

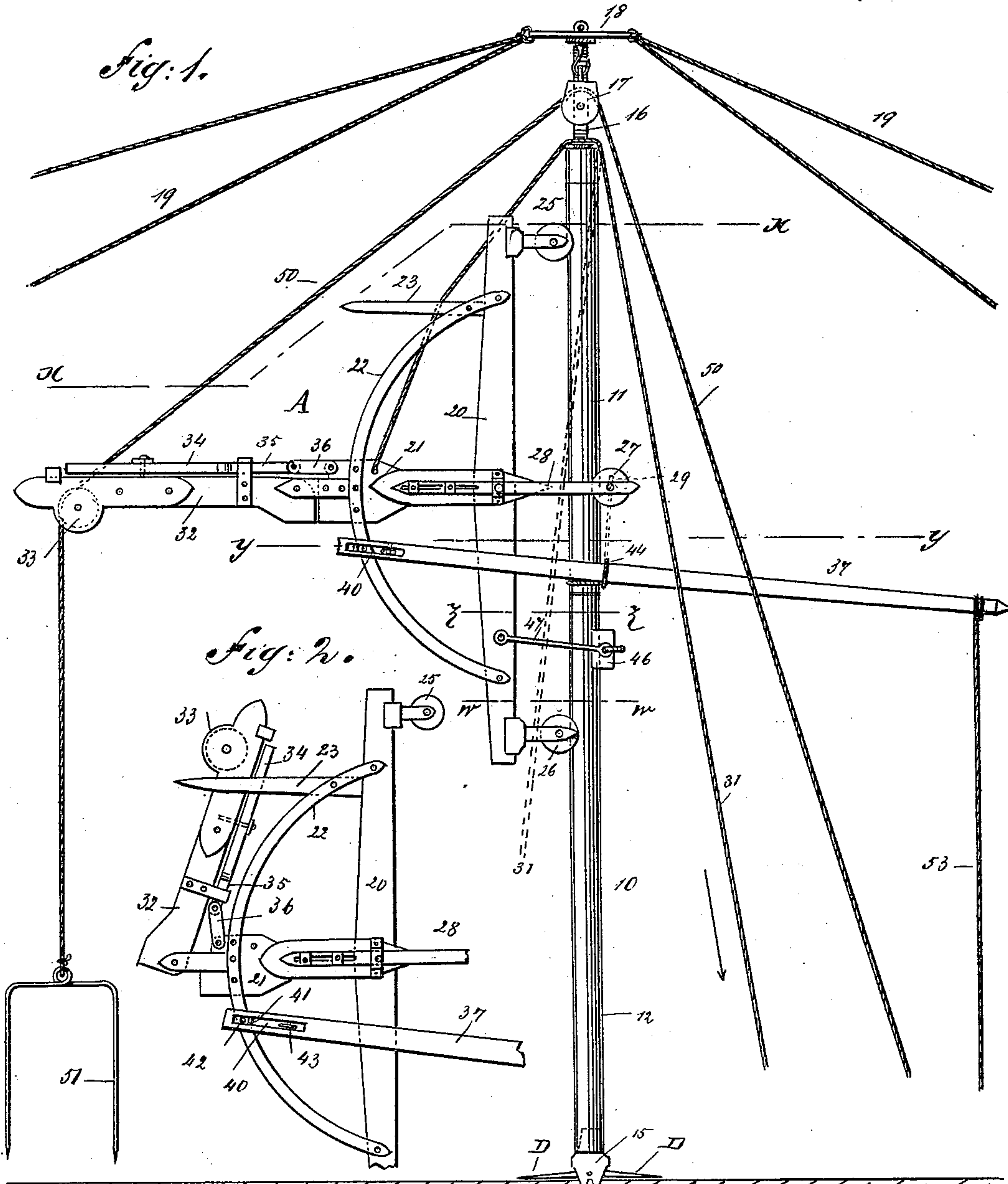
(No Model.)

2 Sheets—Sheet 1.

L. & T. SOSEMAN.
HAY STACKER.

No. 438,500.

Patented Oct. 14, 1890.



WITNESSES:

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C. Sedgwick

INVENTOR:

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ATTORNEYS

(No Model.)

L. & T. SOSEMAN.
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2 Sheets—Sheet 2.

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Fig. 3.

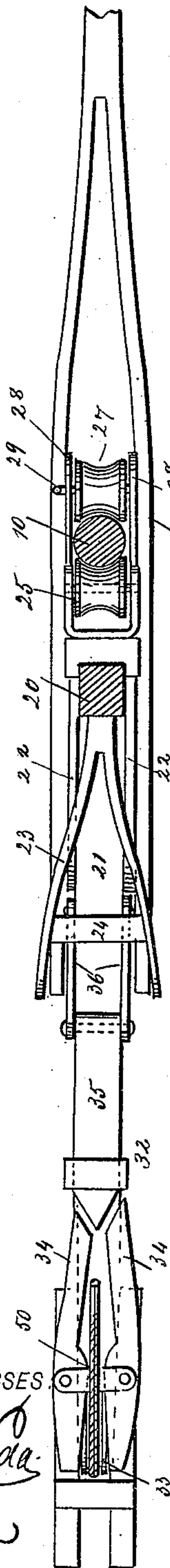


Fig. 5.

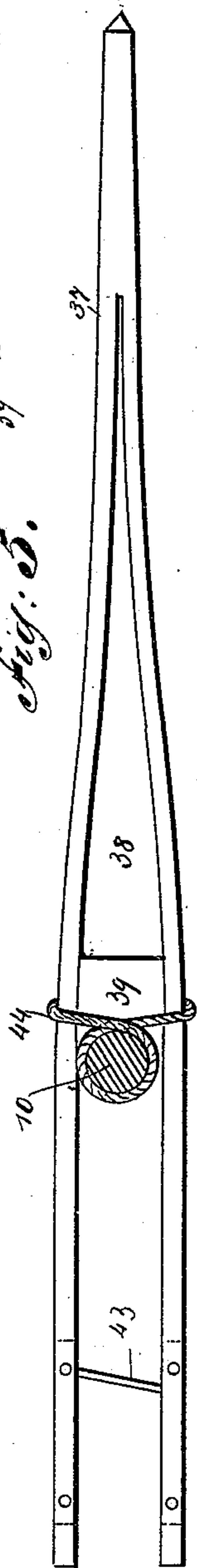


Fig. 4.



Fig. 9.

Fig. 7.

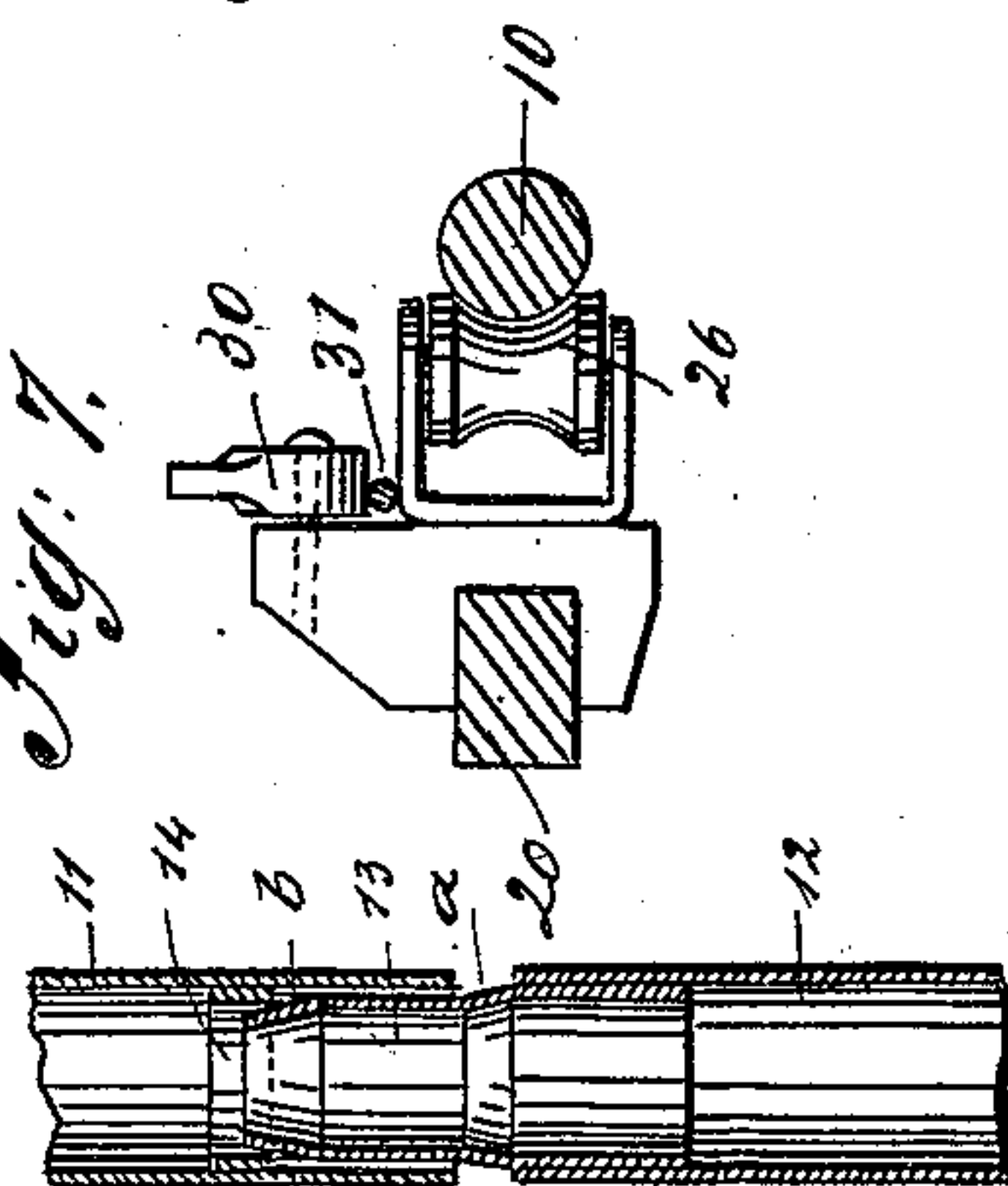


Fig. 6.

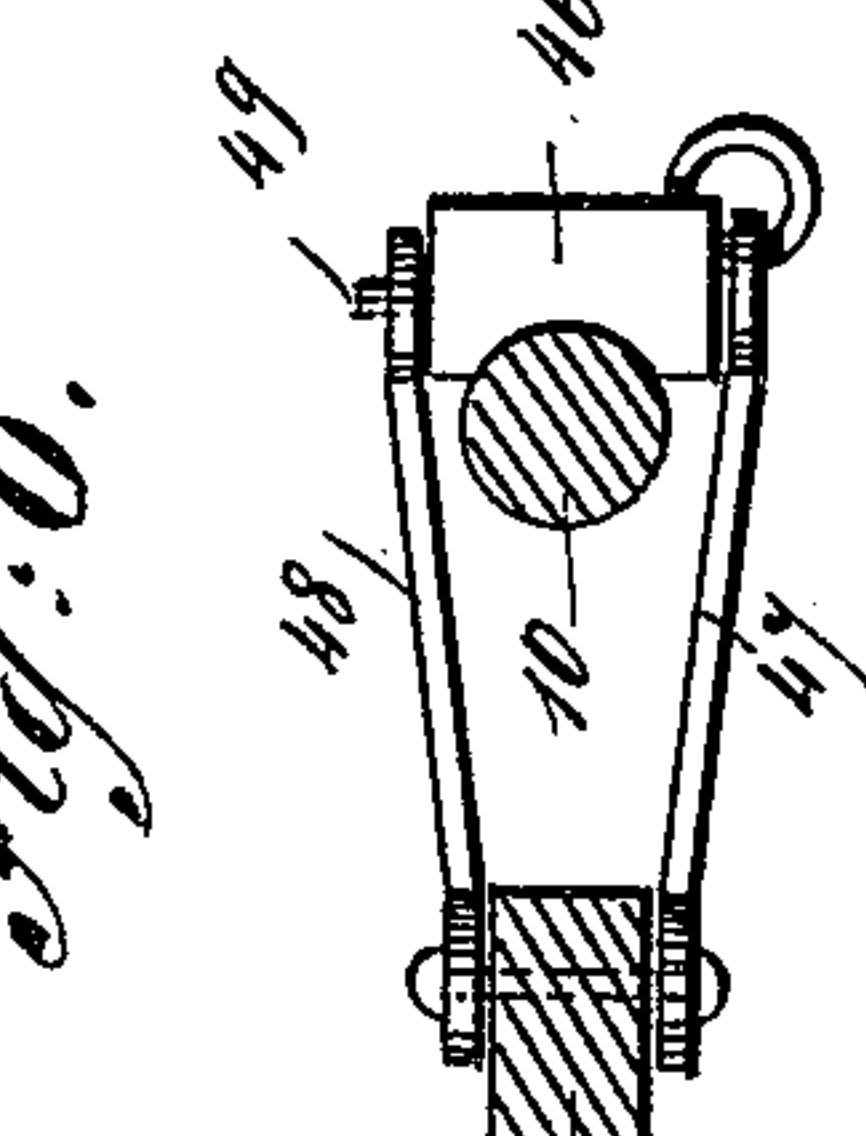
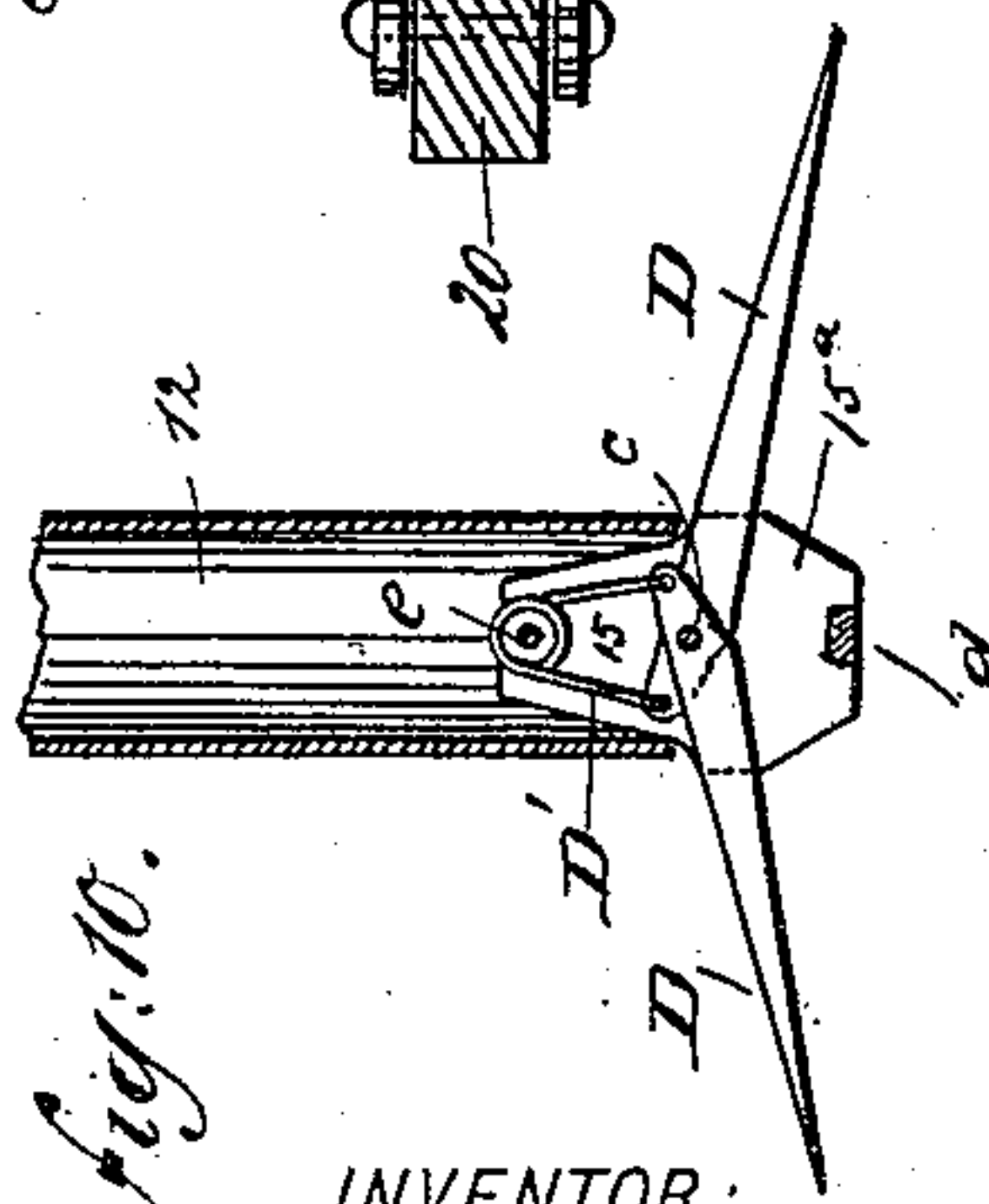


Fig. 10.



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UNITED STATES PATENT OFFICE.

LABAN SOSEMAN AND THOMAS SOSEMAN, OF OSKALOOSA, IOWA.

HAY-STACKER.

SPECIFICATION forming part of Letters Patent No. 438,500, dated October 14, 1890.

Application filed December 4, 1889. Serial No. 332,548. (No model.)

To all whom it may concern:

Be it known that we, LABAN SOSEMAN and THOMAS SOSEMAN, of Oskaloosa, in the county of Mahaska and State of Iowa, have invented a new and useful Improvement in Hay-Stackers, of which the following is a full, clear, and exact description.

Our invention relates to an improved hay-stacker, and has for its object to improve upon the construction of the stacker for which Letters Patent were granted to us, No. 339,818, and dated April 13, 1886.

The especial object of the invention is to simplify the construction of the stacker and provide a convenient means for raising the mast or pole of the stacker from the stack when completed, and to effectually prevent the pole or mast from falling back when elevated gradually in the completion of the stack; and a further object of the invention is to improve in the minor details of the above-mentioned patented invention.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters and figures of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the device. Fig. 2 is a side elevation of the derrick-arm, the same being illustrated in an elevated position. Fig. 3 is a transverse section on line $x x$ of Fig. 1. Fig. 4 is a transverse section on line $y y$ of Fig. 1. Fig. 5 is a transverse section on line $z z$ of Fig. 1, looking upward, and Fig. 6 is a similar section looking downward. Fig. 7 is a transverse section on line $w w$ of Fig. 1. Fig. 8 is a partial side elevation of the mast or pole, illustrating the application of a brake to the hoisting-rope. Fig. 9 is a detail view of the coupling-piece, and Fig. 10 is a detail view of boxing which carries the supporting-arms.

In carrying out the invention the mast or pole 10 may be made of any desired height and in any number of sections—preferably three—namely, an upper section 11, a lower section 12, and a coupling-section 13, all of which sections are ordinarily tubular. Within

the upper section, near its lower end, a ring 14 is shrunk, into which ring the upper reduced end of the coupling-piece 13 is forced, the lower end of the coupling 13 being shrunk or otherwise secured within the upper end of the lower section 12. The coupling is formed with the tapering sections $a b$, which engage, respectively, the ring 14 and the end of the section 11. Into the lower extremity of the lower section 12 a boxing 15 is driven, forming the fulcrum for the supporting-arms, which boxing is made in two sections, the construction of each section being identical.

Each of the sections of the boxing 15 is provided upon one longitudinal edge with a rib and upon the opposite longitudinal edge with a groove, the rib of one section being adapted to fit into the groove of the other section. When the two sections have been secured together by means of bolts or rivets located as hereinafter described, the lower end of the boxing will be open at opposite sides below the lower end of the mast-section 12, as illustrated at 15^a, and at the bottom of each rib of the sections a shoulder is formed. Each section is also provided upon its inner face at or near the bottom with a stop d . Within the boxing two arms D , having sharpened or tapering outer ends are pivoted, the fulcrum c of the said arms being one of the pins or rivets that binds the sections of the boxing together, the other pin or rivet e being passed through the sections near their upper ends. The arms D are of a length sufficient to extend outward in opposite directions beyond the sides of the boxing, and to the upper end of each arm the extremities of spring D' are secured, which spring is preferably coiled at or about its central portion. This spring D' normally holds the arms D in such position that they extend outward at an angle to the sides of the boxing.

In starting a stack the lower end of the pole or mast is made to rest upon the boxing, the arms being in their extended or normal position, assisting to support the mast, which is braced at the top by means to be hereinafter described.

When the stack has been built such a distance upward that it is necessary to raise the pole or mast, as the latter is elevated the arms D are forced down to an essentially ver-

tical position, the downward movement being limited by the stops *d*, whereupon the said pole or mast may be readily drawn upward through the hay. When the pole has been drawn a sufficient distance upward and released, as the mast settles back the arms D are forced by the spring D' outward again to their normal position, thereby imparting to the foot of the pole or mast a firm and secure support.

Upon the upper end of the pole or mast a cage 16, of any approved construction, is swiveled, within which cage a sheave 17 is secured, and upon the upper surface of the cage, attached thereto in any approved manner, a guy-plate 18 is pivoted, through which guy-ropes 19 are carried downward, having their lower ends secured to the ground to maintain the pole or mast in a perpendicular position.

In connection with the pole or mast a derrick-arm A is employed, consisting of a perpendicular timber 20, adapted to stand parallel with the mast or pole 10, which timber upon its outer edge at the center is provided with a horizontal extension 21 and two concentrically-curved braces 22, attached at their ends, one to each side face of the timber or beam 20 and at their centers to the side face of the extension 21.

From between the upper ends of the brace-rods 22 a forked arm 23 is horizontally projected from the beam 20, provided with a suitable cross-bar 24, and at the top and bottom of the beam 20, upon the inner side, or that side opposed to the pole or mast, friction-pulleys 25 and 26 are respectively attached, having a bearing against the mast, as illustrated in Figs. 1 and 3. A third friction-pulley 27 has a bearing upon the side of the mast or pole opposite to that against which the friction-rollers 25 and 26 contact, this central friction-roller being journaled between bars 28, secured to the inner end of the derrick-arm extension 21. The spindle of this central friction roller 27 is provided at one extremity with a hook 29. The bars 28 are preferably secured to the extension 21 by a bolt, the bars being slotted to receive the bolt. This arrangement is made in order that the bars may be moved to adjust the roller 27 to the mast. The bars are also secured to the beam 20 by means of stops or clamps beneath which they slide. Upon one end of the block to which the lower friction-roller 26 is pivoted a pawl 30 is fulcrumed, as best shown in Fig. 8, adapted to clamp the supporting-rope 31, hereinafter described, by gravity, when desired, which pawl does not interfere in the least with the downward movement of the rope, the action being automatic upon the upward movement.

The derrick-arm is completed by the addition of the outer section 32, hinged to the outer extremity of the extension 21. This outer hinged section of the derrick-arm is slotted at its outer extremity and provided with a friction-roller 33, and upon the upper face of this

extension near the outer end two clamping-jaws 34 are pivoted in such manner that when the jaws are separated or forced apart at their inner ends their outer ends will be closed to clamp a rope passing between them. This movement of the clamping-jaws 34 is effected through the medium of a tongue 35, having a pointed outer end and held to slide upon the upper face of the derrick-arm extension 32, the inner end of which tongue is connected with the stationary section 21 by links 36. Thus, as illustrated in Fig. 2, when the hinged section 32 of the derrick-arm is carried upward to an essentially vertical position and to a contact with the cross-bar of the forked stop 23, the links assuming an upward inclination force the tongue 35 between the inner ends of the clamping-jaws, causing their outer ends thereby to approach one another.

The lever 37, by which the derrick-arm is turned upon the mast or pole, and by which the pole or mast is raised by degrees or entirely from the stack, and which constitutes an important feature of the invention, is bifurcated the greater portion of its length, as illustrated at 38 in Figs. 4 and 5, in order that the members of the lever may pass out each side of the mast or pole and the beam 20 and curved brace-bars 22 of the derrick-arm. The lateral movement of the lever 37 is limited by a stop-block 39, secured between the members of the lever and adapted for contact with the pole or mast upon that side with which the central friction-roller 27 engages.

The lever extends upon both sides of the mast or pole, and in the outer end, or that end which is located beneath the derrick-arm, horizontally-aligning slots 40 are produced, which slots are divided by pins 41, and the outer end of the lever is held in contact with the derrick-arm by passing a bolt 42 through the slots 40 and through the curved brace-bars 22 of the derrick-arm.

When the lever 37 is to be employed solely for turning the derrick-arm A laterally, the bolt 42 is passed between the pins 41 and the outer end of the slots 40, as shown in Fig. 2; but when the lever is to be utilized for elevating the pole or mast, the bolt 42 is located, as shown in Fig. 4, between the inner end of the slot and the pins 41, whereby the lever at its outer end is capable of lateral movement; and in order to permit this change to be readily effected when occasion may demand the two members are connected by a hook 43, or its equivalent, the said hook being pivoted in the slot 40 of one member and engages with a pin in the slot of the opposite member. Thus by disengaging the hook from its pin the members of the lever may be sprung apart to facilitate the change of position of the bolt 42, and when said bolt has been properly placed the hook, when again engaged with its pin, retains the bolt in its position.

The lever 37 is secured to the mast or held in frictional contact therewith by means of

a rope or chain 44, or its equivalent, preferably a rope, carried once or twice around the pole or mast beneath the lever, and from thence upward over the same to a secure attachment to the upper face of the stop-block 39, as illustrated in Figs. 4 and 5. One end of this rope 44 only is permanently secured to the stop-block, the other end being provided with a loop for engagement with a pin 45 upon said block. The rope is secured to the lever in the manner above described, and as shown in Fig. 4, when it is desired to use the lever for elevating or raising the mast or pole. When, however, the lever is employed simply to swing the derrick-arm A laterally, the loop end 45 of the rope is made to engage with the hook 29 upon the end of the central friction-roller spindle, whereby the lever is made to maintain essentially a horizontal position.

In order to prevent the pole or mast from slipping down when elevated by the lever, a brake-block 46 is used, having one concave face adapted for contact with the pole or mast, as shown in Fig. 6. This brake-block is connected by a link 47 with one side of the vertical body-beam 20 of the derrick-arm, and is held in contact with the mast or pole by a second link 48, pivoted to the opposite side of the said body-beam 20, which link 48 has an eye at its outer free end adapted to receive a pin 49, projected from the brake-block, as shown in Fig. 6. The brake-block 46 does not interfere with the upward movement of the pole or mast, but positively checks any downward movement; and when the said brake-block is not in use for this purpose the link 48 is disconnected from the block, and the said block is permitted thereby to drop and swing freely out of contact with the pole.

The hoisting-rope 50 has any suitable form of fork 51 secured to its lower end, and passes up through the section 32 of the derrick-arm over the friction-roller 33, thence over the sheave 17, and downward to the ground. This hoisting-rope 50 is further provided with a knot or button, which when the fork is drawn upward a sufficient distance contacts with the lower surface of the hinged section 32, and carries said section up to the position shown in Fig. 2. The upward movement of the hinged section 32 is purposed to bring the loaded fork near the pole, and the object of the clamping-jaws 34 is to hold the hoisting-rope in order that by pulling upon the trip-rope attached to the fork the hinged section may be pulled back into a horizontal position and permit the fork to pass down to the mast upon the load. A second rope 31 is secured to the fixed section 21 of the derrick-arm, which leads upward through the cage and downward to the ground, preferably between the mast and the pawl 30. By means of this second rope the derrick-arm may be elevated upon the mast as occasion may de-

mand. A third rope 53 is secured to the handle end of the lever 37, to facilitate the lateral movement of the derrick-arm through the medium of said lever.

In the operation of lifting the pole or mast by means of the lever 37 the derrick-arm is made to rest upon the top of the stack, and the handle end of the lever is hoisted upward, the stack itself being utilized as a fulcrum.

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

1. In a hay-stacker, the combination, with the pole or mast and the derrick-arm, of a lever pivoted to the arm and contacting with the mast, and a rope secured at one end to the lever coiled around the mast and provided with an attachment at the opposite end for connection either with the lever or with the derrick-arm, substantially as set forth.

2. In a hay-stacker, the combination, with the pole or mast and the derrick-arm, of a lever pivoted to the arm and contacting with the mast or pole, a rope secured to one end of the lever and coiled around the mast, and provided with an attachment at the opposite end for connection either with the lever or with the derrick-arm, and a brake-block attached to the derrick-arm below the lever and contacting with the mast or pole, substantially as shown and described.

3. In a hay-stacker, the combination, with the pole or mast and the derrick-arm, of a lever pivoted to the arm and contacting with the mast, a rope connected with the lever and coiled around the mast, a brake-block adapted for contact with the mast, and links connecting the said brake-block and the derrick-arm, one of said links being detachable from said block, substantially as shown and described.

4. In a hay-stacker, the combination, with a mast or pole and a derrick-arm capable of vertical movement upon the mast and provided with a hinged member carrying clamping-jaws, of a lever adjustably pivoted to the body of the derrick-arm, a rope coiled around the mast or pole and connected with the lever, a brake-block adapted for contact with the pole or mast below the lever, and links connecting the said block with the body of the derrick-arm, one of said links being detachable from said block, substantially as set forth.

5. In a hay-stacker, a pole or mast consisting, essentially, of two sections united by a coupling-piece, a sheave-carrying cage, and a guy-plate pivoted at the upper end, and a boxing provided with spring-actuated arms detachably held at the lower end, substantially as shown and described.

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Witnesses:

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F. S. HOLMES.