

No. 751,762.

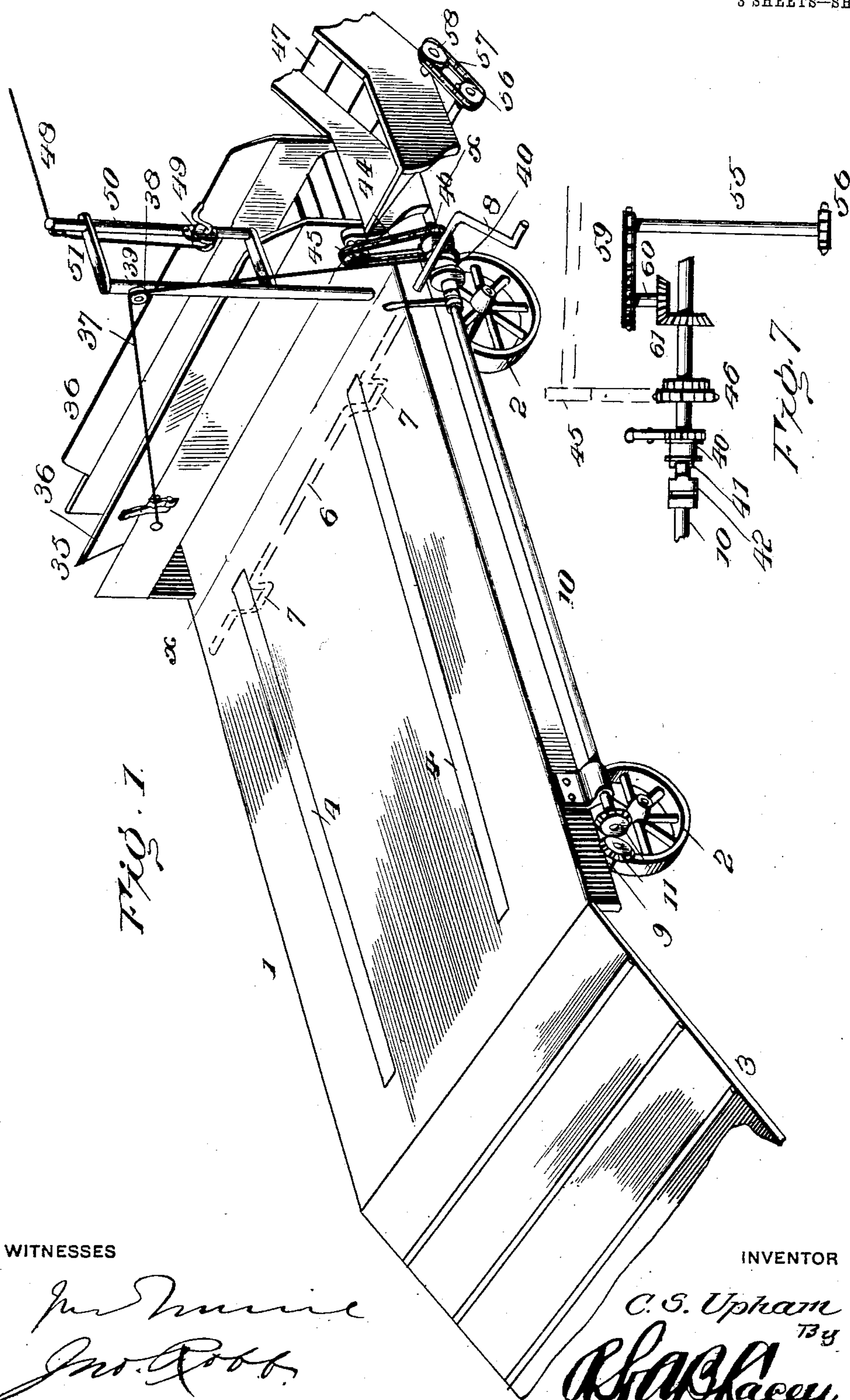
PATENTED FEB. 9, 1904.

C. S. UPHAM.
GRAIN ELEVATOR.

NO MODEL.

APPLICATION FILED JUNE 3, 1903.

3 SHEETS—SHEET 1.



WITNESSES

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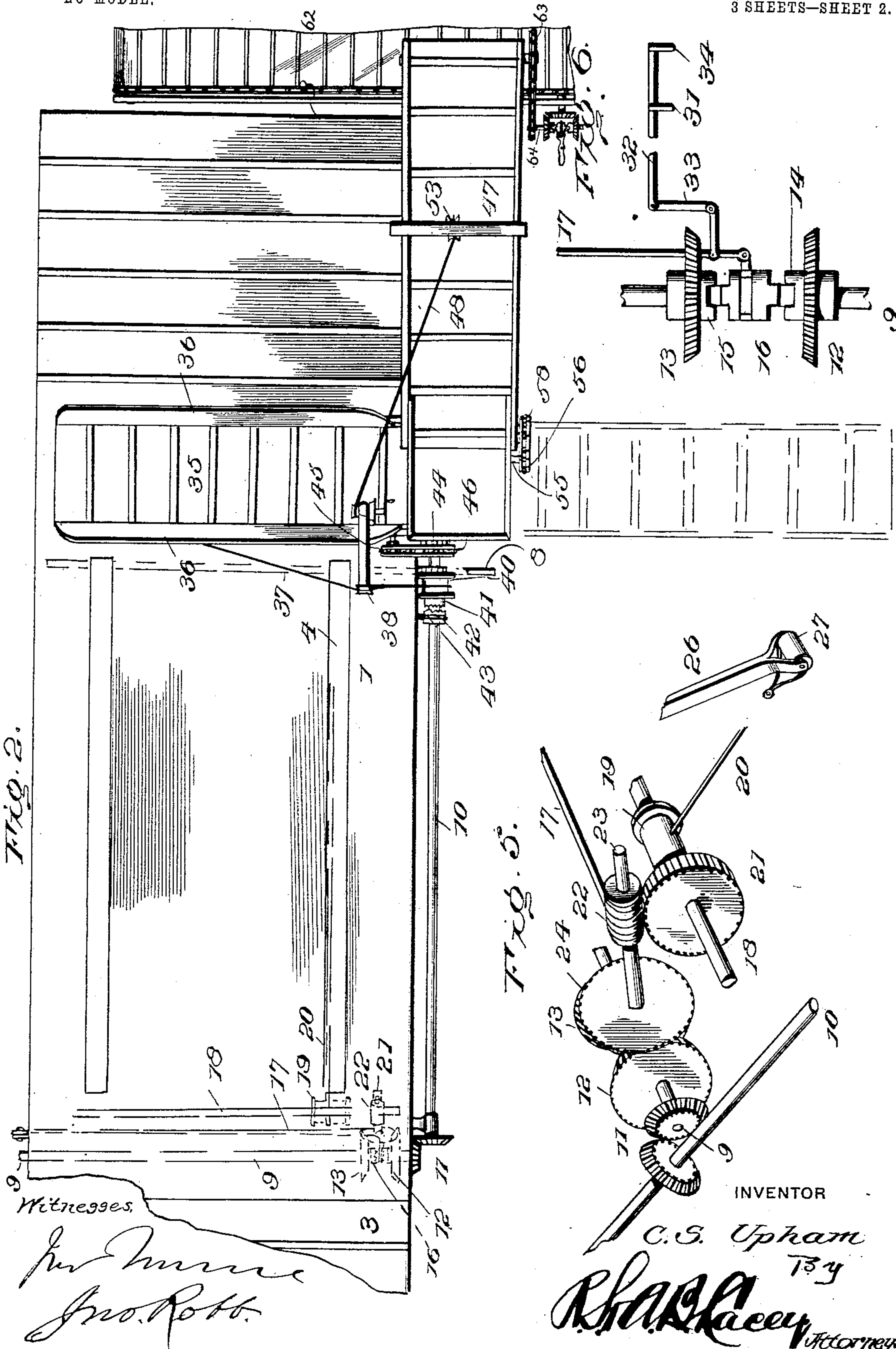
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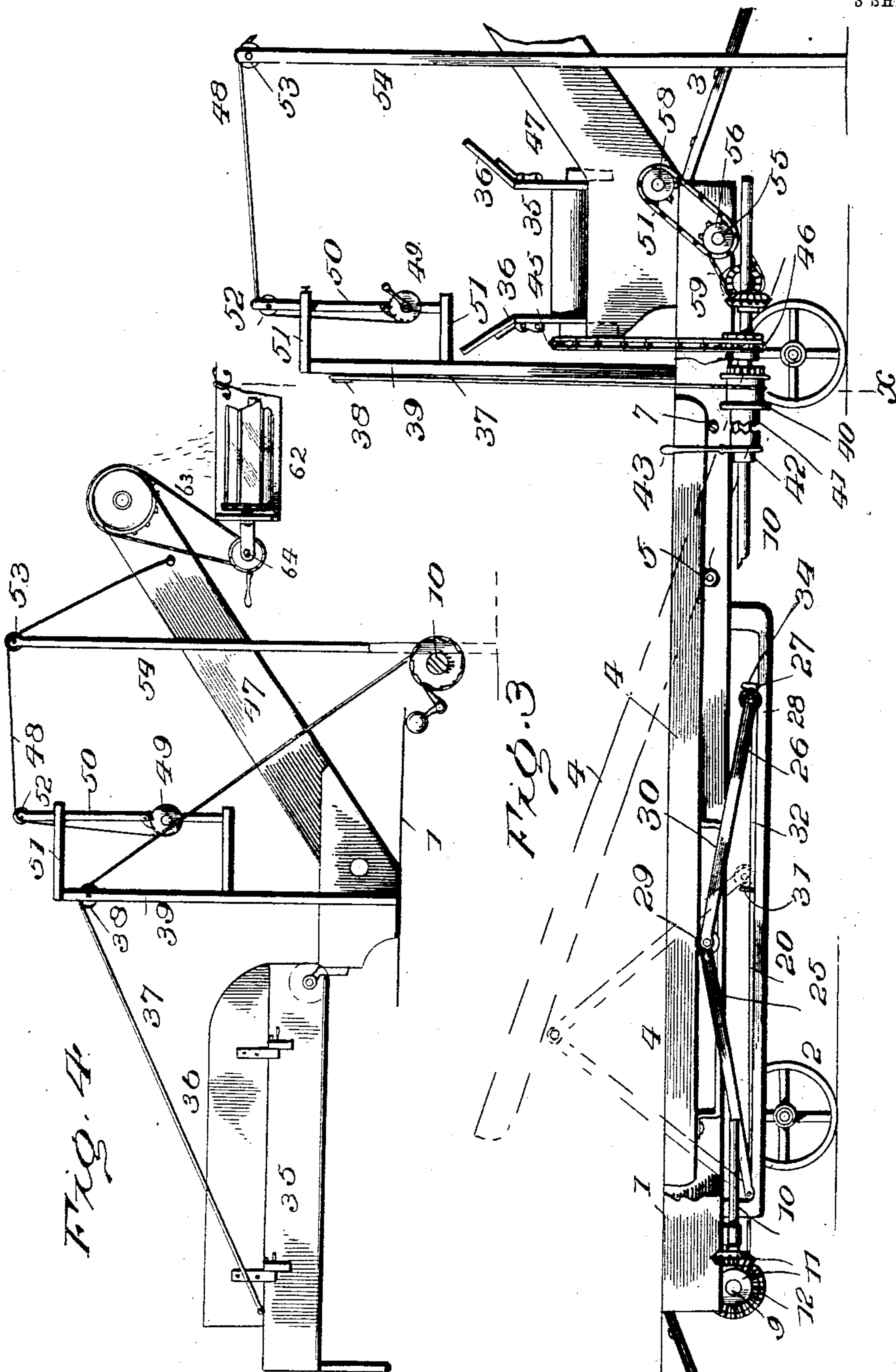
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WITNESSES

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UNITED STATES PATENT OFFICE.

CHARLES S. UPHAM, OF ODELL, ILLINOIS.

GRAIN-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 751,762, dated February 9, 1904.

Application filed June 3, 1903. Serial No. 159,948. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. UPHAM, a citizen of the United States, residing at Odell, in the county of Livingston and State of Illinois, have invented certain new and useful Improvements in Grain-Elevators, of which the following is a specification.

This invention has for its object the provision of a novel apparatus for unloading grain from wagons and depositing the same in a granary, bin, or other desired place.

In its organization the apparatus comprises an elevated platform, pivoted sills for tilting the wagon to facilitate discharge of the load, a pivoted conveyer to be turned up out of the way when driving the wagon onto the platform and to be lowered into position for receiving the grain or other commodity, an elevator for receiving the grain or commodity from the pivoted conveyer for delivery of the grain into the bin, hopper, or other receptacle, and operating mechanism for actuating the working parts.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of an elevating mechanism embodying the invention. Fig. 2 is a top plan view thereof, the dotted lines showing the elevator when shifted so as to align with the conveyer. Fig. 3 is a side elevation, the dotted lines showing the position of the sills when tilted so as to dump the grain from the wagon into the transverse conveyer. Fig. 4 is a transverse section about on the line X X of Fig. 3 looking to the right, as indicated by the arrow, showing the transverse conveyer in elevation. Fig. 5 is a detail perspective view of the means for connecting the transverse shaft at one end of the platform with the longitudinal shaft at one side of said platform and showing the means for operat-

ing the pivoted sills. Fig. 6 is a detail view of the means for throwing the shaft for actuating the sills into and out of operation. Fig. 7 is a detail view of the means for transmitting motion from the longitudinal shaft to the conveyer-belts of the transverse conveyer and elevator.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The platform is indicated at 1 and is elevated, and in order to facilitate transportation the same is mounted upon truck-wheels 2. Inclined approaches 3 are pivoted at opposite ends of the platform for the ascent and descent of the wagon and team. The platform and approaches may be of any substantial construction. Longitudinal sills 4 are pivoted near one end, as shown at 5, to the platform, so as to tilt, as indicated by the dotted lines in Fig. 3, so as to insure automatic discharge of the grain or load from the wagon when it is required to unload the same. The upper side of the pivoted sills 4 is about flush with the top side of platform 1. The sills are locked when required by means of transverse shaft 6, journaled to platform 1 and provided with crank portions 7 to engage under an end of the sills, as indicated most clearly in Fig. 1. The crank-handle 8 is provided at one end of shaft 6 to enable convenient turning thereof when locking and releasing the sills. A shaft 9 is located at one end of platform 1 and is arranged transversely thereof and in practice is adapted to be connected to any suitable source of power for imparting movement thereto for driving the working parts of the mechanism. A longitudinal shaft 10 is located at one side of the platform and is connected to shaft 9 by suitable gearing, so as to rotate therewith. As shown, companion bevel-gears 11 connect shafts 9 and 10. Bevel gear-wheels 12 and 13 are loosely mounted upon shaft 9 and are provided upon their inner or opposing sides with half-clutches 14 and 15 to match with corresponding half-clutches at the ends of sleeve 16, slidably mounted upon shaft 9 and keyed for revolution therewith. Sleeve 16 is adapted to occupy a position intermediate of the bevel

gear-wheels 12 and 13, so as to prevent motion being imparted to either of them or to be moved into engagement with one or the other of the bevel gear-wheels to effect a raising or a lowering of sills 4 in the manner presently to be explained. Bar 17 extends transversely of the platform and has loose connection with sleeve 16 and is adapted to be operated by hand to effect shifting of sleeve 16, as may be desired.

A shaft 18 is journaled to platform 1, parallel with shaft 9, and is provided with drums 19, to which chains or like connections 20 are attached. A worm-gear 21 is secured to shaft 18 and is in mesh with worm-thread 22 of shaft 23, provided at its outer end with bevel gear-wheel 24, in mesh with bevel gear-wheels 12 and 13, so as to receive motion therefrom when clutched to shaft 9 in the manner stated. Jointed bars 25 and 26 are located below the platform, and the outer end of each bar 25 is pivoted to a part of the platform, and the end of each bar 26 is provided with roller 27 to travel upon track 28, located below the platform and supported thereby. A roller 29 is provided at the joint of the bars 25 and 26 and operated in the space formed between the sills and a keeper 30 applied thereto. Normally the parts 25, 26, 27, and 29 occupy the position about as shown by the full lines in Fig. 3. Each of the chains or parts 20 is connected to the outer or free end of each of the bars 26, the opposite end being attached to the respective drums 19, so as to wind thereon. Upon throwing shaft 9 into gear with one or the other of the bevel gear-wheels 12 or 13 shaft 18 is rotated to wind the chains or flexible connections 20 upon drums 19, thereby drawing the free ends of bars 26 outward and causing the joint between bars 25 and 26 to break upward, whereby sills 4 are tilted, as indicated by the dotted lines in Fig. 3. When the sills have reached the required angle, the clutch is automatically thrown out of gear by the end of one of the bars 26 striking stop 31 near the outer end of shipper-bar 32, pivotally connected to an arm of elbow-lever 33, the other arm of said elbow-lever having loose connection with transverse bar 17. After the load has been dumped and it is required to bring sills 4 back to a normal or horizontal position bar 17 is moved in the opposite direction by hand, so as to throw sleeve 16 into engagement with the other bevel gear-wheel, as 12, when shaft 18 will be turned in the opposite direction, so as to unwind connections 20, thereby permitting bars 25 and 26 to straighten. When the sills have reached about a normal position, the end of the bar 26 will strike stop 34 at the end of bar 32 and move same, so as to automatically throw the clutch and shaft 18 out of action.

Conveyer 35 is arranged transversely of platform 1 at one end thereof and is provided with removable sides 36, which flare upwardly,

so as to insure discharge of the load upon the conveyer without waste thereof. The sides 36 are detachably connected to the sides of the conveyer-frame, so as to be removed when not required for use, as well as to lighten the conveyer when required for any purpose. The conveyer is of ordinary construction and comprises a frame and an endless traveling belt. The conveyer is pivoted at one end to a side of the platform, so as to be turned into an approximately vertical position to admit of the wagon and team passing upon the platform. For convenience of raising and lowering the conveyer the following means have been provided and consist of rope or chain 37, attached at one end to the conveyer 35 and passing over guide-pulley 38, applied to the upper end of post 39, projected vertically from platform 1, the opposite end of part 37 being attached to drum 40, loose upon shaft 10 and adapted to be clutched thereon when it is required to wind up rope or chain 37, so as to effect turning upward of the conveyer out of the way. Drum 40 is provided upon one end with half-clutch 41, adapted to match with a corresponding half-clutch of collar 42, slidable upon shaft 10 and keyed to revolve therewith, said collar being movable by means of lever 43. The endless apron of conveyer 35 receives motion from shaft 10 by means of drive-belt 44, passed around corresponding pulleys 45 and 46, secured to, respectively, an extended journal of the roller supporting one end of the conveyer-belt and to shaft 10.

The elevator 47, located at one side of the platform, is pivotally mounted to admit of its delivery end being raised and lowered and is of ordinary construction comprising a frame and a traveling conveyer belt or apron. The lower end of the elevator 47 is arranged to receive the grain or load from the transverse conveyer 35 and is arranged to deliver said load at the required point of discharge, which may be a granary, bin, hopper, or the like. The free end of the elevator is adapted to be raised and lowered, and for this purpose rope or cable 48 is provided and is attached at one end to elevator 47, and its opposite end is adapted to wind upon drum 49, applied to post 50, journaled in arms 51, projected from post 39. Rope or like connection 48 passes over direction-pulleys 52 and 53, the former being at the upper end of turn-post 50 and the latter at the upper end of frame 54, projected up from the ground and embracing opposite sides of the elevator-frame. By having post 50 mounted so as to turn it can adapt itself to the direction of the elevator whether the latter be arranged to extend lengthwise of the platform, as shown by the full lines in Fig. 2, or transversely of the platform and in line with the transverse conveyer 35, as shown by the dotted lines in Fig. 2. A shaft 55 is located beneath the receiving end of the elevator 47 and is provided at its outer end with pulley 56,

around which drive-belt 57 passes for transmitting motion to pulley 58, secured upon the extended journal of the lower roller supporting the traveling belt of elevator 47.

5 The inner end of shaft 55 is connected by belt 59 with shaft 60, connected by a bevel-gearing 61 to shaft 10. Belt 59 connects companion pulleys at corresponding ends of shafts 55 and 60. Obviously connections other than
10 those herein set forth may be provided for transmitting motion from the shaft 10 to the traveling belts of the conveyer and elevator.

A conveyer 62 is arranged at the delivery end of the elevator 47 to carry the grain
15 either to the right or to the left, according as it is run one way or the other. A drive-belt 63 conveys motion from the shaft at the upper end of the elevator to the shaft 64, upon which is mounted gearing, substantially as
20 shown in Fig. 6, to admit of running the belt of conveyer 62 either to the right or to the left, as may be desired.

Having thus described the invention, what is claimed as new is—

25 1. In a grain-elevator, the combination of sills mounted for tilting movement, a power-driven shaft, a second shaft connected with the sills to effect positive tilting thereof, a third shaft connecting the first and second
30 shafts, a gear-wheel secured to the third shaft, two gear-wheels in mesh with the gear-wheel applied to the third shaft and loose upon the power-driven shaft, a clutch for

throwing either of the loose gear-wheels into
clutched engagement with the power-driven 35 shaft, and means for automatically throwing said clutch out of action when the sills reach the limit of their movement in either direction, substantially as set forth.

2. In a grain-elevator, the combination of 40 sills mounted for tilting movement, jointed bars pivoted at one end, means for connecting the joint to the sills, a support for the free end of the movable bar, actuating mechanism including a clutch for breaking the
45 joint of the bars in either an upward or a downward direction, and means for throwing said clutch into and out of action, the latter operation being effected automatically by means of a jointed rod, substantially as set forth. 50

3. In a grain-elevator, the combination of sills mounted for tilting movement, jointed bars cooperating with the sills to effect a tilting thereof, actuating mechanism for said jointed bars including a clutch, means for 55 throwing the clutch into action by hand, and means for automatically throwing the clutch out of action by said jointed bars when the sills reach the limit of their movement in either direction, substantially as specified. 60

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

CHARLES S. UPHAM. [L. s.]

Witnesses:

GEORGE H. FRISE,

F. LINCOLN HOKE.