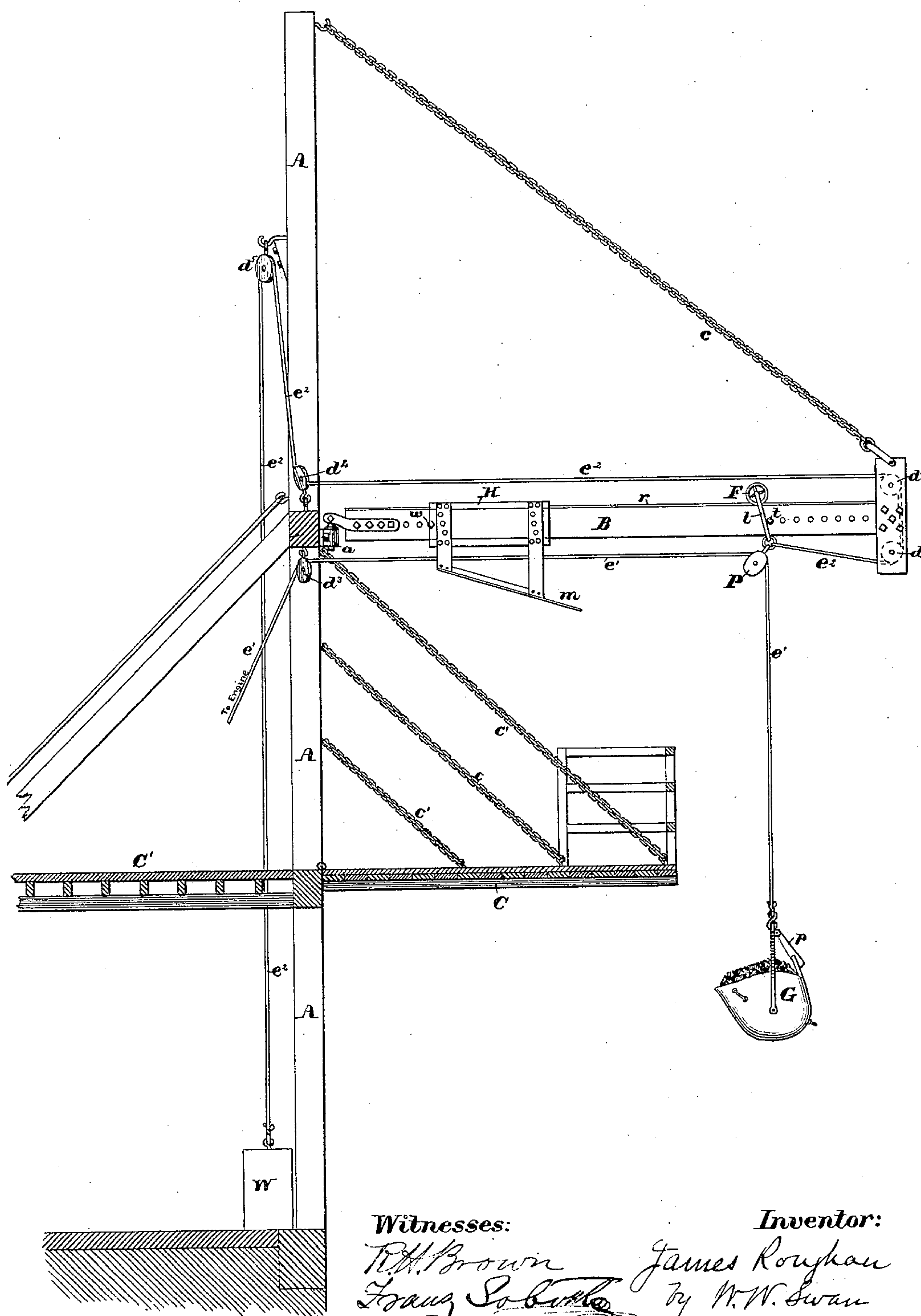


(No Model.)

J. ROUGHAN.
HOISTING APPARATUS.

No. 262,322.

Patented Aug. 8, 1882.



Witnesses:

R.H. Brown
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Inventor:

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UNITED STATES PATENT OFFICE.

JAMES ROUGHAN, OF BOSTON, MASSACHUSETTS.

HOISTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 262,322, dated August 8, 1882.

Application filed July 6, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES ROUGHAN, of Boston, in the State of Massachusetts, have invented an Improvement in Hoisting Apparatus, of which the following is a specification.

I have made use of apparatus embodying my said improvement for the purpose of discharging vessels laden with coal, and shall describe the same as so used; but it will be obvious that the apparatus is equally applicable for hoisting coal or ores from mines and other similar purposes.

In the most common apparatus for discharging vessels laden with coal the hoisting-rope to which the basket is attached passes over a pulley upon the end of the jib of a crane. When the loaded basket has been drawn up perpendicularly to a proper height above the level of the platform upon which the operator stands the jib is swung around until the basket is over the car into which or the place upon which the load is to be dumped. In an apparatus which in some respects is an improvement upon this common hoisting apparatus the jib or corresponding projecting arm is stationary when in use rather than swinging, and is provided with an inclined track and a pulley traveling thereon. The hoisting-rope passes over this pulley; but, instead of being attached directly to the basket, it is doubled upon an intervening block or pulley, and is attached to the pulley that travels on the inclined track. In the operation of this apparatus, as the hoisting-rope is wound up by the engine the lower pulley is first pulled up to the upper pulley, and then the two pulleys travel together up the inclined track, taking with them the loaded basket, and similarly, when the rope is slackened that the basket may be returned to the hold of the vessel, the two pulleys first slide together down the inclined track, and then the lower pulley, with the basket, drops into the hold, doubling the rope between the two pulleys as it falls. This last-mentioned apparatus is faulty in requiring the basket, to be carried up to an inconvenient height before the load can be dumped, and also in being too slow, since it requires a double length of rope for the perpendicular movement of the basket in either direction.

By my invention I have avoided these faults;

and, further, I do away with the inconvenience of handling a heavy block in the hold of the vessel.

In my improved apparatus the basket is raised perpendicularly from the hold and then conveyed horizontally to the dumping place by a continuous pull of the hoisting-engine upon a rope, which, passing over a pulley at the end of the jib, is secured directly to the handle of the basket, and is a single rope throughout. Means are provided for giving the said pulley a substantially horizontal movement along the jib, and a hanging weight is so attached to the pulley-frame by a second rope as to tend to draw it to the outer end of the jib. The weight approximates somewhat closely that of the basket when loaded, and the arrangement is such that a pull upon the hoisting-rope first draws the loaded basket up to the block or pulley at the end of the jib, and then, continuing, acts upon the weight, and while lifting the latter draws the block or pulley inward, and with it the loaded basket. After the basket has been emptied the weight is very much heavier than the basket, and when the strain of the engine upon the hoisting-rope has been released the weight first draws the block and basket together to the end of the jib, and then the basket falls perpendicularly into the vessel's hold.

In the drawing hereto annexed the figure represents an apparatus embodying my said invention.

A is the post or mast, and B the projecting arm or jib of a crane, the jib being secured to the mast by a universal joint, *a*, and a chain, *c*. After the jib is swung to its proper position over the hatchway of the vessel it is steadied in that position by guys. (Not shown.)

C is the operator's platform, hinged to the mast or to a frame-work about the mast, and partly held up by chains *c'*, as shown. C' is a permanent platform. The car to receive the load runs upon these two platforms.

E is a cross-beam bolted to the end of the jib, as shown, and furnishing bearings for two directing-pulleys, *d'* *d*². Along the top of the jib is a rod or rail, *r*, on which runs a grooved wheel, F, the said wheel being confined to said rod and to the jib by a loop, *l*, forming an axis for the wheel and embracing the jib, as shown. To this loop *l*, on the under side of the jib, is se-

cured the hoisting pulley or block P, over or through which passes the hoisting-rope e' , one end of which, after passing over a suitable directing-pulley, d^3 , is secured to the drum operated by the engine, while the other is secured to the basket G. To the loop l is also secured one end of a second rope, e^2 , the other end of which, after passing around the before-mentioned directing-pulleys d' and d^2 and other directing-pulleys, d^4 and d^5 , is attached to a heavy weight, W, which normally rests upon the pier at the foot of the mast. A bolt, t , inserted in one of several holes at the end of the jib, limits the outward movement of the wheel F, and consequently of the block P, along the jib.

H is a frame-work straddling the jib, and secured in any required position by a bolt, w , as shown. This frame-work carries a projecting plank, m , of sufficient width to be readily struck by the latch p of the loaded basket when the latter is directed against it by the operator.

The mode of operation needs no further explanation, and it is obvious that it would be within my invention to secure the block P to a properly-shaped jib by a simple loop, omitting the grooved wheel F and the rod r , and even if the loop were omitted and the rope e^2 were made fast to the block P, the weight W, being sufficient and the directing-pulleys being in

the positions shown, a pull of the engine upon the hoisting-rope would first draw the loaded basket up to the block P and then draw the said block with the basket in a horizontal direction, and under similar conditions, when the pull of the engine should cease, the weight W would first draw the block and basket horizontally to the directing-pulley d' , when the basket would fall perpendicularly, as in the present construction.

I claim—

1. The combination, with the basket, hoisting-rope, hoisting-block, and jib in a hoisting apparatus, of a weight tending to draw the said hoisting-block to the outer end of the said jib, substantially as described.

2. The combination of the basket G, weight W, block P, jib B, rail r , grooved wheel F, loop l , ropes e' and e^2 , and suitable directing-pulleys, substantially as described.

3. The combination of the basket G, provided with the latch p , the weight W, block P, jib B, loop l , ropes e' and e^2 , suitable directing-pulleys, and frame-work H, provided with projection m , substantially as described.

JAMES ROUGHAN.

Witnesses:

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