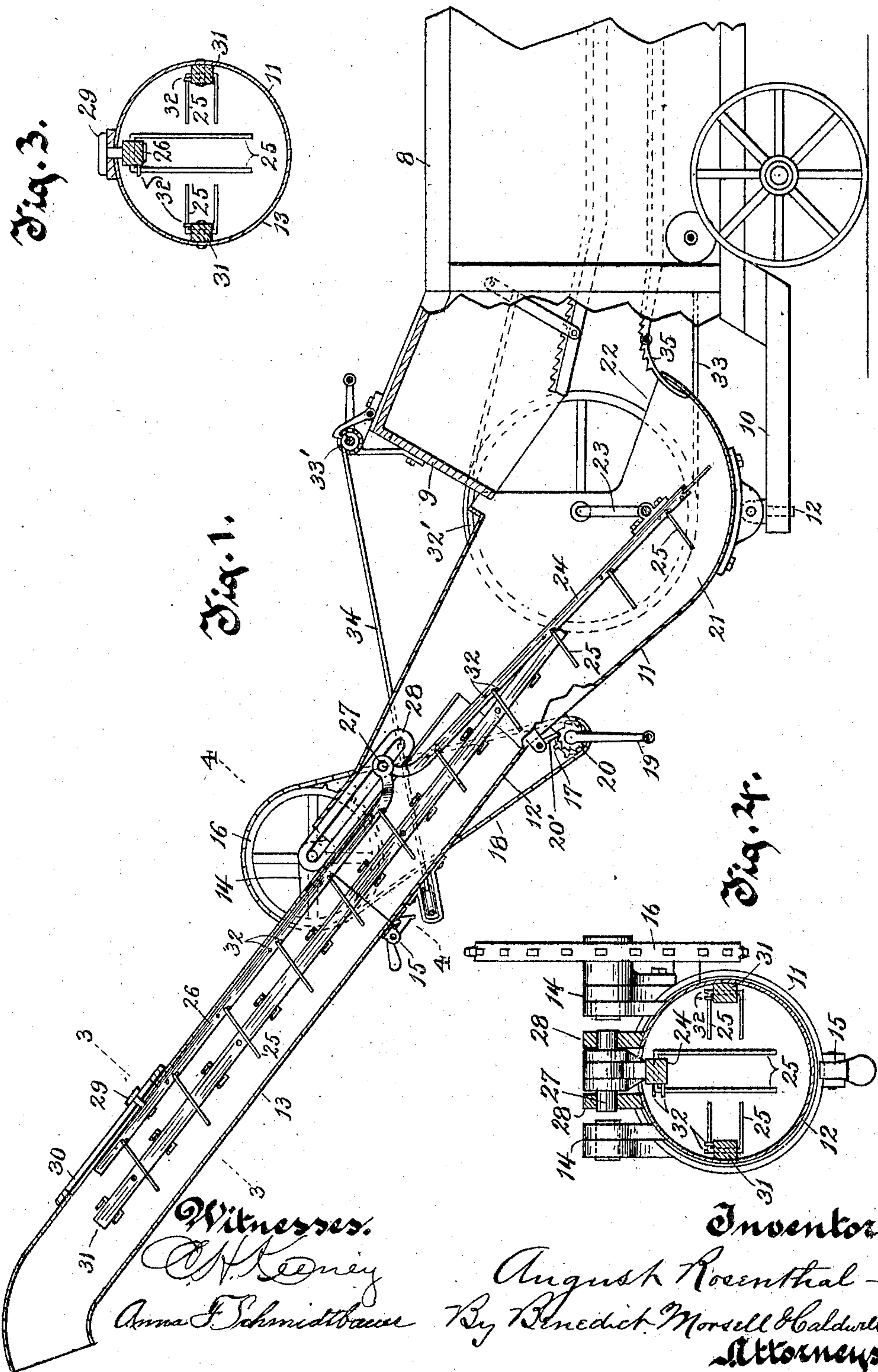


A. ROSENTHAL.
STRAW STACKER AND ELEVATOR.
APPLICATION FILED JULY 26, 1908.

967,243.

Patented Aug. 16, 1910.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

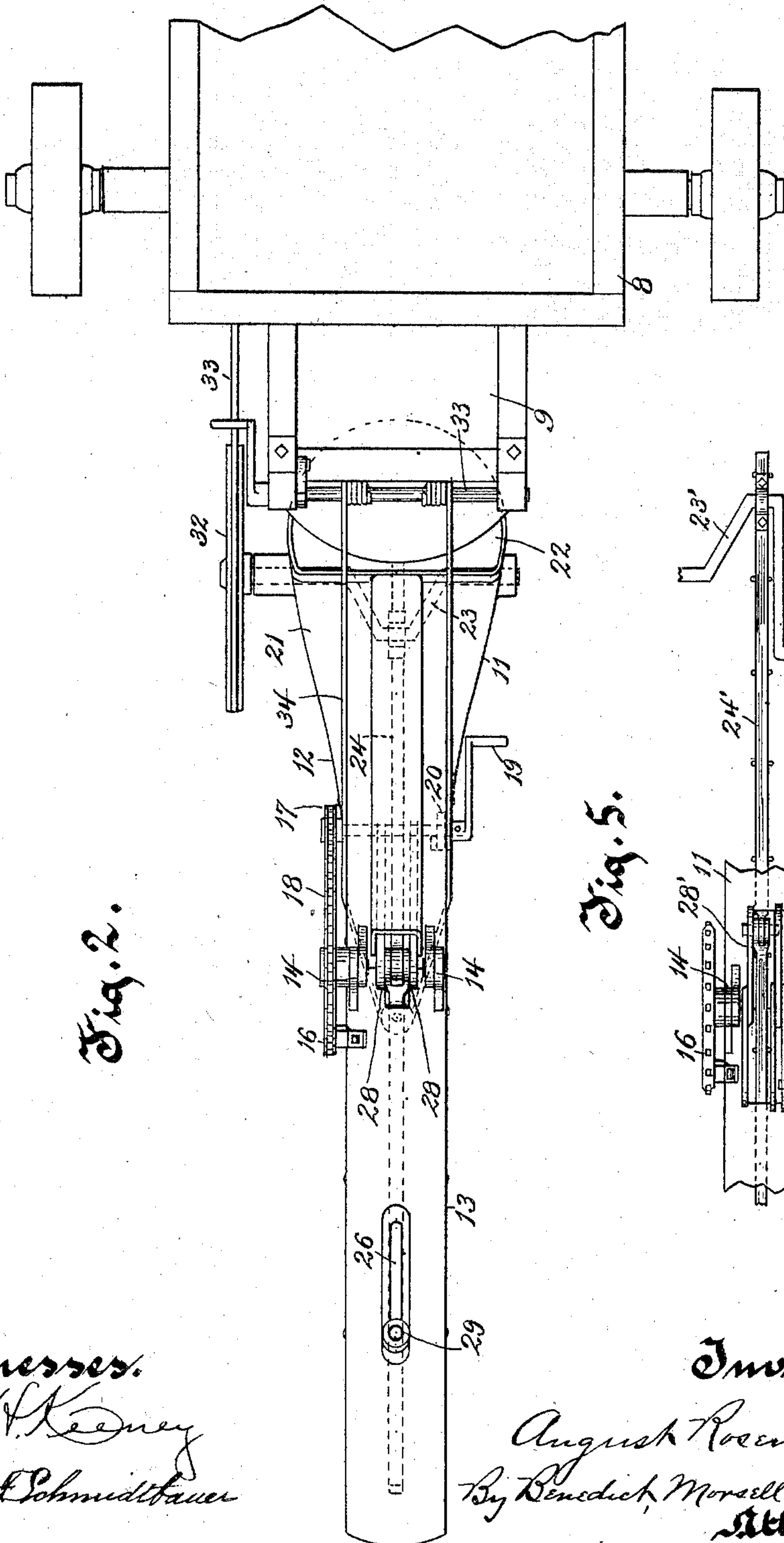


Fig. 2.

Fig. 5.

Witnesses.
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AUGUST ROSENTHAL, OF WEST ALLIS, WISCONSIN.

STRAW STACKER AND ELEVATOR.

967,243.

Specification of Letters Patent. Patented Aug. 16, 1910.

Application filed July 25, 1908. Serial No. 445,320.

To all whom it may concern:

Be it known that I, AUGUST ROSENTHAL, residing in West Allis, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Straw Stackers and Elevators, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

This invention relates to improvements in straw stackers and elevators adapted for use with corn-huskers and shredding machines, threshing machines and ensilage cutters.

The principal object of this invention is to provide a stacker in which straw and fodder will be elevated and delivered from the stacker by oscillating and reciprocating means provided with engaging fingers.

A further object is to provide a jointed stacker tube and reciprocating means which may be folded without uncoupling any of the parts.

A further object is to provide a stacker tube with engaging fingers pivotally connected thereto which are adapted to prevent retrograde movement of the material being elevated.

A further object is to provide convenient means for folding the stacker. And a still further object is to provide means whereby the stacker may be swung or elevated to any angle desired without affecting the operation of the reciprocating bars.

With the above, and other objects, in view, the invention consists of the devices and parts, or their equivalents, as hereinafter set forth.

In the accompanying drawings, in which the same reference characters designate the same parts in all of the views; Figure 1 is a side view of a portion of a threshing machine provided with the improved elevator and stacker, parts broken away, and the stacker being in longitudinal section; Fig. 2 is a plan view of the parts shown in Fig. 1; Fig. 3 is a cross sectional view of the stacker taken on line 3—3 of Fig. 1; Fig. 4 is a cross sectional view of the stacker taken on line 4—4 of Fig. 1; and Fig. 5 is a plan view of a modified form of stacker in which two reciprocating bars are shown.

Referring to the drawings, the numeral 8 indicates the discharge end of a threshing machine, and 9 the discharge outlet or spout thereof. A stacker supporting frame 10 pro-

jects rearwardly from said threshing machine and on this frame a stacker 11 is pivotally supported by means of a pivot pin 12 pivotally connected to said stacker and mounted in said supporting frame. This pivotal connection permits the stacker to be swung around and the outer end to be elevated to any desired position.

The stacker 11 is formed of an inner section 12 and an outer discharge section 13 connected together by a hinge joint 14 and a gravity latch 15. A large sprocket wheel 16 is mounted fast to the outer section of the stacker and its shaft is in axial alignment with the hinge joint and forms the hinge pin of one portion of the hinge. A small sprocket wheel 17 mounted on the inner stacker section 12 and connected to the large sprocket wheel by a sprocket chain 18 is adapted to conveniently fold the outer stacker section upon the inner section with the application of but the minimum amount of power. The shaft of the small sprocket wheel is provided with a cranked operating handle 19 and a ratchet wheel 20, and a pawl 20' pivoted to the inner stacker section is in engagement with the ratchet wheel.

The stacker, consisting of a straight section of tubing, merges into an enlarged lower end portion 21 provided with an opening 22 in the upper portion thereof and immediately beneath the discharge spout of the threshing machine. The opening 22 of the stacker is so shaped and positioned with reference to its various positions of adjustment and the discharge spout of the threshing machine as to be always in proper position to receive the material discharged therefrom.

A cranked shaft 23 mounted on and extending transversely across the lower enlarged end of the stacker has connected thereto an oscillating bar 24 provided with engaging fingers 25 which are adapted to engage and elevate the material discharged into the lower end of the stacker. The upper end of this bar is curved upwardly and is pivotally connected to the inner end of a reciprocating bar 26, also provided with engaging fingers 25, said bar and fingers serving to elevate and discharge the material moved into their path of movement by the fingers connected to the oscillating bar. The pin 27 connecting the two bars together extends transversely from the sides of said bars into slotted guide-ways 28 connected to the upper

end of the inner portion of the stacker. These guide-ways are so positioned with relation to the hinge pin of the hinge joining the two sections of the stacker together that

5 when the bars have been moved to their extreme outer position the pin 27 of said bar will be in axial alinement with the hinge pin of the stacker so that when in this position the stacker may be folded at the joint by

10 means of the cranked lever and sprocket wheels and chain without disconnecting any of the reciprocating parts of the stacker. The upper end of the reciprocating bar is supported and guided by means of a bolt 29

15 connected to said bar and passing through a slotted opening 30 provided in the outer stacker section, the nut of the bolt serving to support the bar vertically. Both sections of the stacker have a pair of stationary bars 31

20 also provided with engaging fingers 25 which are adapted to prevent retrograde movement of the material being elevated by the oscillating and reciprocating bars. The engaging fingers of these bars are pivotally con-

25 nected thereto and are formed by inserting the wire, of which the fingers are formed, through openings provided therefor in the bars and bending said wire at right angles in the form of the letter U with the two

30 stems positioned against the sides of the bars, the base of the U-shaped wire forming the pivotal connection with the bars. Stop pins 32 connected to the bars are positioned in the path of movement of the fingers to

35 limit their swing so that in the forward reciprocation of the bars the fingers are permitted to swing to a position substantially at right angles with the bars and will be in position to engage and advance the material

40 upwardly in the tube, and during the rearward reciprocation of the bars the fingers are permitted to swing to a position substantially parallel with the bars and pass freely through the material so as not to

45 obstruct or retard the progress of said material. The fingers connected to the stationary bars engage and hold the material during the rearward reciprocation of the reciprocating bars.

50 The cranked shaft 23 may be rotated in the ordinary manner by gears or belt wheels but a grooved wheel 32' and a rope 33 extending to a source of power rotation are shown as the preferred way of driving.

55 The stacker is swung on its pivotal connection with the threshing frame to elevate or lower the discharge end of the stacker by means of a small hand operated windless 33' mounted on top of the threshing machine

60 and a rope or cable 34 connected at both ends to the shaft or drum of the windlass. The loop formed in the rope extends around the medial portion of the stacker and a small pulley connected thereto so that when the

65 height of the stacker end is adjusted the

stacker may be swung around horizontally in the arc of a circle without disturbing the position of adjustment of the stacker end.

The gravity latch 15 is adapted to lock the two sections of the stacker together when

70 in open or unfolded position.

A hinged member 35 connected to the threshing machine is adapted to guide the material into the stacker.

In the modified form of stacker shown in

75 Fig. 5 a double crank 23' is provided and two oscillating bars 24' are connected thereto and are adapted to alternately oscillate in opposite directions. Reciprocating bars 31' are connected to the ends of the oscillat-

80 ing bar in the same manner as in the principal form and are reciprocated thereby. The other details of construction of this modified form are similar to the principal form with the exceptions that the two sec-

85 tions of the stacker tube are hinged at a point midway between the two extreme positions of reciprocation of the bars so that when the double crank is at the half stroke position both pivot pins of the oscillating

90 bars will be in axial alinement with each other and the hinge pin of the stacker and the stacker may then be folded without disconnecting any of the parts, and the guides

95 28' are in two parts overlapping at the hinge point and one part being connected to each section of the stacker.

The operation of the stacker is as follows: Material is fed to the stacker through the opening in the lower end thereof from the

100 discharge spout of the machine to which it is connected. The material will be engaged by the fingers of the oscillating bar during its downward and forward stroke and

105 moved upwardly into the path of movement of the reciprocating bar which will further move the material and finally discharge it from the discharge end of the stacker. The fingers of these bars will engage the mate-

110 rial during the forward stroke and during the return stroke will swing against the sides of the bars and pass freely through the material, and during this return stroke the fingers of the stationary bars will pre-

115 vent retrograde movement of said material.

The stacker may be raised or lowered by means of the rope and windlass and may also swing around horizontally, and when it is desired to move the machine to which the

120 stacker is connected from place to place the stacker may be folded by means of its hinged joint and reciprocating bars and the chain wheels.

It is to be understood that this invention is not limited to any specific form or ar-

125 rangement of parts except insofar as such limitations are specified in the claims.

What I claim as my invention is:

1. A stacker and elevator, comprising a tube formed of two sections hinged together,

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a reciprocating bar associated with said tube and provided with means for engaging material within the tube, and an oscillating bar associated with the tube and provided
 5 with means for engaging and moving material within said tube and into the path of movement of the reciprocating bar to be further moved thereby, the said reciprocating and oscillating bars being adapted and
 10 constructed to be moved respectively to positions on opposite sides of the axis of the hinge joint of the tube whereby said tube may be folded.

2. A stacker and elevator, comprising a
 15 tube formed of two sections hinged together, a reciprocating bar within the tube and provided with means for engaging material, and an oscillating bar within said tube and pivotally connected to and constructed to
 20 reciprocate the reciprocating bar and to be moved to a position so that its pivotal connection will be substantially in axial alignment with the axis of the hinge joint of the tube whereby the tube may be folded, said
 25 oscillating bar provided with means for engaging and moving material within said tube and into the path of movement of the reciprocating bar to be further moved thereby.

3. A stacker and elevator, comprising a
 30 tube formed of two sections hinged together, a reciprocating bar within the tube and provided with means for engaging material, an oscillating bar within said tube and pivotally
 35 connected to the reciprocating bar and constructed to be moved to a position so that its pivotal connection will be substantially in axial alignment with the axis of the hinge joint of the tube whereby the tube
 40 may be folded, said oscillating bar provided with means for engaging and moving material within said tube and into the path of movement of the reciprocating bar, and a cranked shaft for oscillating the oscillating
 45 bar and reciprocating the reciprocating bar.

4. A stacker and elevator, comprising a
 50 tube formed of two sections hinged together at a point outside of their circumferential diameters and provided with elongated slots, a reciprocating bar within the tube and having one portion thereof supported by a bolt passing through one of the slots of the tube, an oscillating bar within said tube and pivotally connected to the reciprocating
 55 bar, a slotted member connected to the tube and constructed to support and guide the pivotal connection whereby it may be moved to a position in axial alignment with the axis of the hinge joint and the tube and
 60 the bars folded, material engaging fingers pivotally connected to said bars, and a cranked shaft for oscillating the oscillating bar and reciprocating the reciprocating bar.

5. A stacker and elevator comprising a
 65 tube formed of two sections hinged together,

a sprocket chain and wheels for folding the two sections together, a reciprocating bar within the tube, material engaging fingers pivotally connected to said bar, stops for
 70 limiting the movement of said fingers, an oscillating bar within said tube and pivotally connected to the reciprocating bar, material engaging fingers pivotally connected to said last mentioned bar, stops for
 75 limiting the movement of said fingers, a slotted member connected to the tube and constructed to support and guide the pivotal connection of the two bars whereby said connection may be moved to a position in
 80 axial alignment with the axis of the hinge joint and the tube and the bars folded, stationary bars within said tube, material engaging fingers pivotally connected to said bars for preventing retrograde movement of the material being moved, stops for limiting
 85 the movement of said fingers, and a cranked shaft for oscillating the oscillating bar and reciprocating the reciprocating bar.

6. A stacker and elevator comprising a
 90 tube formed of two sections hinged together and provided with an enlarged inner end and with an inlet opening, a pivotal support for said tube, a reciprocating bar within the tube, an oscillating bar within said tube and pivotally connected to the reciprocating
 95 bar, a slotted member connected to the tube and constructed to support and guide the pivotal connection whereby it may be moved to a position in axial alignment with the axis of the hinge joint and
 100 the tube and the bars folded, a stationary bar within said tube, material engaging fingers pivotally connected to all of said bars, stops for limiting the movement of said fingers, a cranked shaft for moving the two
 105 first mentioned bars, and means for adjusting the stacker tube vertically and also permitting said tube to be adjusted horizontally without disturbing the vertical adjustment.

7. A stacker and elevator comprising a
 110 tube formed of two sections hinged together and provided with an enlarged inner end and with an inlet opening, a pivotal support for said inlet opening, a pivotal support for said tube, a reciprocating bar
 115 within the tube, an oscillating bar within said tube and pivotally connected to the reciprocating bar, a slotted member connected to the tube and constructed to support and guide the pivotal connection whereby it
 120 may be moved to a position in axial alignment with the axis of the hinge joint and the tube and the bars folded, a stationary bar within said tube, material engaging fingers pivotally connected to all of said bars,
 125 stops for limiting the movement of said fingers, a cranked shaft for moving the two first mentioned bars, a pulley connected to said stacker, a windlass connected to the machine on which the stacker is mounted,
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and a rope or cable having looped engagement with said pulley and connected to the windlass whereby the tube may be moved horizontally without disturbing its adjustment vertically.

5
10 8. A stacker and elevator, comprising a tube formed of two sections hinged together, a reciprocating bar within the tube and provided with material engaging fingers, an oscillating bar within said tube and pivotally connected to the reciprocating bar

and constructed to be moved to a position which will permit the tube and the bars being folded without disconnecting any of the parts, and means for moving the bars. 15

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

AUGUST ROSENTHAL.

Witnesses:

C. H. KEENEY,

ANNA F. SCHMIDTBAUER.