F. A. Crane,

Hay Elevator.

No. 83,470. Patented Oct. 27, 1868.

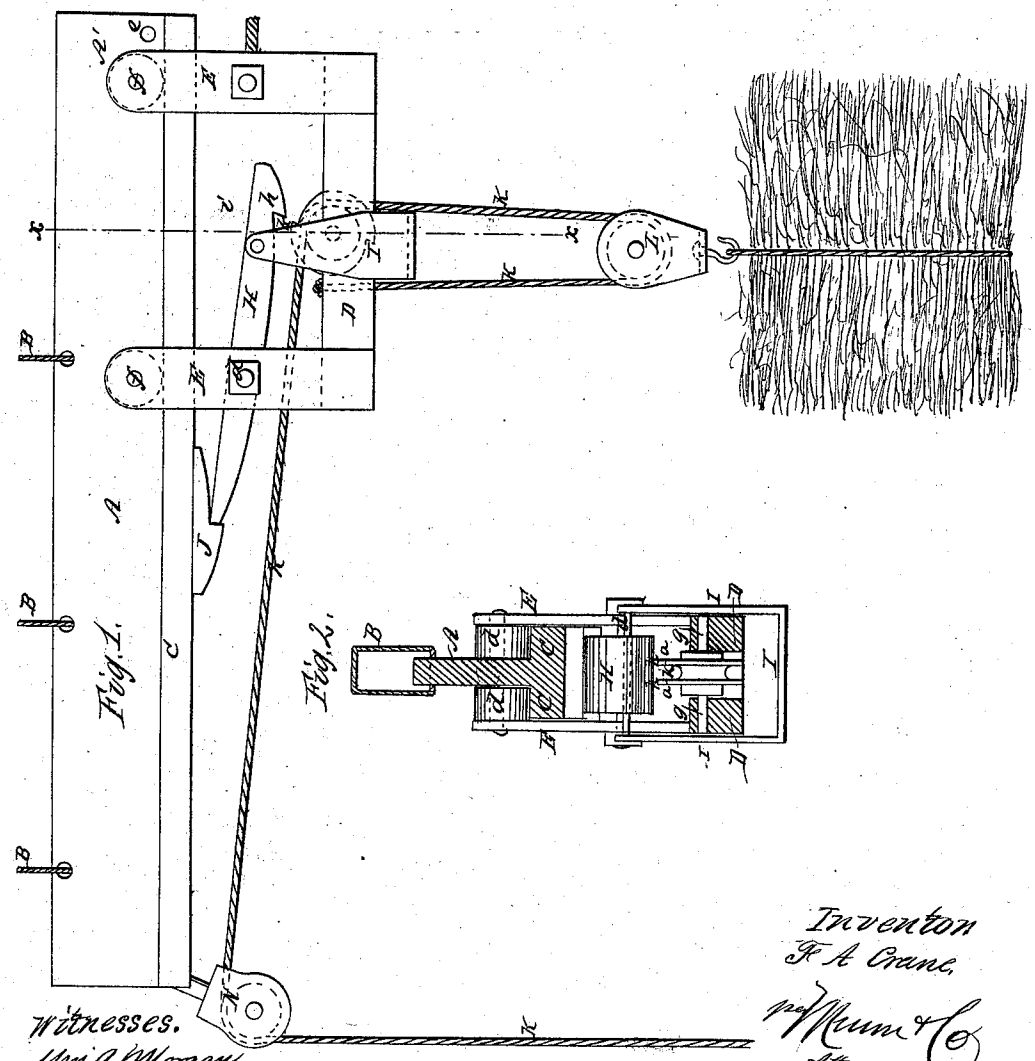

Fig. 1.

Fig. 2.

Witnesses.
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UNITED STATES PATENT OFFICE.

F. A. CRANE, OF ZANESVILLE, OHIO.

IMPROVED HAY-ELEVATOR.

Specification forming part of Letters Patent No. **83,470**, dated October 27, 1868.

To all whom it may concern:

Be it known that I, F. A. CRANE, of Zanesville, in the county of Muskingum and State of Ohio, have invented a new and Improved Hay-Elevator; 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 make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of my improved elevator. Fig. 2 is a cross-section of the same through the line *x x* of Fig. 1.

Similar letters of reference indicate like parts.

The object of this invention is to facilitate the operation of lifting hay from the wagon and discharging it into the hay-mow of a barn. It consists of a plank or board, provided with lateral rails affixed on each side of the lower edge of the said plank, and on which a hanging truck and its accessory apparatus travel to and fro. The hanging truck is provided with pulleys and rollers and a catch-lever, the latter being so arranged with reference to the accessory parts of the apparatus that the truck will be held stationary until the hay is lifted to the proper height, when the catch-lever will be lifted, and the truck, with its suspended load of hay, will be free to be drawn along the rails to a position over the hay-mow into which the hay is to be discharged from the fork.

In the drawings, A is a plank, provided with cords or chains B B B, &c., by which it is attached to one of the rafters of a barn in such a manner that the end A′ of the plank will project out through the mow-hole or barn-window, so as to be over the hay-wagon outside the building, without requiring any outer support. C are the side rails of the plank, on which the rollers G of the hanging truck D E E travel. The said truck is composed of a short horizontal beam, D, affixed between the lower ends of two pairs of metal plates, E E, the said plates bearing stud-pins *f*, projecting inwardly toward the plank, and which afford the revolving centers or axles for the rollers G. The beam D has a central mortise, within which a pulley revolves on a pin, *g*, as shown.

The cord or rope K passes through the pulley-block N, and forward between one pair of the plates E, thence over the pulley *a a* in the beam D, and down under the pulley L, and thence up to the beam again, to which the end is affixed by means of a knot and hole, as shown.

While the hay is being raised the truck is held stationary by means of a catch-lever, H, pivoted on a pin, *d*, passing through one pair of the plates E. The end of the lever pointing inward toward the barn catches against a shoulder-cleat, J. This end of the lever is always raised, it being on the lightest arm. The other end of the lever is formed with a shoulder, *h*, for a purpose to be shown.

The pulley in the beam D is composed of two plates, *a a*, each having one or more shoulders, against which a shoulder, *h*, on the lever catches, so that the load on the block L may not descend when, from the momentum of the load, as it is drawn laterally on the plank rails, it moves faster than the horse or other power acting on the rope K.

I is a stirrup-shaped plate, pivoted at *i*, near the lower end of the catch-lever, and inclosing the beam D within it, and passing between the two vertical parts of the rope K, so that when the load is lifted to its greatest height the block L will encounter the said plate I, and bear against it until the upper end of the catch-lever, to which it is pivoted, is pushed away from the shoulder-cleat J, thus leaving the truck free to obey the horizontal traction of the rope K and travel back on the rails C to a position over the mow, where the hay will be discharged from the fork attached, in practice, to the block.

Should the load, in being drawn along toward the mow, gather such momentum as to move faster than the draft-animal hitched to the rope, the shoulder *h*, which always rests on the pulley *a a*, will catch against the shoulder *k* formed on the flange-rim of the pulley, and prevent the said pulley from turning backward and lowering the fork and its load, as before mentioned.

This pulley is of a peculiar construction, which adapts it more perfectly to the present specified use and other analogous uses, and which construction I desire to claim especially. It consists of two metal plates, *a a*, generally circular, and drawn together against a disk, *b*, of vulcanized rubber, of less diameter, interposed between them. These plates may be in practice drawn together by bolts or screw-threaded bars on one plate fitting in a hollow

thread in the other, or in any other suitable manner.

The object of this form of pulley is to vary the width of the groove, to adapt it to the size of the rope used, so that the rope shall fit snugly in the groove, and be prevented from slipping, when the pulley is locked, by the shoulder *h* of the catch-lever, in the case before described. The same rope will vary in size when wet and dry, or when much worn, or enduring heavy strain, and it is desirable in this and other analogous situations that the rope should fit the groove with just the right degree of friction to enable it to operate to the best advantage.

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

1. The combination of the plank A, having lashings B, and side rails C, with the truck D E E, rollers G, catch-lever H, having a shoulder, *h*, and stirrup-plate I, shoulder-cleat J, expanding-pulley *a a*, having shoulders *k*, with india-rubber block interposed between them, rope K, and pulley L, all constructed and operating together substantially as shown and described.

2. The pulley constructed, as described, of the circular plates *a a*, having radial shoulders *k*, clamping between them the india-rubber disk *b* in such a manner that the width of the disk and the distance between the plates are made adjustable, for the purpose specified.

F. A. CRANE.

Witnesses:

G. ARTHUR,

HORATIO W. CHANDLEE.