

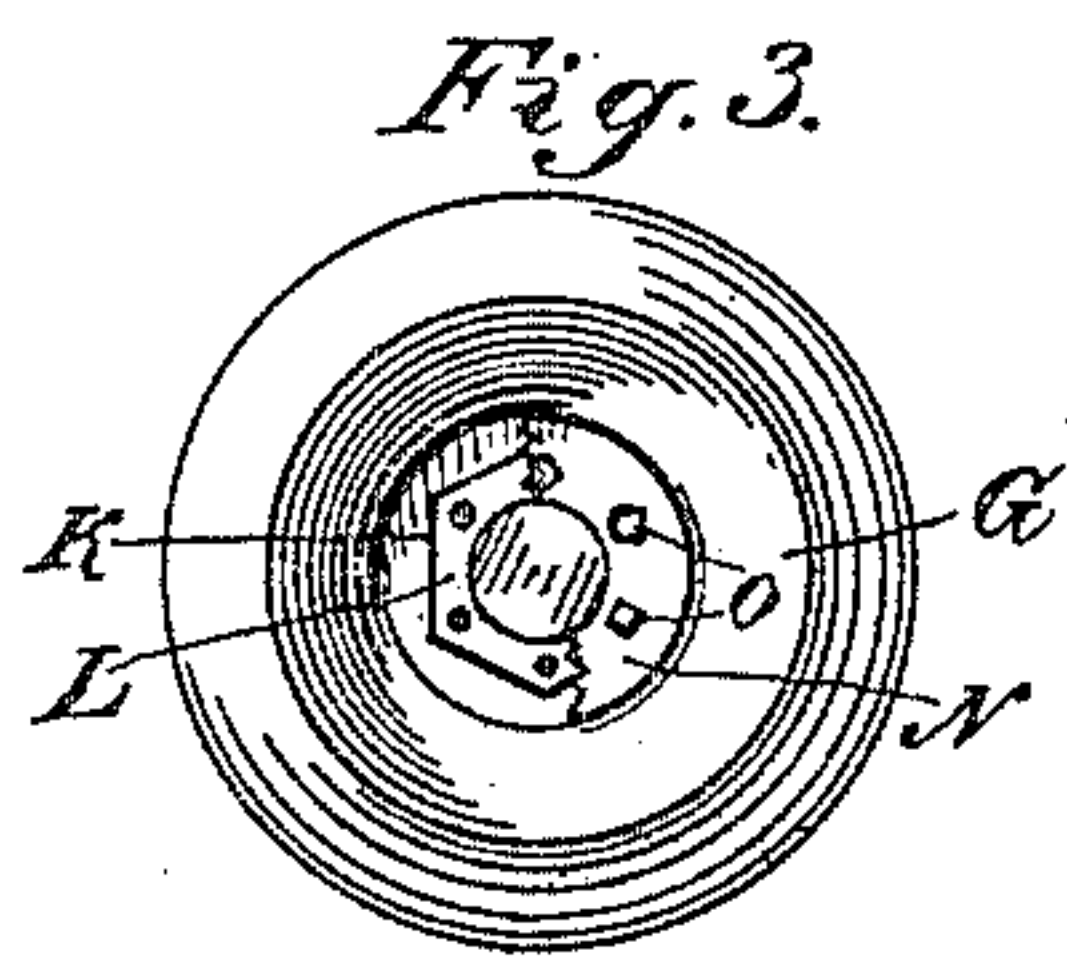
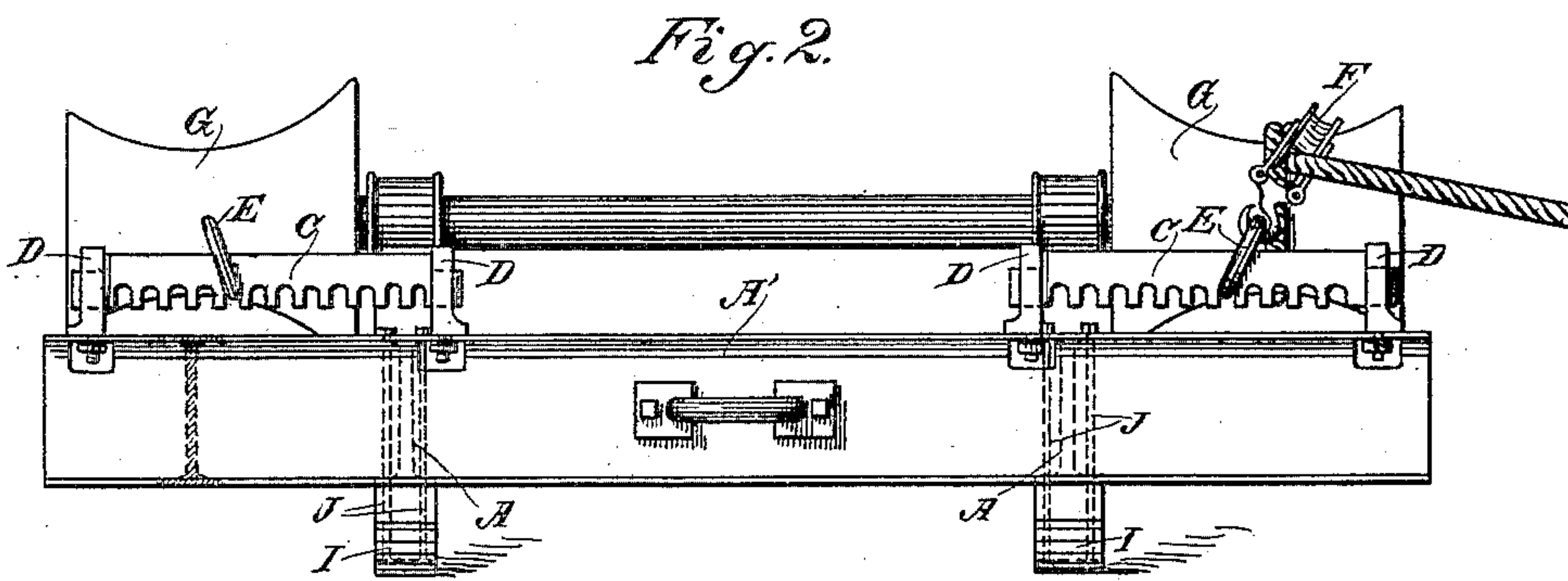
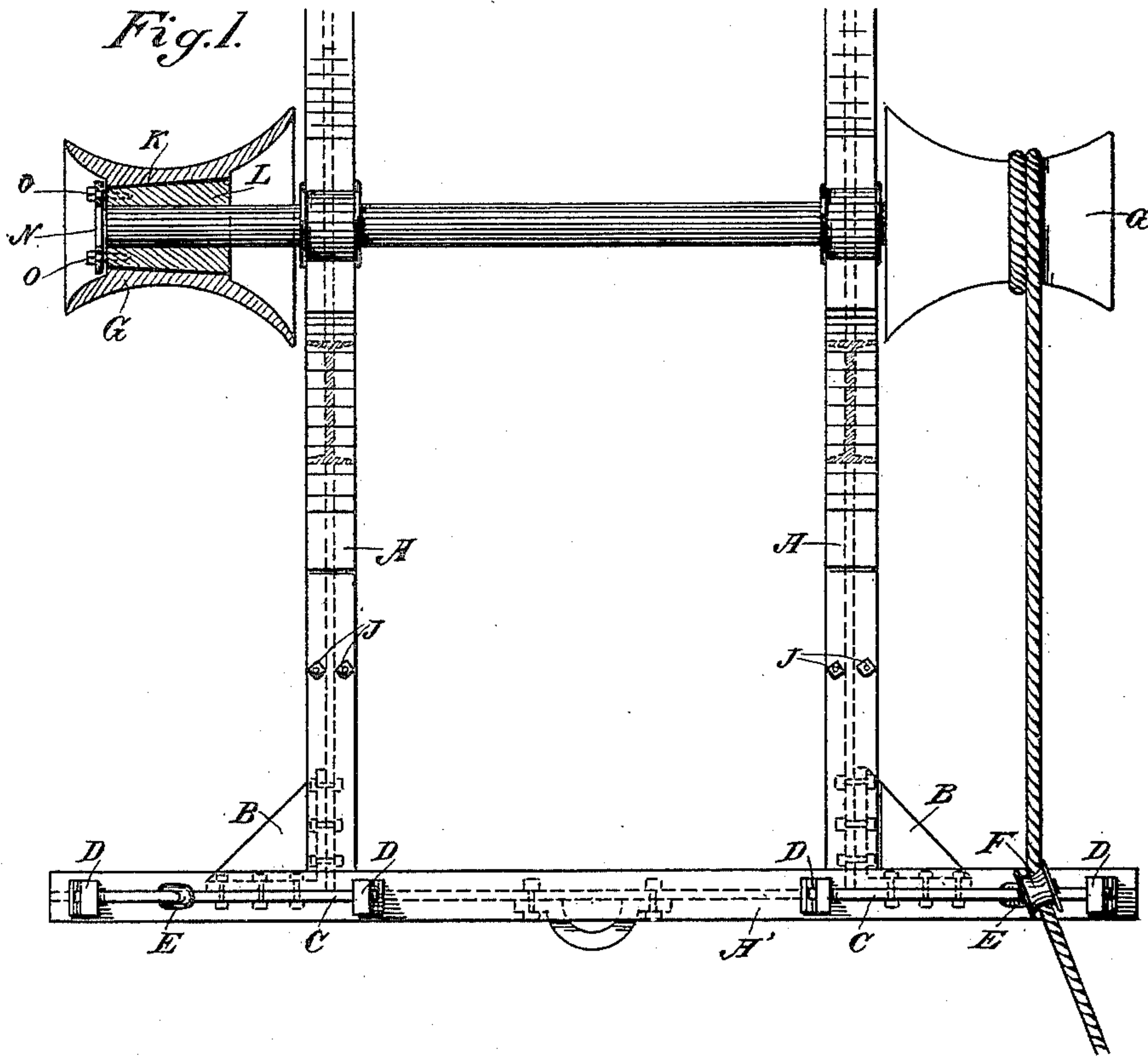
(No Model.)

2 Sheets—Sheet 1.

W. F. MURRAY.
PORTABLE HOISTING MECHANISM.

No. 442,449.

Patented Dec. 9, 1890.



Witnesses,
C. H. Source
P. W. Fowler

Inventor,
William F. Murray
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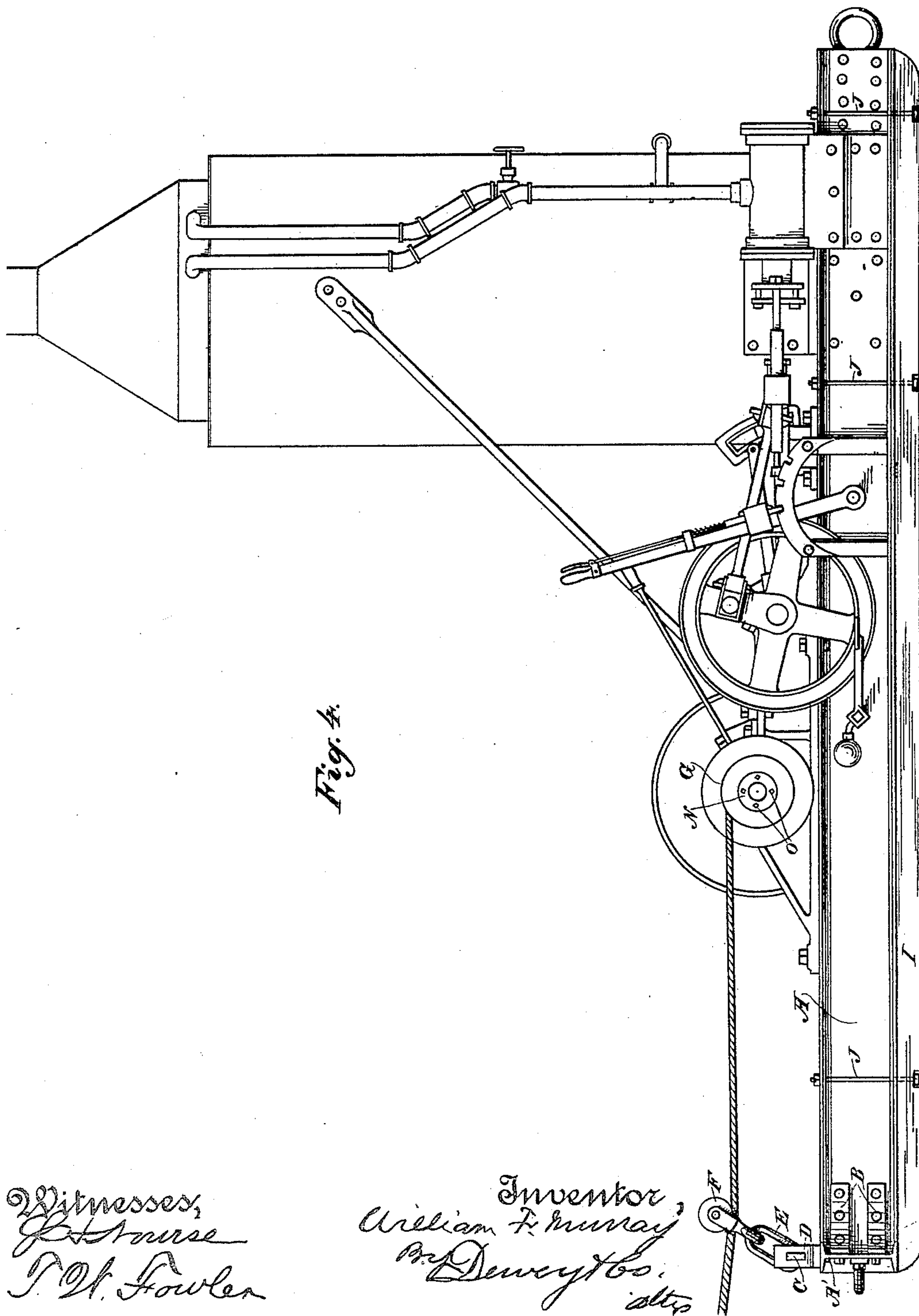
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UNITED STATES PATENT OFFICE.

WILLIAM F. MURRAY, OF SAN FRANCISCO, CALIFORNIA.

PORTABLE HOISTING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 442,449, dated December 9, 1890.

Application filed July 29, 1890. Serial No. 360,320. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. MURRAY, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Portable Hoisting Mechanism; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to certain improvements in portable hoisting mechanism; and it consists in certain details of construction, which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a plan view, partially in section, of one end of the frame. Fig. 2 is an end elevation of the same. Fig. 3 is a front view of one of the gipsies. Fig. 4 is a side elevation of an engine having my improvements attached.

A is the frame-work or bed upon which the boiler, engines, and the necessary gearing and gipsies are mounted. This frame-work I make of rolled-iron beams of the double-headed or I form. The side and end beams are abutted together, as shown, and are strongly secured by angle-iron straps or braces B, which are bolted into the meeting angles of the frame, as shown.

The beam A', which forms the end opposite the boiler, is extended upon each side beyond the side beams, as is plainly shown in Figs. 1 and 2, and serves for the attachment of the racks C, which are secured to the top of the beam at each end by yokes D, into which the ends of the racks are fitted. The lower portions of the yokes are in the form of bolts, screw-threaded, and pass through the top plate of the beam A', being secured by nuts which screw upon them beneath the plate, as shown. Around these racks are fitted stout links E, and these links serve for the attachment of sheaves F, which act as fair-lead-ers for the ropes which pass around the hoisting-drums or gipsies G. It is necessary that these ropes should pass straight from the gipsy to the direction pulley or sheave, and from this point they may be led at any desired angle to the work which they are designed to do. As this angle changes, the position of the sheaves will also be changed, and in order to accommodate these changing positions so that the rope will always lead fair and straight

from the sheave to the gipsy it is necessary to move the link from one end to the other, or to various points upon the rack, where it will fit into the toothed lower portion of the rack-gear, and when there is any strain brought upon the rope it will remain in that particular groove as long as the work is being done. As soon as the rope is slackened it will be easy to move the sheave to any other groove of the rack, and thus insure the rope being led fairly and straight to the gipsy, whatever may be the position of the sheave or the direction of the work from the engine.

It has been customary to make these engine-frames of wood; but I have made mine of iron I-beams, as described, so as to insure them against destruction by fire, to which they are often exposed, and in order to provide a shoe upon which the engine may be moved about from place to place I have shown heavy soles I of timber, which are fitted to the bottom of the side portions of the frame A, and are secured by bolts J, which pass through holes in the flanges of these sides and through the shoes or soles I, being secured in place by nuts which screw upon the ends of the bolts, so as to hold the shoes firmly upon the bottom of the iron frame. The ends of these shoes are beveled or curved, so that the engine may be dragged from place to place upon these shoes, and when the shoes are worn out they may be easily replaced. In case of fire, to which such engines are often exposed by reason of the positions where they are used, only these shoes would be burned and the iron frame would be preserved, so that the engine and boiler and machinery would retain their relative positions and remain comparatively unhurt.

When wire ropes are employed with these hoisting-engines, the outer surface of the gipsies becomes rapidly worn by the friction and slipping of the rope, and they soon become useless and must be replaced. In order to reduce the expense of replacing these parts as much as possible, I have constructed the exterior shell G of the gipsy, around which the rope winds, of white cast-iron or other hard cast metal, which can be inexpensively and easily molded and cast. The interior of this shell G has a large tapering polygonal opening K, into which is fitted the hub L of

soft iron. This hub has its exterior made polygonal and tapering to correspond with the interior and the shell of the gipsy, so that the exterior shell will slip over it and fit upon it, as shown in Fig. 1. The gipsy-shaft M is fitted into this hub L with a suitable key to hold it firmly in place, and it will be manifest that after this fitting has once been done it will not be necessary to do this portion of the work over, because whenever the exterior shell G is worn out it can be removed and another one fitted upon the hub L without further expense.

In order to prevent the exterior shell from slipping off of the tapering hub L, I employ a stout ring or plate N, which fits over the outer end of the hub L and against the end of the outer shell of the gipsy, so that the latter cannot slide off. This ring is held in place by stout screw-bolts O, which are tapped into the end of the hub L, passing through the plate N, so as to hold it in place. By removing these bolts and the plates the outer shell of the gipsy can be slipped off the hub at any time when desired. I prefer to employ link-motion reversible engines, as shown, so that the gipsies may be reversed and the rope wound upon them in either direction. The object of this is to save the rope, which is twisted too much by being wound all the time in one direction, and is correspondingly untwisted when wound in the opposite direction. By winding it alternately above and below the gipsy excessive twisting or untwisting is prevented.

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

1. In a portable hoisting mechanism, the rope-winding gipsies and mechanism whereby they are rotated, the guide or direction pulleys or sheaves through which the ropes are led from the gipsies, rings or links to which these sheaves are attached, and the

racks C, fixed transversely upon one of the ends of the frame, the teeth of said racks being adapted to be engaged by the links or rings at any point in their length, substantially as herein described.

2. In a portable hoisting mechanism, the iron I-beam end secured to the side beams and extending transversely outside of the side timbers, in combination with the rack-bars having the grooves or teeth upon their lower surfaces, and the yokes into which the ends of said bars are fitted, said yokes being secured to the transverse ends of the frame, substantially as herein described.

3. In a portable hoisting mechanism, the gipsy or hoisting-drum consisting of an inner polygonal hub of soft iron keyed to the shaft, an exterior shell of hard or chilled iron having a central opening corresponding in shape with the exterior of the hub, and the ring or plate with the bolts securing it to the hub, so as to hold the shell in place thereon, substantially as herein described.

4. A hoisting mechanism comprising a frame or base having a boiler and reversible engines mounted thereon, gipsies or winding-drums secured to a shaft journaled upon the frame, intermediate gearing whereby power is transmitted from the engine to the gipsy-shaft to rotate it in either direction, racks fixed transversely upon one end of the frame, rings or links adjustable from side to side upon the teeth of the racks, and guide-pulleys attached to and movable with said links, so as to serve as leaders between the load and the gipsy and to wind the rope fairly upon the latter, substantially as herein described.

In witness whereof I have hereunto set my hand.

WM. F. MURRAY.

Witnesses:

S. H. NOURSE,
H. C. LEE.