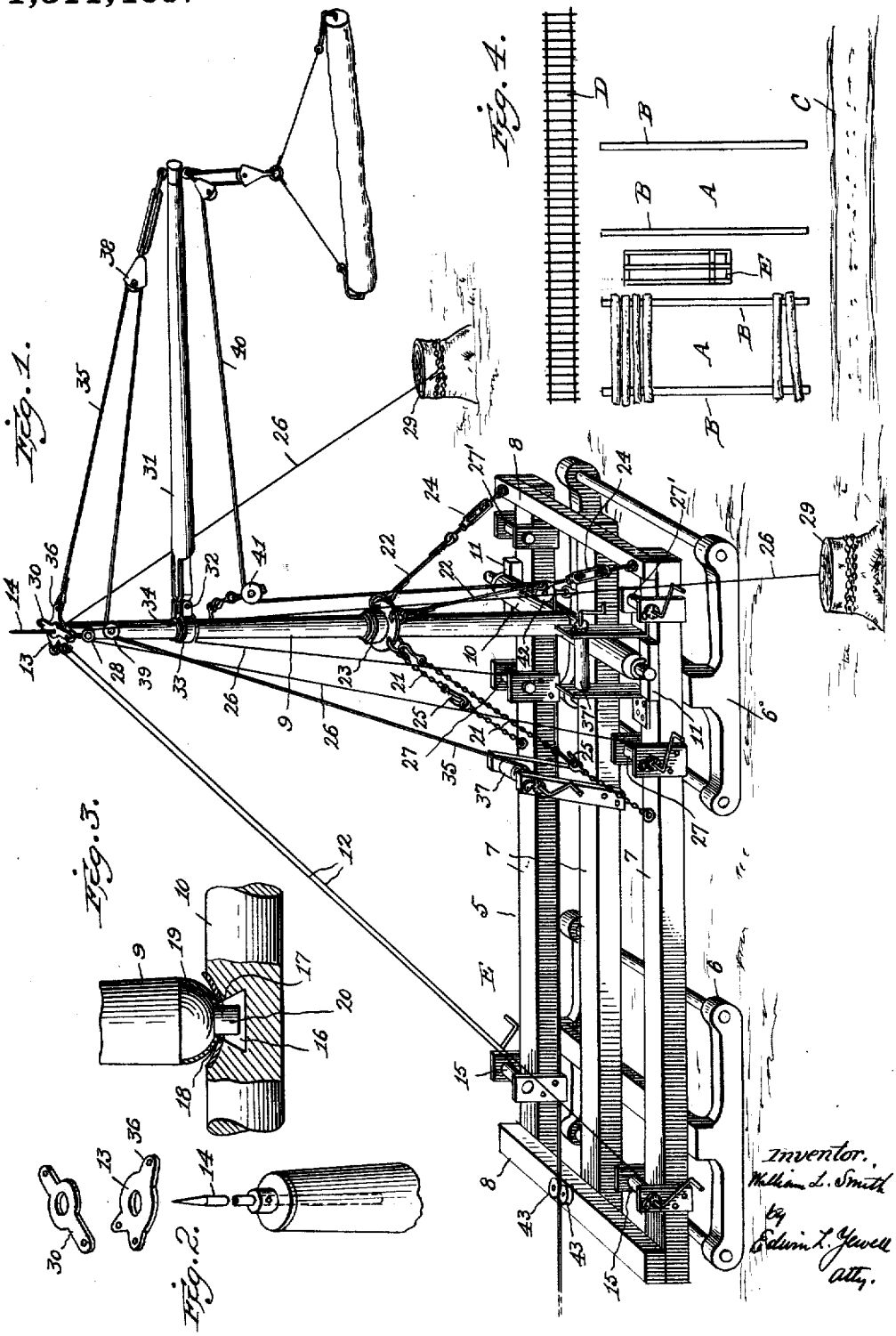
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COMBINED LOG LOADER AND DECKER.

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UNITED STATES PATENT OFFICE.

WILLIAM L. SMITH, OF ONTONAGON, MICHIGAN.

COMBINED LOG LOADER AND DECKER.

1,311,469. Specification of Letters Patent. **Patented July 29, 1919.**

Application filed February 20, 1919. Serial No. 278,177.

To all whom it may concern:

Be it known that I, WILLIAM L. SMITH, citizen of the United States, residing at Ontonagon, in the county of Ontonagon and State of Michigan, have invented certain new and useful Improvements in Combined Log Loaders and Deckers, of which the following is a specification.

This device relates to improvements in log loaders, especially in lumber camps, and has for its particular object to provide means for the purpose which can be used either as a log loader or log decker.

A further particular object of the invention, is to provide a supporting mast which is mounted in a manner upon a main-frame, that it can always be adjusted to a perpendicular position regardless of the lay of the main-frame.

These and other objects hereinafter set forth, are attained by the means illustrated in the accompanying drawing, in which:—

Figure 1, is a perspective view of the improved device. Fig. 2, is a detail view of the top end of the supporting mast, showing its guy plates arranged above it. Fig. 3, is a detail view of the bottom of the supporting mast and showing the manner of mounting the same in the axle, and Fig. 4, is a diagrammatic view showing the use of the device as a log decker.

Similar reference numerals in all of the figures of the drawing designate like parts.

Referring to the drawing, 5 designates the main-frame mounted upon sled runners 6, by which it can be transported from place to place as desired, it being understood that wheeled trucks can be used in place of the runners for the purpose.

The main-frame is preferably constructed of longitudinal beams 7 secured and held rigidly together by as many tie-beams 8 as are necessary, only two being shown in the present disclosure, one at each end of the frame.

The supporting mast 9 is preferably located adjacent one end of the main-frame 5, and has it lower end freely mounted centrally in an axle 10 mounted transversely of the main frame in suitable bearing blocks 11 which engage the ends of the axle. The axle 10 is mounted to rotate in the bearing blocks 11, so that when it is necessary to lower the mast, either forwardly or rearwardly relative to the main-frame, the axle can be rotated in its bearing accordingly. This lowering of the mast is desirable to enable the mast to pass beneath overhead obstructions when the device is being transported from one place to another. The mast is also rotatable in the axle so that its boom can work along the sides of the main-frame, as well as across its end, and it is also mounted in a manner to tilt to some degree, to allow of its adjustment to a perpendicular position should the main-frame lie on inclined ground with either one end or side thereof resting higher than the other side or end. In other words, it is desirable to have the mast perpendicular in working position.

The mast is lowered and raised by the guy-ropes or cables 12, which are secured at their upper ends, to a plate 13 mounted to rotate on a pin 14 fixed to the end of the mast, and the lower ends of the ropes 12 are connected to ratchet-winches 15, the same being fixed to the main-frame near its rear end and upon opposite sides thereof. The winches are provided with crank-handles to operate the same, thus by unwinding the ropes from the winches the top end of the mast can be lowered, and raised when the ropes are wound on the winches.

The particular and preferable manner of mounting the lower end of the mast in the axle is clearly shown in Fig. 3 of the drawing, wherein the axle is provided with a recess 16 having a restricted throat 17, and a saucer-like seat 18 to receive the round end 19 of the mast, said round end having a reduced projection or tenon 20 which passes through the throat 17 and into the recess 16 and resting free from engagement with the bottom and inclined sides of the recess. Suitable wear-plates of substantial thickness are secured to the adjacent surfaces of the bottom of the mast and around the throat of the recess. Thus it will be seen that the mast can rotate in its rotatable support, and also tilt with respect to the support, and the free connection between the mast and axle is such, that should the guys break, the mast in falling would pull from its seat, thereby preventing the breaking of the tenon, as would likely occur if the tenon fitted tightly in the axle.

To brace and hold the mast in its vertical position, a series of trunk-guys 21—21 and 22—22 are provided. These guys are secured at their lower ends to suitable eye-bolts fixed in the main-frame, and at their upper ends are fastened to rings in a hori-

zontal flange of a sleeve 23, which is rotatably mounted upon a metal collar preferably shrunk upon the mast intermediate the ends thereof, but closer to the lower end than to the upper end. Guys 22 are provided with suitable turn-buckles 24, so that the length of the guys can be adjusted to positively determine the vertical position of the mast, and guys 21 are provided with suitable hooks 25, whereby the guys can be readily disconnected to lower the mast.

It will be understood that the guys 21 can also be adjusted in length with the hooks by engaging different links of the guys, so that they can be made to correspond to the adjustment of the guys 22. Thus the mast is supported in a substantial manner and at the same time free to rotate.

As a further provision to support the mast in its vertical position, especially at its top end, a pair of side guys 26 are provided. In the loading position of the boom, that is projecting over the front end of the frame, the guys 26 have one end connected with the ratchet-winches 27, and engage pulleys 28 at the upper end of the mast, and have their other ends anchored in any suitable manner to fixed objects, such as the stumps shown at 29 located some distance from the main-frame. Pulleys 28 are preferably fixed and suspended from a plate 30 which is rotatably mounted on the pin 14, so that the mast can rotate with respect to the guys, and the pulley connection of the guys 26 at the upper end of the mast will allow the mast to tilt forwardly without loosening the guys. With these side-guys 26, the mast can be adjusted to a vertical position should the frame rest on the ground with one side higher than the other.

A boom 31 is provided for lifting the logs outside of the limits of the main-frame. The inner end of the boom is pivoted at 32 to a collar 33, the same being rotatably mounted on a sleeve 34 preferably shrunk upon the mast adjacent its upper end. Thus the boom can be swung around the mast to different radial positions. The outer free end of the boom is adjustably supported by the boom-rope 35, so that it can be raised or lowered as desired, the rope 35 being fixed at one end to a projection 36 on the plate 13, and at its other end to a ratchet-winch 37, and engaging between its ends a pulley 38 secured to the end of the boom, and a pulley 39 fixed to the upper end of the mast in any suitable manner. Thus by operating the winch the end of the boom can be raised or lowered.

The load lifting tackle is supported from the outer end of the boom, and its operating rope 40 extends backwardly toward the mast where it engages a guide-pulley 41 suspended from the mast, and is directed downwardly thereby, and then engages a base guide-pulley 42 secured to the main-frame, and is thereby directed backwardly and passes between the rear guide-pulleys 43 to any suitable power applying means not shown.

It will be understood, that when the device is in use, it is securely anchored in position, either by suitable stakes, or holding dogs secured to the frame and ground.

With the parts of the device positioned as shown in the drawing, the apparatus is mostly used as a loader, that is the logs are lifted from the ground and deposited upon wagons or sleds to be hauled to a railroad or boat, but when used as a decker, the boom is shifted to extend sidewise relative to the frame, so that the logs are lifted at the side of the frame instead of at the end. In Fig. 4 of the drawing is shown diagrammatically what is meant by decking. Logs are decked by placing them in piles upon parallel skids, it being common to see from six to twelve decks in a row. The decks are usually built between a railroad or stream and a wagon road, and the several decks may be several hundred feet long and twenty-five or thirty feet high. After the place of decking is selected, the parallel supporting logs or skids B—B are positioned between the road C and the track D, and the combined loader and decker is placed as at E, with its boom adjusted sidewise in position to lift the logs at one end of the deck, either from the wagon or the ground, and deposit them in high piles on the skids.

When the boom is adjusted to the decking position, the supporting guys 12 and 26, and the boom rope 35, are also adjusted to engage different winches to occupy the same relative position to the mast as when in the loading position. In other words, the mast control ropes 12 are changed to engage with the winches 27 and 27′, and the boom control rope 35 is attached to winch 37′, and the supporting guys 26 are attached to the other pair of winches 27—27′ on the opposite side of the frame and also to suitable anchors in the ground in a manner to oppose the rotation of the axle or the tilting of the mast in the direction of the ends of the frame. In the decking position of the boom and mast, ropes 12 mostly serve simply as guy-ropes, as the mast can only be lowered and raised in the loading position, but they can also be used in the decking position to adjust the mast to a vertical position should the frame rest on inclined ground. In the drawing only one decking winch 37′ is shown, but it will be understood a similar winch can be mounted on the opposite side of the mast, so that the device can be adjusted to deck on either side of the frame.

Having thus fully described the invention, what is claimed is:—

1. In a device of the character described,

a main-frame, a rotatable axle mounted transversely of the frame, a mast having its lower end mounted rotatable in the axle, a boom mounted to rotate on said mast, supporting means secured to the frame and mast for rotatably supporting said mast between said boom and axle, and independent operating ropes for said boom and mast.

2. In a device of the character described, a main-frame, a rotatable axle mounted transversely of the frame, a mast having its lower end mounted rotatable in the axle, a boom mounted to rotate on the mast, said mast being also tiltable with respect to said axle, supporting means secured to the frame and mast for rotatably supporting said mast between said boom and axle, and separate operating ropes for said boom and mast, said operating ropes serving as guys when the mast is adjusted to its vertical position.

3. In a device of the character described, a main-frame, a rotatable axle mounted transversely of the frame, a mast having its lower end mounted rotatable in the axle, a boom mounted to rotate on the mast, supporting means secured to the frame and mast for rotatably supporting said mast between said boom and axle, said supporting means comprising a sleeve mounted around the mast below the boom, and adjustable trunk-guys connecting said sleeve with the main frame, and separate operating ropes for said boom and mast, the mast operating ropes serving as guys when the mast is adjusted to its vertical position.

4. In a device of the character described, a main-frame, a rotatable axle mounted transversely of the frame, a mast having its lower end mounted rotatable in the axle, a boom mounted to rotate on said mast, supporting means secured to the frame and mast for rotatably supporting said mast between said boom and axle, separate operating ropes for the boom and mast, and interchangeable ratchet-winches for said operating ropes, whereby the device can be changed from a loader to a decker.

5. In a device of the character described, a main-frame, a rotatable axle having a mast receiving recess therein mounted on said frame, said recess being formed wider at its bottom than at its top to provide a contracted throat, a mast having a rounded lower end and a tenon projecting therefrom, said tenon adapted to extend through said throat into the recess and rest free from the sides and bottom of the recess whereby the mast can tilt on its seat, a boom mounted on the mast, means for rotatably supporting the mast between the boom and axle to allow the boom to swing over the sides of the frame from front to rear, and separate operating ropes for the mast and boom.

In testimony whereof I affix my signature.

WILLIAM L. SMITH.

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