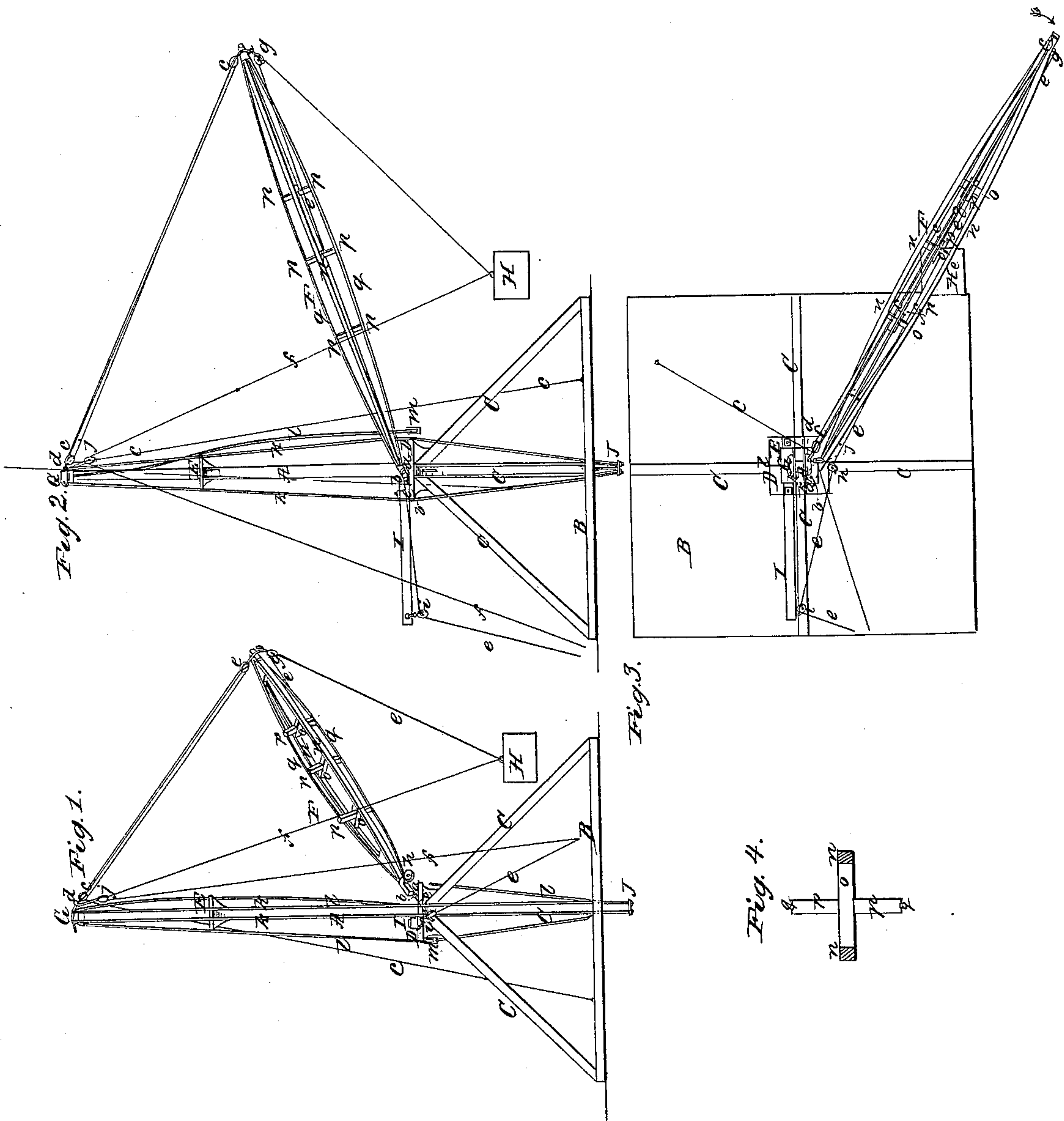


Hill & Dupuy,

Derrick,

Nº 9,025,

Patented June 15, 1852.



UNITED STATES PATENT OFFICE.

SELAH HILL, OF JERSEY CITY, NEW JERSEY, AND CHAS. M. DUPUY, JR., OF RONDOUT, NEW YORK.

DERRICK.

Specification of Letters Patent No. 9,025, dated June 15, 1852.

To all whom it may concern:

Be it known that we, SELAH HILL, of Jersey City, in the county of Hudson and State of New Jersey, and CHARLES M. DUPUY, Jr., of Rondout, in the county of Ulster and State of New York, have invented certain new and useful Improvements in Derricks and Similar Contrivances for Raising Weights; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1, is a side elevation of a derrick with our improvements, Fig. 2, is a front elevation, and Fig. 3, is a plan of the same, Fig. 4, exhibits the sectional form of the jib on an enlarged scale.

Similar letters of reference indicate corresponding parts in each of the several figures. This invention consists in placing the axis upon which the jib of a derrick, crane, or similar apparatus, swings, in a position slightly deviating from the vertical, by which means, with a proper arrangement of hoisting tackle, the jib can be swung, and its swinging can be entirely controlled, by the hoisting tackle, while it is raising the weight.

To enable those skilled in the art to make and use our invention we will proceed to describe fully its construction and operation.

A, is the mast of the derrick, which is stepped at its lower end, in a platform B, which may either be fixed or movable; it is stayed to about one third of its height by four inclined timber braces C, C. Close above the top of the braces C, C, a platform D, extending all around, is firmly secured; and above the platform D, there is another platform E; these platforms serve as stages upon which to stand to arrange the tackles, and form at the same time part of the means by which the mast is stayed, as will be hereinafter described.

F, is the jib, or as it is sometimes termed, the boom of the derrick; its inner end is furnished with an eye *a*, which fits easily on a small pivot *b*, secured in the lower platform, and its outer end is suspended by a tackle *c, c*, to the cap G, of the mast; thus the axis upon which the jib swings is in an imaginary line, running through the pivot *b*, and the point of suspension *d*, of the tackle *c, c*; this imaginary line is indicated in Fig. 2, in red color, and it will be seen, is not vertical, inclining at the top toward the right. This

inclination of the axis causes the jib to swing to the right by its own gravity, when not held and secured in another position.

The weight to be raised, represented by H, in the drawing, has two ropes or tackles *e*, and *f*, attached to it. These may however be parts of the same rope, the hook or other means of attaching the weight being secured to the rope so as not to slide. The tackle *e*, passes through a pulley block *g*, hung under the outer end of the jib, then through another pulley block *h*, attached to the side of the jib near the pivot *b*, and then through a pulley block *i*, hung on a spar I, secured to the platform D, or to the mast, from whence the fall descends to a windlass, capstan, or to any lifting power, or is hauled by men, or drawn by a horse or other animal. The other tackle *f*, passes through a pulley block *j*, suspended from the cap G of the mast and its fall descends to a windlass, or capstan, or is by other means hauled upon, in a similar manner to *e*.

The weight is raised by hauling on either fall *e*, or *f*; the difference being that *e*, draws it out, toward the end of the jib, and *f*, draws it in toward the mast, so that both falls must be hauled on to raise the weight vertically. Either or both falls will be hauled upon in working, according as the superintendent may direct. In hauling on *e*, at the same time that the weight is raised, the jib will swing toward the left hand or in the direction of the arrow shown in Fig. 3; and in slacking out the fall *e*, it will swing in the opposite direction.

The power required to overcome the tendency of the jib to swing below its axis, is very small, owing to the smallness of the deviation of the axis from the vertical position; therefore a very slight haul on the fall *e*, when the weight is suspended, will, by drawing the pulley *h*, nearer to *i*, swing the jib in the direction of the arrow, without at all raising the weight. In like manner, by gently slacking the fall, the jib will swing back without lowering the weight. In raising or removing heavy weights, this mode of hanging the jib is of incalculable advantage, from its convenience, as the jib may be swung in any direction, and the weight raised from or deposited on any point, within the semi-circle described by its end, by the lifting tackle alone, without any separate swinging apparatus. This en-

ables the derrick to be worked with less hands, and the controlling power is centralized, as all its operations are governed from one point. The jib when hung, can only
 5 swing half way around the mast, but it can be removed from one side to the opposite one; in that case there must be a pivot *b*, on the opposite side of the platform D, and the fall *c, c*, can be attached to the opposite
 10 side of the cap G; the spar I, must then be placed on the opposite side of the mast and turned in the opposite direction. By thus reversing the positions of the parts, the derrick will work in a complete circle without
 15 moving the platform or mast. The end of the jib may be raised or lowered by the tackle *c, c*, to alter its inclination; the fall of *c, c*, being made secure to any convenient fastening to hold up the jib.
 20 The mast is stayed from top to bottom by two wrought iron tension rods *k, k*, which pass over the top and down the sides, the two ends of each passing through a plate J, under the bottom, and being screwed and
 25 furnished with nuts below the plate, resting against the stages D, and E, which act as thrust posts. By tightening up the nuts on these rods the mast is stayed effectually on the two sides. There are two rods *l, l*, one
 30 in front and one behind, each formed in two parts, one part being secured to the cap and the other below the plate J, the two parts being united by a swivel nut *m*; these rods bear on the edges of the platforms and act
 35 in a similar manner to *k, k*, being tightened

up by the swivel nuts *m, m*. One of them must always be uncoupled to allow the jib to work, though the staying is unnecessary on the side where the jib hangs, but is required on the opposite side.

The jib is made of two stringers *n, n*, of timber of bowed form, with cross braces *o, o*, between them at intervals. Thrust posts *p, p*, are placed above and below the braces *o, o*, and tension rods *q, q*, run from
 45 end to end of the jib, bearing on the ends of the posts *p, p*, and being tightened by any convenient means. This mode of staying the jib is the same as that applied to the mast.

What we claim as our invention and desire to secure by Letters Patent, is

Placing the axis upon which the jib F, swings, in a position deviating from the vertical, so as to cause the jib to have a
 55 tendency to swing in one direction, and applying the hoisting tackle, or part of the hoisting tackle, in any manner substantially as described to the side opposite to the direction in which the jib tends to swing, so
 60 as to make the hauling on the said tackle, or part of the tackle, swing the jib in the opposite direction to that in which is its tendency to swing when left free.

SELAH HILL.

CHARLES M. DUPUY, JR.

Witnesses:

S. H. WALES,

O. D. MUNN.