No. 888,612. PATENTED MAY 26, 1908.

J. E. HOVENDICK.

HOIST.

APPLICATION FILED SEPT. 10, 1907.

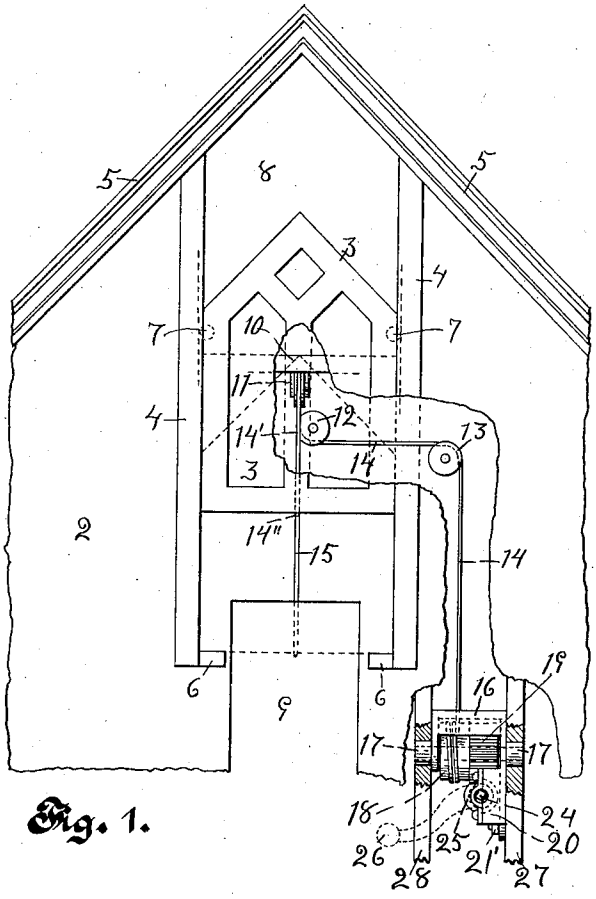


Fig. 1.

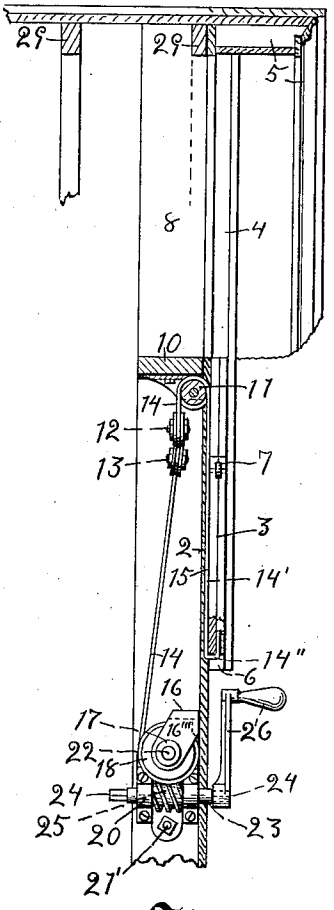


Fig. 2.

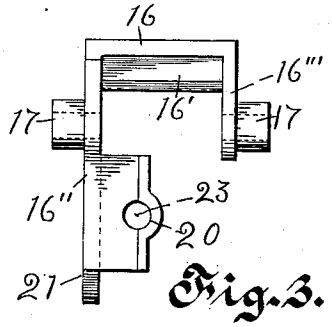


Fig. 3.

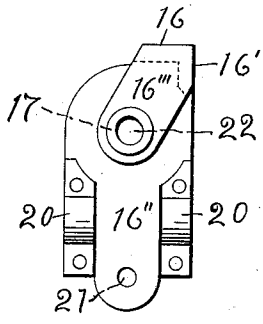


Fig. 4.

WITNESSES:

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HOIST.

No. 888,612. Specification of Letters Patent. Patented May 26, 1908.

Application filed September 10, 1907. Serial No. 392,191.

To all whom it may concern:

Be it known that I, JOHN E. HOVENDICK, citizen of the United States, residing in Desoto township, in the county of Washington and State of Nebraska, have invented certain new and useful Improvements in Hoists, of which the following is a specification.

My invention relates to hoisting devices in which a winding-drum operates in conjunction with a connected cable to raise and lower anything vertically movable; and the objects of my improvement are, first, to provide a hand-operated hoist having its moving parts compactly assembled in a frame adapted to be fastened to and between the upright timbers of a substructure to support it in position for use and where it will be housed out of the way; second, to provide a hoist of the character described that may be operated from either side of said supporting substructure; and, third, to provide a hoist of this kind that will be automatically and safely locked at any point at which its operation is stopped. I attain these objects by the mechanism illustrated in the accompanying drawing, in which—

Figure 1 is an outside elevation of my whole contrivance applied to the end of a barn, part of the inclosing wall of which is broken away to reveal the assembled mechanism; Fig. 2, a vertical section of the wall revealing a side elevation of the mechanism; Fig. 3, is an inside elevation, at larger scale, of the castiron frame of the hoisting mechanism with the moving parts removed; and Fig. 4, a like side elevation of said frame alone.

Similar numerals refer to similar parts throughout the several views.

The contrivance is shown applied to a barn having a lower door 9 directly below the gable opening 8. The door closure 3 slides vertically in the ways 4, and 4 on the end 2 of the barn and is limited in movement by the blocks 6, and 6 and the cornice 5 and is operated by a cable 14 which has one end 14″ fastened centrally to the lower end of the closure. The adjacent end portion 14′ extends upward between the door and siding, or if the door hangs close, in the vertical groove 15 in the face of the siding; it runs up over the grooved pulley 11 fastened to the underside of the door-sill, thence down under a like pulley 12 fastened in the stud-space of the wall, then making a lateral run to and over the pulley 13, to clear the door 9, thence, downward with its other end fastened to the winding-drum 18.

The winding-drum has at one end the gear or worm-wheel 19, preferably an integral part of the drum, or mounted concentrically to revolve with it on the shaft 22 journaled in the frame 16. A worm 25 is mounted on the shaft 24,—or preferably the worm is an integral part of the shaft. This worm-shaft is journaled at right angles to the drum-shaft in the open boxes 20, 20, to bring the worm into engagement with the gear to revolve the drum. The shaft 24 is fitted for the crank 26 on either end, either outside or inside of the building..

The hoisting gear frame consists of an integral hook-shaped casting, having a longer downward projecting leg or base part 16″ connected to the parallel inclined leg 16‴ by an angle bar head consisting of the horizontal cross-plate 16 and the pendent flange 16′. Where the shaft 22 is disposed through, to carry the winding-drum between said legs within the hook, the outer surfaces of the base leg 16″ and the point of the hook or leg 16‴ have the bosses 17 and 17. These bosses supply increased bearing for the shaft 22, are close fitted in the adjoining wall-studs 27 and 28, and with the bolt 21′ through the hole 21 at the lower end of the base leg and the stud 27 securely fasten the hoist in the wall. The pedestals 20 and 20 for convenience in casting may be made separately and bolted on. The head cross-plate 16 is narrowed away from the side of the drum receiving the cable, in order to clear the cable when running at different angles and to facilitate placing the hoist close up to the pulley 11, as is sometimes desirable when the pulleys 12 and 13 are omitted and the hoist placed directly below the door 3, 8; the flange 16′ is widened downward to a line just clearing the drum and worm-wheel and gives the connecting head or cross-bar the requisite strength. By slight modifications this frame may be made of sheet metal bent from a properly cut blank. It is obvious that by a suitable location of pulleys in addition to pulley 11 the hoist may be located at any desired place about the building.

By the crank the worm is turned to revolve the drum and wind up the cable to raise and close the door against its own weight; and a reverse turning lets the door slide open. The

worm-gear holds the door suspended at any desired position in its vertical range of movement.

I claim:

1. In a hoist the combination of, a hook-shaped frame having bosses adapted to engage corresponding mortises in a supporting structure at the outsides of the point and stem of said hook and perforations in axial alinement through said point and stem and through said bosses and a bolt-hole at the end of said stem to receive a bolt into said supporting structure, a shaft disposed across the hook in said perforations, a cable-winding-drum and connected worm-wheel mounted on said shaft between the point and stem of said hook, a crank-shaft disposed across the inside of the stem through pedestals thereon, and a worm mounted on said crank-shaft to engage said worm-wheel.

2. A hoist comprising a hook-shaped frame, a cable-winding-drum and connected worm-wheel mounted between the point and stem of the hook on a shaft disposed across through said stem and point, the bend of the hook bent laterally away from the cable-receiving side of the drum and bosses on the outsides of the point and stem around the ends of the drum-shaft to serve as attaching lugs seated in mortises in a substructure to support said hook-shaped frame and a perforation in the end of said stem to receive an attaching bolt into said supporting substructure, a crank-shaft boxed on the stem of the hook, and a worm mounted on the crank-shaft to engage said worm-wheel.

3. A frame for a hoist, consisting of, a long leg and a short leg disposed in parallel planes from the opposite ends of a connecting cross-bar, said legs having perforations in axial alinement to receive a shaft across to carry a cable-winding-drum and connected worm-wheel between said legs, bosses on the outsides of said legs around said perforations to increase the bearings of the shaft therein and provide the frame with attaching lugs adapted to be seated in corresponding mortises in a supporting structure, said long leg perforated at its projecting end to receive a bolt to fasten the leg to said supporting structure, and boxes on said long leg adapted to receive a shaft carrying a worm to engage said worm-wheel.

4. A frame for a hoist, consisting of, a long leg and a short leg disposed in parallel planes from opposite ends of a connecting cross-bar, said legs having perforations in axial alinement to receive a shaft across to carry a cable-winding-drum and connected worm-wheel between said legs, said connecting-cross-bar narrower than said legs and disposed toward that edge of said legs opposite to the cable-receiving side of said drum, bosses on the outsides of said legs around said perforations to increase the bearings of the shaft therein and provide the frame with attaching lugs adapted to be seated in corresponding mortises in a supporting structure, said long leg having a hole to receive a bolt into said supporting structure, and boxes on said long leg adapted to receive a shaft carrying a worm to engage said worm-wheel.

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

JOHN E. HOVENDICK.

Witnesses:

W. R. WAGGENER,

J. T. WAGGENER.