W. E. CARMONY.

SECTIONAL DERRICK.

APPLICATION FILED OCT. 8, 1908.

926,925.

Patented July 6, 1909.

2 SHEETS—SHEET 1.

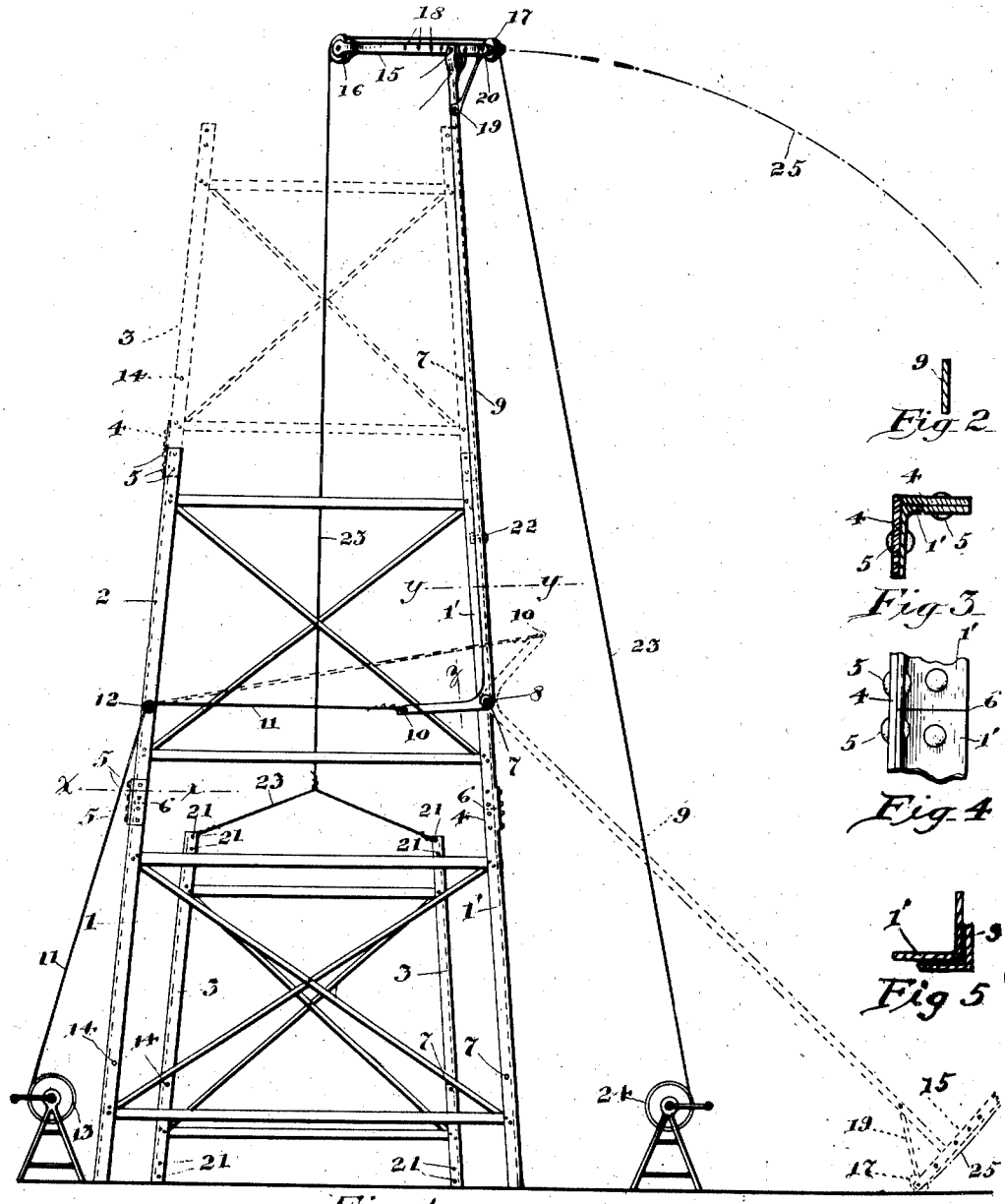


Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Witnesses:

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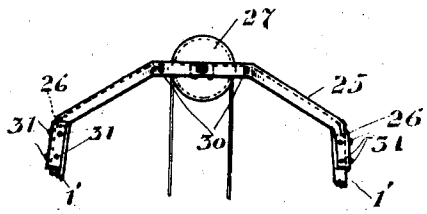


Fig. 6.

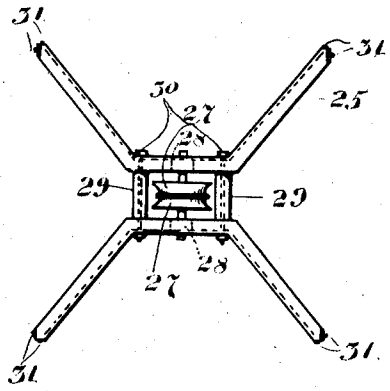


Fig. 7.

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UNITED STATES PATENT OFFICE.

WALTER ERNEST CARMONY, OF BELVIDERE, ILLINOIS.

SECTIONAL DERRICK.

No. 926,925. Specification of Letters Patent. Patented July 6, 1909.

Application filed October 8, 1908. Serial No. 456,799.

To all whom it may concern:

Be it known that I, WALTER ERNEST CARMONY, a citizen of the United States, residing at Belvidere, county of Boone, and State of Illinois, have invented certain new and useful Improvements in Sectional Derricks, of which the following is a specification.

My invention relates to improvements in sectional derricks or towers, and more particularly to an improved means for constructing same.

The main object of my invention is to provide a suitable assembling device to facilitate the raising and assembling of the sections used in the construction of the derrick, and a further object is to provide a derrick formed preferably entirely of metal and which is composed of a plurality of sections of upwardly-decreasing dimensions, the sections when assembled to form a rigid practically indestructible and ornate structure, and at the same time being economically efficient and forming a standard derrick for general purposes.

Other objects will appear hereinafter.

With these objects in view, my invention consists in a derrick or tower composed of a plurality of sections tapering upwardly, means for securely fastening the several sections together, and in a lifting arm of peculiar construction designed to facilitate assembling of the sections of the derrick. And my invention further consists in certain details of construction and arrangement of parts all as will be hereinafter fully described and particularly pointed out in the claims.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification, and in which,

Figure 1 is a side elevation of my improved derrick in its preferred form, also showing a lifting arm used in the construction of the derrick, Fig. 2 is a detail transverse section of a portion of the lifting arm taken on the line *z*—*z* of Fig. 1, Fig. 3 is a detail transverse section taken on the line *x*—*x* of Fig. 1, Fig. 4 is a detail elevation showing the method of fastening the sections of the derrick, Fig. 5 is a detail transverse section taken on the line *y*—*y* of Fig. 1 showing the lifting arm embracing the corner post of the derrick, and Figs. 6 and 7 are side and top detail elevations, respectively.

Referring now to the drawings, 1 indicates the lower section, 2 the second section, and 3 the third section of the derrick, it being understood that any number of sections may be used. The corner posts 1′ of the sections are preferably of angle steel which are reinforced by the usual diagonal braces as shown. The section 1 is supposed to be firmly secured in the earth, and the other sections before being assembled may be all arranged in the space inclosed by section 1, the smallest or top section being of course in the center. The second section 2 is shown securely fastened to section 1 by means of the fish-plates 4 and the rivets 5, the abutting ends being shown at 6. A perforation 7 provided in each of the sections is adapted to receive a removable bolt 8 which forms a pivot for the lifting arm 9. The lifting arm 9 is provided with a perforation at 10 to receive a rope 11 which may pass over a pulley 12 to a windlass 13. A perforation 14 is also provided in each of the sections to receive the removable pulley 12 to be used as required during the assembling of the sections. Pivoted to the lifting arm 9 is a lever 15 provided with the pulleys 16 and 17. A plurality of perforations 18 are provided in the lever 15 in order to vary the distance from the pulley 16 to the lifting arm 9, so that the pulley 16 may be centrally disposed regardless of the size of the sections. A brace 19 is pivoted to the lifting arm and the lever 15 at 20. The lever 15 is shown in perspective and is disposed diagonally in order that the pulley 16 may be centrally disposed in the derrick. 21 indicates perforations to receive rivets in the corner posts 1′.

The operation of the assembling device is as follows: The section 2 is shown assembled and secured in position. To position section 3 or any succeeding section, the lifting arm 9 is first pivoted at 7 by means of the removable bolt 8, when the rope 11 is secured in the perforation 10 and passed over the pulley 12 to the windlass 13. By turning the windlass 13 the lifting arm 9 is raised from the dotted line position to the position shown on the derrick. A bolt 22 then temporarily holds the lifting arm 9 in position on the post 1′. A rope 23 is then attached in the perforation 21 in the section 3 and is passed over the pulleys 16 and 17 to the windlass 24, when the section 3 may be raised and assembled as shown by dotted lines. The broken line 25 indicates the path of movement of the lifting arm 9 when being raised into position on the derrick. After the sections of the derrick are assembled, a pulley

frame 25 may be secured to the topmost section, as shown in Figs. 6 and 7. The frame 25 is preferably of angle steel and is provided with shoulder portions 26 adapted to rest on the corner posts 1′. The hoisting pulley 27 is mounted in the bearings 28, and the blocks 29 provide suitable spacing for said pulley. The two halves of the frame 25 are rigidly connected by means of the bolts 30 and the frame 25 is secured to the corner posts 1′ by means of the bolts 31.

While I have shown what I deem to be the preferable form of my device, I do not wish to be limited thereto, as there might be many changes made in the details of construction and arrangement of parts without departing from the spirit of my invention.

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

1. A sectional derrick comprising a plurality of tapering sections, means for fastening said sections together, a lifting arm adapted to be pivoted to any of said sections, a lever adapted to be pivoted to said arm at its outer extremity, and pulleys mounted at each extremity of said lever, substantially as described.

2. In a sectional derrick, in combination with a plurality of sections secured together by means of rivets and fish-plates, a lifting arm pivoted to the topmost section, means for raising and securing said arm in proper position, and a lever adjustably connected with said arm for raising another section to be secured to said topmost section, substantially as described.

3. In a sectional derrick, a plurality of sections having suitably braced convergent corner posts, means for assembling said sections comprising a lifting arm adapted to be pivoted to a section by means of a removable bolt, a perpendicular portion at the inner extremity of said arm provided with a perforation to receive a rope, a lever pivoted at the outer extremity of said arm, pulleys pivoted at the extremities of said lever adapted to carry a hoisting rope, a brace pivoted to said arm and said lever, and a plurality of perforations in said lever adapted to receive the pivotal bolt connecting said lever with said arm, substantially as described.

4. In a sectional derrick, in combination with a plurality of sections and means for securing the same together when raised into their proper positions, an adjustable lever carrying a pulley connected to a lifting arm adapted to be pivoted to any of said sections, and a windlass or other hoisting apparatus having rope and pulley connection with said arm for raising the same into engagement with a corner post of one of said sections, substantially as described.

5. In a sectional derrick, a plurality of sections, a lifting arm pivotally attached to and temporarily bolted to one of said sections, a lever at the top extremity of said arm, pulleys mounted on said lever, a windlass or other hoisting apparatus, and a rope passing over said pulleys and connecting the windlass with the next section to be erected, substantially as described.

6. In a sectional derrick, a plurality of sections having convergent corner posts, means for assembling said sections comprising a lifting arm adapted to be pivoted to any of said sections, a perpendicular portion at the inward extremity of said arm provided with a perforation to receive a rope, and a removable pulley secured to a section and adapted to carry said rope, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WALTER ERNEST CARMONY.

Witnesses:

G. FRED COLLIER,

GRACE E. SAGE.