P. H. NICHOLS.
Hay Binder and Elevator.

No. 212,319.   Patented Feb. 18, 1879.

Fig. 1.

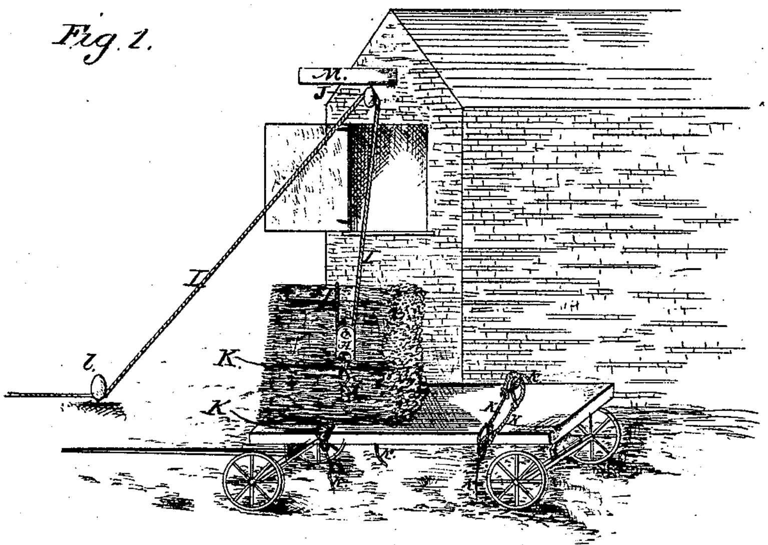


Fig. 2.

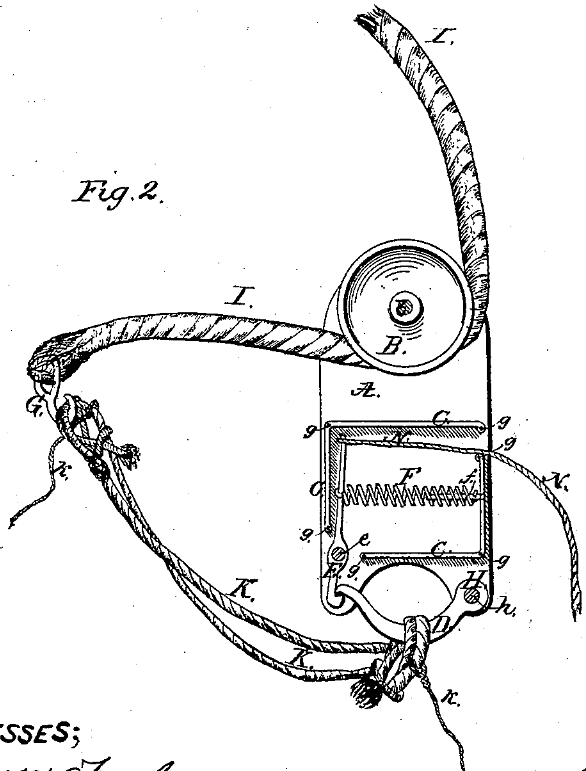
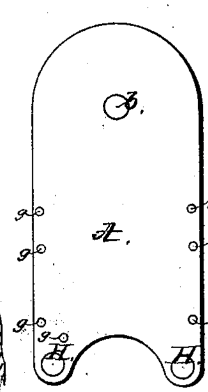


Fig. 3.



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PAUL H. NICHOLS, OF SQUAW GROVE, ILLINOIS.

IMPROVEMENT IN HAY BINDERS AND ELEVATORS.

Specification forming part of Letters Patent No. **212,319**, dated February 18, 1879; application filed May 23, 1877.

To all whom it may concern:

Be it known that I, PAUL H. NICHOLS, of the town of Squaw Grove, in the county of De Kalb and State of Illinois, have invented a new and useful apparatus called a "Hay-Elevator," of which the following is a full, clear, and an exact description, as set forth in this specification and accompanying drawings, which form a part thereof.

Figure 1 is a perspective view of this hay-elevator, showing its operation in elevating a load or parts of a load. Fig. 2 is a representation of the pulley-block A and its attachments. Fig. 3 is a representation of one side of the outer case of the pulley-block A.

The object of my invention is to furnish a device by which to securely bind and quickly elevate hay, grain, straw, or other articles from a wagon, sleigh, floor, ground, or any other place to a stack, mow, rick, or any place desired; and to this end it consists of the parts and means hereinafter described and set forth.

Like letters of reference indicate like parts.

In the drawings, Fig. 1 shows the elevator-rope I running over a pulley attached to the center beam of a barn, one end of which comes down, passes through the pulley-block A, under the pulley B, and has a hook, G, attached to this end, as shown in Fig. 2. This hook is now fastened to the loops of one end of the bale-ropes K K as they are placed under a part or the whole of the load. Then pull the elevator-rope over the load and draw the pulley-block A down and pass the latch D, as shown in Fig. 2, through the loop-holes in the other end of the bale-ropes K. Then with the hand push the latch D up to its place past the notch in the catch E, also shown in Fig. 2. Now, to the other end of the elevator-rope (which passes down to one side) attach the power for elevating, and it will effectually bind and securely elevate the whole or a part of the load, as desired.

In Figs. 2 and 3, A indicates the outer cases or sides of the pulley-block. These are made of iron, wood, or any suitable material, and when put together serve to hold the different parts inside of the pulley-block in their proper places.

Fig. 2, B indicates the pulley. This turns on the axle *b*, and is made of suitable material with a groove in the edge, so that it will run on or traverse the elevator-rope I, thereby carrying the pulley-block to any place required.

C, the partitions and bearings between the two outer cases of the pulley-block, helps to hold the different parts in place.

D is the latch for engaging the pulley-block A with the bale-ropes K. It is provided with an axle, H, on which it turns or swings, and is made of iron or some suitable material, and in shape to catch and firmly hold one or more of the ends of the bale-ropes K, and is of such a length as to easily work into and securely catch in the notch which is made in the lower end of the catch E, and is loosened from this by turning the catch back by means of the discharge-cord N, which is attached to the upper end of this catch E, as shown in Fig. 2. When the latch D is loosened from the catch E it turns on its axle, one end dropping down, thereby disconnecting itself from the bale-ropes K, as shown.

E indicates the catch used for holding or freeing at will the latch D. It is made of iron or any suitable material, and is provided with an axle, *e*, on which it turns. It has a notch in the lower end, which engages it with and firmly holds the latch D when loaded. This catch has attached to it the coil-spring F, which holds it in position, and yet allows it to turn when required. It has also connected with it at the upper end the discharge-cord N. This catch, as seen in Fig. 2, when turned (by means of the discharge-cord) throws the lower end back from the latch D, thereby disconnecting the two and enabling the operator to dump or discharge the load or draft at any point of elevation desired.

F indicates a coil-spring, used to hold the catch E in position. It is made of steel wire or some spring metal, and of the length and size required to accomplish the specified purpose. It is placed inside the pulley-block A. One end is held in place by a pin which passes through the partition C, against which this end of the spring rests. The other end is securely attached to the catch E, as seen in Fig. 2.

G is a metallic hook, used for the purpose

of connecting the elevator-rope I with the bale-ropes K. It is made with an eye at one end, by means of which it is firmly fastened to the elevator-rope I. The other end is in shape to hook into the loops of one or more of the bale-ropes K, and holds its grasp on these ropes after the load is discharged, or until released by hand.

I indicates the elevator-rope, used to bind and elevate hay, grain, or other articles, and to accomplish this it passes through the pulley-block under the pulley B, over and on which the pulley-block A runs at will. At one end is firmly joined the hook G, and by this hook it is united or joined to either end of the bale-ropes K. The other end is carried up and over the pulley J, as in Fig. 1, which is attached to the center beam of a barn or any desired place, thence down under a pulley or any means of holding in position, and to this end hitch or attach the power which serves to elevate.

K K indicate the bale ropes or chains, used to be put underneath or around a load or draft of hay, grain, or other articles to be elevated, as desired. They are made of rope-wire, chain, or other material, with one, two, or more strands or cords, separately or united at the ends. Each one has a loop or ring at both ends, as seen in Fig. 2, and in length and size they are made as required for the place or for the work to be done, and when used they are laid on the rack or ground, either crosswise or lengthwise of the load to be elevated, as seen in Fig. 1. Then put the hay or grain on top of them. When the whole load would be too large for a single draft, it can be divided into as many drafts as desired by putting on a part of the load. Then lay on one or more of these bale-ropes either crosswise or lengthwise, as desired. Then put on more hay or grain, and then other sets of bale-ropes, if needed.

k k are small cords, ropes, or other material attached to each end of the bale-ropes K, to be used as finders. These cords are of sufficient length to extend beyond the bale-ropes, or to hang outside of the load, where they can easily be seen, and whereby the ends of the bale-ropes can quickly be found when covered with hay, straw, or other material.

N is the discharge-cord. This is a small cord or rope, one end of which is securely attached to the upper end of the catch E, as seen in Fig. 2. It is of sufficient length, so that the other end can be in the hands of the operator, and is used for the purpose of dumping and unloading the elevator when and wherever desired. By pulling on this cord the catch E is turned, and this throws the lower end of the catch back from the latch D. This, dropping down, frees itself from the bale-ropes K, thereby dumping the load or draft at will.

g g are bolts or rivets passing through the pulley-block A, and also the corresponding holes in the outer case, A, Fig. 3, when put together, and with suitable fastenings on the ends they hold the pulley-block securely together.

The operation of this hay-elevator is as follows: Place the bale-ropes K (one or more of them) on the rack. Then put on the load of hay or grain over them, and drive to the place of unloading. Now, with the elevator-rope in place, attach the hook G to the loops on one end of the bale-ropes K. Then carry the pulley-block A (which is on the elevator-rope) over the load and hook the latch D into the loops on the ends of the bale-ropes on this side of the load, thereby forming an entire loop around the load to be elevated, by uniting the elevator-rope on each side of the load to both ends of the bale-ropes; and now as the power to elevate is applied to the other end of the elevator-rope it firmly grasps and securely elevates or holds the load until released or dropped by means of the discharge-cord N in the hands of the operator.

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

1. The baling-ropes K, in combination with the hoisting-rope I, provided with a hook, the pulley-block A, swinging latch D, retaining-catch E, spring F, and releasing-cord N, substantially as described.

2. The baling-ropes K, for distribution in the load, in combination with the smaller cords *k*, attached to the ends of the former, substantially as and for the purpose set forth.

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Witnesses:
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