No. 615,619. Patented Dec. 6, 1898.

G. HOLLY.

ELEVATOR.

(Application filed Mar. 24, 1898.)

(No Model.) 3 Sheets—Sheet 1.

FIG. 1.

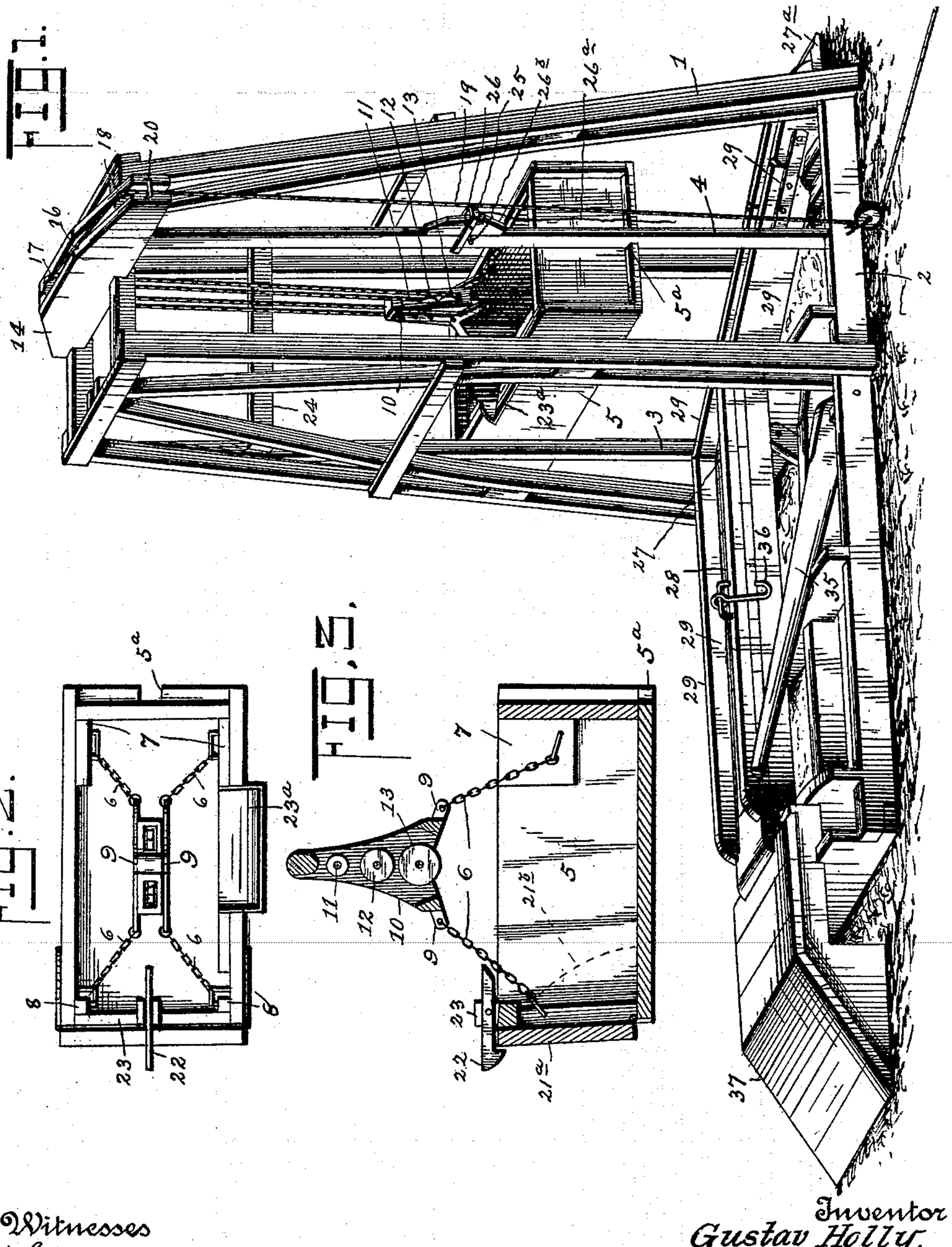

FIG. 2.

FIG. 3.

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FIG. 3.

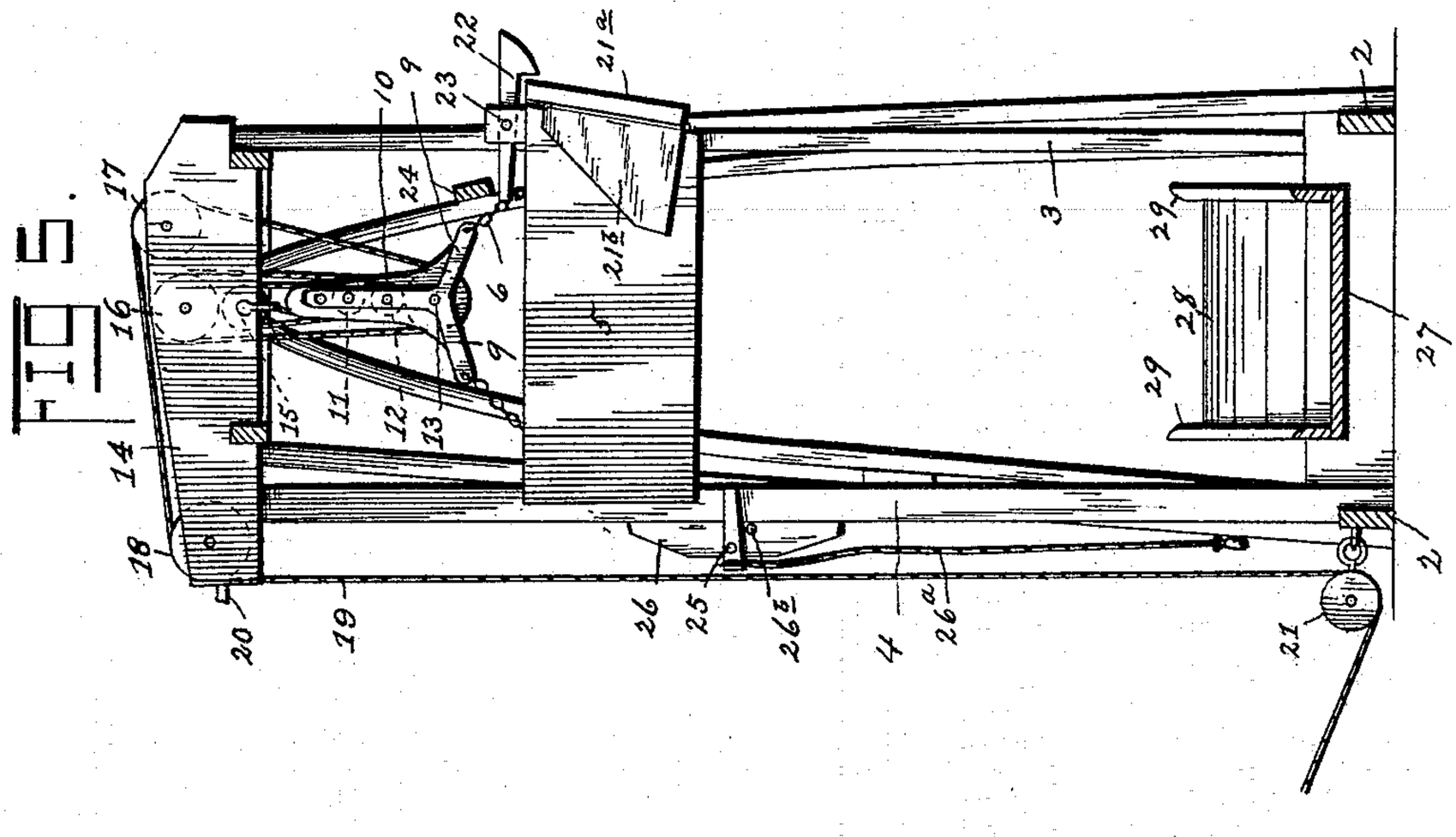
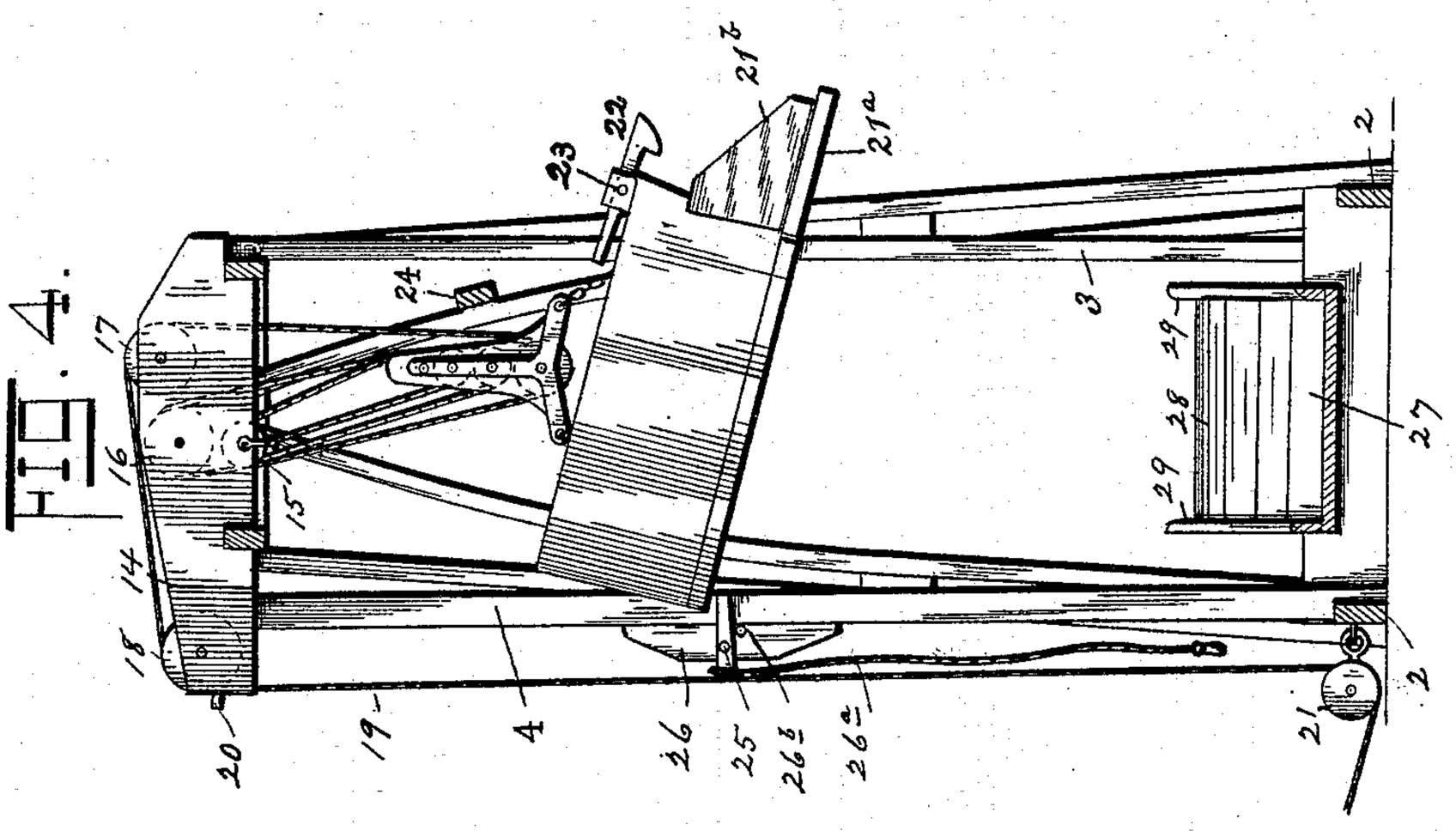


FIG. 4.



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(No Model.) 3 Sheets—Sheet 3.

FIG. 6.

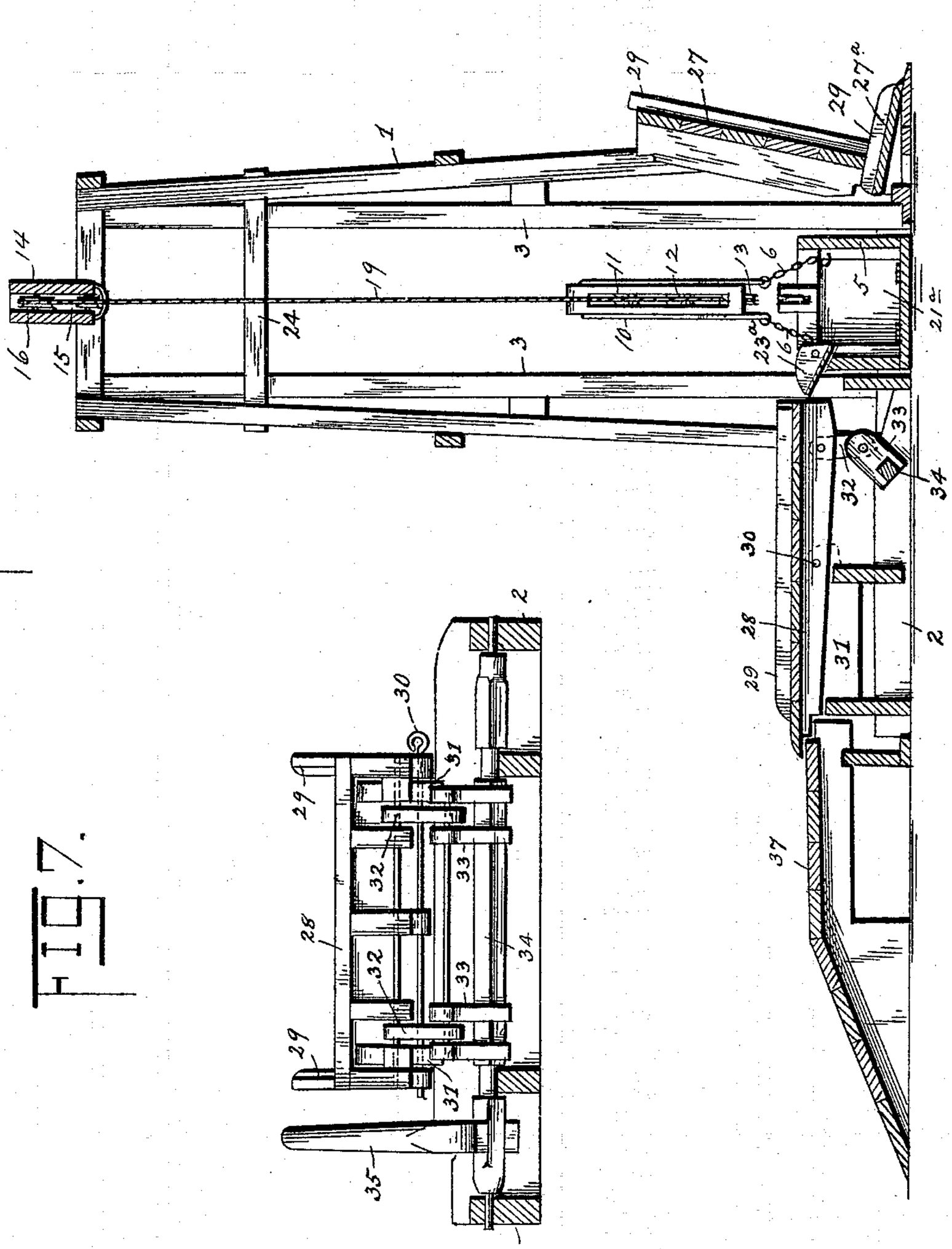

FIG. 7.

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UNITED STATES PATENT OFFICE.

GUSTAV HOLLY, OF NARKA, KANSAS.

ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 615,619, dated December 6, 1898.

Application filed March 24, 1898. Serial No. 675,033. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV HOLLY, a citizen of the United States, residing at Narka, in the county of Republic and State of Kansas, have invented certain new and useful Improvements in Elevators; and I do hereby 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.

This invention relates to elevators particularly adapted for use on farms or general agricultural purposes in elevating grain from a wagon or other transporting-receptacle.

The invention consists of the construction and arrangement of the parts, which will be more fully hereinafter described and claimed.

It is extremely difficult at times to conveniently unload a wagon or transporting conveyance and deposit the contents in an elevated storehouse without manual labor or the employment of expensive mechanism, ofttimes embodying inflammable features or characteristics which are dangerous to surrounding buildings and materials.

The object of the invention is to provide an elevator of a portable nature for hoisting any material, particularly grain, directly from a wagon disposed under an elevating-receptacle and to so adjust the several parts and coacting devices that the contents of the wagon will be automatically deposited in the said receptacle and the latter raised to dump its contents into a place of storage, thereby facilitating the filling of a crib with corn or a loft or high granary with grain generally.

In the accompanying drawings the preferred form of the improved device is illustrated, and therein—

Figure 1 is a perspective view of an elevator embodying the invention and the bed shown arranged for the movement of a wagon thereover. Fig. 2 is a top plan view of an elevator-box used in the device. Fig. 3 is a longitudinal vertical section of the elevator-box. Fig. 4 is a transverse section through the tower, showing the elevator-box arranged to dump its contents. Fig. 5 is a view similar to Fig. 4, showing the elevator-box righted and ready for descent or just before it is arranged for dumping, the position of the parts being the same in both instances. Fig. 6 is a longitudinal vertical section of the tower and bed, the elevator-box in this instance being lowered and shown in transverse section and part of the bed thrown back. Fig. 7 is a transverse section slightly in advance of an adjustable part of the bed.

Referring to the drawings, wherein similar numerals of reference are employed to indicate corresponding parts in the several views, the numeral 1 designates a tower composed of uprights, intermediate cross-braces, and upper or head cross-ties, all of well-known construction. The lower part of the tower is fixed to and supported by one end of an oblong base 2, and at one side said tower is provided with two vertically-positioned guides 3, spaced apart from each other a suitable distance, and directly opposite is a middle guide 4.

An elevating box or car 5 is movably placed within the tower, and one end is retained between the guides 3, and the bottom at the opposite end is projected and formed with a central slot 5^a for loose engagement with the middle guide 4. Chains or analogous suspending devices 6 are secured to staples in blocks 7 and corner-posts 8 on inner opposing portions of the box or car 5, and also to V-shaped straps 9 on opposite sides of a tackle-block 10, having sheaves 11, 12, and 13 therein. A cross-head 14, composed of separate parts, is mounted on top of the tower and projects outwardly at one end for convenience in operation of mechanism engaging the same and also to receive the upper end of the middle guide 4. Within the said cross-head four sheaves or pulleys 15, 16, 17, and 18 are journaled, and running first over the sheave or pulley 18 is a rope or cable 19 of necessary length, which is held in proper relation to the latter sheave or pulley by a guard 20, attached to the extended end of said cross-head. The rope or cable 19 is next carried over the sheave or pulley 17, down around sheave 13, up over sheave or pulley 16, down again around sheave 12, then up over sheave or pulley 15, down around sheave 11, and the end secured to a strap 20 on the under side of the cross-head 14. After leaving the sheave or pulley 18 the rope or cable 19 passes down through a pulley-block 21, movably attached to the base 2, and from said block to any suitable distance for attach-

ment to a singletree or other draft-applying device. (Not shown.)

The rear end 21^a of the box or car 5 is hinged at the bottom and has sheet-metal wings 21^b on its sides to form a chute when said end is opened. A lever-catch 22 is pivoted to cross-bar 23 above said end 21^a of the box or car, and one end thereof is employed to hold the said hinged end in closed position, while its opposite portion projects sufficiently to strike a transverse trip-bar 24, secured to the tower at a proper elevation. The upper part of the inner side of the box or car 5 has a spout 23^a hinged thereto for directing the material to be elevated into said box or car, and the said spout is so arranged that it is held in a predetermined fixed adjustment when arranged for use.

A U-shaped gravity-catch 25 is pivoted to a block 26 on the middle guide 4, and its ends run parallel with the opposite sides of the said guide, being held against depression below a horizontal plane by a transverse stop-pin 26^b thereunder. It will be observed that said catch has free upward movement and that the adjacent part of the box or car 5 when elevated can readily pass the same. A drop of the box or car by slackening the rope or cable 19 will be resisted under ordinary conditions, because after the box or car passes said catch the latter falls down and rests on the pin 26^b, and the box or car will be held up thereby. Means, however, is provided for allowing the said box or car to descend when desired, or after dumping its contents, and is in the form of a pull cord or wire 26^a, attached to the outer portion of the catch, and when a tension is exerted thereon the said catch is elevated sufficiently to clear the adjacent part of the box or car.

A driveway or bed composed of three sections is supported by the base 2 for reception and proper guidance of vehicles containing the material to be elevated and stored. The first section 27 is in the form of an inclined hatchway located under the tower and hinged at its outer end to the inner upper edge of an inclined sill 27^a, so that it may be swung upwardly to permit the car or box to assume a proper position for receiving the contents of the vehicle, as shown by Fig. 6. The next or second section 28 is arranged as a tilting platform which has a normal horizontal position, but is tilted to incline a vehicle and facilitate depositing the contents thereof in the box or car through the medium of the spout 23^a. Each of the sections 27 and 28 and also the still 27^a have opposite guard-rails 29 thereon to keep the wheels of the vehicle from running off said parts. The section 28 is pivoted at 30 to two parallel beams 31, held on the base, and to the inner end of said section links 32 are movably attached at their upper ends and to cranks 33 at their opposite ends. The cranks are rigidly carried by a squared or other suitable shaft 34, journaled in the base and operated by a hand-lever 35, located at one side of the said section 28. On one of the guard-rails of the section 28 a hook 36 is movably mounted to be used to hold the vehicle steady. The base at this point is equipped with a sufficient number of longitudinal and transverse beams and incidental supports to insure a rigidity of structure and a stability sufficient to overcome any weight brought to bear on the driveway. The third section 37 of the driveway is a descending platform, removably held intact with the base, and over the inner portion thereof when applied a part of the bed of the section 28 projects to cover the joint and also to retain the said third section in proper position. The under portion of said third section is cut away to fit over the adjacent part of the base and prevent pulling or dragging away when a wagon or other vehicle is descending thereover.

The operation of the device is as follows: The empty box or car 5 is drawn up out of the way, and the hatchway 27 is swung down in a horizontal position. The second section 28 is then adjusted to properly aline with the hatchway, and the descending platform, or third section 37, is arranged as shown in Fig. 1. The team attached to the loaded vehicle is then driven up over the sill 27^a, the hatchway 27, and over the third section 37 until the wheels of the said vehicle are all located on said latter section, when the hook 36 will be placed in engagement with the felly of one of the wheels to hold the vehicle against movement. The hatchway 27, or first section of the driveway, is now raised and thrown back or outwardly, as shown in Fig. 6, and the box or car 5 lowered in its place relatively to the adjacent edge of the second section 28. The draft-animals are unhitched from the vehicle and attached to the rope or cable 19, and the lever 35 is thrown over to tilt the section 28 and incline the vehicle thereon to throw the load of material therein, such as corn or other grain or material, into the box or car. In this operation the material entering the box or car will first strike the spout 23^a. The lever 35 is then returned to its normal position to bring the section 28 and vehicle thereon into horizontal position. Elevating tension is now applied to the rope or cable 19 by the draft-animals attached thereto, and the box or car is raised above the position of the gravity-catch 25, the latter immediately assuming a horizontal position. The draft-animals are then backed to slacken the rope or cable 19, and the box or car descends until the permanently-closed end thereof strikes the gravity-catch, and by continuing the slack the opposite end is lowered to a greater degree. When the box or car reached the greatest point of elevation and before slack on the rope or cable ensued, the catch 22 was struck and released by the trip-bar 24 and the adjacent end of said box or car opened, so that upon an assumption of an inclined position, as shown in Fig. 4, the contents thereof would

immediately dump into a crib or other place of storage. The draft-animals are again attached to the empty vehicle and the latter drawn off from the driveway after the hook 36 has been first released. The hatchway 27 is again lowered and another vehicle driven thereover and onto the platform or second section 28 and secured as before. The said hatchway is now opened, and the box or car 5 is released by grasping the pull-cord 26ª and raising the catch 25 and lowered to the position shown in Fig. 1. The previously-described operation is then repeated and becomes continuous with successive loaded vehicles.

Any kind of vehicle can be run up over the driveway, and the capacity of the box or car can be increased or diminished and arranged to carry only a part of a load at a single elevation.

Aside from the use of the device for elevating grain it could be equally well employed for raising other substances—such as stone, coal, sand, and building materials—and for the purposes of irrigating arid land the box or car would be made water-tight and serve efficiently for raising water to elevated troughs or conduits.

The several parts are strong and durable and are so arranged that the device can be easily moved from one position to another, as the use may require, without straining or loosening the joints or breaking the component members.

Many details of structure have been referred to for full illustration of the preferred form of the device; but changes in said details, proportions, and dimensions generally might be made and substituted for those shown and described without in the least departing from the nature or spirit of the invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An elevator comprising a base, a sectional driveway thereon made up of a tilting section for supporting a vehicle, a hinged hatchway and an inclined sill, a tower over the hatchway, a middle guide at one side of the base and tower, a pair of guides at the opposite end, a gravity-catch on said middle guide, a box or car having one end adapted to be opened and movable between said pair of guides and the opposite end slotted and loosely engaging the middle guide, a compensating block flexibly attached to the box or car, and an operating rope or cable engaging said block and passed up over the top of the tower.

2. In an elevator, the combination of a base having a driveway thereover comprising a tilting section pivoted at its inner end to the base, a hinged hatchway and an inclined sill, links movably attached at their upper ends to the section, a shaft in the base carrying rigid cranks to which the links are pivoted, a hand-lever attached to said shaft, a tower on the base over the hatchway, a pair of guides at one side of the tower, a middle guide at the opposite side having a gravity-catch thereon, a box or car having one end adapted to be opened at one end and movable between said pair of guides, and having the opposite end slotted to loosely engage the said middle guide, and a rope or cable attached to the box or car.

3. In an elevator, the combination of a base, a roadway thereover, a tower on the base having a pair of guides at one end and a single guide at the opposite end, a box or car having a rope or cable attached thereto and provided with an open end and movable between the said pair of guides and an opposite slotted end engaging the middle guide, a gravity-latch on the middle guide, a pull-cord attached to said latch, and pins for limiting the downward movement of said latch.

4. An elevator comprising a base, a tower rising therefrom having a pair of guides at one side and a middle guide at the opposite side, a box or car having one end adapted to be opened and movable between said pair of guides and the opposite end slotted and loosely engaging the middle guide, means for raising and lowering said box, and a gravity-catch on the middle guide.

5. An elevator comprising a base with a driveway and a tower, a box or car movably mounted in said tower and having one end adapted to open, means for raising and lowering said box or car, and a gravity-catch to engage the end of the box or car opposite to that adapted to open.

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

GUSTAV HOLLY.

Witnesses:
W. F. WARD,
J. F. SARE.