

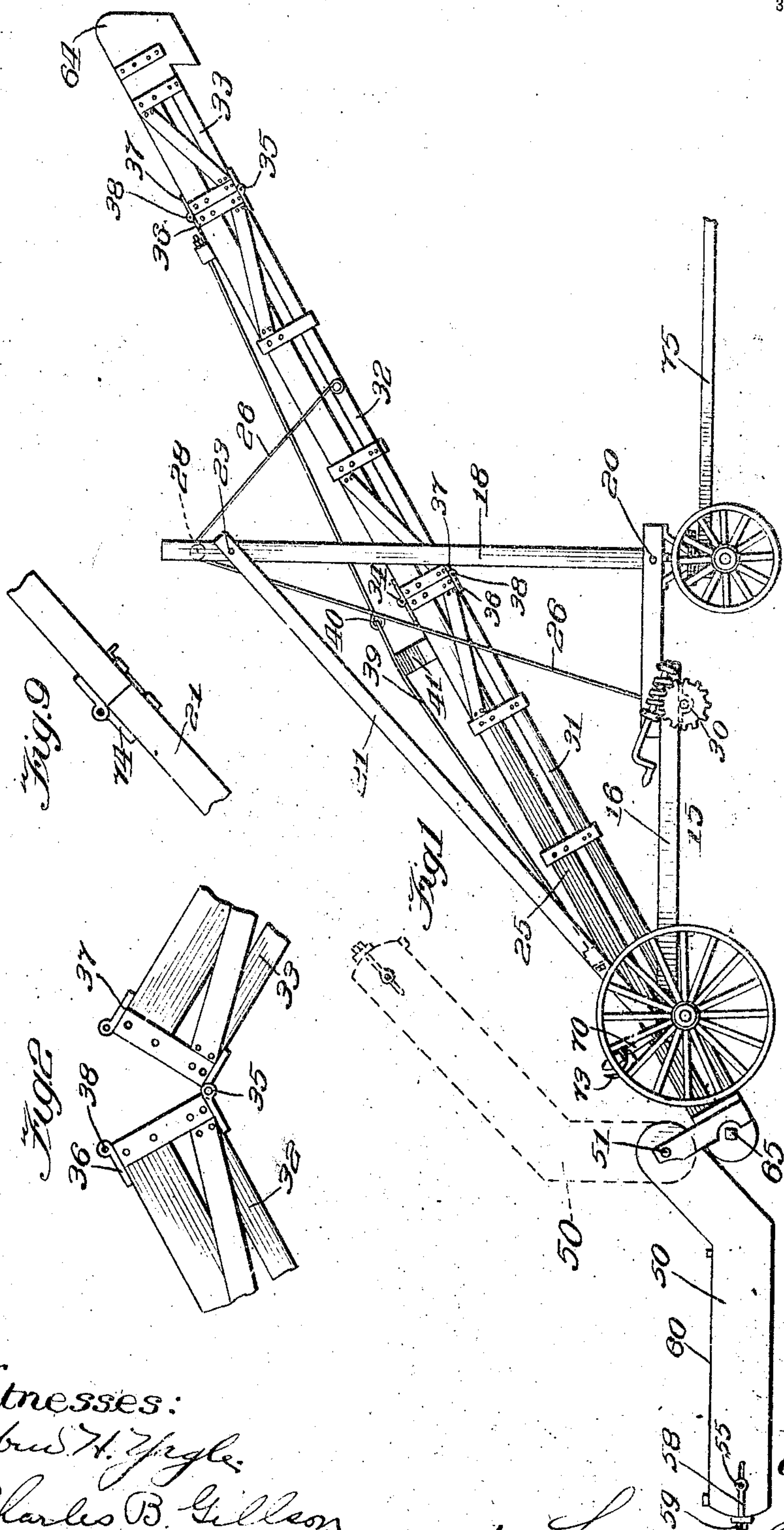
No. 828,239.

PATENTED AUG. 7, 1906

A. OTTO, JR.
CORN ELEVATOR.

APPLICATION FILED MAY 27, 1905.

3 SHEETS—SHEET 1



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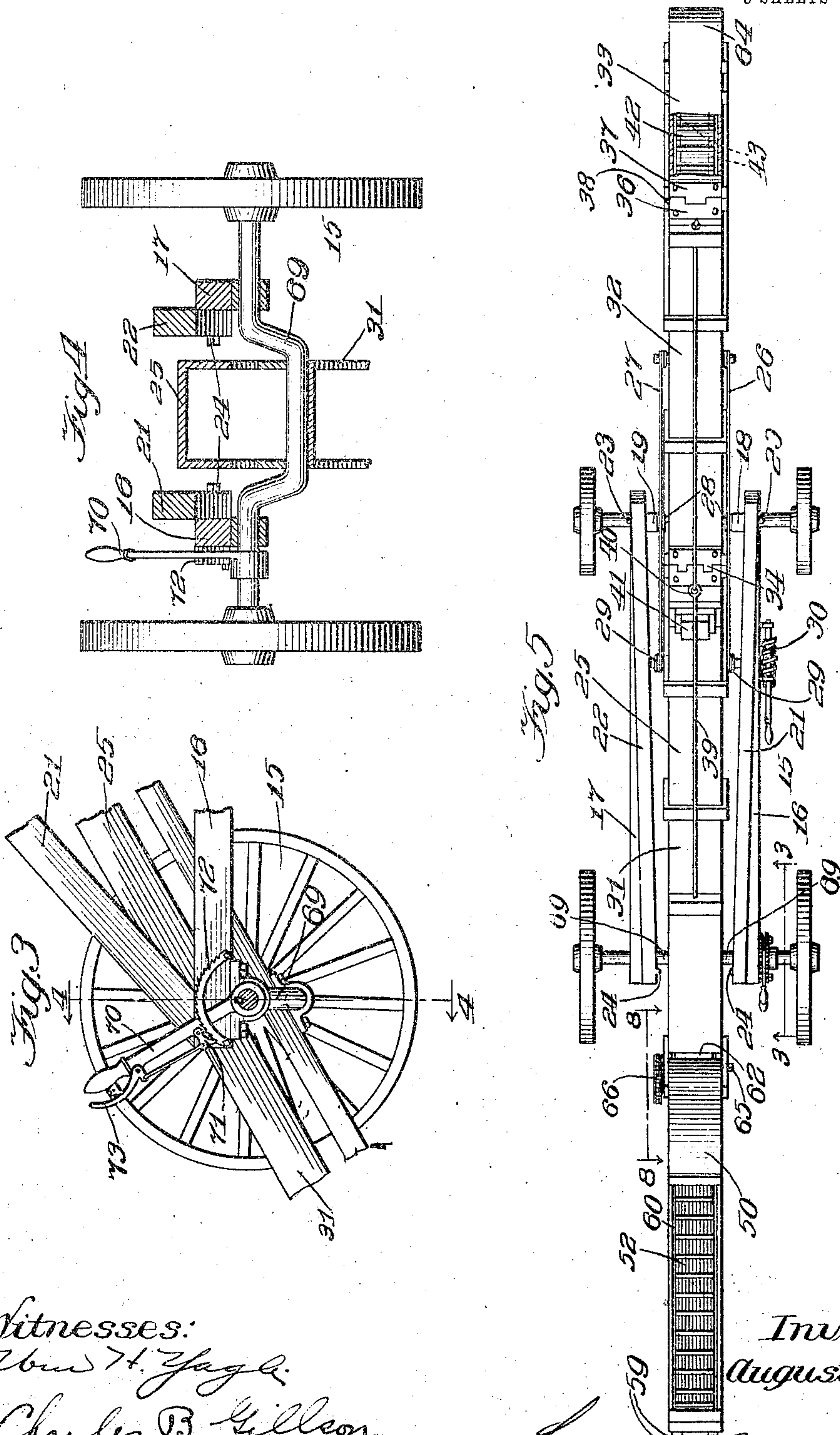
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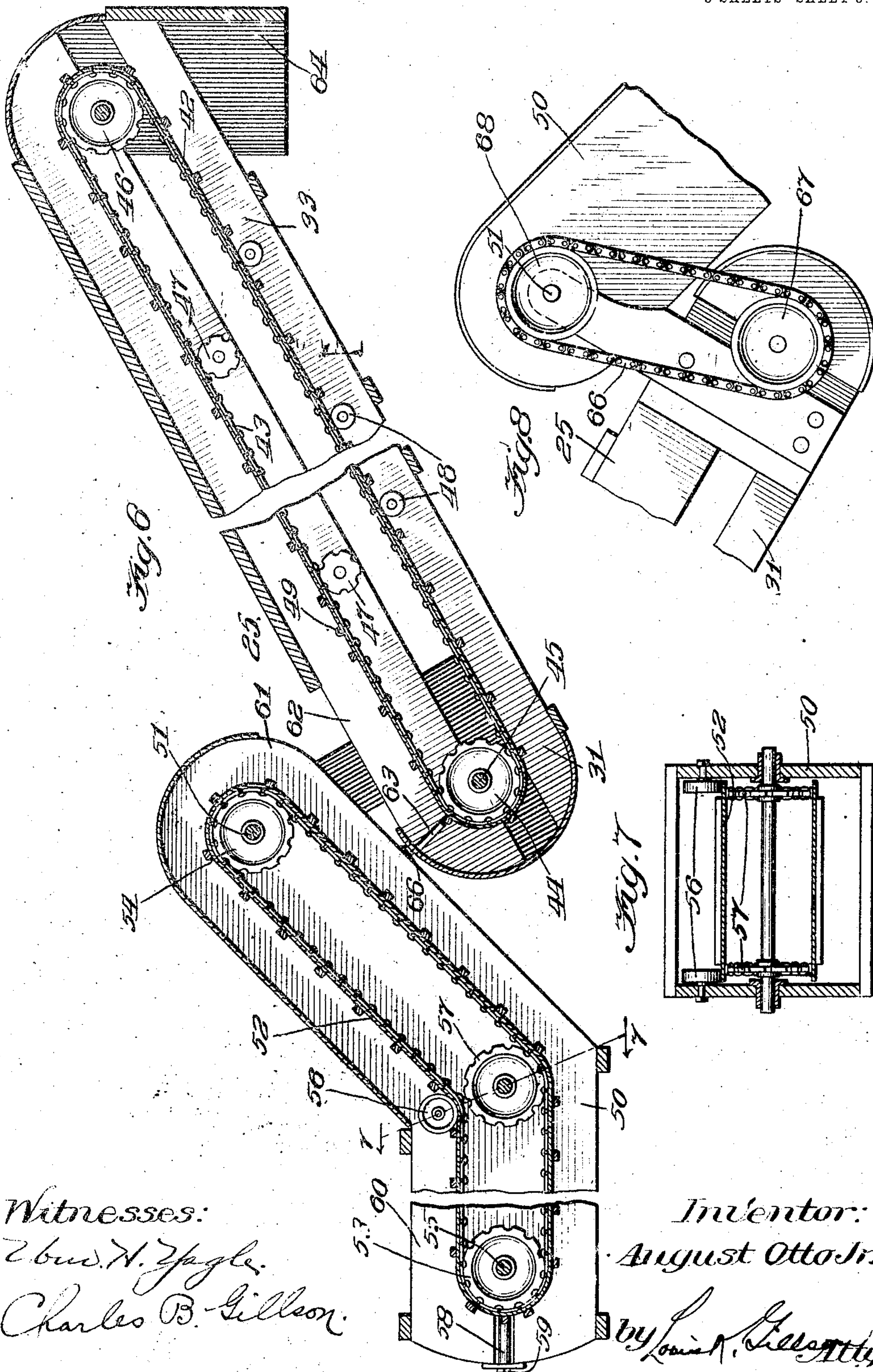
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

AUGUST OTTO, JR., OF SANDWICH, ILLINOIS.

CORN-ELEVATOR.

No. 828,232.

Specification of Letters Patent.

Patented Aug. 7, 1906.

Original application filed December 17, 1904, Serial No. 237,318. Divided and this application filed May 27, 1905. Serial No. 282,598.

To all whom it may concern:

Be it known that I, AUGUST OTTO, JR., a citizen of the United States, and a resident of Sandwich, county of Dekalb, and State of Illinois, have invented certain new and useful Improvements in Corn-Elevators, of which the following is a specification, and which are illustrated in the accompanying drawings, forming a part thereof.

The invention relates to a portable elevator which may be employed for raising and discharging coarse material into storage-bins. The structure includes a traveling apron for receiving the material and a belt conveyer of considerable length to which the apron will discharge for raising the material to the desired elevation. The endless apron and conveyer-belt are adapted to run within suitable housings mounted on a wagon-truck, the conveyer-housing being so constructed in sections as to be reducible by folding when not in use to a length substantially equal to that of the truck. The housing for the apron is pivotally secured to other parts of the device adjacent one end of the truck and normally rests upon the ground. It is provided with an open top to permit access of the material to be operated upon to the endless apron within, and when the device is to be transported from place to place it may be turned over upon the wagon-truck and then rests upon the folded conveyer-housing.

The object of the invention is to provide an elevating device which is of simple and durable construction and which may be employed to facilitate the filling of storage-houses of moderate size and may be reduced to a conveniently portable form when not in use.

The invention consists in a folding conveyer, a traveling receiving-apron, and certain details of construction, all as to be hereinafter described and as illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the device extended for use. Fig. 2 is a detail of Fig. 1, drawn to a larger scale and showing a different position of the parts. Fig. 3 is a sectional view taken on the line 3 3 of Fig. 5. Fig. 4 is a vertical cross-section on the line 4 4 of Fig. 3. Fig. 5 is a plan view of the device, partly broken away to show the interior construction, the parts being in the same position as in Fig. 1. Fig. 6 is a central longitudinal section of the device. Fig. 7 is

a sectional detail taken on the line 7 7 of Fig. 6. Fig. 8 is a detail side elevation as viewed from the line 8 8 of Fig. 5. Fig. 9 is a detail elevation showing a modification in the construction.

The embodiment of the invention illustrated in the drawings is particularly adapted for receiving ear-corn from farm-wagons and transferring it to large corn-cribs through an opening in the peak of the roof.

A wagon-truck of special construction is shown at 15. It comprises, besides the usual front and back axles and the corresponding wheels, the side sills 16 and 17 and a pair of uprights 18 and 19, pivotally attached near their base to the side sills 16 and 17 by bolts 20, and the diagonals 21 and 22 for maintaining the uprights in a vertical position and detachably secured to the uprights and to the side sills by bolts 23 and 24.

A conveyer-housing of considerable length is shown at 25. This housing has the form of an inverted rectangular trough, Fig. 4, and is supported near one end from the rear axle of the wagon-truck 15 and adjacent its opposite end from suitable cables 26 and 27, passing over sheaves 28, attached to the uprights 18 and 19, and thence to the drums 29 of a winch 30, journaled in the side sills 16 and 17.

In order that the device may be reduced to a shape which is conveniently portable, the conveyer-housing 25 comprises a plurality of sections 31, 32, and 33, hinged together. The two lower sections 31 and 32 are preferably substantially equal in length to the side sills of the wagon-truck 15 and are joined by a hinge 34, flexing upwardly, so that the section 32 may be folded over upon and lie parallel to the lower section 31. The outer portion of the housing is joined to the section just below it (32) by a hinge 35, flexing oppositely from the hinge 34, so that this part 33 may be turned over upon and lie parallel to the section 32 after the latter has been folded back upon the first section 31.

A plurality of pairs of intercalating apertured ears 36 and 37 are secured to the adjacent abutting edges of the sections 31 32 and 32 33. The members of each pair of such ears may be joined when the housing is extended for use by a pin 38, passed through the apertures, and when so joined form, with the hinges 34 and 35, a rigid end-to-end connection of the several sections. Stiffness is imparted to the housing 25 by means of a tie-rod 39, having its ends secured in the cover-

board of the housing adjacent the outer ends of the two lower sections 31 and 32 and being jointed at 40, so as not to interfere with the flexing of the hinge 34. When in use, the portion of this tie-rod intermediate its ends is forced upwardly by means of a removable wedge block 41, thus giving a truss action upon the conveyer-housing.

A conveyer-belt 42 travels within the housing 25 and has secured thereto along each of its margins a sprocket-chain 43, which passes over a sprocket-wheel 44, fixed to a driving-shaft 45, journaled in the sides of the housing near its lower end, and over an idle pulley 46, similarly journaled near the outer end.

Guide-pulleys 47 and 48 are employed at suitable intervals for supporting the upper and lower turns of this belt. A splice 49 is formed at a convenient point in the belt 42, which may be readily opened to permit the belt to draw up, when it conforms to the folded position of the housing 25, previously described.

An angular frame 50 is pivotally attached to the lower end of the housing 25 at 51, within which travels an endless apron 52, similar in construction to the conveyer-belt 42 and turning over sprocket-wheels 53 and 54, fixed upon shafts 55 and 51, respectively, journaled at opposite ends of the frame. Guide-pulleys 56 and 57 are journaled in the sides of the frame 50 for deflecting the apron to conform to the angular shape of the frame. Means are provided for tightening the apron 52 to insure its clinging to the various pulleys over which it turns. To this end the shaft 55 is journaled in eyebolts 58, upon the shanks of which are set-nuts 59, taking a bearing on the end of the frame.

The top of the frame 50 is left open, as shown at 60, for receiving the material to be stored, which is deposited by the apron through the open end 61 of this frame and an opening 62 in the conveyer-housing onto the belt 42. A retaining-plate 63 is set in the housing 25 just below the opening 62 to prevent the material falling over the end of the belt. In the drawings the outer end of the housing 25 is shown as being formed into a downwardly-turned discharge-spout 64.

The shaft 45 is continued through the wall of the conveyer-housing at one side and is provided with a squared end 65, adapted for connection with a suitable source of power, (not shown)—such, for example, as the common farm traction-engine. Motion is imparted from this shaft to the conveyer-belt 42 directly, the sprocket-wheels 44 being rigidly mounted on it, and to the traveling apron 52 by means of a chain 66, passing over sprocket-wheels 67 and 68, mounted on this shaft and the shaft 51, respectively.

The operation of the device is as follows: When set up for use, the arrangement of the parts is as shown in Figs. 1 and 5, and the

shaft 45 is continuously rotated, as just described, to drive the conveyer-belt 42 and endless apron 52. By operating the winch 30 the conveyer-housing 25 may be raised or lowered, as may be required, to bring the discharge-spout 64 into register with the opening in the storage-bin, and the material to be deposited in the bin is thrown onto the traveling apron 52, preferably by shoveling or dumping directly from the body of a wagon. (Not shown.)

To prevent backing or turning a heavily-loaded wagon, the apron-housing 50 may be raised, as shown by dotted lines in Fig. 1, while the wagon is driven by the lower end of the conveyer to such a position that its contents may be conveniently unloaded onto the apron, when the housing is again lowered into position.

When the device is not in use or when it is to be transported from place to place, the conveyer and apron housings may be folded to a compact form upon the truck 15, as follows: The housing 25 is first lowered by operating the winch 30 so as to allow the cables 26 and 27 to unwind, the splice 49 in the belt is opened, the pin 38 withdrawn to allow the hinge 34 to flex, and the block 41 is removed. Now by first winding on the winch 30 and then releasing it the part of the housing above the hinge 34 may be laid over on the lower section 31, after which the upper section 33 and the apron-housing 50 may be turned forwardly and the uprights 18 and 19 may be laid down parallel to the side sills 16 and 17 by removing the diagonals 21 and 22.

In order that the parts of the conveyer-housing may rest substantially horizontal when folded and to permit of raising and lowering the foot of the conveyer to compensate for slight unevenness of the ground when the device is in use, the rear axle of the truck 15, supporting the conveyer, is bent downwardly, as indicated at 69, Figs. 3 and 4, and a hand-lever 70 is provided for turning this axle.

A pawl 71 is pivotally attached to the hand-lever 70 to play over a toothed segment 72, secured to the wagon-truck, and is controlled by a grip-piece 73.

It may sometimes be found convenient to provide the diagonals 21 22 with hinges, as 74, Fig. 9, intermediate their ends, which flex downwardly and may permit the uprights 18 and 19 to be laid down parallel to the side sills 16 and 17 without removing these diagonals.

A tongue 75 is provided with the truck 15, to which draft-animals may be attached for hauling the folded conveyer about.

This application is a division of my application, Serial No. 237,318, filed December 17, 1904.

I claim as my invention—

1. In a corn-elevator, in combination, a

truck having front and rear carrying-wheels, a folding conveyer-housing pivotally secured to one axle of the truck, and a conveyer-belt mounted within the housing.

5 2. In a corn-elevator, in combination, a truck, having front and rear carrying-wheels, a conveyer-housing pivotally secured to an axle of the truck and being composed of a plurality of sections hinged together, adjacent hinges flexing in opposite directions, and
10 a conveyer-belt mounted within the housing.

3. In a corn-elevator, in combination, a belt conveyer, a housing for the conveyer composed of sections hinged together, a traveling apron delivering to the foot of the conveyer, an angular housing for the apron pivoted to the foot of the conveyer-housing, and guide-rollers within the housing for deflecting the apron.
15

4. In a corn-elevator, in combination, a truck having front and rear carrying-wheels, a belt conveyer, a housing for the conveyer pivotally secured to an axle of the truck and being composed of a plurality of sections hinged together, adjacent hinges flexing in opposite directions, a traveling apron delivering to the foot of the conveyer, and a housing for the apron pivoted to the foot of the conveyer-housing.
20

5. In a corn-elevator, in combination, a truck, an axle for the truck having an offset portion, means for turning the axle, a folding conveyer-housing pivotally secured to the axle, and a belt conveyer within the housing.
25

6. In a corn-elevator, in combination, a truck, an axle for the truck having an offset portion, means for turning the axle, a folding conveyer-housing pivotally secured to the
30

axle, a belt conveyer within the housing, and a traveling apron delivering to the foot of the conveyer. 40

7. In a corn-elevator, in combination, a truck, an axle for the truck having an offset portion, means for turning the axle, a conveyer-housing pivotally secured to the axle, 45 and a belt conveyer within the housing.

8. In a corn-elevator, in combination, a truck, an axle for the truck having an offset portion, means for turning the axle, a conveyer-housing pivotally secured to the axle, a belt conveyer within the housing, and a traveling apron delivering to the foot of the conveyer. 50

9. In a corn-elevator, in combination, a truck having front and rear carrying-wheels, a conveyer-housing pivotally secured to one axle of the truck, and a conveyer-belt mounted within the housing. 55

10. In a corn-elevator, in combination, a truck having front and rear carrying-wheels, a conveyer-housing pivotally secured to one axle of the truck, a conveyer-belt mounted within the housing, and a receiving-box delivering to the foot of the conveyer. 60

11. In a corn-elevator, in combination, a truck having front and rear carrying-wheels, a belt conveyer, a housing for the conveyer pivotally secured to an axle of the truck and being composed of a plurality of sections hinged together, adjacent hinges flexing in opposite directions, and a receiving-box delivering to the foot of the conveyer. 65 70

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