(No Model.)

D. V. GARRISON.
PORTABLE HAY DERRICK.

No. 494,473. Patented Mar. 28, 1893.

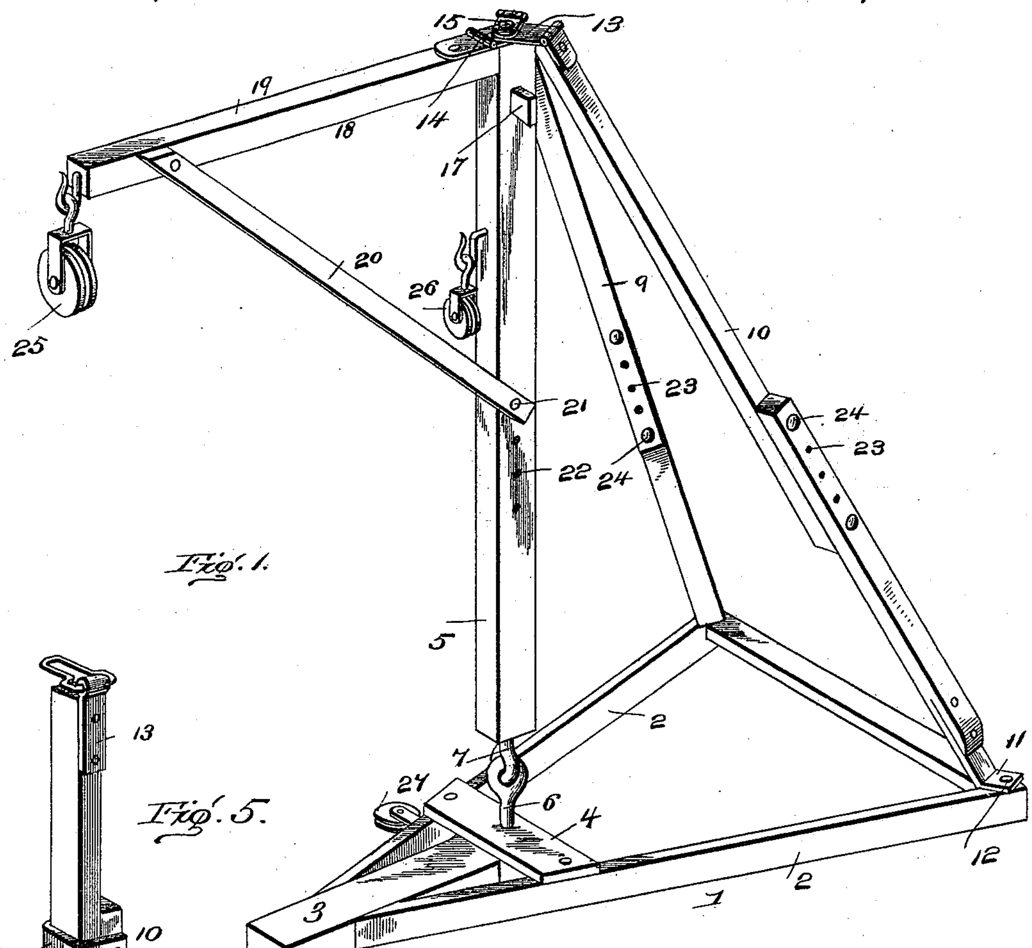

Fig. 1.

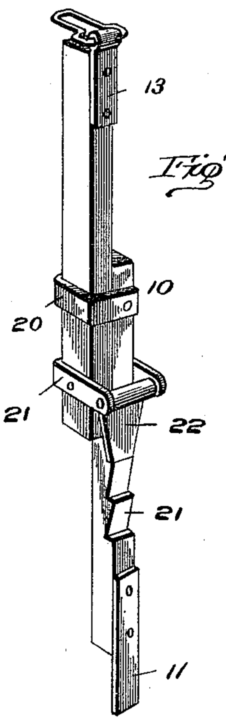

Fig. 5.

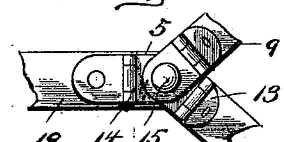

Fig. 2.

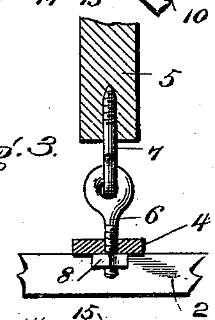

Fig. 3.

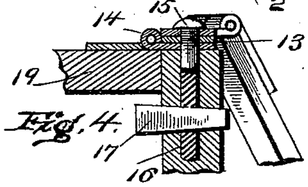

Fig. 4.

Witnesses:
[illegible]
[illegible]

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UNITED STATES PATENT OFFICE.

DAVID V. GARRISON, OF REMINGTON, INDIANA.

PORTABLE HAY-DERRICK.

SPECIFICATION forming part of Letters Patent No. 494,473, dated March 28, 1893.

Application filed October 18, 1892. Serial No. 449,233. (No model.)

To all whom it may concern:

Be it known that I, DAVID V. GARRISON, a citizen of the United States, residing at Remington, in the county of Jasper and State of Indiana, have invented certain new and useful Improvements in Portable Hay-Derricks; 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.

My invention relates to improvements in portable derricks especially adapted for use by farmers for elevating hay upon stack and rick, and the objects in view are to enable the derrick to be quickly lowered for transportation purposes; to provide for the adjustability of the main upright and its bracing appliances and thus enable the derrick to be adjusted to raise the load to any desired elevation within the limits of the main upright; and to simplify the construction, render the adjustability of the parts easy, and the operation of the derrick efficient and reliable.

With these ends in view, the invention consists in the novelties of construction, and in the combination and arrangement of parts, as will be hereinafter fully described and claimed.

I have illustrated the preferred embodiment of my invention in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective view. Fig. 2 is a plan view. Fig. 3 is an enlarged detail sectional view illustrating the manner of connecting the lower end of the main upright to the bed of the derrick. Fig. 4 is a detail view of the means employed to connect the hinges, between the braces and upright, to the said upright, and Fig. 5 is a detail perspective view of the preferred form of adjustable brace bar for the upright or post.

Like numerals of reference denote like parts in all the figures of the drawings.

1 designates the bed of my portable and adjustable hay derrick, which bed preferably consists of the longitudinal runners 2, 2, which are inclined from their front toward their rear ends, a draft tongue 3 fitted and secured between the front meeting ends of said inclined runners, and a transverse connecting piece 4 united rigidly to the rear end of the draft tongue and to the runners 2 at a suitable distance from their front ends, all of said parts being rigidly united together to present a substantial structure for supporting the main upright and other parts of the derrick.

5 is the main upright which is connected at its lower end to the bed in a manner to permit it to be lowered or raised and adjusted at any desired inclination. The means for connecting said upright to the bed is shown more clearly in Fig. 3, and it consists of the two eye-bolts 6, 7, which are interlocked together so as to permit the movable bolt 7 to have free movement on the fixed bolt 6 when the upright 5 is folded or adjusted; said fixed bolt 6 being passed through the draft tongue or the connecting piece 4 and fastened by a nut 8 fitted in the lower threaded end of the bolt and bearing against the tongue 3 or cross piece 4, while the movable bolt 7 is forced or driven firmly into a hole or socket formed in the center of the upright 5, at the lower end thereof.

The upright 5 is braced by the inclined bars 9, 10, which meet with each other at the upper end of the upright, and which diverge from each other toward the rear ends of the inclined runners 2 of the bed 1. The lower ends of the inclined diverging bars are connected to the rear ends of the inclined runners by means of the irons 11, each of which has one end fixed to one of the bars in any suitable way and its other end detachably connected, by a bolt or pin 12, to one of the runners 2 so as to permit the irons and bars 9, 10, to be disconnected from the runners when it is desired to lower the upright 5 on the bed 1, which is possible by reason of the pivotal connection 6, 7.

The upper ends of the inclined bars 9, 10, are each provided with a hinge 13, one member of which is fastened rigidly to the bar, and the other members of said hinges 13 are fastened, with the hinge connection 14 between the upright 5 and a crane presently described, by means of a common or single bolt 15 which is passed through the hinge leaves 13, 14, and into a longitudinal socket 16 formed in the upper end of the upright 5, a transverse key or fastening pin 17 being

passed transversely through openings in the upright 5 and the fastening bolt 15, as shown by Fig. 4.

18 is the vertically adjustable crane, consisting of the horizontal arm 19 and the inclined brace 20, said arm and brace being rigidly fastened together in any desirable way. The horizontal arm of the crane is connected at its inner end to the upper end of the upright 5 by the hinge 14 which permits of the crane being moved or adjusted vertically on the upright 5 without affecting the position of the latter, and said crane-arm 19 is sustained rigidly in its adjusted position by the brace 20 which has its lower end connected adjustably to the upright 5 by means of a pin 21 that is adapted to be fitted in any one of a series of transverse apertures 22 provided in the upright 5 along its length. As the crane can be adjusted vertically on the standard or upright 5 to deposit the load on a hay stack or rick at different heights, it is important that the upright itself shall be adjustable at different angles as well as regards its height from the ground, in order that the base or bed 1 shall be clear of the stack or rick or place where the hay is deposited. This variability of inclination in the upright is effected by making the bars 9, 10, extensible longitudinally, said bars each consisting of two parts provided with coincident openings 23 in their meeting ends and fastened together by transverse bolts 24, whereby the bars can be extended or contracted between their points of connection to the runners 2 and the upright 5.

This being the construction of my derrick, the operation may be described as follows:—Assuming that the derrick is in the position for use shown by Fig. 1, the hoisting rope is passed through the pulleys 25, 26, 27, on the crane, upright and base, and the load is elevated by drawing on the rope in the usual manner. As the stack or rick increases in height, the crane is raised on the hinge 14 by detaching the bolt 21, lifting the brace 20, and thrusting the bolt through one of the higher apertures 22 in the upright; if it is desired to still further raise the crane, the upright 5 is moved in its vertical position by shortening the bars 9, 10, which connect the upright with the rear end of the base. The upright can be lowered or folded on the base, when it is desired to transport the derrick, by removing the bolts or pins 11, and then turning the upright 5 on its pivotal connection 6, 7, after which the bars 9, 10, can be folded over upon the derrick, whereby the parts are all compactly folded for convenient transportation.

It is evident that changes in the form and proportion of parts and details of construction of the devices herein shown and described as an embodiment of my invention can be made without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve the right to make such changes and alterations as fairly fall within the scope of the same.

In Fig. 5 of the drawings I have shown the preferred form of the inclined brace bar for the upright 5, which as described consists of two members which are slidably connected together by the clasp 20 which is fixed to the upper end of the lower section so as to loosely embrace the upper section and by another clasp 21, the latter being fixed to the lower part of the upper section and loosely fitted around the lower section so as to slide freely thereon, said sliding clasp 21 carrying a gravity pawl 22 which is pivoted in the clasp 21 and adapted to engage with any one of a series of teeth or notches 23 on the lower section of the brace or bar whereby the length of the bar can be readily changed to suit the position of the upright 5 and the sections of the bar are firmly held together. The hinge at the upper end of the brace bar may be of the form shown by Fig. 5; *i. e.*, a fixed strap and a loop pivoted in the strap and having the contracted eye for the reception of the fastening bolt, as shown.

What I claim as new is—

1. In a portable derrick, the combination, with a bed, and a crane, of the upright pivotally connected to the bed, the rear brace-bars intermediate the upright and bed, the hinges fastened to the crane and the brace-bars, and the common bolt passing through lapped parts of the hinge-leaves, into the upright, and held by a transverse key which is fitted in the post and the lower end of the bolt, substantially as described.

2. In a portable derrick, the combination of a bed, an upright pivotally connected at its lower end to the bed, the crane having a hinge connection with the upper end of the upright and braced by an arm which is adjustably connected to said upright, the extensible brace-bars detachably connected at their lower ends to the bed and having hinge-connections with the upper end of the upright, and a single fastening which unites the hinge-connections of the crane and brace-bars to the upper end of the upright, as and for the purpose described.

3. In a portable derrick, the combination of a bed, an upright carrying the crane, and the adjustable brace bars intermediate the bed and upright and each comprising the extensible members, one having the teeth or notches and the two clasps fixed to the respective sections and one clasp having a pawl to engage with the teeth or notches, substantially as described.

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

DAVID V. GARRISON.

Witnesses:
A. M. WAUGH,
WM. TOWNSEND.