G. VAN SICKLE.

Hay-Elevator.

No. 211,358. Patented Jan. 14, 1879.

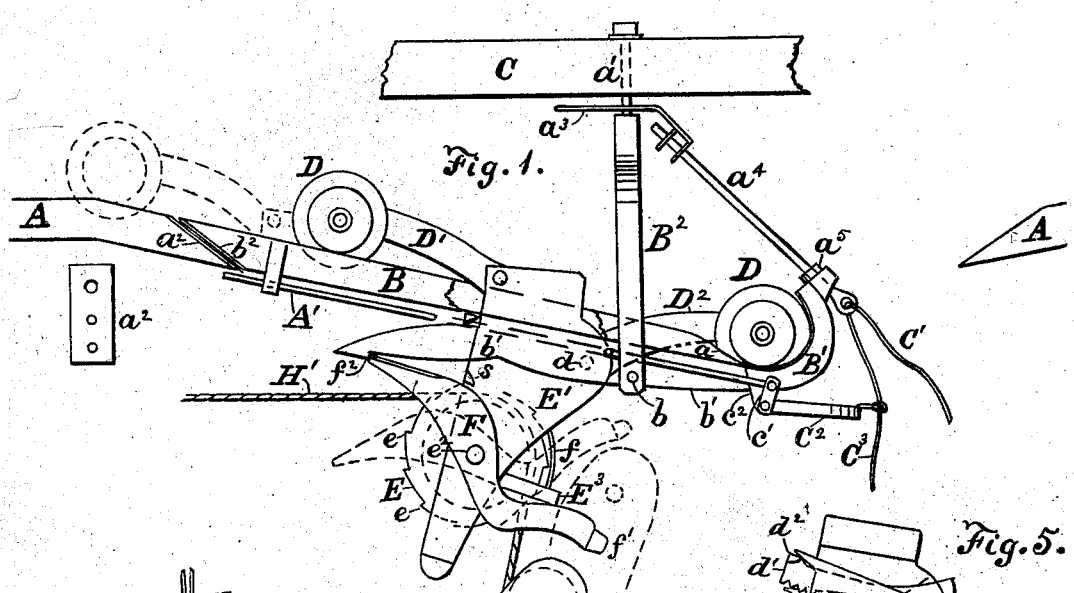


Fig. 1.

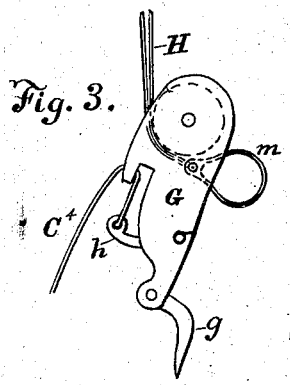
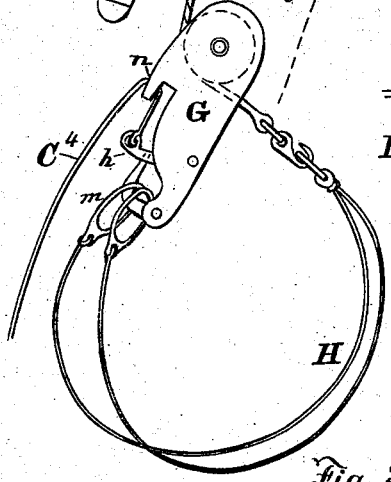


Fig. 3.



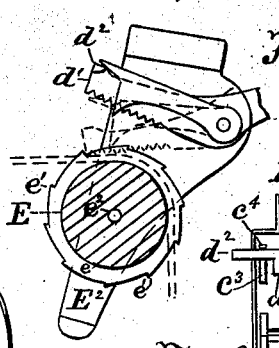


Fig. 5.

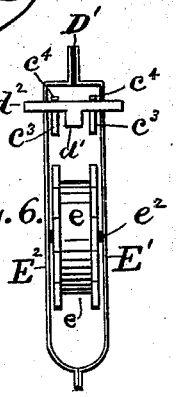


Fig. 6.

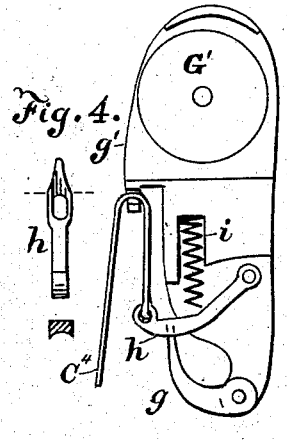


Fig. 4.

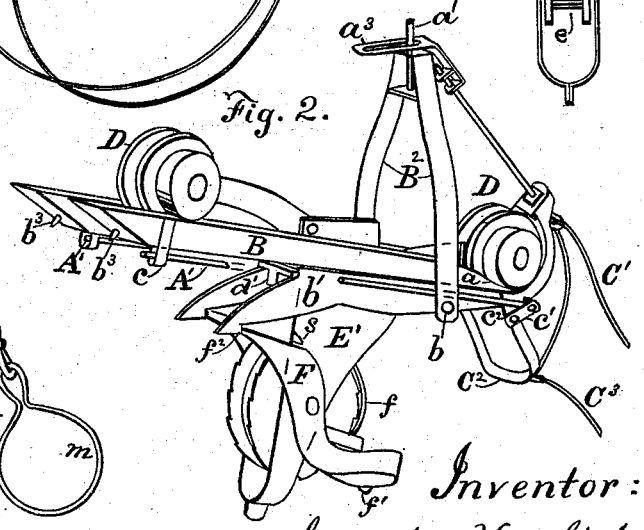


Fig. 2.

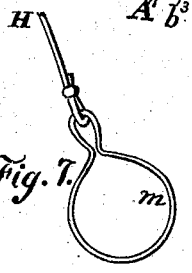


Fig. 7.

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UNITED STATES PATENT OFFICE.

GARRETT VAN SICKLE, OF SHORTSVILLE, NEW YORK.

IMPROVEMENT IN HAY-ELEVATORS.

Specification forming part of Letters Patent No. **211,358**, dated January 14, 1879; application filed May 17, 1878.

To all whom it may concern:

Be it known that I, GARRETT VAN SICKLE, of Shortsville, in the county of Ontario and State of New York, have invented certain new and useful Improvements in Hay-Elevators; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification, in which drawings—

Figure 1 is a side view, showing the car in position for loading and the turn-table adjusted to the main track for the car to be run out on the track, and the hoisting-pulley and sling in position when the load is being elevated. Fig. 2 is a perspective view, showing the turn-table turned partly around. Fig. 3 shows the position of the sling-pulley block and hook, with the sling drawn through the block and holding it by the large ends of the links on the end of the sling. Fig. 4 is an interior view of the sling-pulley block, showing the pivoted hook, locking-link, and spring. Fig. 5 is a side view of the hoisting-pulley, with one of the plates in which it has its bearings removed, showing the brake and pawls detached from the car. Fig. 6 is a front view of the hoisting-pulley, showing the rectangular groove, the end of the brake, the cross-bar, and the ends of the pawls. Fig. 7 shows a modification of one of the links of the sling.

My invention relates to hay and grain unloaders and elevators; and it consists of improved devices for unloading and elevating, and of a car-track having a turn-table for conveying the hay or grain to either side of the barn, as hereinafter fully described, and as shown in the drawings.

A represents the car-track, and B a turn-table or reversible section over the wagon-way in the barn, for the purpose of unloading and elevating hay or grain from a wagon and conveying it to either side and any part of the barn. This turn-table is inclined, as shown in the drawings, and is provided with depressions at *a* for the rear wheels of the car to rest in when in position for loading, to prevent the too sudden starting of the loaded car, as more fully described in my reissued patent of May 15, 1877.

The lower end, B^1, of the turn-table is curved upward, forming a stop and guard to the car. The turn-table is supported by means of the bolt a^1, securely attached to a beam, C, and by the arms B^2, connected to the lower end of the bolt by a swivel-joint, and by means of the bar *b* through the lower ends of the arms and through the plates b^1 on the turn-table.

The ends of the rails of the main track and of the upper part of the turn-table are beveled, forming bevel-joints, as shown in the drawings. These beveled ends are provided with plates a^2 b^2, the plates a^2 being provided with holes to receive the dowel-pins b^3 on the plates b^2 to hold the turn-table in position laterally on the track for the loaded car to run out. The plate a^3, having a slot, is adjusted over the arms B^2 to slide on the bolt a^1, and is connected by screw-threads to the upper end of the stay-rod a^4, the lower end of which extends through a hole in the curved end B^1 of the turn-table, and is provided with an eye to receive the cord C^1, the lower end of which is attached to the lever C^2. This stay-rod is provided with a shoulder or stop-nut at a^5, to hold the turn-table from dipping downward while it is being reversed.

A′ A′ are rods adjusted under the turn-table to slide endwise in bearings *c*, by means of the arms c^1 on the curved double lever C^3, pivoted to the lugs c^2, on the lower part of the turn-table, the arms c^1 being provided with holes to receive the bent ends of the rods, and the lever being provided with an eye to receive the cords C^1 C^3.

D represents the wheels, and D^1 D^2 the couplings, of the car, connected by a single bolt, *d*, forming a longitudinal flexure to the couplings. The coupling D^2 extends beyond the joint, and the extended end is provided with or constructed to form a corrugated brake, d^1, which is made to fit the rectangular groove in the pulley, hereinafter described.

E is a pulley, having a rectangular groove, *e*, and ratchet-teeth e^1 on the flanges of the pulley, which is adjusted on a shaft, e^2, having bearings in the pendent plates E^1 E^2, attached to the coupling D^1, and fastened together below the pulley.

In a pulley having the ordinary curved

grooves the several ropes or cords of the sling are liable to ride each other. To avoid that difficulty, I make the pulley with a rectangular groove, as above described, having a flat bearing-surface sufficiently wide for the several ropes to run side by side, and for the passage of the connecting links and hooks on the lower end of the hoisting-rope and the upper end of the sling, to allow the cords of the sling to run through the pulley after the load has been discharged, for the purpose of releasing the sling from the load, and the flat surface of the pulley tends to remove the twist from the ropes.

The plates E^1 E^2, carrying the pulley E, are provided with a circular guide, E^3, and shields *f*, to guide the hoisting-rope and to prevent it and the cords of the sling from running onto the ratchet-teeth on the flanges of the pulley.

F represents levers pivoted on the pulley-shaft e^2. One end of these levers extend downward, and are curved and fastened together at f^1, and the other ends extend upward, and catch in the detent-shoulders f^2 on the plates b^1, to hold the car in position and prevent it from being drawn out on the track while it is being loaded.

The upper edges of the forward ends of the plates b^1 are inclined, as shown in the drawings, and the brake d^1 is provided with a cross-bar, d^2, the ends of which extend over the inclined edges of the plates, for the purpose of raising the brake from the ropes in the groove of the pulley to allow the sling to descend for reloading.

The plates E^1 E^2 may be provided with stops *s* to hold the levers F in position to catch on the detent-shoulders. Pawls c^3 are pivoted to the joint-bolt of the car-coupling, and are adjusted to drop into the teeth on the flanges of the pulley when the car is run out on the track, to hold the pulley from running back; and these pawls are provided with projecting ends c^4, extending over the cross-bar d^2, for raising them out of the ratchet-teeth to release the pulley, which is accomplished by the cross-bar sliding up the inclined edges of the plates as the car returns to the position for reloading.

G represents a pulley-block, provided with a pulley, G′, a pivoted hook, *g*, a locking-link, *h*, and a spring, *i*. The pulley-block is constructed with a projection, *g′*, to protect the pulley from contact with the lever or guard below the car when the block is elevated. The hook is pivoted in the lower end of the block in position to receive and hold the rings or links on the lower ends of the ropes of the sling, and when unlocked to discharge the load it will be thrown downward by the weight of the load, thus releasing the links on the ends of the sling.

The inner end of the locking device *h* is pivoted in the block, and the outer end is provided with an eye for attaching to it the tripping-cord C^4, which is extended through an eye, *n*, in the projection *g′* of the block above the link *h*, which is held in position for locking the hook by the spring, as shown in Fig. 4 of the drawings. The lower surface of the outer portion of this locking device *h* is curved and concaved, as shown by the side view in the block, the bottom view, and the transverse section, detached, in Fig. 4, which construction of the device is for the purpose of receiving and guiding the end of the hook into the hole or slot of the locking-link, which yields to the pressure upon the hook, and springs over the end of the hook, securely locking it till released by the tripping-cord for discharging the load.

The hook *g* is inclined downward near the outer end, and the inner surface of the link, at at the outer end of the slot, which bears upon the hook when it is locked, is formed to fit the inclined or curved surface of the hook, so that when the hook is sprung into the eye or slot of the link it will be securely held in place by the weight of the load; the greater the weight the more securely the hook will be locked in the link till released by the tripping-cord.

The sling is made of two or more cords, H, having at the upper end links for connecting them with the hoisting-rope H′, and having on the lower ends the links or rings *m*, constructed with small and large ends, as shown in the drawings, the small ends being more readily drawn through the hay after the load is discharged, and the large ends holding the pulley-block to the car while it is being returned for reloading. The small ends of these links are provided with eyes for attaching them to the cords, and the links may be made of heavy wire, bent as shown in Fig. 7 of the drawings.

The turn-table being in position for the car to run out on one end of the track, it is readily reversed and adjusted to the other end of the track by means of the cords C^1 C^3. By pulling on cord C^3 the lever C^2 is drawn downward, which, by means of the arms c^1, withdraws the rods A′ A′ from under the ends of the rails of the main track A, and by sufficient downward pressure upon that cord the upper end of the turn-table is raised, releasing the dowel-pins b^3 from the holes in the plates a^2, allowing the turn-table to be swung around and adjusted to the other end of the track, when by pulling on the cord C^1 the lever C^2 is raised, sliding the ends of the rods A′ A′ upward under the ends of the rails of the main track, securing the turn-table in position for the car to be run out.

The car being on the turn-table in position for loading, the levers F catch against the detent-shoulders f^2, holding the car in position till the ascending sling-pulley block, with the load attached, strikes and lifts the lower part of the levers, releasing the upper ends from the detent-shoulders, as shown in dotted lines in Fig. 1, permitting the car to be drawn out on the track; and as the car moves forward the cross-bar d^2 slides down the inclined edges of the plates b^1, bringing the corrugated brake to bear upon the hoisting-rope in the rectan-

gular groove of the pulley E, and allowing the pawls to drop into the ratchet-teeth on the flanges of the pulley, holding the pulley and ropes from running backward, and thus suspending the load till it is conveyed to the place of unloading, but at the same time allowing the rope to be drawn forward, when required, before and after the load is discharged.

When the car is in position for unloading, the locking-link is raised by pulling on the tripping-cord C^4, unlocking the pivoted hook, which, by the weight of the load, is thrown downward, as seen in Fig. 3 of the drawings, releasing the links on the lower ends of the sling-cords, and thus discharging the load, after which the sling-cords are drawn through the pulley-block to release the sling from the discharged load, the large ends of the sling-links catching and holding the pulley-block, as shown in Fig. 3, till the car reaches the position for reloading. As the car returns to the turn-table, the cross-bar d^2 on the end of the brake slides up the inclined plates b^1, raising the brake and the pawls, releasing the cords and pulley, allowing the sling to descend for reloading.

It is evident that car-tracks constructed and arranged to connect with the turn-table may be laid to run not only to the ends, but also to the sides and to the corners of the barn, so that the car may be run out on each, conveying the hay or grain to any and to all parts of the barn.

What I claim as new, and desire to secure by Letters Patent, is—

1. The turn-table arranged over a wagon-way in a barn or storehouse, in combination with the car-tracks leading to different parts of the barn, for unloading hay or grain from a wagon and conveying it to any required part of the barn, substantially as described.

2. In combination with the detent-shoulders f^2 on the plates b^1, attached to the turn-table, the detent-levers F, pivoted on the pulley-bolt c^2, and held in position to catch the detent-shoulders by the stops s on the plates E^1 E^2, and having their lower parts curved and fastened together at f^1, and adjusted to be released from the detent-shoulders by the direct action of the sling-pulley block in elevating the load, substantially as described.

3. In combination with the pulley E, having ratchet-teeth e, and the cross-bar d^2 on the end of the brake d^1, and the inclined plates b^1 on the turn-table, the pawls c^3, having the projecting ends c^4 extending over the cross-bar, substantially as and for the purposes described.

4. The guide E^3 and shields f, attached to the plates carrying the pulley E, for guiding the hoisting-rope and guarding the ratchet-teeth on the pulley, substantially as described.

5. In combination with the pivoted hook g, the locking-link h, having the under surface of the outer end curved and concaved to receive and guide the point of the hook into the link, and having an eye to receive the tripping-cord, and provided with the spring i, adjusted to bear against the link to adapt it to yield to the pressure of the point of the hook in locking it, and to hold the link in position when locked over the hook, substantially as and for the purposes described.

In testimony that I claim the foregoing as my own invention I affix my signature in presence of two witnesses.

GARRETT VAN SICKLE.

Witnesses:
E. D. MEAD,
OLIVER S. TITUS.