

No. 620,571.

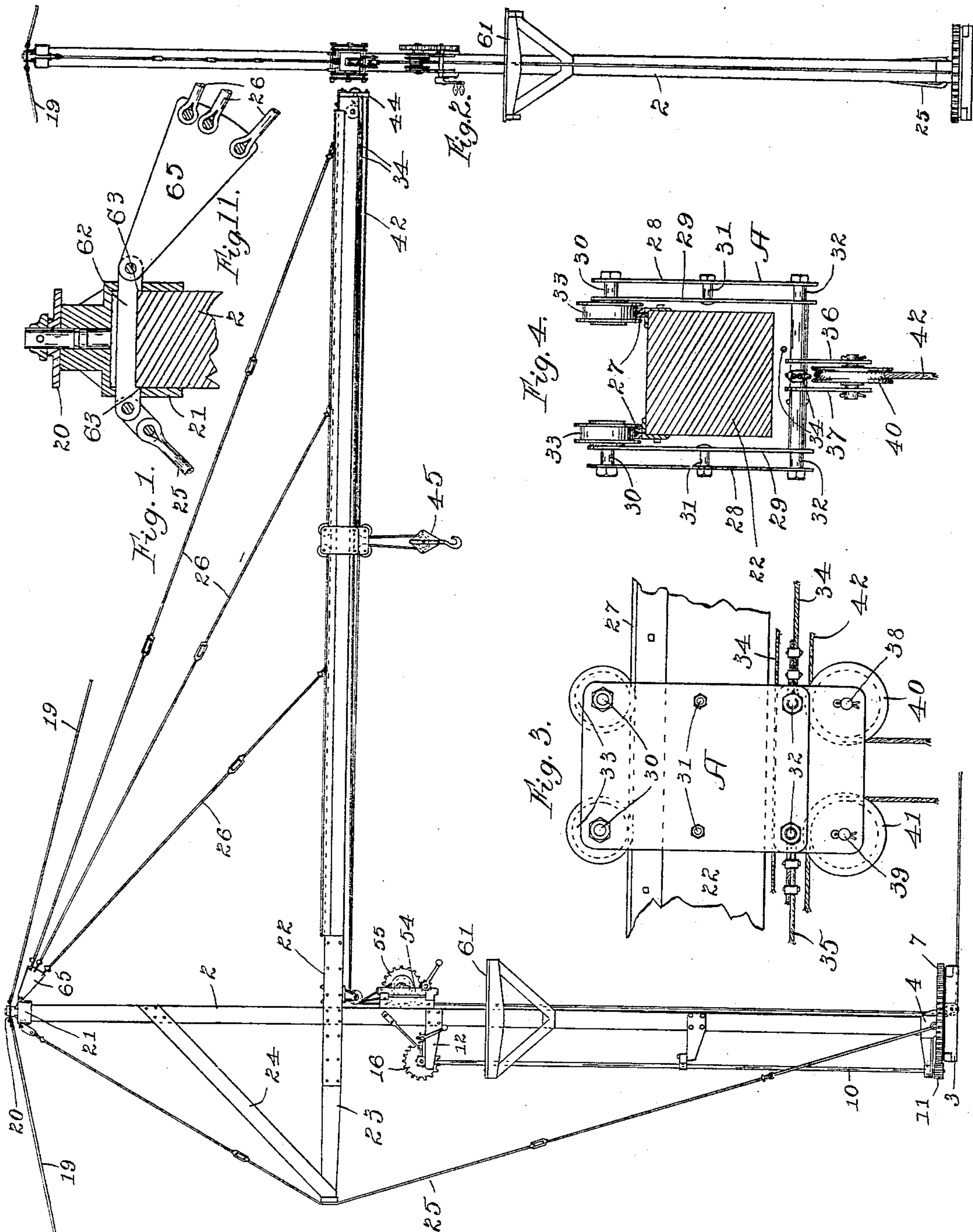
Patented Mar. 7, 1899.

O. CROSBY.
CRANE DERRICK.

(Application filed Dec. 4, 1896.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

H. S. Broadberry.
Homer & Phauwald.

Inventor:

Oliver Crosby.

per: T. D. Merwin
Attorney.

No. 620,571.

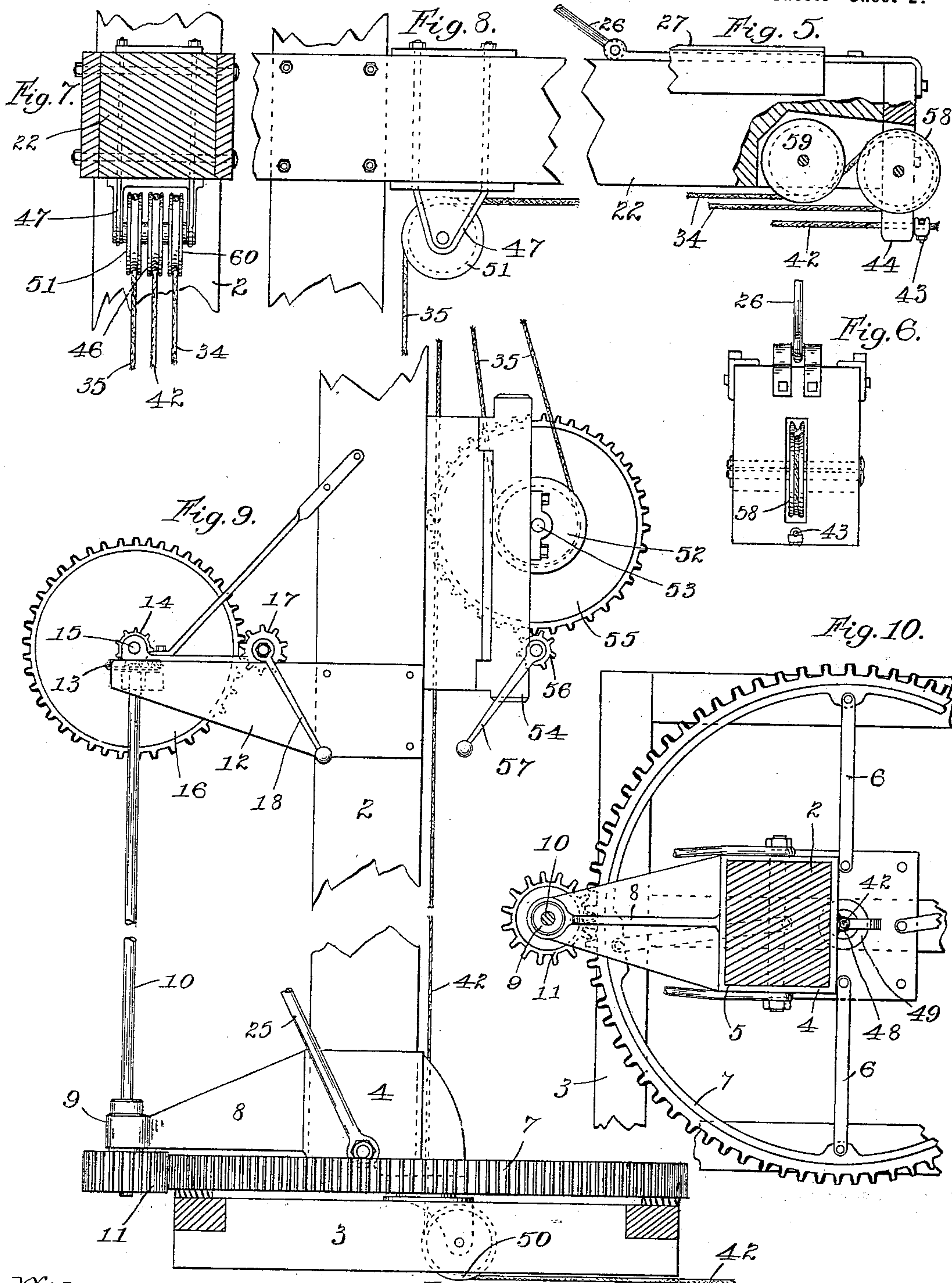
Patented Mar. 7, 1899.

O. CROSBY.
CRANE DERRICK.

(Application filed Dec. 4, 1896.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses:

H. G. Zoadbury,
Miner & Thawwald,

Inventor:

Oliver Crosby,
per: *T. D. Merwin*
Attorney.

UNITED STATES PATENT OFFICE.

OLIVER CROSBY, OF ST. PAUL, MINNESOTA.

CRANE-DERRICK.

SPECIFICATION forming part of Letters Patent No. 620,571, dated March 7, 1899.

Application filed December 4, 1896. Serial No. 614,468. (No model.)

To all whom it may concern:

Be it known that I, OLIVER CROSBY, of St. Paul, Ramsey county, Minnesota, have invented certain Improvements in Crane-Derricks, of which the following is a specification.

My invention relates to improvements in crane-derricks, its object being to provide improved means for operating the same; and it consists in the details of construction herein after more particularly described and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of my improved derrick. Fig. 2 is an end view of the same. Fig. 3 is a detail side elevation of the trolley shown in place on the boom. Fig. 4 is an end view of the same, the boom being shown in cross-section. Figs. 5 and 6 are details of the end of the boom. Figs. 7 and 8 are details of the mast and boom at their point of union and the sheaves for the trolley-shifting and weight-hoisting cables. Fig. 9 is a detail of the mechanism for operating the trolley-shifting cables and also for rotating the derrick, and Fig. 10 is a detail plan view of the derrick-turning mechanism at the foot of the mast.

In the drawings, let 2 represent the mast, and 3 the base, upon which is journaled the foot-block 4, having an offset socket 5, in which the mast 2 is seated.

Rigidly secured upon the base and stayed centrally by means of braces or arms 6 is the gear 7. The arm 8 upon the foot-block has a bearing 9 to receive a vertical shaft 10, which carries a pinion 11, meshing with the gear 7. The upper end of the shaft 10 turns in a bearing in the bracket 12 and is provided with a beveled pinion 13, with which meshes the pinion 14 upon the counter-shaft 15. This shaft also carries a gear 16, with which meshes the pinion 17, operated by means of the crank 18. The derrick is thus rotated by means of the crank 18 in either direction at will.

19 are guys for staying the mast, secured to the plate 20, which is pivoted to the head-block 21 upon the top of the mast. The head-block 21 is secured to the top of the mast by means of the bar 62, which is notched at 63, forming a recess engaging the mast. Upon the ends of this bar are pivotally secured the truss-rod 25 and the anchor-bar 65, which supports the stays 26.

22 is the boom, secured horizontally to the mast 2, having a rear projection or strut 23, which is stayed by the brace 24, connected to the mast 2, the whole structure being further strengthened by the truss-rod 25, connected to the foot and head blocks of the mast and bearing upon the end of the strut 23, and also the tie-rods 26, connecting the head-block at several points with the boom along its center. The boom consists of a rectangular timber, upon the upper corners of which are arranged tracks 27.

A is a trolley, its framework being made up of sheet-metal plates 28 and 29, connected together by bolts 30, 31, and 32. The bolts 30 serve as journals for the trolley-wheels 33, which run upon the tracks 27. The bolts 31 serve to tie the plates 28 and 29 together, and the bolts 32 connect the opposite pairs of plates and serve as means for connecting the cables 34 and 35 to the trolley and also to support the plates 36 and 37, in which the journals 38 and 39 of the sheaves 40 and 41 have bearing.

The hoisting-cable 42 has one end secured, by means of the clamp 43, to the block 44 on the end of the boom. Thence the cable passes over the sheave 40, through the hoisting-block 45, thence over the sheave 41 to the sheave 46, supported in the yoke 47 upon the boom close to the mast, thence downward through the opening 48 in the pivot-post 49 of the foot-block, and thence around the sheave 50 to the source of power. The cable 35, attached to the trolley A, passes to the sheave 51 in the yoke 47, thence downward around the drum 52, carried by the shaft 53, journaled upon the bracket 54, which is secured to the mast. This drum carries a gear 55, which meshes with the pinion 56, having an operative crank 57, by means of which the drum is rotated. The cable 34, attached to the other side of the trolley A, runs underneath and back over the sheave 58, journaled in the end of the mast, thence back under the sheave 59, thence over the sheave 60, thence downward and around the drum 52 in the opposite direction, so that the rotating of the drum will release one cable as it draws upon the other, causing the trolley to travel in either direction, as desired, or the two cables 34 and 35 may be one cable wound upon the drum and having its ends connected, as

shown, to the trolley, the operation being the same.

The derrick is handled and the position of the trolley adjusted by an operator standing upon the platform 61, secured to the mast just underneath the brackets 12 and 54 in convenient position to operate the cranks 18 and 57. As before stated, the operating of the crank 18 serves to rotate the derrick and the operating of the crank 57 to shift the trolley along the boom, the load being hoisted by means of the cable 42.

I claim—

1. In a derrick of the class described, in combination, the horizontal boom, its supporting tie-rods connected to it along its medial line, the trolley having two members or hangers, each composed of interspaced sheet-metal plates, arranged on opposite sides of the boom and rigidly connected together beneath the same, and the inset wheels carried by said trolley members adapted to run upon the top edges of the boom.

2. In a derrick of the class described, the combination with the base and mast, of the foot-block journaled upon said base, and having an offset socket for said mast provided with a radially-extending arm beyond said socket, the gear seated upon the base, the radial tie-rods holding said gear concentric with the block-pivot, and the pinion carried by said arm connected to a source of power meshing with said gear.

3. In a derrick of the class described, the combination with the base, the gear fixed upon the same, the foot-block pivoted upon said base concentrically with said gear, having an offset mast-socket and a radial arm, the vertical shaft journaled in said arm and carrying a pinion meshing with said gear, the strut upon the mast, and the bifurcated tie-rod en-

gaging said strut and straddling said shaft and foot-block, and having its members secured upon opposite sides of said block.

4. In combination with a derrick of the class described, a boom-trolley having each of its side members made up of interspaced sheet-metal plates.

5. In a derrick of the class described, a boom-trolley made up of two members or hangers arranged on opposite sides of the boom, and rigidly connected beneath the same, their carrying-wheels running upon the top of the boom, said hangers being composed of two or more sheet-metal plates, the bolts for connecting the same, the trolley-studs extending through said plates, and the sleeves upon said studs and bolts arranged between said plates to interspace the same.

6. In a derrick of the class described, the combination with its boom and mast, of the head-block upon said mast, the transverse bar anchored in said head-block, the pair of plates secured on opposite sides of the projecting end of said bar, and having registering eyes, and the tie-rods secured through said eyes.

7. In a derrick of the class described, the combination with its mast and boom, of the head-block upon said mast provided with a lug projecting in the plane of said boom, the sheet-metal plates secured on opposite sides of said lug, and the tie-rods connected along the length of said boom converging toward and connected to, said plates.

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

OLIVER CROSBY.

Witnesses:

T. D. MERWIN,
MINNIE L. THAUWALD.