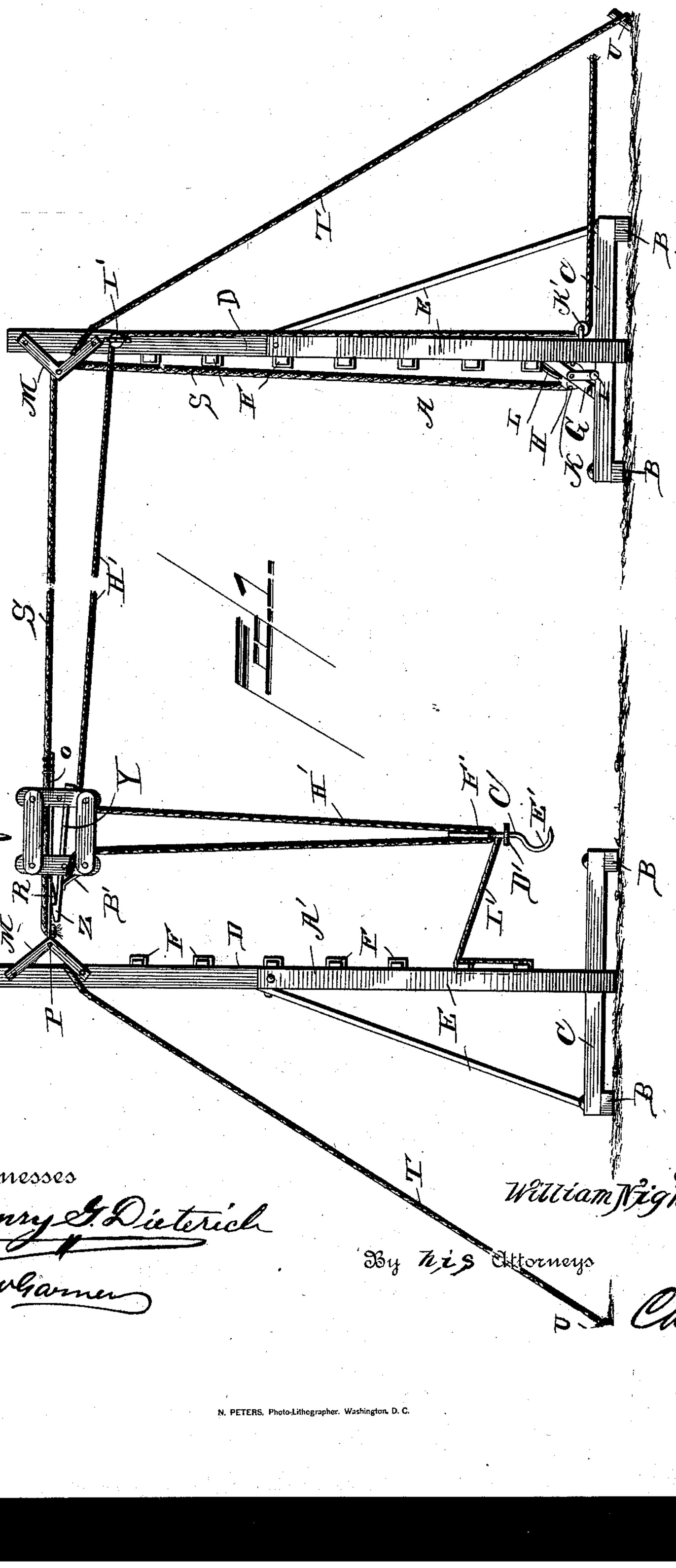
(No Model.) 3 Sheets—Sheet 1.

W. NIGHTINGALE.

HAY STACKER.

No. 406,531. Patented July 9, 1889.

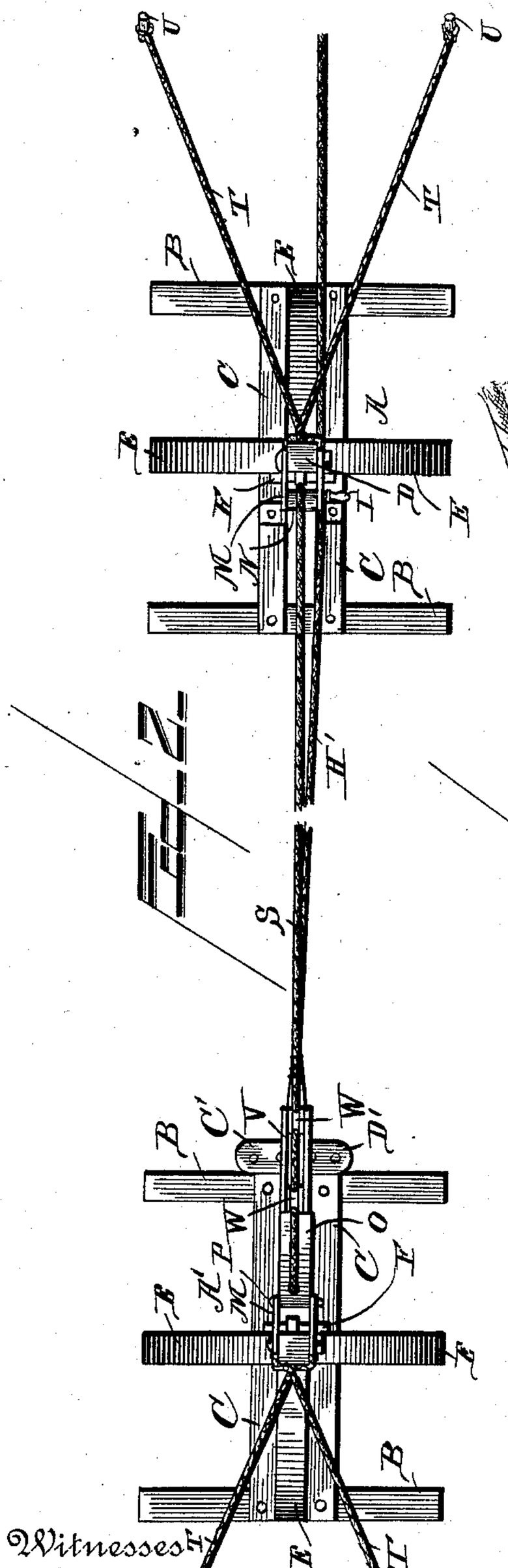


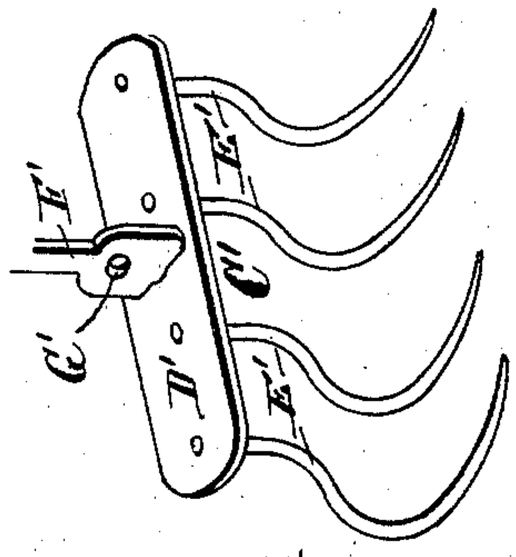
(No Model.) 3 Sheets—Sheet 2.

W. NIGHTINGALE.

HAY STACKER.

No. 406,531. Patented July 9, 1889.





Witnesses:
Henry G. Dieterich
J. V. Garner

Inventor
William Nightingale

By his Attorneys
C. A. Snow & Co.

(No Model.) 3 Sheets—Sheet 3.

W. NIGHTINGALE.

HAY STACKER.

No. 406,531. Patented July 9, 1889.

Fig. 4.

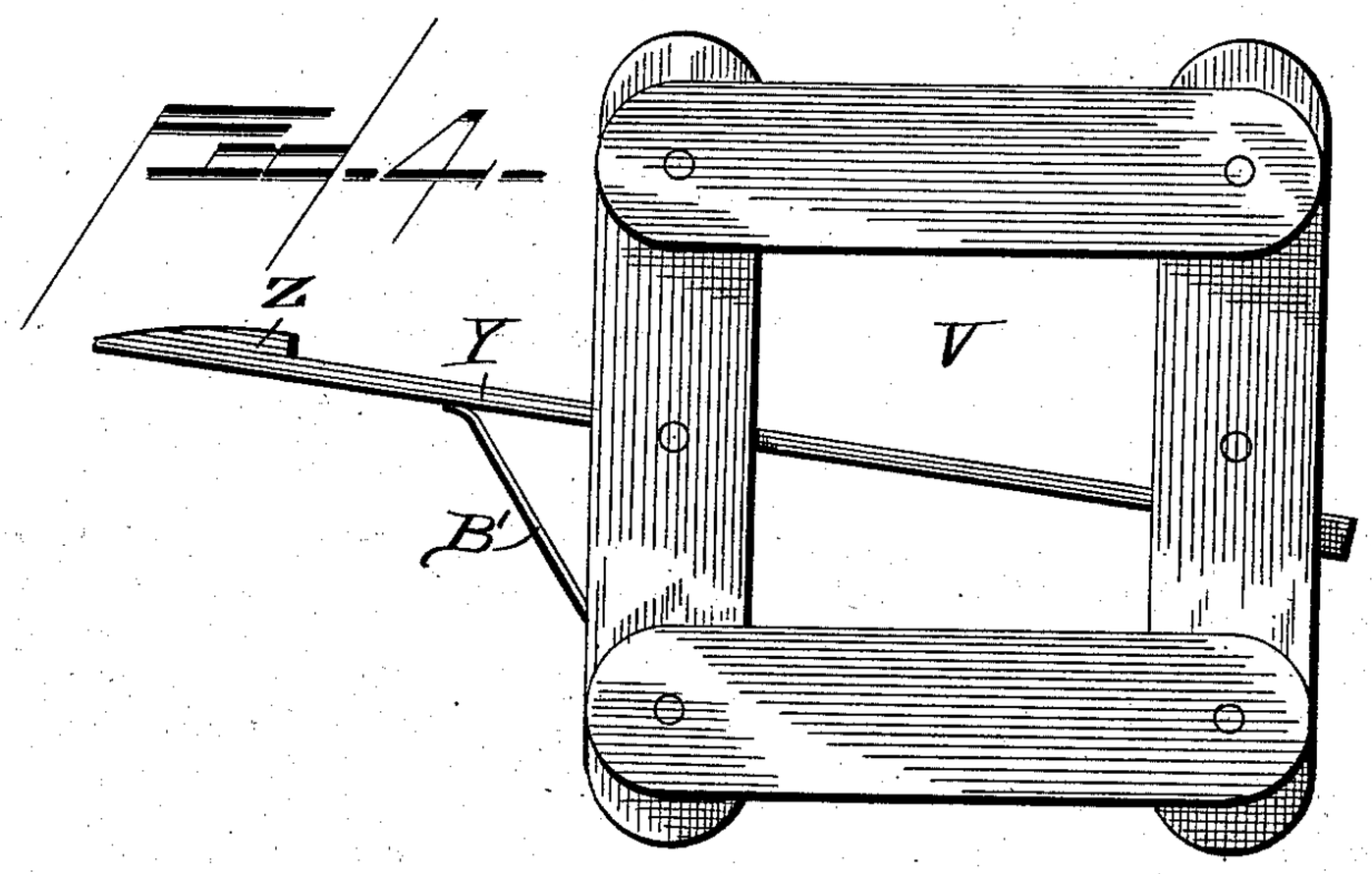
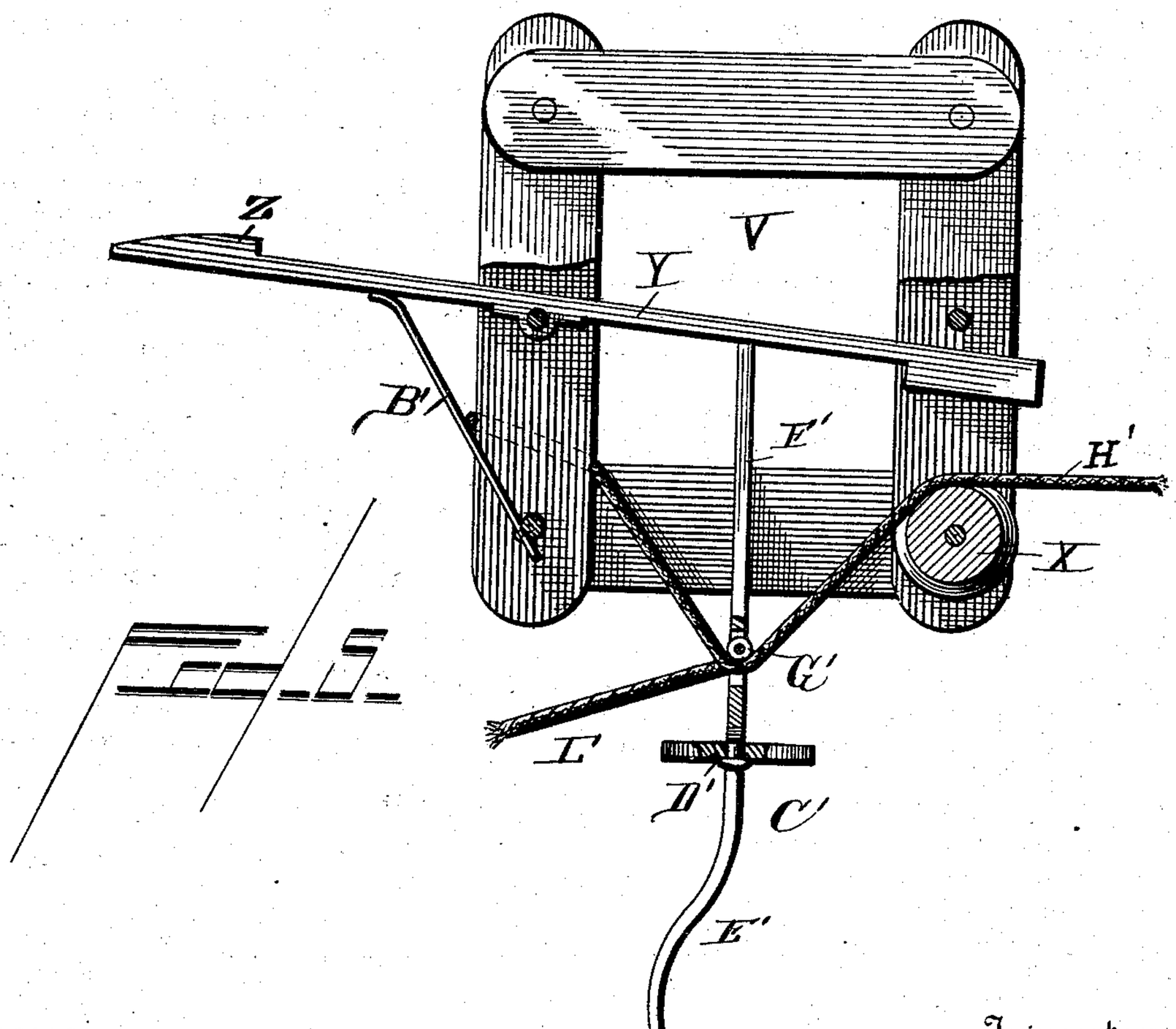


Fig. 5.



Witnesses
Henry G. Dieterich
J. C. Warner

Inventor
William Nightingale
By his Attorneys
C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

WILLIAM NIGHTINGALE, OF VALLEY, NEBRASKA.

HAY-STACKER.

SPECIFICATION forming part of Letters Patent No. 406,531, dated July 9, 1889.

Application filed December 21, 1888. Serial No. 294,288. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM NIGHTINGALE, a citizen of the United States, residing at Valley, in the county of Douglas and State of Nebraska, have invented a new and useful Improvement in Hay-Stackers, of which the following is a specification.

My invention relates to an improvement in hay-stackers; and it consists in the peculiar construction and combination of devices that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the drawings, Figure 1 is a side elevation of a hay-stacker embodying my improvement. Fig. 2 is a top plan view of the derricks or supports. Fig. 3 is an enlarged view of the upper end of one of the same. Fig. 4 is an enlarged side elevation of the carrier. Fig. 5 is a similar view, partly in section, showing the position of the hay-fork when tripping the detent. Fig. 6 is a detail.

A A′ represent a pair of derricks or supports, each of which consists of a series of sills B, having their central portions connected together by a pair of parallel beams C, which are bolted thereon, and from the center of the central beam B projects a vertical standard D, the lower end of which is arranged between the centers of the beams C. Brace-bars E have their lower ends secured on the ends of the central sill B and on the center of the outer sill, and have their upper ends arranged on three sides of the standard and bolted thereto, as shown, the function of the said braces being to prevent the upright or standard from inclining from a vertical position and to enable the same to withstand the strain to which it is subjected. On the inner side of each standard B is secured a series of stepping-cleats F, by means of which a person may very readily climb the said standards.

A pair of inclined plates or bars G are arranged at the base of the derrick A, with their lower ends bolted on the beams C and their upper ends bolted to opposite sides of the standards, and in the said plates or bars G is journaled a windlass H, which has a crank I, whereby it may be rotated, and is provided with a series of peripheral notches K, which may be engaged by a pawl L, that has its upper end pivoted on one side of the standard.

Near the upper end of each standard, on opposite sides thereof, are bolted a pair of right-angled irons M, which have their vertices projecting inwardly from the said standards. Between the said plates of the derrick A is journaled an anti-friction pulley N, and between the similar plates of the derrick A′ is secured the inner end of a metallic plate or arm O by means of a transverse bolt or pin P. On the under side of the said arm O, at a suitable distance from the inner end thereof, is an offset or shoulder R.

S represents a track-rope which has one end passed through an opening near the inner end of the arm O, said end of the rope being knotted on the lower side of the arm, and the said rope being lashed to the outer end of the arm, as shown. The said rope is then passed over the pulley N, and the lower end thereof is secured to the windlass H. By turning the latter the rope is tightened between the upper ends of the derricks, as shown. The said derricks are arranged a suitable distance apart, according to the length of the stack or rick, and are prevented from moving toward each other by guy-ropes T, the lower ends of which are secured to pegs or posts U, driven into the ground.

V represents a rectangular carrier-frame, in the upper corners of which are journaled grooved rollers W, that engage and travel on the track-rope S. In one of the lower corners of the said frame is journaled a sheave X, between the sides of the frame V, at the opposite end thereof, and about midway between its upper and lower edge is fulcrumed an arm Y, which has on its upper side at its outer end a detent Z, that is adapted to engage the shoulder R. The opposite end of the arm Y is weighted, and a spring B′ is secured between the sides of the frame and bears against the under side of the arm Y, the function of the spring being to keep the detent Z normally in engagement with the shoulder R.

C′ represents the hay-fork, which comprises a bar or plate D′ and a series of hooks E′, that depend therefrom. To the center of the bar or plate is swiveled an upward-extending arm F′, which is provided near its

lower end with an opening in which is journaled a sheave G′.

H′ represents an elevating-rope, which is attached to one of the lower corners of the carrier, passes through the opening in the arm F′, engages the sheave G′ therein, then passes over the sheave X, from thence passes over a sheave I′, near the upper end of derrick A, extends downward, passes under the sheave K′ at the base of said derrick, and at the free end of said rope is attached a whiffletree, to which a horse or other draft-animal may be hitched.

L′ represents a rope of suitable length, which is attached to the arm F′.

The operation of my invention is as follows: The apparatus is in its initial position when the carrier has its detent in engagement with the shoulder R. By lowering the hay-fork, by causing the animal attached to the elevating-rope H′ to back, the fork may be engaged with a load of hay on a wagon or sweep, and by starting the horse forward the rope H′ will cause the loaded fork to be elevated. When the arm F′ of the fork passes between the sides of the carrier-frame and engages the pivoted arm Y, it trips the latter in such manner as to disengage the detent Z from the shoulder R, and as the horse continues to advance the rope H′ draws the carrier along the track-rope toward the derrick A until the carrier reaches any desired point above the stack or rick, and by pulling upon the rope L′ attached to the arm F′ the fork may be inclined so as to discharge the hooks or tines thereof of the hay and cause the latter to fall upon the stack or rick. The animal is then backed, and a person stationed at the base of the derrick A′, by drawing upon the rope L′, causes the fork to return to its initial position.

The track-rope may be drawn to any requisite tension by rotating the windlass and causing the rope to coil thereon. The pawl L, by engaging the notches K of the windlass, prevents the latter from rotating in a retrograde direction, and thereby keeps the track-rope stretched.

Having thus described my invention, what I claim is—

1. The combination of the derricks, the angle-plates at the upper ends of said derricks, the track-rope having one end connected with the angle-plates of one of the derricks, a pulley journaled between the angle-plates of the other derrick and supporting the track-rope, a windlass having the free end of the track-rope attached and wound thereon, and a detent to prevent said windlass from rotating, substantially as set forth.

2. The combination of the derrick having the angle-plates at its upper end, the horizontal plate secured between said angle-plates and having a vertical perforation, and the track-rope having one end passed through said perforation and knotted and connected by lashing with the outer end of said plate, substantially as set forth.

3. The combination of the derricks, the angle-plates at the upper ends of said derricks, a pulley journaled between the angle-plates of one of said derricks, a horizontal track-plate secured between the angle-plates of the other derrick and having a beveled catch on its under side and a vertical perforation, the track-rope passing over the pulley between the angle-plates of one of the derricks and having one end passed through the said perforations and knotted and secured by lashing with the outer end of said plate, a windlass for tightening the said track-rope, and a carrier having a pivoted catch to engage the beveled catch upon the under side of the horizontal track-plate, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

WILLIAM NIGHTINGALE.

Witnesses:
JAMES P. STONER,
J. H. SIMONTON.