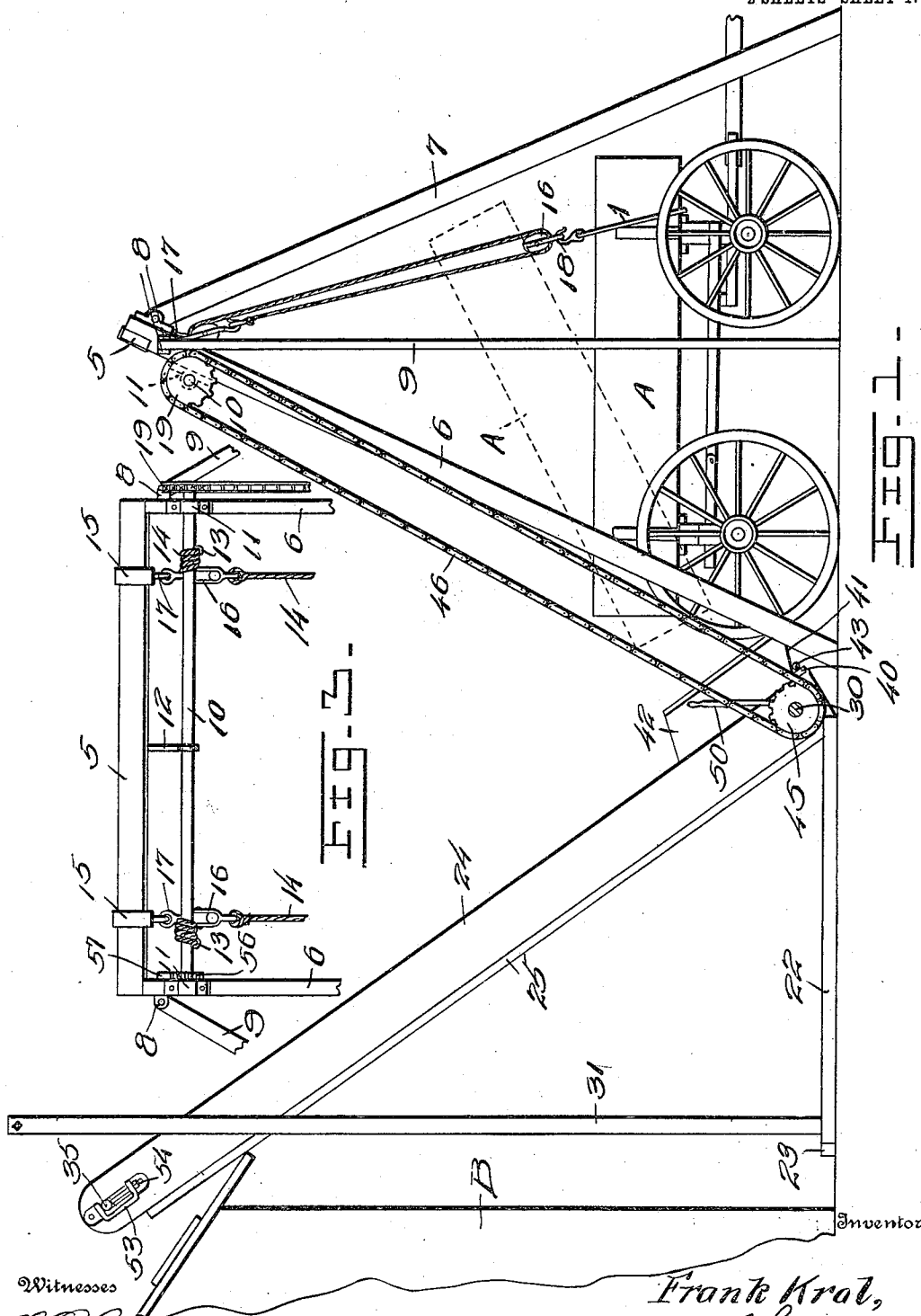


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GRAIN ELEVATOR AND DUMP.
APPLICATION FILED JUNE 16, 1909.

961,970.

Patented June 21, 1910.

2 SHEETS-SHEET 1.



Witnesses
E. L. Armstrong
E. L. Chandler

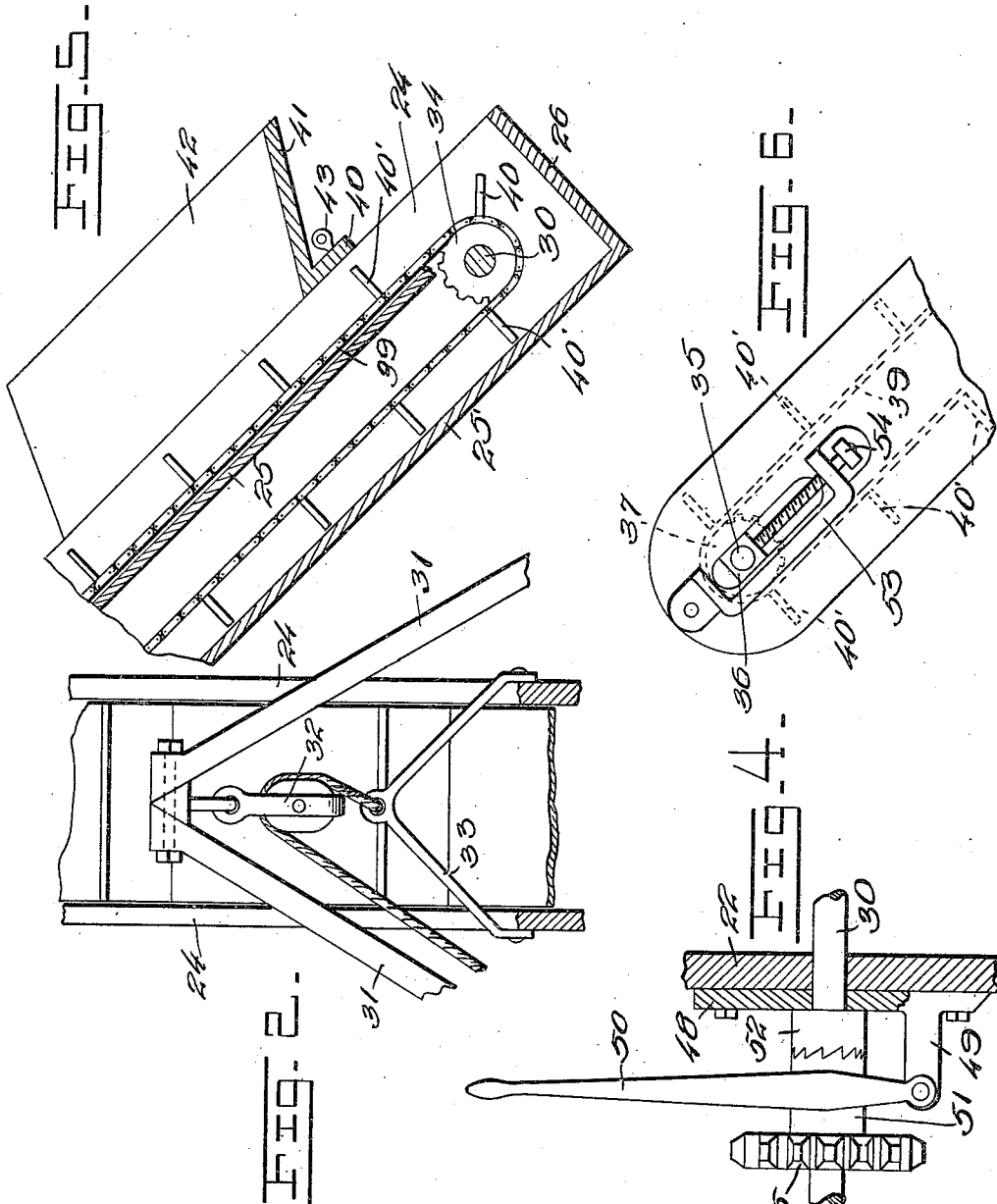
Frank Kral,
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UNITED STATES PATENT OFFICE.

FRANK KRAL, OF VERMILLION, KANSAS.

GRAIN ELEVATOR AND DUMP.

961,970.

Specification of Letters Patent. Patented June 21, 1910.

Application filed June 16, 1909. Serial No. 502,524.

To all whom it may concern:

Be it known that I, FRANK KRAL, a citizen of the United States, residing at Vermillion, in the county of Marshall and State of Kansas, have invented certain new and useful Improvements in Grain Elevators and Dumps, of which the following is a specification.

This invention relates to a simply constructed and readily operated device, used in tilting a loaded wagon, to facilitate the dumping of the same, and elevate the contents of the wagon.

The object of my invention is to provide a light, portable, knock-down structure, so arranged, that the contents of a wagon may be dumped and elevated into a suitable bin, crib, or housing, the draft animals used in drawing the load, being employed to actuate the dumping and elevating mechanism.

A further object is to provide a grain elevator and wagon dump, constructed so that the wagon raising elements and the grain elevator are simultaneously actuated.

A still further object is to provide a lifter arranged to be used in hoisting a wagon box from its running gear.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described and particularly pointed out in the appended claims, it being understood that changes in the specific structure shown and described may be made within the scope of the claims without departing from the spirit of the invention.

In the drawings forming a part of this specification, and in which like characters of reference indicate similar parts in the several views, Figure 1 shows a side elevational view of my wagon dumping and elevating mechanism disclosing the wagon box in a tilted condition in dotted lines. Fig. 2 shows a fragmentary portion of the swing bars. Fig. 3 is a front view of the upper portion of the wagon hoisting apparatus. Fig. 4 shows a detail of the clutch operating lever. Fig. 5 is an enlarged section detail of the shifting hopper. Fig. 6 shows an enlarged detached detail of the chain tightener as used in my invention.

In carrying out the aim of my invention, I employ a beam 5, which at each end is held within the rabbeted end of the forwardly inclined standards 6, 6. Pivottally

secured to each standard, is a forwardly extending brace bar 7, 7 arranged to fold upon the standard 6, while pivotally held within the ears 8, secured upon the outer edge and near the upper end of each main standard 6, is an end brace 9, in the form of a wooden bar. These members comprise the portable, folding structure used to hold the winding shaft 10, which is held within the bearings 11, upon the standards 6. Mid-length this shaft is braced by means of the hanger 12. This shaft is provided with the eyes 13, to which the ends of the hoisting ropes 14 are secured, there being two such eyes. Secured to the hooks 17, carried by the yokes 15, held upon the beam 5, are the differential pulleys 16, carrying the winding strands or ropes 14 secured to the eyes 13. The lower-most pulleys 16 carry the hooks 18, and these hooks are arranged to receive the sling 1, in the form of a rope or chain used in carrying and holding the wagon while being elevated to tip the same into an unloading position. Fixed to one end of the shaft 10, is the chain sprocket 19.

The grain elevator comprises the two sills 22, connected at their rear ends by means of the foot brace 23. These sills extend rearwardly and diverge from the lower end of the elevator box, to which they are secured to allow vertical adjustment of the upper end of the elevator box as will be described. The elevator box comprises the two side boards 24, having the bottom 25, and the lower end 26. Held within bearing boxes secured to the side boards 24 is the drive shaft 30. Extending upwardly from the sills 22 are the pivotally held upwardly extending swing bars 31, 31 which are united at their upper ends and carry the hoisting tackle 32, from which swings the yoke 33, pivoted to the elevator box as shown in Fig. 2. Being pivotally held, as stated, they are adapted to fold upon the sills 22, when not in use. The drive shaft 30 carries two chain gears 34, 34 positioned within the elevator box, while within the upper end of the elevator box, is held the stub shaft 35, working within the bearings 36. The shaft 35 carries chain gears 37, which together with the chain gears 34, support the two endless conveying chains 39, to which are secured the elevator blades 40'. These chains 39 and blades 40', work within the elevator box in the usual manner upon the supporting cleats 25.

Slidably secured to the lower end of the

elevator box, is a hopper comprising the bottom panel 40, sides 42 and rear panel 41. The hopper is adjustably held to the elevator box by means of the pins 43. In Fig. 1 the normal position of the hopper is clearly shown.

The shaft 30 is provided with the chain sprocket 45, carrying the chain 46, which at its upper end passes over the chain sprocket 19 carried by the hoisting shaft 10. This chain 46 has detachable links, so that after the wagon raising standard and the elevator have been properly positioned, the tension of this chain can be nicely adjusted.

Secured to one of the sides 22, is the bearing 48, to the ear 49 of which is secured the lever 50, carrying the clutch collar 51 working in conjunction with the clutch collar 52, fixed to the drive shaft 30 by means of this clutch 51, the shaft 10, may be thrown into or out of working condition.

Any suitable horse power is used to drive the shaft 30, and the draft animals used in bringing the load to the point of delivery, might be hitched to the horse power to actuate the same.

In Fig. 1 the contents of the wagon A, are to be dumped into the crib B. The operation involved, would require that the sling be properly secured to the wagon, while the ends of the hoisting ropes 14, are secured to the shaft 10. The draft animals are then started to drive the shaft 30, to operate the elevator. The tail gate of the wagon is next opened to permit the emptying of the grain or corn, into the sliding hopper of the elevator. At the same time the clutch is thrown into engagement to rotate the shaft 10. As this shaft rotates, it winds up the hoisting rope 14, to gradually tip the wagon. The instrumentalities are so arranged, that the wagon is raised to empty the contents at a speed insuring the same being carried off by the elevator. By this arrangement, the dumping and elevating operations are conducted simultaneously.

It will be readily understood that wagons of different sizes may be unloaded, and the device is portable, so that it can be shifted from place to place.

In connection with my elevator, I employ a special chain tightening mechanism comprising the bracket 53, carrying the adjusting screw 54, as shown in Fig. 6. Two such brackets are used and the screws 54 are arranged to contact with the bearings 36, so that the elevating chains 39 may be loosened or tightened.

Upon the farm and at other places it is very often necessary to remove a wagon box from the running gear. In providing the hooks 18 with two slings to be secured to the forward and rear end of the wagon, my hoisting apparatus may be used to raise the wagon body from the running gear. The

shaft 10 is provided with a ratchet wheel 56, engaged by the pawl 57, so that this winding shaft 10 may be securely held after the wagon box has been elevated a suitable distance.

The device is light, portable and simple of construction.

When desired, a crank can be secured to the shaft 30, so that the same may be operated by hand.

And having thus described my said invention, what I claim as new and desire to secure by United States Letters Patent is:—

1. The combination with a beam, of a supporting standard secured to each end, a forwardly extending brace bar pivotally secured to each standard, a lateral brace pivotally secured to the upper end of each standard, a shaft revolvably supported by said standards, a rope having one end secured to said beam and the remaining end to said shaft, a pulley carried by said rope, wagon body engaging means carried upon the pulley, an elevator housing, a driving shaft within said housing, a chain sprocket upon said driving shaft, a chain sprocket upon said first mentioned shaft, a chain passing over said two sprockets, an endless belt within said housing passing over said driving shaft, and means to operate said driving shaft whereby said elevator and standard shaft are synchronously actuated by the driving shaft to wind said rope as and for the purpose set forth.

2. The combination with a beam, of a standard secured to each end, a forwardly extending brace bar pivotally secured to each standard, a lateral brace pivotally secured to the upper end of each standard, a shaft secured to the upper end of said standards, a rope having one end secured to said beam and the remaining end to said shaft, a pulley carried by said rope, an elevator housing, a driving shaft within said housing, a chain sprocket upon said driving shaft, a chain sprocket upon said first mentioned shaft, a chain passing over said two sprockets, an endless elevator belt within said housing passing over said driving shaft, a ratchet wheel carried by said first named shaft, a pawl secured to one of said standards for coaction with said ratchet, means to connect and disconnect said first mentioned sprocket from the driving shaft whereby said elevator belt and standard shaft may be synchronously actuated to wind said rope and move said elevator belt at times, and the elevator may be operated independently at others.

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

FRANK KRAL.

Witnesses:

JAMES E. COULTER,
W. T. WEIR.