(No Model.) 2 Sheets—Sheet 1.

D. S. WHITE.

HOISTING MACHINE.

No. 367,567. Patented Aug. 2, 1887.

Fig. 1.

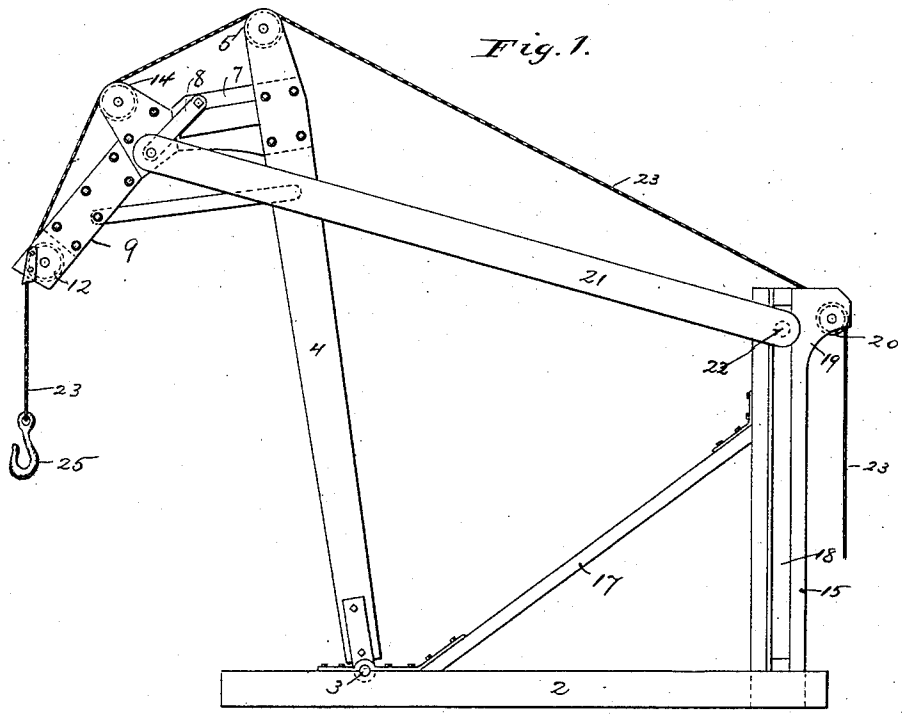
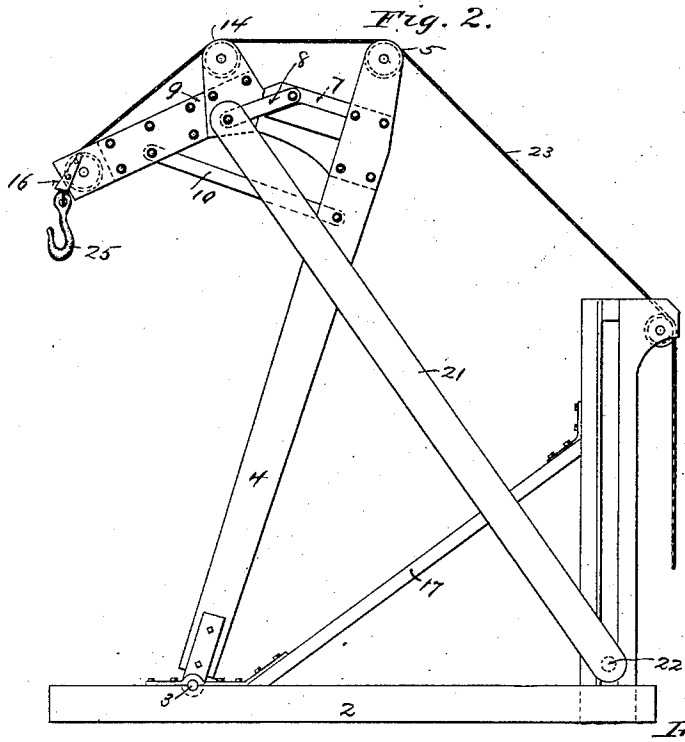


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

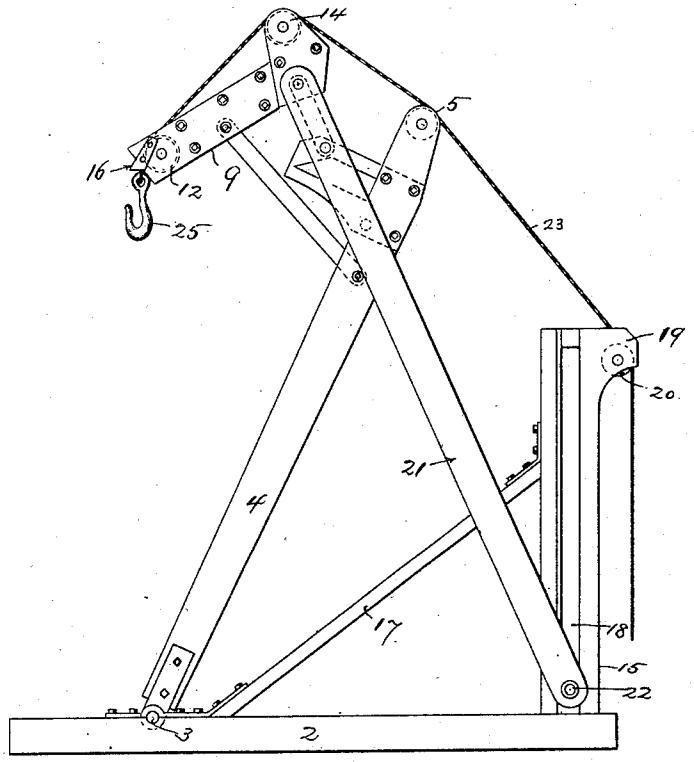
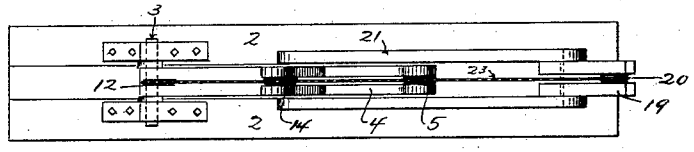


Fig. 4.



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UNITED STATES PATENT OFFICE.

DAVID S. WHITE, OF MINNEAPOLIS, MINNESOTA.

HOISTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 367,567, dated August 2, 1887.

Application filed February 1, 1887. Serial No. 226,150. (No model.)

To all whom it may concern:

Be it known that I, DAVID S. WHITE, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain Improvements in Hoisting-Machines, of which the following is a specification.

The objects of this invention are to provide a hoisting-machine that can be used for loading and unloading vessels or cars, for hoisting material from mines, sewers, or other excavations, and, generally, for raising and handling heavy articles or material in any position.

Other objects of the invention will appear from the following detailed description.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of my improved machine in its lowest position in readiness for raising a load. Fig. 2 is a similar view of the same, partially elevated. Fig. 3 is a similar view of the machine elevated and drawn back to its greatest extent. Fig. 4 is a plan view of the machine in the position shown in Fig. 3.

In the drawings, 2 represents a suitable base, which may be of any suitable size, shape, or construction. This base is preferably formed of timbers suitably secured together, though, when the machine is permanently secured to a car, vessel, pier, or other permanent structure, it may be formed without an independent base, the floor or deck serving as a base for the machine.

Secured to the base 2 by a suitable pivot, 3, is a swinging mast, 4, that is adapted to be moved upon its pivot and to have considerable movement forward and back at its upper end. The upper end of the pivoted mast 4 is provided, preferably, with a sheave or pulley, 5, over which the hoisting-rope passes, as hereinafter described. The mast 4 is also provided with a projection, 7, rigidly secured to it at substantially right angles thereto. The mast is preferably formed of two beams bolted together. The mast 4 is preferably pivoted near one end of the base 2. This end of the base I designate the "forward" end and the opposite end I designate the "rear" end.

At the rear end of the base 2 I provide a vertical standard, 15, that is firmly secured to the base, and is preferably provided with a brace, 17, having one end secured near the upper part of the standard, while its opposite end is secured to the base 2. The standard is thus made capable of resisting any strain that may be brought upon it.

A gibbet-head, 9, has one end adapted to bear against the end of the projection 7, and is secured to it by links 8, one at each side thereof. A link, 10, is also pivoted to the gibbet-head 9, at about midway of its length, and to the swinging mast 4 at a point below the projection 7. The forward end of the gibbet-head is provided with a sheave or pulley, 12, and another sheave or pulley, 14, is mounted above the gibbet-head, near its opposite end, in bearings that are suitably secured to said head.

The standard 15 is provided with a vertical slot or opening, 18, extending, preferably, nearly to its upper end, and with a projection, 19, upon its rear side, near the top, in which is mounted a suitable sheave or pulley, 20. A boom, 21, has its upper end pivoted to the gibbet-head 9. The boom 21 and the links 8 are preferably secured to the gibbet-head by a single pivot-bolt. The lower or rear end of the boom 21 is secured to the standard by a pivot-bolt, 22, that passes through the slot 18, so that this end of the boom is free to slide up and down on the standard. The boom 21 is preferably formed of two timbers that pass upon opposite sides of the mast and standard and are secured together by the bolts that fasten the boom to the gibbet-head and standard.

A suitable hoisting-rope, 23, is provided at its end with a suitable hook, 25, or other means for attaching to it any weight or material that it is desired to raise, or a suitable bucket for raising dirt or other material in excavating or dredging, or for raising any other material. This rope passes over the sheaves 12, 14, 5, and 20, and its other end is adapted to be connected with any suitable device or means through which power may be applied for raising the load.

The lower end of the gibbet-head is preferably provided with stops 16, against which the hook or the weight strikes when the rope is drawn up, and which takes the jar that would otherwise be received by the end of the gibbet-head.

The manner of using the machine is as fol-

lows: The parts being in the position shown in Fig. 1, the rope is run over the sheaves until the hook or receptacle on its end is in position for securing to or receiving the weight or material that is to be raised. Power is then applied to the other end of the rope, and the weight is raised until the hook or the receptacle on the rope strikes the ends of the stops 16 on the gibbet-head. A continuation of the movement of the rope causes the mast 4 to turn on its axis, throwing it back to the position shown in Fig. 2, and causes the rear or lower end of the boom 21 to slide down the standard until it also reaches the position shown in Fig. 2. A further movement of the rope causes the gibbet-head to be raised from the projection 7, the links 8 and 10 turning upon their pivot-bolts and the boom 21 turning upon its pivot. The parts will thereby be thrown into substantially the position shown in Fig. 3, the weight or material that has been raised being held at a point substantially over the foot of the swinging mast, from which position it may be lowered directly upon the platform, pier, floor, or deck that supports the hoisting-machine, or into a suitable receptacle that is placed in front of the mast.

It will be seen that the machine has a long reach forward from its base, and that by a single continuous movement of the rope a load or weight may be raised and drawn inward until it is in position for dumping or lowering upon a suitable support. The machine is thus adapted for loading and unloading ships or cars, for raising dirt and other material from sewers, mines, or other excavations, for dredging, for handling coal or other material upon docks, and, in general, for quickly raising or handling any heavy material.

The machine may be formed as a permanent part of a car, boat, ship, dock, or pier; or it may be provided with a suitable base and be capable of setting up in any desired position.

The details of the construction may be varied without departing from my invention.

I claim as my invention—

1. The combination, in a machine of the class described, of the swinging mast 4, the fixed standard 15, the boom 21, having its rear end arranged to slide on the standard 15, the gibbet-head 9, secured to said mast and boom, and the rope 23, substantially as described.

2. The combination, in a machine of the class described, of the swinging mast 4, the fixed standard 15, the gibbet-head 9, secured to said mast by links 8 and 10, and the boom 21, having its rear end arranged to slide upon the standard 15 and its forward end pivoted to said gibbet-head, substantially as described.

3. The combination of the swinging mast 4, the fixed standard 15, the gibbet-head 9, the sliding boom 21, and the hoisting-rope 23, all substantially as set forth.

4. The combination of the swinging mast 4, having the projection 7, the gibbet-head 9, secured to said mast by the links 8 and 10 and having its end adapted to rest against the end of said projection, the standard 15, and the sliding boom 21, all substantially as described.

5. The combination of the swinging mast having the projection 7 and the sheave 5 in its upper end, the gibbet-head 9, provided with the sheaves 12 and 14 and secured to said mast by links 8 and 10, the standard 15, the boom 21, and the hoisting-rope passing over said sheaves, substantially as described.

In testimony whereof I have hereunto set my hand this 25th day of January, 1887.

DAVID S. WHITE.

In presence of—
A. C. PAUL,
R. H. SANFORD.