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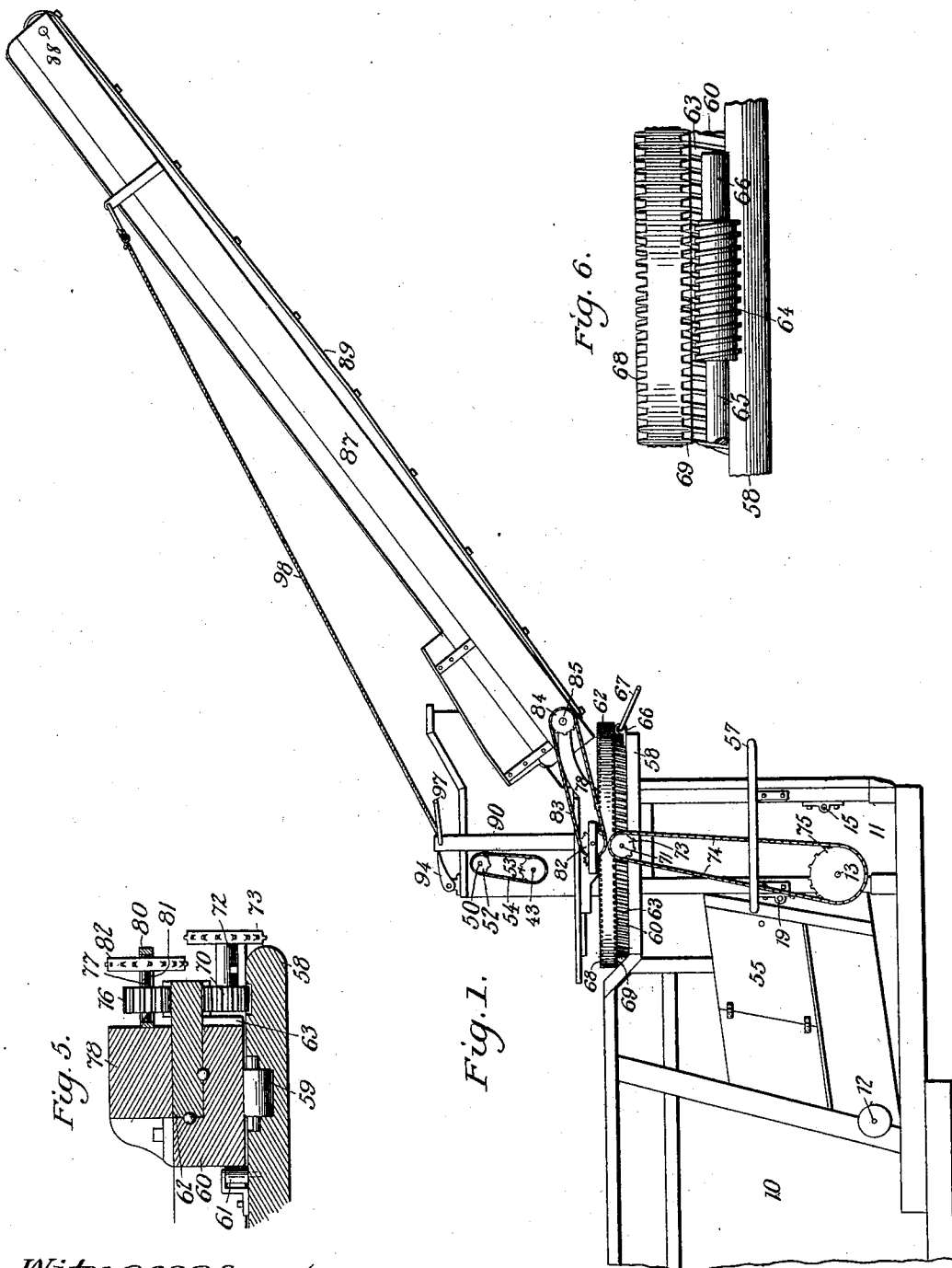
Patented Sept. 19, 1899.

G. D. LAMM.
STRAW CARRIER AND STACKER.

(Application filed Apr. 5, 1898.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses.
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John Sicard

Inventor.
George D. Lamm

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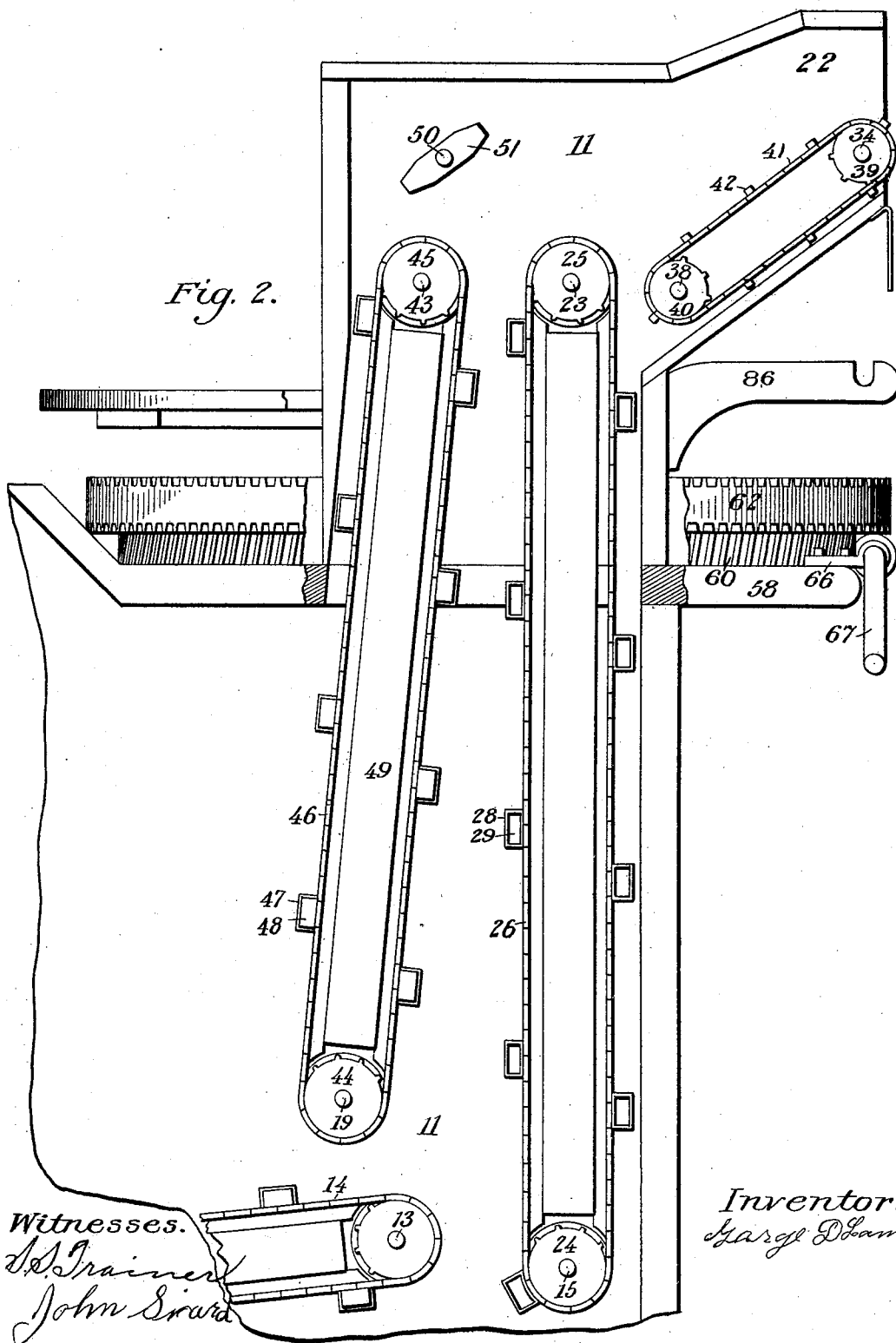
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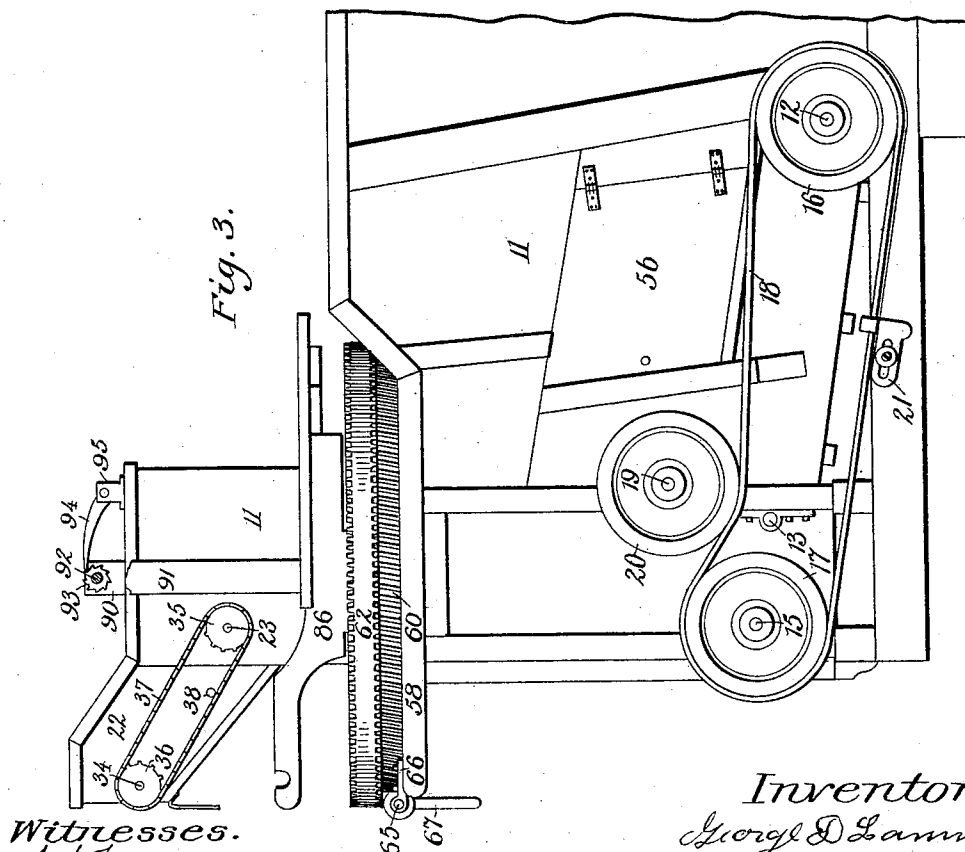
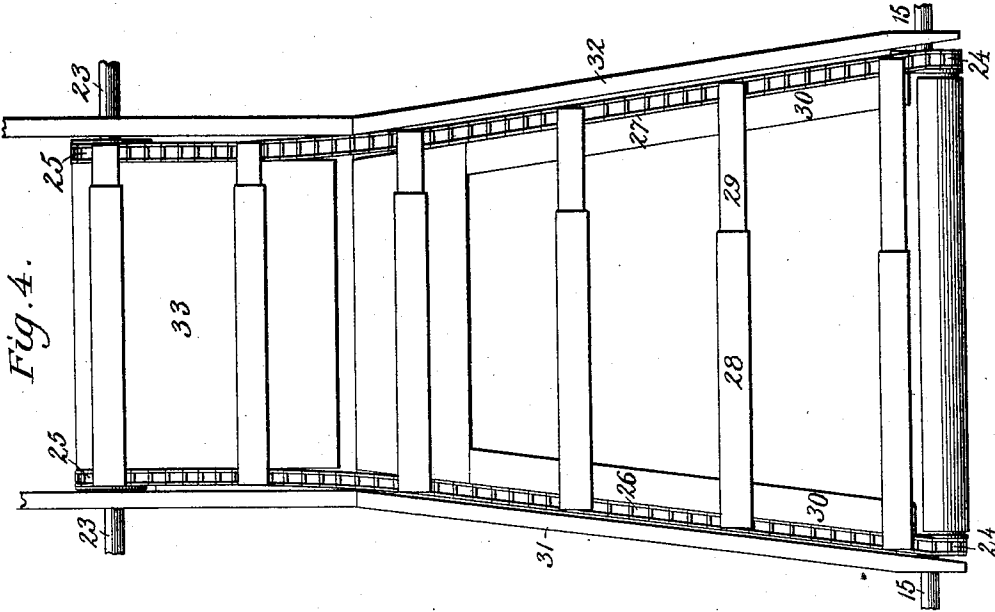
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John Seward

Inventor.
George D. Lamm

UNITED STATES PATENT OFFICE.

GEORGE D. LAMM, OF ACKLEY, IOWA.

STRAW CARRIER AND STACKER.

SPECIFICATION forming part of Letters Patent No. 633,202, dated September 19, 1899.

Application filed April 5, 1898. Serial No. 676,541. (No model.)

To all whom it may concern:

Be it known that I, GEORGE D. LAMM, a citizen of the United States, residing at Ackley, in the county of Hardin and State of Iowa, have invented a new and useful Straw Carrier and Stacker, of which the following is a specification.

The object of this invention is to provide improved means for carrying straw from a threshing-machine and depositing the same upon a stack, for storing the stacker mechanism upon the thresher for transportation, and for elevating the straw from the point of delivery at the thrasher into the initial end of the stacker.

My invention consists in the construction, arrangement, and combination of elements hereinafter set forth, pointed out in my claims, and illustrated by the accompanying drawings, in which—

Figure 1 is a side elevation illustrating my improved mechanism attached to the straw-delivery end of a threshing-machine in such a manner that the straw can be lifted from the elevator in the thresher to an elevated straw-carrier through the center of the turntable, upon which the straw carrier and stacker is carried, so that it may be vibrated, and also in such a manner that it can be rotated horizontally in reverse ways and extended in parallel position with the top of the thresher when the thresher is to be moved from one place to another. Fig. 2 is an elevation, partly in section, of a portion of my mechanism inclosed in a jacket through which the straw is elevated from the conveyer that delivers straw and chaff from the riddles in the separator to the vibratory stacker. Fig. 3 is a side elevation of a portion of my improved mechanism enlarged and taken from the side of the machine opposite to Fig. 1. Fig. 4 is a face elevation of one of the elevators detached from the machine. Figs. 5 and 6 are detail views relating to the turret mechanism.

In the construction of the apparatus and the mounting and driving thereof as shown the numeral 10 designates the straw-delivery-end portion of a threshing-machine to which my improved mechanism is attached. A jacket 11 and frame therefor are attached to and extend rearwardly from the thresher and contain or support all of the straw delivery, elevating, and stacking mechanism.

Shafts 12 13 are horizontally mounted in parallel planes and spaced apart a considerable distance within the jacket 11, and opposite ends of said shafts project from the jacket. A straw-conveyer 14 is mounted for travel on sprocket-wheels fixed to the shafts 12 13 and receives the straw from the riddles of the thresher and delivers the same to the interior of the bottom of the jacket 11. A shaft 15 is mounted parallel with and adjacent to the shaft 13 transversely of the lower rear corner of the jacket 11 and projects at one end from said jacket. A belt-wheel 16 is mounted on the projecting end portion of the shaft 12 and is connected to a belt-wheel 17 on the projecting end portion of the shaft 15 by a belt 18. A shaft 19 is mounted parallel with and above the shaft 13 transversely of the jacket 11 and projects from the jacket at one end. The projecting end portion of the shaft 19 carries a belt-wheel 20, engaged at the lower portion of its periphery by the belt 18. A tightener 21 is mounted adjustably on the jacket-frame and engages the belt 18. The jacket 11 extends above the top of the threshercasing and is provided with a delivery-spout 22 at its rear end or margin. A shaft 23 is mounted transversely of the upper portion of the jacket 11 parallel with and directly above the shaft 15 and projects from the jacket at one end. Sprocket-wheels 24 25 are mounted in pairs, Fig. 4, on the shafts 15 23, and conveyer-chains 26 27 are mounted for travel on said wheels. The chain 26 carries tubular slats 28, fixed thereto at one end and projecting at right angles therefrom toward the chain 27. The chain 27 carries solid slats 29, fixed thereto at one end and projecting at right angles therefrom toward the chain 26 and entering and telescoping within the slats 28 in order that the conveyer may be used in a space or chamber of less width at the top than at the bottom. A frame 30 is positioned vertically immediately above the shaft 15 and extends approximately two-thirds of the distance to the shaft 23. Grooves are formed in the faces of the frame 30 to receive the chains 26 27 and confine said chains in their travel. Guide-bars 31 32 are mounted vertically in the jacket 11 at the opposite ends of the telescoping conveyer-slats on the chains 26 27 and are spaced farther apart at their lower ends than at their

upper end. The conveyer-slats on the chains 26 27 abut at their extreme outer ends against the inner or adjacent faces of the guide-bars 31 32 and are guided thereby in telescoping.

5 A bed or partition 33 is positioned vertically between the guide-bars 31 32 and extends downwardly from the shaft 23 nearly to the upper end of the frame 30. A shaft 34 is mounted transversely of the mouth or opening

10 of the spout 22 parallel with the shaft 23 and projects from the spout at one end. Sprocket-wheels 35 36 are fixed to the projecting ends of the shafts 23 34 and are connected by a sprocket-chain 37 outside the spout. A shaft

15 38 is mounted transversely of the spout 22, parallel with and a little distance below a plane common to the shafts 23 34, and sprocket-wheels 39 40, mounted in pairs on the shafts 34 38, are connected by conveyer-chains 41, having the ordinary conveyer-slats 42. A

20 shaft 43 is mounted transversely of the upper portion of the jacket 11 and projects therefrom at one end. The shaft 43 is parallel with the shaft 23 and adjacent thereto and is located above the shaft 19 and nearer to the

25 shaft 23 than is the shaft 19 to the plane common to the shafts 15 23. Sprocket-wheels 44 45 are fixed in pairs on the shafts 19 43 and are connected by conveyer-chains 46, one only of which is shown in Fig. 2. One of the chains

30 46 carries tubular slats 47, and the other of the chains 46 carries solid slats 48, entering and telescoping relative to the slats 47 in manner identical with the slats 28 29, hereinbefore described. A frame 49 is mounted between the

35 shafts 19 43 identical in construction with the frame 30, and guide-bars (not shown) also are provided at the extreme ends of the telescoping slats, corresponding with the guide-bars

40 31 32. A beater-shaft 50 is mounted transversely of the upper portion of the jacket 11 and projects therefrom at one end. The beater-shaft 50 is parallel with the shaft 43 and carries a beater 51, located within the

45 jacket. The projecting end portion of the shaft 50 is provided with a sprocket-wheel 52, connected by a chain 54 to a sprocket-wheel 53, mounted on the projecting end portion of the shaft 43. Openings are formed in the op-

50 posite sides of the jacket 11, and doors 55 56 are hinged to the jacket and arranged to close said openings. A platform or step 57 is fixed to and projects horizontally from the jacket 11.

55 A bed 58 is fixed to and surrounds the jacket 11 in a horizontal plane near the top of the thresher, and a plurality of rollers 59 are mounted in recesses or a groove in the upper face of the bed and project slightly above the

60 same, Fig. 5. A turn-table 60 of annular form is mounted horizontally on the bed 58 and is held against lateral movement by engagement with its inner surface of a plurality of antifriction-rollers 61, mounted on studs

65 seated in and projecting upwardly from the bed. The turn-table 60 rests upon the rollers 59 and revolves on a vertical axis. The

periphery of the turn-table 60 is rabbeted, and a gear-ring 62 is mounted for revolution in the rabbet and projects radially therefrom.

70 That portion of the periphery of the turn-table 60 below the gear-ring 62 is provided with gear-teeth 63, Figs. 5 and 7, meshing with a worm 64 on a worm-shaft 65. The worm-shaft 65 is mounted for rotation in bearings 66

75 66 on the bed 58 and is provided with a winch or hand-crank 67 at one end. The upper and lower sides of the ring 62 are provided with gear-teeth 68 69, respectively, and the teeth 69 mesh with a pinion 70, mounted rigidly on

80 a short shaft 71, journaled for rotation in a bearing 72, fixed to the bed 58. The outer end of the short shaft 71 is provided with a sprocket-wheel 73, connected by a sprocket-chain 74 to a sprocket-wheel 75 on the pro-

85 jecting end portion of the shaft 13. The teeth 68 of the gear-ring 62 mesh with a pinion 76, mounted for revolution on a stud 77, fixed to and projecting horizontally from the bracket

90 78. The pinion 76 meshes with a pinion 79, Fig. 6, mounted rigidly on a short shaft 80, journaled for rotation in the bracket 78 and an arm 81, fixed to said bracket. A sprocket-wheel 82 is fixed to the outer end portion of the

95 short shaft 80 and is connected by a sprocket-chain 83 to a sprocket-wheel 84 on the outer end portion of a shaft 85. By thus arranging the pinions 70 and 76 relative to the turn-

100 table 60, the gear-ring 62, and worm 64, that has a crank 67 on the end of its shaft 65, the stacker-frame 87 and operative mechanism carried thereby can be readily rotated hori-

105 zontally, as required, to place the stacker-frame over the thresher when the thresher is to be moved from one place to another. By this arrangement of parts it is obvious the

110 stacker-frame and mechanism carried thereby—my straw carrier and stacker—can be permanently connected with a thresher and separator and require no auxiliary support when

115 in operation or when carried in an operative position. A bracket 86 is fixed to the turn-table 60 diametrically opposite the bracket 78, and the bracket 78 also is fixed to the turn-table. The brackets 78 86 extend out-

120 wardly and upwardly from the turn-table 60 and are provided with seats or bearings in their extremities to support the shaft 85 for rotation therein. A stacker-trough 87 is pivotally mounted at its lower and inner end on the

125 shaft 85, and the outer end of said trough carries a shaft 88. A conveyer 89 of common form is mounted on the shafts 85 88 and travels longitudinally of the trough 87. The inner end portion of the trough 87 is beneath

130 and overlaps the spout 22 when in operation. Standards 90 91 are vertically positioned on opposite sides of the upper end of the jacket 11, and a drum 92 is mounted for rotation in the upper ends of the standards. The drum

135 92 is provided with a ratchet-wheel 93, engaged by a gravity-operating pawl 94, pivoted on a stand 95, fixed to the top of the jacket 11, and a hand-crank 96 is fixed to one end

of the drum. Cables 98 are fixed to and arranged to be wound upon the drum 92 at their inner ends, and the outer ends of said cables are attached to the trough 87 near the outer

5 end of said trough.

The stacker-trough may be adjusted to different inclinations by means of the cables winding upon or unwinding from the drum 92 and sustained in like manner at the desired

10 angle to a horizontal plane. The stacker-trough may be swung laterally in either direction, as desired, by revolving the turn-table through the medium of the worm-gear operated by manual force applied to the crank 67.

15 The turn-table revolves only when manually actuated, and the annular gear 62 serves simply as an intermediary to drive the chain 83 and stacker-conveyer.

The straw is delivered by the conveyer 14, taken between the conveyers vertically positioned in the jacket and deposited on the conveyer in the spout 22, and delivered by the latter conveyer on the conveyer 89 in the stacker-trough 87, by which it is carried to

25 and placed upon the stack.

I claim as my invention—

1. The combination of the delivery straw-conveyer of a thresher, vertically-positioned conveyers, of less width at their tops than

30 at their bottoms and provided with telescoping slats, arranged to receive the straw therefrom and elevate the same, a discharging-conveyer arranged obliquely at the upper ends of the vertical conveyers and adapted to receive the straw therefrom and convey the same outwardly, an adjustable stacker, and a conveyer in the stacker arranged to receive the straw from the discharge-conveyer.

2. The combination of the jacket provided

40 with the discharge-spout, the vertically-positioned elevating-conveyers telescoping as to width in the jacket, the obliquely-positioned discharge-conveyer in the mouth of the jacket and communicating with the upper ends of the elevating-conveyers, the stacker-trough mounted for vertical and lateral adjustment and a conveyer in the trough communicating with the discharge-conveyer.

3. In a stacking mechanism, the combination of the bed, the turn-table mounted on said bed, the worm-gear whereby the turn-table is revolved, the brackets mounted on the turn-table, the stacker-trough hinged for vertical adjustment on the brackets, the jacket,

vertically-positioned conveying mechanism 55 in said jacket and telescoping as to width, the obliquely-positioned conveyer communicating between the jacket and stacker, the standards on the jacket, the windlass on the standards and the cables connecting the windlass 60 and stacker-trough.

4. In a stacking mechanism, the combination of the bed, the turn-table provided with teeth on its periphery and mounted in the bed, the worm mounted for rotation on the 65 bed and engaging the teeth of the turn-table, the stacker hinged on the turn-table, the conveyer in the stacker, the gear-ring mounted for revolution on the turn-table, the gear mounted on the bed and meshing with the gear-ring, means for driving the gear on the bed, a gear mounted on the turn-table and meshing with the gear-ring, and connections between the gear on the turn-table and the conveyer in the stacker.

5. In a straw-stacker, a turn-table, a worm in engagement with the teeth on the periphery of the turn-table, a gear-ring rotatably mounted on the turn-table and provided with 80 cogs on the top and bottom of its circumference and pinions in engagement with said cogs as shown and described for the purposes stated.

6. In a straw carrier and stacker, a jacket fixed to a thresher, a horizontal conveyer at 85 the bottom of the jacket, carriers extending vertically in the jacket, a turn-table in the upper portion of the jacket, a worm in engagement with the teeth on the periphery of the turn-table, a gear-ring having cogs on its 90 top and bottom at its circumference and pinions in engagement with said cogs, all arranged and combined to operate in the manner set forth for the purposes stated.

7. In a stacker, the combination of a jacket 95 wider at the bottom than top, conveyer-shafts mounted transversely of said jacket, conveyer-chains carried by said shafts, and telescoping slats carried by said chains.

8. In a stacker, vertical conveyers mounted 100 opposite each other and spaced apart, which conveyers are wider at their lower than at their upper ends and provided with telescoping slats.

GEORGE D. LAMM.

Witnesses:

GEORG MEYER,
C. L. HATCH.