the slots 10, said shafts having lateral feed teeth 21 within said guideway. The ends of the shafts 20 pass through appropriate bearings in a pair of longitudinal bars 22, and said ends are provided with crank arms 23, the arms of each side of the guideway G being connected by a longitudinal link 24. The two links 19 are either connected directly to the links 24 or to certain of the crank arms 23, as shown, and any appropriate means such as the stop pins 25 in the path of the arms 23, may be used to prevent said arms and the links 19 from reaching dead center relation with each other. The construction is such that when the links 19 are pulling toward the delivery end of the guideway G, the arms 23 turn the rock shafts 24 in a manner to upwardly project their teeth 21, causing the latter to advance the material in the guideway, said links 19 at the same time pulling both shafts, the bars 22 and the links 19 forwardly. When the links 19 are forced in the opposite direction, the arms 23 swing downwardly, thus turning the teeth 21 to an idle position so that they may readily slide rearwardly under the mass of material in the guideway G. As soon as the arms 18 again pull the links 19 forwardly however, the fingers 21 project and engage the material to further advance it. During retrograde movement of the shafts 20 and associated parts, similar movement of the material in the guideway is prevented by appropriate fingers or the like 26 and 27, secured to the inner side of said guideway. To insure that no material shall lodge against the shafts 20 during rearward movement of the feeding means, two guard plates 28 are mounted between the bars 22, in rear of said shafts, said plates resting slidably upon the bottom 8.

The feeding means so far described, effectively advances the material to the delivery end of the guideway G, and for the purpose of effectively discharging it from said delivery end into the throat of the baling press, I provide a mechanically actuated fork mechanism. The fork of this mechanism is indicated at 29, said fork being secured to the lower end of a fork-carrying arm 30, this arm being pivoted at 31 to the lower end of a preferably arched arm 32, carried by a transverse rock shaft 33 which is mounted in appropriate bearings 34 on the longitudinal bars 14, said rock shaft 33 being in front of and parallel with the rock shaft 17. The shaft 33 is provided at its ends with crank arms 35 and these crank arms are connected by links 36 with the lower portions of the arms 18, so that as the latter are oscillated in a manner hereinafter described, the shaft 33 will be similarly oscillated, thus actuating the arm 32 in a manner to operate the fork. A yieldable connection 37 is provided between the carrying arm 30 of this fork and the arm 32, as seen in Fig. 5. This connection permits the fork 29 to glide rearwardly over any material in the guideway G, but causes said fork to penetrate such material when moving forwardly, so as to discharge it from the guideway.

An oscillatory feeder actuator 38 is applicable to either end of the shaft 17, said actuator being preferably in the form of a bell crank having its arms suitably braced as indicated at 39, one of said arms being pivoted at its outer end to a vertical link 40, which link is operated to oscillate the crank. The other arm of the bell crank preferably consists of two parallel sections 41 spaced apart by one end of the brace 39. Means are provided for connecting the actuator 38 with either of the arms 18, according to the end of the shaft 17 on which said actuator is placed, and it may be here stated that it will be applied to one end of the shaft when the feeder extends laterally from one side of the baling press, but to the other end of the shaft when the feeder projects in the opposite direction.

In the construction shown, two latch members 42 are slidably mounted at the inner sides of the arms 18 and are carried by these arms, the lower ends of said latch members being provided with yokes 43

which slidably surround portions of the arms 18 and extend outwardly from the latter, so as to receive the free end of one or the other of the arm sections 41 of the bell crank or actuator 38 (see Figs. 3, 8, 9 and 10). By appropriate springs 44, the latch members 42 are normally raised to operative position, but provision is made for downwardly sliding said latch members so that one yoke 43 clears the actuator 38, thus permitting said actuator to oscillate freely on the shaft 17 without operating the feeding mechanism. Each yoke is preferably provided with beveled ends 45 which assist in re-engaging the active yoke with the actuator 38, when it is desired to start the feeding means for further functioning. While practically any suitable provision could be made for releasing the latch members 42, the construction described below is preferably followed.

Vertical links 46 are pivoted at their upper ends to the upper ends of said latch members and at their lower ends, said links are pivoted to levers 47 fulcrumed to the standards 13. Other links 48 are pivoted to and extend downwardly from the levers 47, said links 48 being pivoted at their lower ends to bell cranks 49 appropriately mounted at the sides of the guideway G. The bell cranks 49 are pivoted to longitudinal rods 50 which are in turn connected to crank arms 51 arising from a transverse rock shaft 52 which is spaced forwardly from the guideway G, said rock shaft 52 having appropriate operating handles 53. By pulling upon either of these handles, the connections just described are operated to downwardly move both of the latch members 42, thus causing the particular member which has been functioning to connect the actuator 38 with one of the arms 18, to immediately release this arm. Thus, while all of the feeding mechanism is thrown out of play, the actuator will continue to oscillate.

A gate is provided to close across the discharge end of the guideway G, when the feeding means is thrown out of play, so as to prevent any possibility of any more material being fed to the throat of the baling press at that time. This gate preferably comprises two sections 54 hinged at 55 to the opposite sides of the guideway G, said sections being connected by links 56 with a gate-actuating bar 57. This bar is disposed horizontally and transversely of the guideway, immediately under the shaft 33, and apropriate trackage 58 is provided to slidably support said bar, so that upward projections 59 on its ends are normally below a pair of tappets 60 on the shaft 33. Provision is made however for upwardly springing the ends of the gate-actuating bar 57 from the position of Figs. 5 and 6 to the position of Fig. 7, immediately before the feeding means is thrown out of play, whereupon the tappets 60 on their next rearward movement, will strike the projections 59, as will be clear from Fig. 7, said tappets then acting to rearwardly slide the bar 57, thus pulling upon the links 56 and closing the two gate sections 54 across the delivery end of the guideway G.

For upwardly springing the ends of the gate-actuating bar 57, I prefer to employ the construction shown. Two inclined, longitudinal arms 61 are pivoted to the side walls of the guideway G, said arms being disposed under the ends of the bar 57. Links 62 connect the free ends of these arms with short transverse levers 63 mounted upon appropriate brackets 64, upon the bars 14. The outer ends of these levers 63 are connected by links 65 with the levers 47, said links 65 and the links 46 above described, being preferably connected at the same points with said levers 47.

By the construction and association of parts just described, when downward movement of the levers 47 is effected to shift the latch members 42 downwardly and free the actuator 38 from one or the other of the arms 18, said levers 47 will pull upon the links 65 thus rocking the levers 63, raising the links 62 and causing the levers 61 to rock upwardly, thus springing the ends of the gate-actuating bar 57 into the path of the tappets 60, so that upon return movement of the latter, they will actuate said bar 57 and close the gate.

A fender 66 is appropriately carried by the ring 3 in outwardly spaced relation with the delivery end of the guideway G to insure that the material shall be deposited into the throat of the baling press, instead of passing over the press body and falling onto the ground. Between this fender and the delivery end of the guideway G, is a division block holder 67, here shown as secured upon two U-shaped metal bars 68. At one end, these bars have eyes 69 to receive a removable rod 70 passing through other eyes 71, each of the bars 5 being provided with two of said eyes 71, so that the division block holder 67 may be moved from one side to the other of the feeder when the latter is swung from one side of the baling press toward the other side thereof. The rod 70 is provided with a downwardly turned end 72 constituting a handle by means of which it may be readily withdrawn from the eyes 69 and 71 and reinserted.

In the present showing, the ends 73 of the bars 68, remote from the eyes 69, are intended to abut the inner sides of the sills 5 when the holder 67 is swung to the dotted line position of Fig. 1. At this time, a division block is held in the holder by springs 74 shown in dotted lines in Fig. 1, and the tamper T is provided with a projection 75 to

strike the upper end of the block, so as to force it out of the holder and into the throat of the baling press. After this operation, the holder 67 is returned to the full line position of Fig. 1 by hand, and it may here be stated that it is moved from this position to its operative position by hand also, or any desired means might be provided for the purpose of swinging said holder.

For actuating the link 40 to operate the actuator 38, above described, I prefer to employ the construction shown. The lower end of this link has an appropriate detachable connection 76 with the lower end of an inclined rod 77, the upper end of said rod being connectable with either of a pair of stubs 78 which are suitably secured to and project in opposite directions from the arm portion A of the tamper T, any preferred means such as a pin and washer 79 being employed to hold the rod engaged with the stubs. Appropriate guiding means are provided for the rod 77. In the present showing, two eyes 80 are provided at opposite ends of a rock shaft 81, said rock shaft extending through bearings 82 mounted on the baling press body between the pivotal axis of the tamper and the feeder. The rod 77 passes through one of the eyes 80 when the feeder is positioned at one side of the press but through the other eye when said feeder is swung to the opposite position. As the tamper strokes, the rod 77 actuates the link 40 and the latter in turn oscillates the actuator 38 so that as long as this actuator is connected to one or the other of the arms 18, by one of the latch members 42, the entire feeding means will function. When it is desired to hold the feeding means out of play, after once throwing it out of action, the shaft 52 may be shifted to the left and one of its crank arms 51 engaged with a stop 83, suitably mounted.

The construction shown is rather simple, compared to other mechanisms which might have been devised for producing the same results, yet it is highly efficient and in every way desirable, and as excellent results have been obtained from the structural details disclosed, they are by preference followed. However, within the scope of the invention as claimed, modifications may of course be made.

Attention is directed to the fact that the feeder is driven without the use of chains, belts, sprockets or gears. Moreover, it is to be understood that the word "gate" is to be interpreted in a sufficiently broad manner to comprehend any equivalent cut-off.

I claim:—

1. A feeder comprising a guideway for the material to be handled, a shaft extending transversely of said guideway out of the path of the material, feeding means operatively associated with said guideway, an arm on the shaft operatively connected with said feeding means for operating the latter, an oscillatory actuator mounted on said shaft adjacent said arm, means for oscillating said actuator, a latch member mounted movably on said arm and engaged with said actuator, and means connected to said latch for releasing the same from said actuator while the latter is in motion.

2. A feeder comprising a guideway for the material to be handled, a shaft extending transversely of said guideway out of the path of the material, feeding means operatively associated with said guideway, an arm on the shaft operatively connected with said feeding means for operating the latter, an oscillatory actuator mounted on said shaft adjacent said arm, means for oscillating said actuator, a latch mounted on the arm, said latch having a yoke slidably surrounding said arm and a portion of the actuator to be slid from engagement with the latter, and means for releasing said latch while said actuator is in motion.

3. A structure as specified in claim 2; said yoke having beveled ends co-operable with the yoke-engaging portion of the actuator to assist in re-engaging said yoke and actuator.

4. A feeder comprising a guideway for the material to be handled, a shaft extending transversely of said guideway out of the path of the material, feeding means operatively associated with said guideway, an arm on the shaft operatively connected with said feeding means for operating the latter, an oscillatory bell crank mounted on said shaft at one side of said arm, means connected to one end of said bell crank for oscillating the latter, a latch mounted on said arm, said latch having a yoke slidably and removably surrounding the other end of said bell crank and slidably surrounding a portion of said arm, said yoke normally establishing a driving connection between the bell crank and arm, and means connected to said latch for sliding said yoke from engagement with said arm.

5. A structure as specified in claim 4; said yoke having beveled ends to be struck by said other end of said bell crank to assist in re-engaging the yoke with said end.

6. A feeder comprising a guideway for the material to be fed, feeding means operatively associated with said guideway, a rock shaft extending transversely of said guideway out of the path of the material being fed, arms projecting rigidly from each end of said rock shaft and disposed at the sides of said guideway, means operatively connecting said arms to said feeding means, an actuator applicable to either end of said rock shaft, means for holding said actuator on the shaft in either of its two positions, means for oscillating said actuator with respect to said shaft, means for connecting

said actuator to either of said arms, and means for releasing said connecting means while said actuator is in motion.

7. A structure as specified in claim 6; said connecting means including yokes slidable on said arms, said actuator having projecting means receivable in either of said yokes, either yoke being slidable from said projecting means upon actuation of said releasing means.

8. A feeder comprising a guideway for the material to be fed, feeding means operatively associated with said guideway, means for throwing said feeding means out of play, a gate for closing the discharge end of said guideway, and means for automatically closing said gate when said feeding means is thrown out of action.

9. A feeder comprising a guideway for the material to be fed, feeding means operatively associated with said guideway, operating means for said feeding means including an oscillatory shaft extending across the guideway above the path of the material being fed, a gate for closing the discharge end of said guideway, a movably mounted actuator for said gate adjacent said rock shaft, a tappet on said rock shaft for moving said gate actuator to close the gate, said tappet and said actuator being normally out of operative relation, and means for successively shifting said actuator into operative relation with said tappet and throwing the aforesaid operating means out of play.

10. A feeder comprising a guideway for the material to be fed, feeding means operatively associated with said guideway, operating means for said feeding means including an oscillatory shaft extending across the guideway above the path of the material being fed, a gate for closing the discharge end of said guideway, trackage above the gate extending longitudinally of the guideway and in vertically spaced relation with said rock shaft, a gate actuator slidably supported on said trackage and having a portion movable toward said shaft, a tappet on the shaft adapted to strike said portion of said actuator when said portion is moved toward the shaft, connecting means between said actuator and gate, and means for successively moving said actuator portion into operative relation with said tappet and throwing said feeding means out of play.

11. A feeder comprising a guideway for the material to be fed, feeding means operatively associated with said guideway and including an oscillatory transverse shaft above the path of the material being fed, said shaft having a laterally projecting tappet, a gate for closing the discharge end of said guideway, a gate actuator connected to said gate and disposed normally out of the path of said tappet, means movably supporting said gate actuator, an oscillatory feeder actuator on said shaft, a releasable latch at one end of said shaft for connecting said feeder actuator thereto, means for moving said latch to released position, and shifting means for said gate actuator connected to said latch to shift said gate actuator into the path of said tappet prior to full release of the latch.

12. A structure as specified in claim 11, said feeder actuator being applicable also to the other end of said shaft, an additional latch at said other end of the shaft for connecting it to said feeder actuator, said additional latch being connected to said latch releasing means to be released simultaneously with the first named latch, said gate actuator being in the form of a bar, and the shifting means for such bar being operatively associated with the ends of the latter and connected to the two latches respectively.

13. A feeder comprising a guideway for the material to be fed, means for feeding the material toward one end of said guideway, a transverse rock shaft over the material path at said discharge end, an arm projecting downwardly from said rock shaft into the guideway, a fork-carrying arm pivoted on a transverse axis to the lower end of the first named arm, a fork on the lower end of the fork-carrying arm adapted to force the material out of the discharge end of the guideway, and spring means connecting the two arms for yieldably holding them in operative relation and permitting the fork to readily travel over the material upon its return strokes.

14. A feeder comprising a guideway, a transverse rock shaft mounted for sliding longitudinally along the bottom of said guideway, feeding teeth projecting laterally from said rock shaft, and multi-function means connected to said shaft for reciprocating it along the guideway and for alternately turning said shaft in opposite directions to raise said teeth on forward strokes of the shaft and lower them on rearward strokes thereof.

15. A feeder comprising a guideway, a transverse rock shaft mounted for sliding longitudinally along the bottom of said guideway, feeding teeth projecting laterally from said rock shaft, crank arms on the ends of said shaft, and means connected to said crank arms for reciprocating the shaft along the guideway and for alternately turning said shaft in opposite directions to raise said teeth on forward strokes of the shaft and lower them on rearward strokes thereof.

16. A feeder comprising a guideway, a transverse rock shaft mounted for sliding longitudinally along the bottom of said guideway, feeding teeth projecting laterally from said rock shaft, crank arms on the ends of said shaft, links connected to said crank

arms and disposed longitudinally of the guideway, means for holding said links and crank arms against movement to dead center positions, and means for reciprocating said links to reciprocate the shaft and effect alternate turning of said shaft in opposite directions to raise said teeth on forward strokes of the shaft and lower them on rearward strokes thereof.

17. A feeder comprising a guideway for the material to be fed, the sides of said guideway having longitudinal slots adjacent its bottom, a plurality of transverse rock shafts extending across said bottom and passing through said slots, said shafts having lateral feeding teeth, a pair of longitudinal bars having bearings for the ends of said shafts, crank arms on the ends of said shafts projecting in the same direction, a pair of longitudinal links pivoted to said crank arms and disposed one at each side of the guideway, means for preventing movement of the links and crank arms to dead center positions, and means for reciprocating said links to reciprocate the shafts along the guideway and to alternately turn said shafts in opposite directions.

18. In combination with a baling press having a vertically swinging tamper; a feeder projecting laterally from said press and having an oscillatory actuator, a guide mounted on the press body between the pivotal axis of the tamper and the feeder, a rod passing slidably through said guide and declined toward the feeder, a link connecting the lower end of said rod with said actuator, and means pivotally connecting the upper end of said rod with said tamper.

19. In combination with a baling press having a vertically swinging tamper; a feeder projecting laterally from said press and capable of being positioned at either side of the press, an actuator for said feeder applicable to either side thereof according to the direction in which the feeder projects from the press, a link pivoted to and depending from said actuator, an inclined rod pivoted at its lower end to said link and adapted for location at either side of the press according to the position of the feeder, means for pivoting the upper end of said rod to the tamper when said rod is in either location, and guiding means to slidably receive the rod in either of said locations, said guiding means being mounted on the press body between the feeder and the pivotal axis of the tamper.

20. A structure as specified in claim 19; said means for pivoting the rod to the tamper comprising stubs secured to said tamper and projecting in opposite directions therefrom, an eye on the rod applicable to either of said stubs, and means releasably holding the eye on either stub.

21. A structure as specified in claim 19; said means for guiding said rod comprising a rock shaft mounted transversely on the press body and having eyes at its ends to receive the rod.

22. In a baling press including a tamper and having a laterally extending feeder capable of being projected from either side of the press body; a division block holder adapted to hold a division block in position to be forced by the tamper into the press throat, and means for detachably mounting said block holder in either of two distinct positions on the feeder, according to the direction in which the feeder projects from the press.

In testimony whereof I have hereunto affixed my signature.

WILLIAM CHESTER RUTH.