

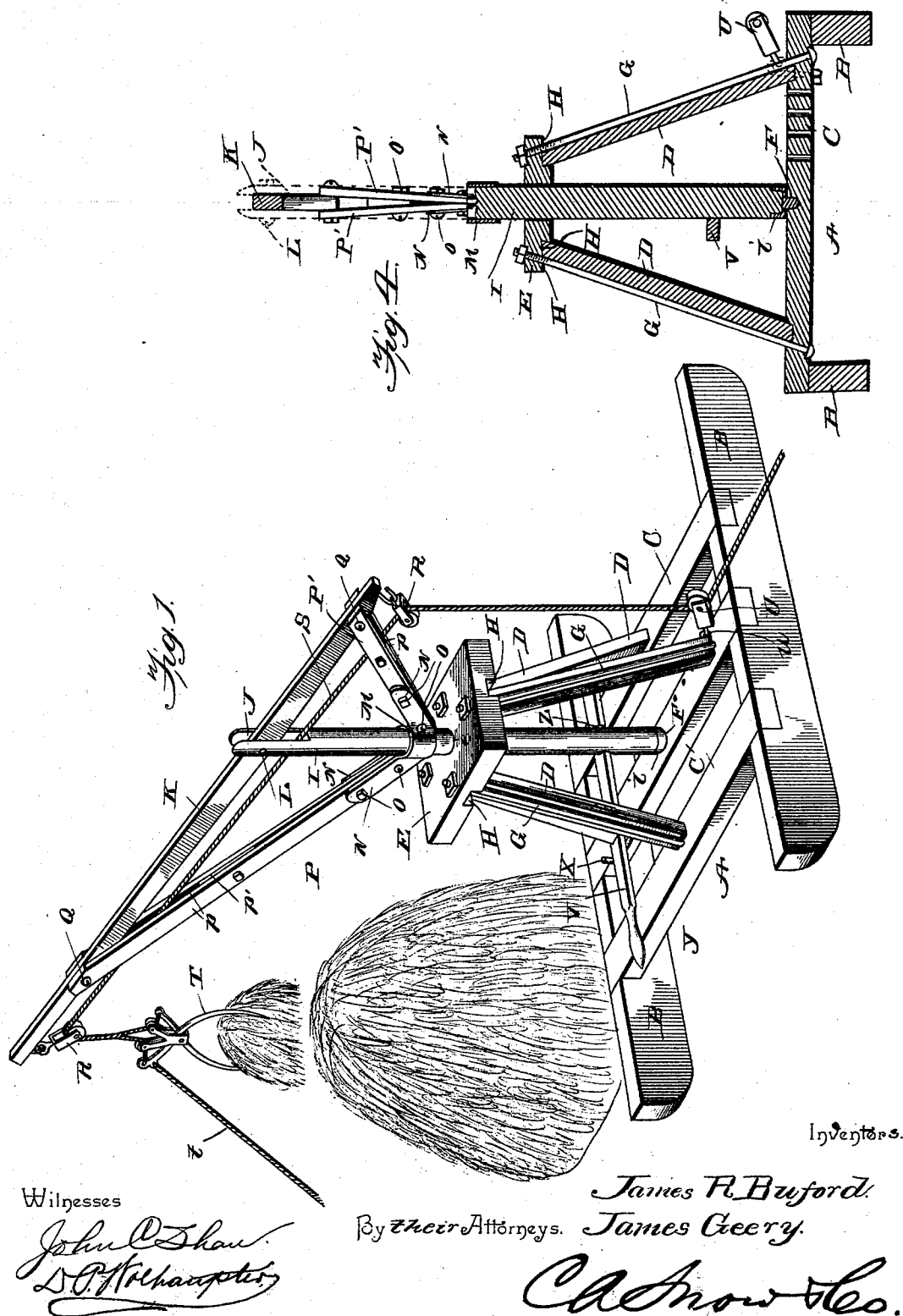
(No Model.)

2 Sheets—Sheet 1.

J. R. BUFORD & J. GEERY.
HAY DERRICK.

No. 518,584.

Patented Apr. 24, 1894.



Inventors.

James R. Buford.

By their Attorneys. James Geery.

C. A. Snow & Co.

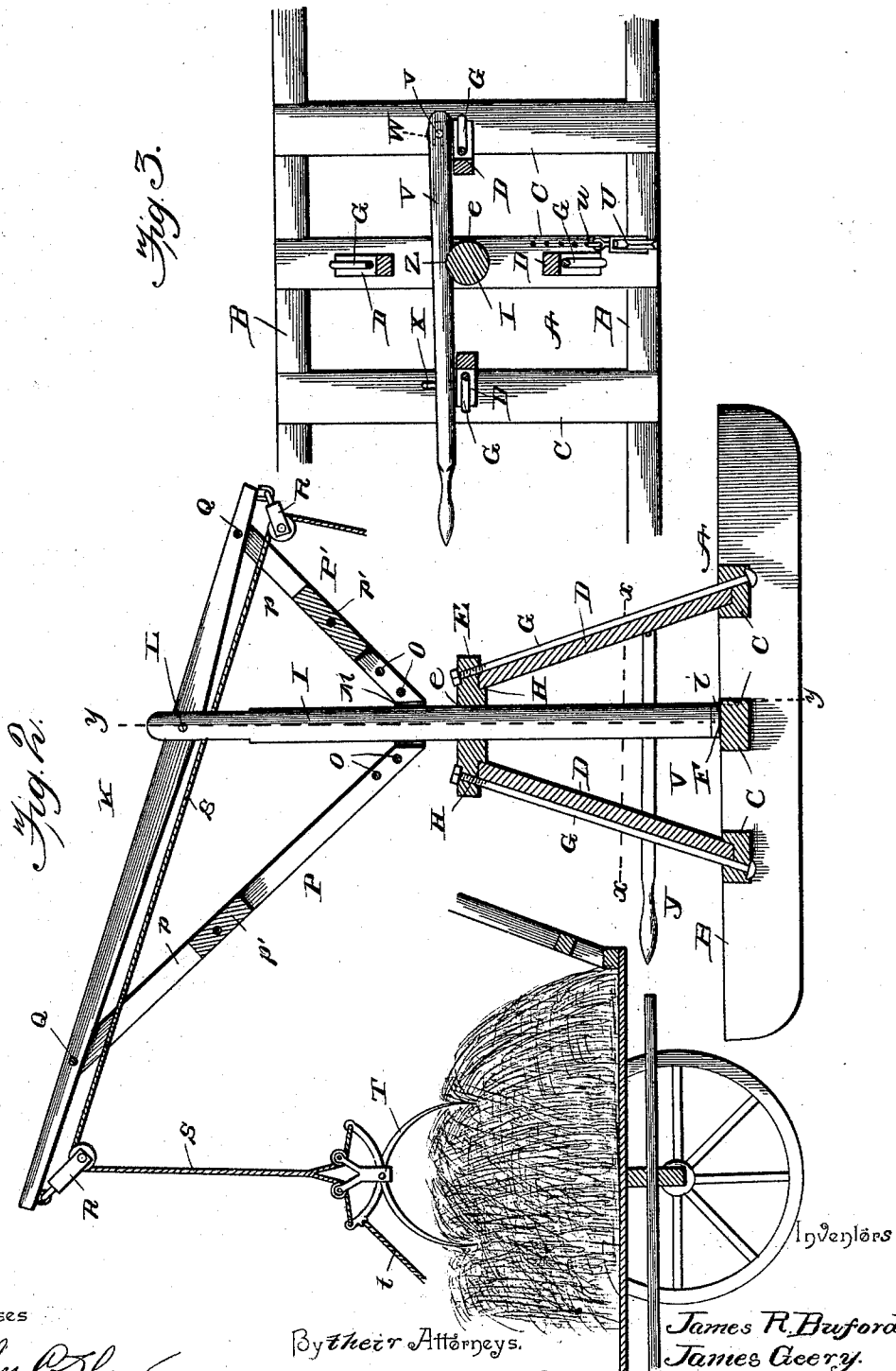
Witnesses

John D. Shaw.
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UNITED STATES PATENT OFFICE.

JAMES R. BUFORD AND JAMES GEERY, OF LANCASTER, MISSOURI.

HAY-DERRICK.

SPECIFICATION forming part of Letters Patent No. 518,584, dated April 24, 1894.

Application filed July 28, 1893. Serial No. 481,758. (No model.)

To all whom it may concern:

Be it known that we, JAMES R. BUFORD and JAMES GEERY, citizens of the United States, residing at Lancaster, in the county of Schuyler and State of Missouri, have invented a new and useful Hay-Derrick, of which the following is a specification.

This invention relates to hay derricks; and it has for its object to provide an improved derrick of this character that is especially adapted for use as a hay stacker, for hoisting and moving hay from the shock or wagon to the stack and also from the stack to a wagon.

To this end the main and primary object of the present invention is to provide an improved and strengthened derrick capable of being readily transported from place to place while very efficient in operation, being automatic in swinging the load over to the point of deposit.

With these and other objects in view which will readily appear as the nature of the invention is better understood the same consists in the novel construction, combination and arrangement of parts, hereinafter more fully described, illustrated and claimed.

In the accompanying drawings:—Figure 1 is a perspective view of a hay derrick shown in position about to deposit its load onto the stack. Fig. 2 is a central vertical longitudinal sectional view of the stacker shown in position about to receive the load on its fork for hoisting. Fig. 3 is a horizontal sectional view on the line $x-x$ of Fig. 2. Fig. 4 is a vertical sectional view on the line $y-y$ of Fig. 2.

Referring to the accompanying drawings, A represents a sled frame comprising the opposite sled runners B, connected securely together by the transverse cross beams C, securely bolted at their ends to such runners, and providing, together therewith, a very strong frame capable of standing considerable strain while at the same time being easy of transportation from point to point wherever the stack or point of deposit is located. Arising from the several transverse cross beams C, are a series of removable converging supporting legs or standards D, onto the upper ends of which is fitted a stationary bearing plate or table E, having a central bearing opening e , which is in alignment with

a bearing socket or opening F, in the central one of the cross beams C, and said bearing plate or table E, is securely bound onto the legs or standards by means of the converging series of removable tie rods or bolts G. The tie rods or bolts G, are arranged longitudinally of each of the supporting legs or standards D, along the outer sides thereof, and are bolted at their ends to the bearing plate or table E, and to the several transverse cross beams C, respectively, thereby providing means for securely binding or clamping the bearing table or plate stationary, in a position horizontal to the sled frame, while at the same time providing means for removably holding the upper extremities of the legs or standards within the mortise notches H, formed in the bottom of the bearing plate or table E, and leading in from the edges thereof.

The bearing plate or table E, forms a combined brace and bearing for the centrally arranged turning or rotating derrick standard I. The turning derrick standard I, is provided at its lower extremity with a bearing spindle i , projecting therebelow and engaging the bearing socket or opening F, formed in the central one of the cross beams C, and by thus mounting the said derrick standard in position the same is not only left free to rotate or turn on the sled frame, but at the same time is firmly braced in position thereon so as to be capable of withstanding a considerable strain. The upper extremity of the turning derrick standard I, is bifurcated as at J, to receive the swinging derrick arm K. The swinging derrick arm K, is secured within the upper bifurcated end of the derrick standard on the securing pin L, and is disposed at an inclination; the longer portion thereof extending upwardly from the connection to the derrick standard, so as to swing out over the ends and sides of the sled frame, to provide for hoisting a load and then swinging it out over the stack or point of deposit, while the shorter portion thereof declines for a short distance toward the ground from the connection on the pin L.

A clamp collar M, is securely fastened on the turning derrick standard I, directly over the horizontal bearing plate or table E, and said clamp collar M, is provided at opposite sides thereof with the opposite pairs of par-

allel strap arms N, between which are securely clamped by the bolts O, one end of the long and short brace arms P and P', respectively. Both of said brace arms P and P', though of different lengths, comprise separate strips *p*, held apart between their extremities by the spacing blocks *p'*, which also provide for permitting the upper outer extremities of said brace arms to be bolted to both sides of the derrick arm K, on the bolts Q, and, as clearly illustrated in the drawings, the longer brace arm P, is secured to the longer upwardly extending portion of the derrick arm, while the other shorter brace arm is secured to the declining portion of the derrick arm near one extremity, and, together, said brace arms serve to strongly truss and hold the derrick arm in an inclined position.

To each end of the swinging derrick arm K, is attached a rope pulley R, over which is adapted to pass the fork rope S, and by reason of the construction herein described the said fork rope travels over said rope pulleys under the derrick arm its entire length, and is guided in its travel under said derrick arm between the separate strips of the brace arms, and through the bifurcation at the upper end of the derrick standard I. An ordinary hay fork T, is connected to that end of the rope working from the pulley at the high end of the derrick arm to provide means for gathering a load of hay from a wagon or the shock at one end of the sled frame, and depositing it onto the stack at one side of such frame, and said fork is provided with the usual trip cord *t*, by means of which the turning of the derrick arm and its standard can be greatly facilitated. The other end of the fork rope S, is adapted to pass under the swiveled guide pulley U. The swiveled guide pulley U, is connected to the attaching hook *u*, adjustably bolted to the central one of the cross beams C, between the derrick standard and that side of the sled frame opposite the location of the stack, and to the end of the fork rope passing under such guide pulley the draft animal is hitched and may travel in any direction in order to hoist up the load from the wagon to the extreme upper end of the derrick arm, and then swing such load around onto the stack, and it will of course be understood that the distance of the adjustment of the guide pulley from the derrick standard regulates the rapidity with which the derrick arm will swing around over to the stack when the draft is continued on the fork rope.

The adjustment of the attaching hook, *u*, is secured by means of providing the central one of the cross-beams C, with a series of perforations or openings at one side of the center as clearly illustrated in the drawings, and by engaging the shank of the hook with different perforations or openings the same may be adjusted to and away from the derrick standards. As illustrated in the drawings, the attaching hook is provided with a bolt

shank whereby the same is properly secured in its adjusted position.

A horizontal brake lever V, is pivoted at one end as at *v*, on the pivot hook W, secured to one of the legs or standards D, intermediate of its ends, and to the leg or standard directly opposite the one just referred to is secured an off-standing supporting arm X, on which rests the free end of said brake lever so that it can be readily slid back and forth on such arm by grasping the handle end Y, thereof. At a point intermediate of its end the said horizontal brake lever is provided in one edge with a curved contact portion Z which is adapted to be brought against one side of the turning derrick standard I, so as to hold the same stationary while the load is being hoisted up to the high end of the derrick arm.

Supposing the derrick herein described to be employed for stacking the hay from a loaded wagon, the same is first moved up to a point at one side of the stack, and the loaded wagon is driven up to one end of the derrick. The fork is now lowered into the wagon so as to obtain a load of the hay, after which the draft animal is started up and such load hoisted up to the high end of the derrick arm, it being understood that during the hoisting up of the loaded fork, the horizontal brake lever V, is grasped and held against the derrick standard so as to prevent the same from turning. By now releasing the grip on the brake lever and allowing the draft to be continued, the derrick standard will be quickly swung around to position to bring the rope pulleys on the derrick arms in alignment with the guide pulley, thereby bringing the high end of the derrick arm directly over the stack onto which the load is deposited by simply tripping the fork in the ordinary manner. The trip cord *t*, may be employed to swing the derrick arm back over the wagon.

Changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In a hay derrick the combination, with the sled frame; of a horizontal bearing plate supported above the sled frame, a turning derrick standard journaled on the sled frame and in said bearing plate, an inclined derrick arm braced to the standard above said bearing plate, rope pulleys attached to each end of said derrick arm, an attaching hook adjustably bolted to the sled frame at one side of the turning derrick standard, a swiveled guide pulley connected to said attaching hook, and a fork rope passing over the rope pulleys at the ends of the derrick arm and under said guide pulley to provide means for swinging the derrick arm, substantially as set forth.

2. In a hay derrick, the combination with the sled frame; of an upwardly converging series of supporting legs removably fitted at their lower ends onto the sled frame, a horizontal bearing plate having a central bearing opening and mortise notches in its under side and leading in from its edges to removably fit over or receive the upper ends of said supporting legs, removable tie rods or bolts arranged longitudinally against the outer sides of each supporting leg and bolted at their extremities to the sled frame and to the bearing plate, re-

spectively, to removably clamp the plate and legs together and the turning derrick arm mounted in the bearing opening of said plate, 15 substantially as set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

JAMES R. BUFORD.
JAMES GEERY.

Witnesses:

JOHN C. MILLS,
E. H. ROBERTS.