UNITED STATES PATENT OFFICE.

WILLIAM L. TULL, OF GRIDLEY, CALIFORNIA.

HAY-LOADING DERRICK.


Application filed May 5, 1913. Serial No. 765,508.

To all whom it may concern:

Be it known that I, WILLIAM L. TULL, a citizen of the United States, residing at Gridley, in the county of Butte, State of California, have invented certain new and useful Improvements in Hay-Loading Derricks; and I do declare the following to be a clear, full, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this application.

This invention relates to improvements in agricultural implements and particularly for derricks used for loading and stacking hay or similar products, the object of the invention being to produce such a derrick as can be easily set up for operation and one in which the lifting and swinging movement necessary to unload and stack the hay from wagons or other places may be done easily and quickly and with much less energy than is required in the present commonly used derricks.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purposes for which it is designed.

These objects, I accomplish by means of such structure and relative arrangement of the parts as will fully appear by a perusal of the following specification and claims.

Figure 1 is a side elevation of the complete device installed ready for use. Fig. 2 is a top plan view of an adjustable control means to control the swinging movement of the mast and boom. Fig. 3 is a sectional view taken on a line X—X of Fig. 1. Fig. 4 is a detached fragmentary view of a knock-down hinge structure.

Referring now more particularly to the characters of reference on the drawings, the numeral 1 designates the main supporting base frame of the device which is suitably mounted upon any desired carrying means such as wheels 2. The base frame 1 is provided with a plurality of inclined stay or brace members 3 carrying at their upper end a circular collar or guide 4.

The numeral 5 designates a suitable base member suitably secured to the frame 1 in which is turnably mounted a pin 6 of the mast 7. The said mast 7 is composed of two parts, the adjacent ends of each being provided with a pair of projecting flanges 8 and 8a respectively, those flanges on one side of each part being permanently hinged together by pins 9 and those on the other side being adapted to be removably joined by means of bolts 10 whereby when the bolts 10 are removed the mast will be broken at this point and inclined downwardly to get it out of the way for transportation purposes. To this end the boom is also collapsibly mounted as follows, namely: The numeral 11 designates the fixed arm secured to the mast 7 while the numeral 12 designates the movable arm pivoted to the arm 11 as at 13. The said arm 12 is held in elevated position and is adjustable to various positions desired by means of a cable 14 secured to the outer end of the arm 12 as at 14a. The cable 14 then projects over a pulley 15 in the top of the mast 7 and over a pulley 16 in the outer end of the arm 11 and then over a pulley 17 disposed within the body of the mast 7 and is then secured to a drum 18 mounted on a shaft 19 journalized on the side of the mast 7 and provided with an operating handle 20.

The numeral 21 designates a ratchet dog adapted to engage a ratchet wheel 22 on the shaft 19 to hold the same in fixed position. Thus by the operation of the handle 20, the position of the arm 12 may be adjusted or it may be entirely lowered to lie parallel against the mast 7 and then when said mast is broken and inclined downwardly the upper portion thereof and the arm 12 may be secured in horizontal position for transportation purposes.

The top of the mast when set up is suitably held in position by means of stay members 23 secured to a top plate 24 in which the said mast 7 is revolvably disposed. Said mast 7 is also stayed on each part by means of vertical stays 25 lying parallel thereto and secured at each end of each part. The mast turns through the member 4 as a guide and is provided with a plurality of rollers 26 to hold the same in true position.

The fork hoisting and mast turning mechanism consists of a cable 27 connected to the fork 28, which cable extends over a pulley 29 in the outer end of the arm 12 thence over a pulley 30 in the top of the mast 7, thence over a pulley 31 in the outer end of the arm 11, thence through a pulley 32 adjacent to the pulley 17, thence over a pulley
33 in the lower end of the mast 7. Said cable then projects through my adjustable control mechanism for the swinging movement of the mast and boom, which control mechanism consists of the following structure, namely: The numeral 34 designates a projecting arm on the lower end of the mast 7 slideable over which is a sleeve 35 adapted to be fixed in any desired position by means of bolts or set screws 36. On said member 35 are a pair of straps 37 in which is turnable a tubular member 38 carrying a frame 39 on its outer end in which is turnable a pulley 40. A projecting arm 41 is pivotally mounted to the frame 39 as at 42 and carries in its outer end a pulley 43. Mounted on the member 41 is a clamp 44 slideably adjustable longitudinally on the said member 41 and on the member 38 is a similar member 45. Secured to the members 41 and 45 are projecting arms 46 and 47 respectively which are pivoted together as at 48. Said member 47 projects beyond the pivotal point and is provided with a plate 47' adapted to impinge against the member 41. By means of this structure it can be readily seen that the relative angle of the member 41 with respect to the member 38 may be changed and since the cable 27 projects through the tubular member 38 and around the pulley 40 and the pulley 43 when the fork 28 is raised, the same operation will also commence to turn the mast and boom to swing it out over the stack or other place desired and the speed at which this turning motion can be accomplished is determined by the angle between the member 38 and 41, the adjustability of the arm 41 being to allow of this function. Also since the member 38 is turnable in the straps 37, the entire mechanism may be turned from side to side so that the position from which the pull may be exerted on the cable 27 may be set according to which way the mast and boom are to turn. The member 38 is provided at its outer end with two projecting plates 49 to support the frame 39 and its connected parts.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfils the object of the invention as set forth herein. While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention.

Having thus described my invention what I claim as new and useful and desire to secure by Letters Patent is:—

1. In a derrick, the combination with a pivoted mast, of an arm projecting outwardly from the lower end of said mast, a sleeve slideable over said arm and capable of being fixed rigidly thereto, a pulley in the outer end of said sleeve, an arm pivotally mounted at the outer end of said sleeve and having a pulley in its outer end, said arm being adjustably connected with said sleeve, as described.

2. In a derrick, the combination with a pivoted mast, of an arm projecting outwardly from the lower end of said mast, a sleeve slideable over said arm and capable of being fixed rigidly thereto, an arm pivotally mounted at the outer end of said sleeve and provided with a pulley in its outer end, a clamp slideable on said arm, another clamp slideably mounted with respect to said sleeve, and a pair of arms, each of said arms being pivotally connected with one of said clamps and with each other, as described.

3. In a derrick, the combination with a pivoted mast, of a member projecting outwardly from the lower end of said mast, another member turnable on said last named member and provided with a pulley in its outer end, an arm pivotally mounted at the outer end of said turnable member and provided with a pulley in its outer end, and means connecting said arm with said turnable member whereby the angle between said arm and said turnable member may be varied, as described.

4. In a derrick, the combination with a pivoted mast, of an arm projecting outwardly from the lower end of said mast, a sleeve slideable on said arm and capable of being fixed thereto, a member turnably mounted on said sleeve and provided with a pulley in its outer end, an arm pivotally mounted at the outer end of said turnable member and provided with a pulley at its outer end, a clamp slideably mounted on said arm, a similar clamp slideably mounted on said turnable member, a pair of arms, each of said pair of arms being pivotally connected with one of said clamps and with each other, as described.

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

WILLIAM L. TULL.

Witnesses:

JOSHUA B. WEBSTER,
CLARENCE M. SMITH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D.C."