



No. 616,628.

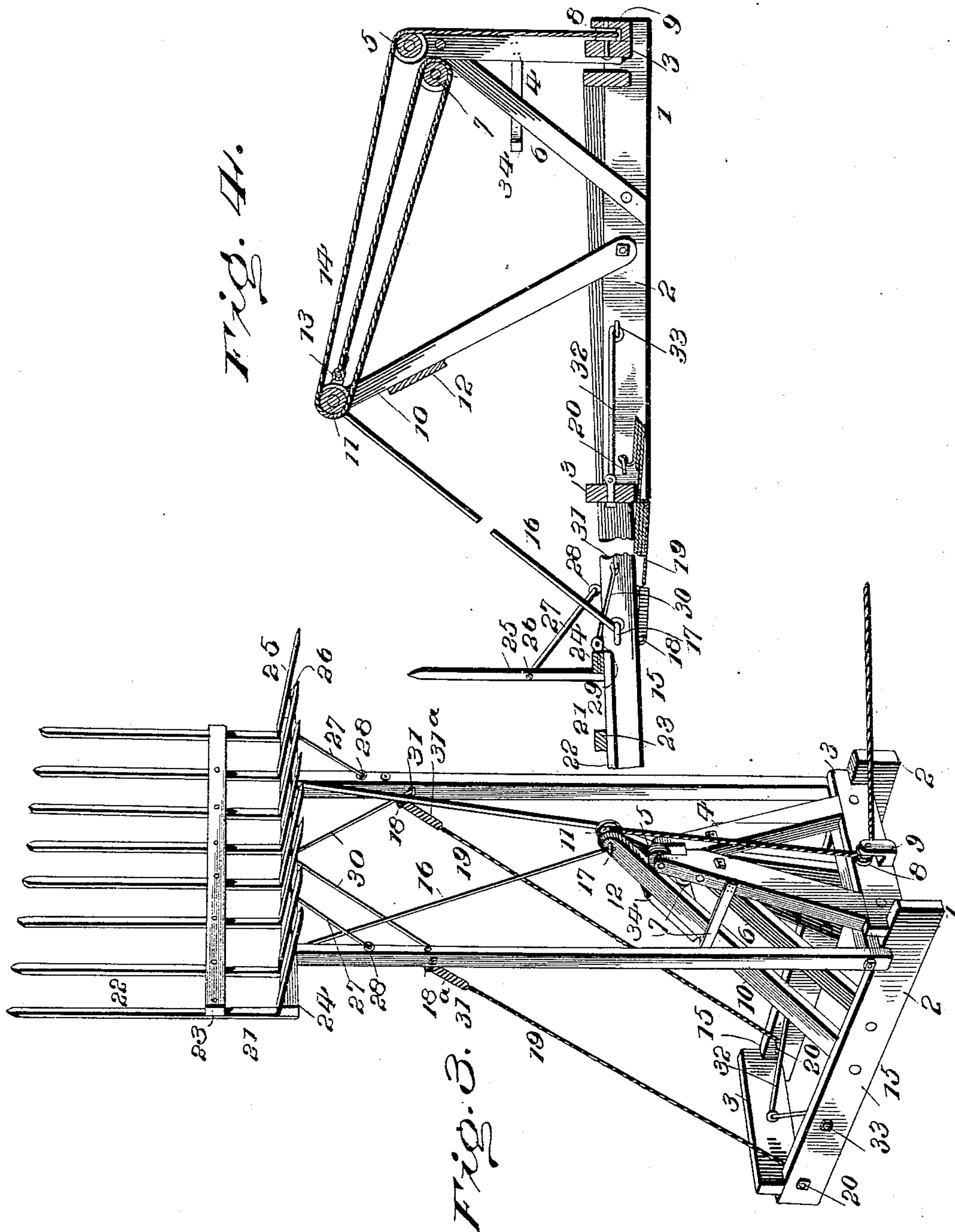
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W. H. NEY.  
HAY STACKER.

(Application filed Sept. 17, 1898.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## HAY-STACKER.

SPECIFICATION forming part of Letters Patent No. 616,628, dated December 27, 1898.

Application filed September 17, 1898. Serial No. 891,175. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM HENRY NEY, a citizen of the United States, residing at Fowler, in the county of Otero and State of Colorado, have invented certain new and useful Improvements in Hay-Stackers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to hay-stackers; and it consists of the construction and arrangement of parts more fully hereinafter described and claimed.

The object of the invention is to facilitate stacking hay by providing a machine of simple and durable construction and which will expedite the operation sought to be carried out with a greater degree of certainty and by the use of which a large quantity of hay can be elevated through the medium of a minimum amount of applied power as compared with other similar devices.

In the accompanying drawings, Figure 1 is a perspective view of the improved stacker, shown in normal position and as ready to receive a charge or quantity of hay. Fig. 2 is a similar view showing the fork or carrier as partially elevated. Fig. 3 is a similar view showing the fork or carrier completely elevated. Fig. 4 is a longitudinal vertical section through the improved stacker as shown arranged in Fig. 1.

Referring to the drawings, wherein similar numerals are utilized to indicate corresponding parts in the several views, the numeral 1 designates a base-frame composed of opposite side bars 2, connected by transverse end bars 3. This base-frame is adapted to be moved from one place to another and is of such dimension as to provide a stable support for the mechanism, which will be hereinafter set forth, irrespective of the weight of the hay or other material being elevated. Rising from one of the transverse cross-bars 3 is a stationary standard 4, of triangular form and having a sheave or pulley 5 journaled in the upper end thereof. To reinforce the said standard against strain incidental to the operation, which will be hereinafter described, braces 6 are secured to the upper portion thereof and also to the inner parts of the side bars 2. On

the upper part of said braces, in advance of the standard, a sheave or pulley 7 is secured, and to the transverse cross-bar 3, from which the standard rises, a sheave or pulley 8 is also attached and held within a boxing 9, the latter sheave or pulley being placed flat against the said cross-bar, so as to permit the operating rope or cable, which will be presently set forth, to extend off from the stacker in a lateral direction.

In advance of the points to which the braces 6 are connected to the side bars 2 the lower ends of the opposite parts of a triangular derrick 10 are pivotally attached to said bars, and in the upper end of said derrick is a sheave or pulley 11. The upper part of the derrick is strengthened by the application of a tie plate or strip 12 on one side, and at the top, in the rear of and below the sheave or pulley 11, an eye 13 is secured, and thereto is attached one end of a rope or cable 14, which is passed over the sheave or pulley 7 on the braces 6, thence forward between the opposite parts of the derrick 10 and over the sheave or pulley 11 and rearward over the sheave or pulley 5 in the upper part of the standard 4, and then down under the sheave or pulley 8, from whence it extends off from either side of the machine a suitable distance.

Pivotally attached to the upper outer portions of the side bars 2, adjacent the location of the standard 4, are the ends of oppositely-situated fork or carrier arms 15, which are longer than the base-frame 1 and have a clear space between them, so as to readily pass over and not be obstructed by the other parts of the device. The outer portions of the said arms have tie devices 16 attached thereto and converge toward the rear and are secured to the upper part of the derrick. These tie devices are connected, respectively, to the arms 15 and the derrick, eye or ring bolts 17 being utilized for the purpose. Also attached to the arms 15 through the medium of eye or ring bolts 18 are the upper ends of limiting ropes or cables 19, which have their lower ends connected to eye or ring bolts 20 in the rear portions of the side bars 2. The limiting ropes or cables 19 are long enough to permit the arms 15 to assume the position shown by Fig. 3 and a little beyond to prevent the said arms from falling backwardly over the



standard 4 beyond a predetermined distance. Secured to the free ends of the arms 15 is a fork or carrier 21, which is composed of a plurality of long fingers 22, extending in the direction of the said arms and held in a definite relationship to each other by a cross-strip 23, which is secured to said arms. A second strip 24 is attached to the rear terminations of the fingers 22 and also to the arms 15, and projecting from the edge or side thereof nearest the strip 23 are a series of shorter fingers 25, preferably arranged in a plane at right angles to the fingers 22. These fingers 25 are strengthened by the application of a cross-bar 26, which also serves to hold them in proper position relatively to each other, and to the finger on each side nearest the outer finger of the series of fingers 25 a tie-brace 27 is connected, and also to the adjacent part of the bar 15. These braces 27 are easily attached to the bars 15 by means of eye or ring bolts 28, and the purpose of these braces is to firmly support the fingers 25. To further strengthen and reinforce the fork or carrier, the eye or ring bolt 29 is attached to the central strip 24, and extending therethrough and projecting divergently away therefrom is a brace 30, having its free ends connected to the inner parts of the side bars 15 by means of eye or ring bolts 31. The brace 30 will assist the tie-braces 27 in performing their function and under normal conditions also serve to tightly hold the fork or carrier in connection with the arms 15. It will be observed that the standard 4 is shorter than the derrick 10, so that the latter may be drawn over on the said standard, as shown by Fig. 3, and permit the arms 15 of the fork or carrier to clear all parts when completely elevated.

At the points where the limiting-ropes 19 connect with the arms 15 retractile springs 31 are interposed between the said ropes and their eyebolts. The purpose of these springs is to draw the arms 15 and the fork or carrier connected thereto back over the center when the hay has been delivered, and after the fork or carrier is relieved of its weight the said springs will automatically operate in the manner stated in the event of the arms passing the point set forth. Braces 32 are attached to the inner portions of the side bars 2 and the front ends of the bars 3 by eye or ring bolts 33, so as to firmly tie this part of the base-frame against the strain that may come thereon through the attachment of the limiting-ropes 19 at this point and also to resist any tendency to spread. Safety-springs 34 are also applied to the standard 4 near the top thereof to hold the derrick in position to top out stack. The springs 34 are released from the derrick by being drawn outwardly by hand.

It will be observed in the operation of the rope or cable 14 that it moves more nearly direct in a circle owing to the interposition of the standard 4 and that much less power

is required to raise the weight supported by the fork or carrier than when the draft is on an acute angle with the derrick, as is the usual arrangement in devices of this class as heretofore constructed.

In operation it will be observed that the hay to be stacked is placed in the fork or carrier and the arms 15 elevated by means of the rope or cable 14, which draws the derrick 10, through the arrangement of the said rope or cable as set forth, toward the standard 4, and through the medium of the connecting devices 16 between the upper part of the derrick 10 and the arms 15 the latter and the fork or carrier are gradually and proportionately raised until the proper elevation is reached. After the load of hay is delivered from the fork or carrier the rope or cable 14 is slackened and through the devices specified the arms 15 are thrown over the center and permitted to freely gravitate to place the fork or carrier in such position as to be again conveniently loaded.

Among the many advantages of a swinging derrick working in combination with a hinged or swinging fork or carrier over a stationary or fixed derrick two leading or important ones may be mentioned—viz., first, the manufacture of the apparatus is considerably cheapened, because the swinging derrick does not have to be braced and supported as a stationary or fixed derrick would, and for this reason the device is also less bulky and can be easily taken apart when desired; secondly, the advantage of a swinging derrick connected to the arms of the fork or carrier and pivoted near the center of gravity of the said arms and fork or carrier is that in moving in a circle as the arms and fork or carrier are raised it is always in position to bear the burden of the upward-and-over movement of the draft required to raise the fork or carrier, and no more power is required to elevate the fork or carrier the first part of its movement than is necessary to keep it moving after it is started, particularly when the rope or cable moves more nearly in the arc of a circle, and the derrick being pivoted near the center of gravity of the fork or carrier, with the tie devices spreading out and connecting them, does in its upward-and-over movement bear the principal burden and carries it up steady, though more hay is on one side of the fork or carrier than on the other.

Changes in the general proportions and dimensions, as well as in the details of construction, could be resorted to without in the least departing from the nature or spirit of the invention or sacrificing any of the advantages thereof.

Having thus described the invention, what is claimed as new is—

1. In a hay-stacker, the combination of a base-frame having a sheave or pulley on one end thereof, an immovable standard rising from the end of said frame at which the sheave or pulley is located and having pulleys or



sheaves at different elevations in the upper part thereof, a swinging derrick pivoted to the opposite sides of the base-frame intermediate the ends thereof and having a pulley in 5 the upper end of the same, said derrick being of greater elevation than the standard, a pair of fork or carrier arms pivoted to the base-frame adjacent the position of the standard and adapted to move over the derrick and 10 standard, a fork or carrier attached to the free ends of the said arms, tie devices between the upper end of the derrick and the outer or front portions of the said arms, limiting ropes or cables connected to the arms and base, 15 springs being interposed between the latter ropes or cables and the arms, and an operating rope or cable having one end secured to the derrick, passed through the lower sheave or pulley of the standard, then over the sheave 20 or pulley of the derrick, over the upper sheave or pulley of the said standard and down around the sheave or pulley on the end of the base.

2. In a hay-stacker, the combination of a 25 base having a sheave or pulley on one end, a

rigid standard rising from the base adjacent the end at which said pulley or sheave is located and having pulleys or sheaves at varying elevations in the upper end thereof and forwardly-projecting locking-springs below said 30 pulleys, a swinging derrick pivoted to the base intermediate the ends of the latter and having a pulley in the upper part thereof, said derrick being removably engageable by said locking-springs and having a pulley in its 35 upper end, a pair of arms pivoted to the base, a fork or carrier on the free ends of the arms, limiting-cables yieldingly connecting said arms to the base, a tie device between the top of the derrick and the arms, and an operating 40 rope or cable connected at one end to the derrick and engaging the pulleys or sheaves of the latter and those on the standard and base.

In testimony whereof I affix my signature 45 in presence of two witnesses.

WILLIAM HENRY NEY.

Witnesses:

AUGUSTUS TRENT,  
P. ANDERSON.