May 12, 1942. G. J. CORMIER, JR 2,283,049

DERRICK

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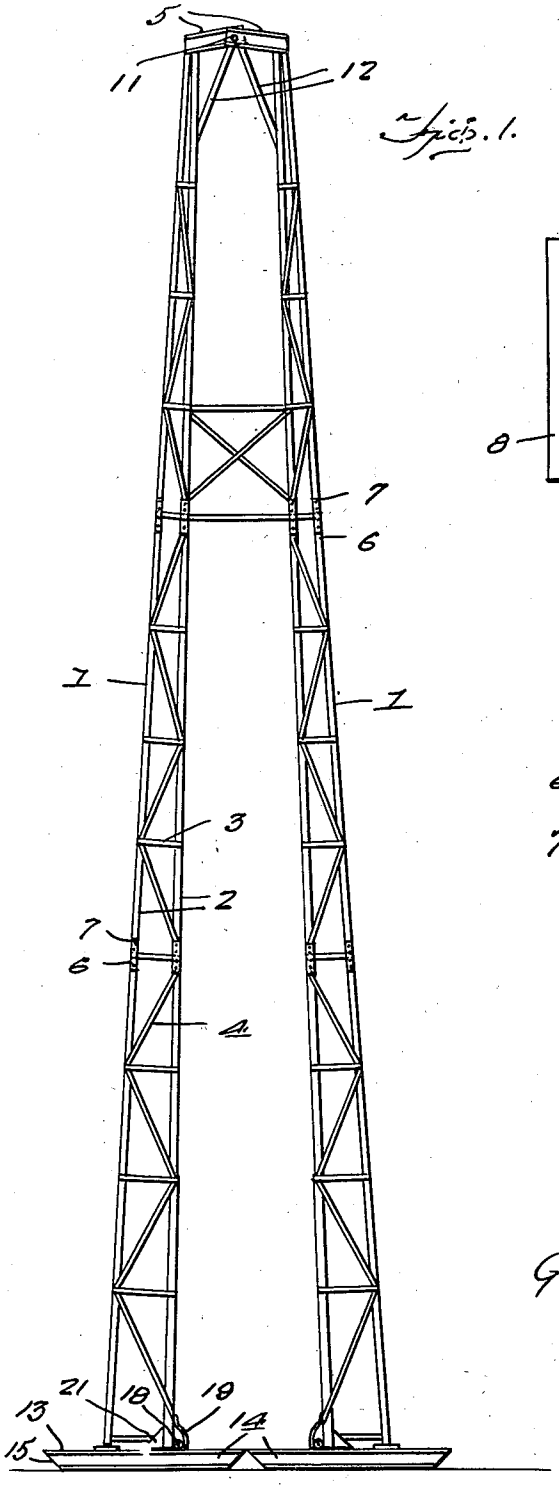


Fig. 1.

Fig. 4.

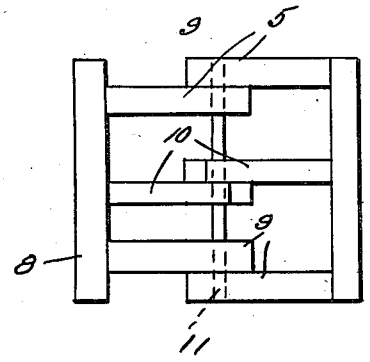
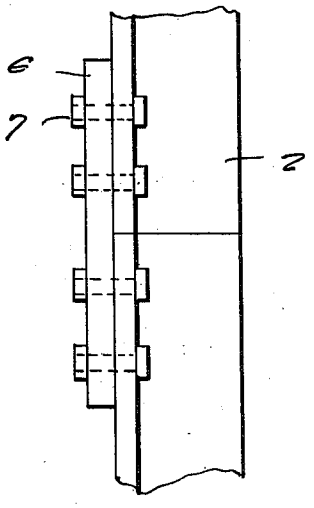


Fig. 5.



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Fig. 2.

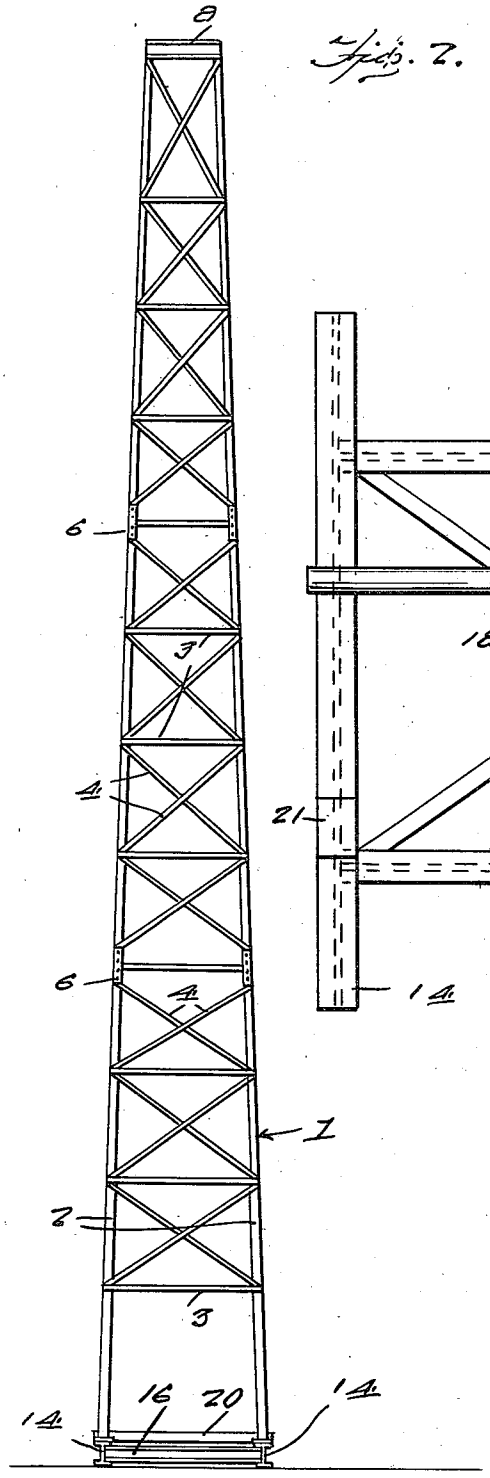
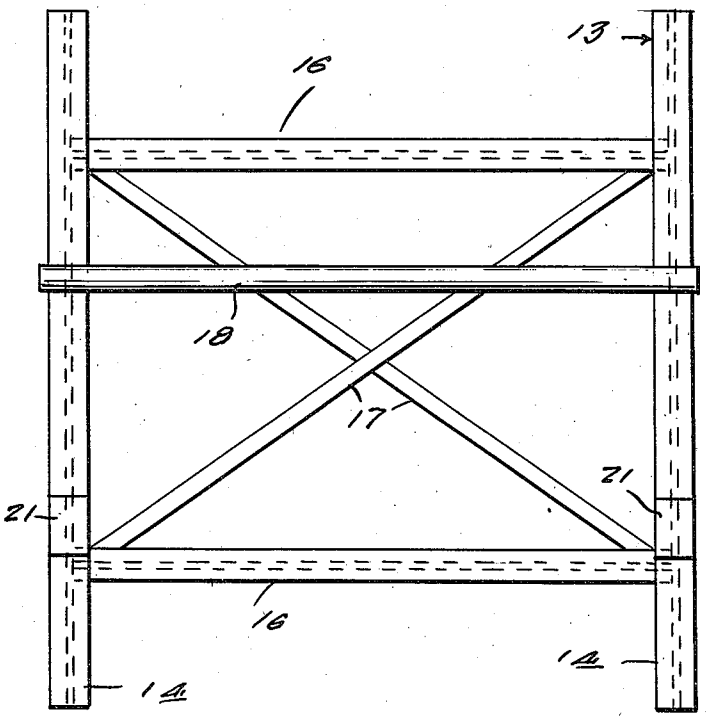


Fig. 3.



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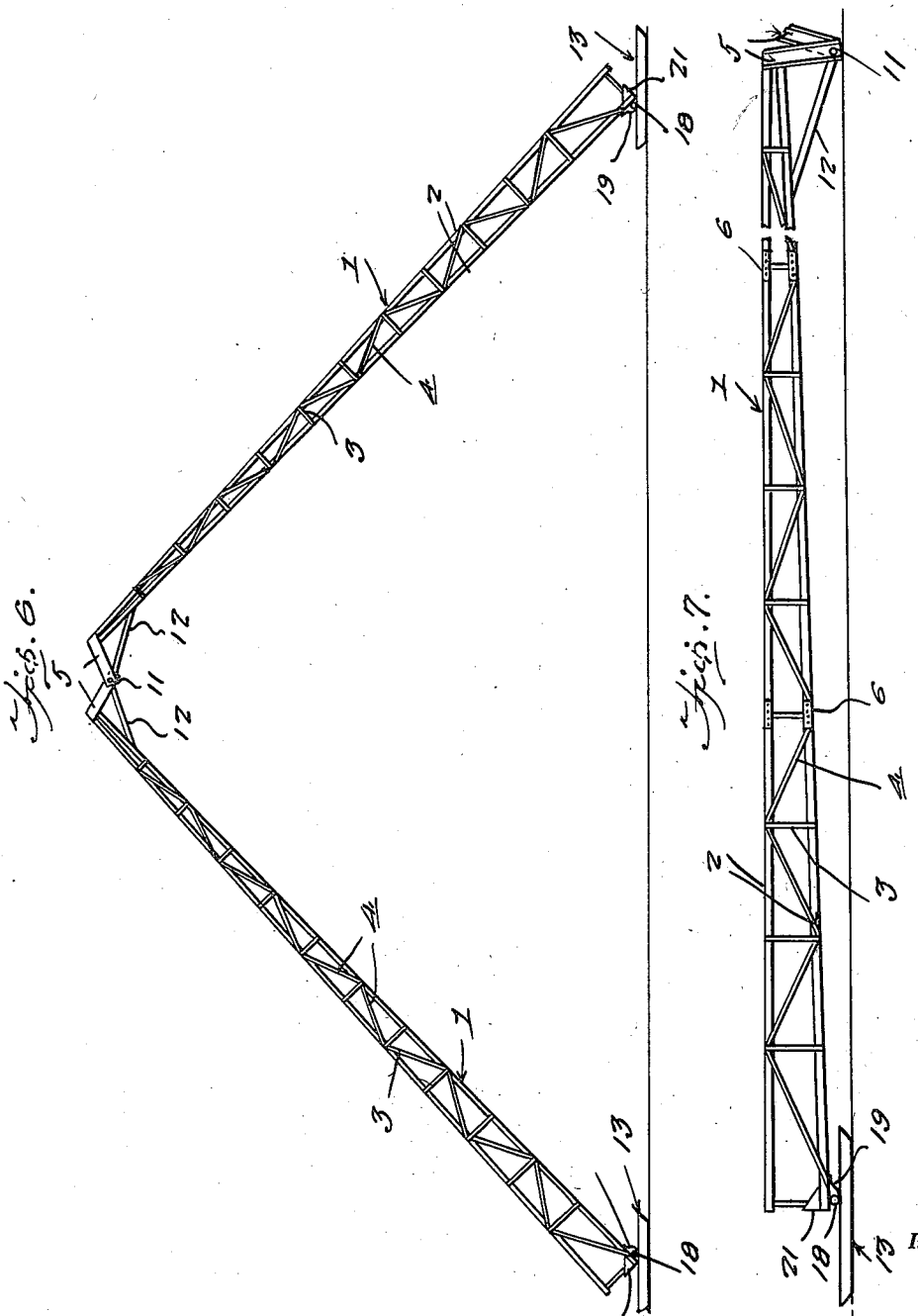
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UNITED STATES PATENT OFFICE

2,283,049

DERRICK

Gustave J. Cormier, Jr., Houston, Tex.

Application May 16, 1941, Serial No. 393,808

1 Claim. (Cl. 189—16)

My invention relates to improvements in derricks, the primary object in view being to provide a device of this character which is built up of skeleton sections which may be added to or removed to increase or diminish the height of the structure, said structure being peculiarly adapted for complete assembly of the parts before erection into upright position and for subsequent erection as a unit from the ground and without building up scaffolding or the like.

Another object is to provide a device for the purpose set forth which is strong and durable, adequately braced to impart the requisite rigidity thereto, and comparatively inexpensive to manufacture.

Other, and subordinate objects will presently appear when the succeeding description and claim are read with reference to the drawings accompanying and forming part of this specification.

In said drawings:

Figure 1 is a view in side elevation of a preferred embodiment of my invention,

Figure 2 is a view taken at a right angle to Figure 1 and showing the outer face of one of the masts in elevation,

Figure 3 is a view in top plan of one of the skids,

Figure 4 is a view in top plan of the crown yokes,

Figure 5 is a fragmentary view in side elevation illustrating the manner in which the sections of the masts are detachably connected,

Figure 6 is a view in side elevation illustrating the derrick partially erected, and

Figure 7 is a view in side elevation illustrating one of the masts lowered to the ground.

Referring to the drawings by numerals, in the illustrated embodiment thereof, my improved derrick comprises a pair of substantially duplicate masts 1 opposed in spaced apart relation in a common plane. Each mast 1 is substantially a counterpart of the other, and therefore a description of one will suffice for both. Each of said masts is of skeleton form and, with the exceptions presently noted, angleiron construction. Basically, each mast 1 comprises four corner uprights 2, upwardly converging relatively, vertically spaced horizontal brace bars 3 on each side of the mast connecting the uprights 2, diagonal struts on each side designated 4 and arranged intermediate the cross bars 3, and a laterally extending yoke 5 at the top end of the mast. Each mast 1 is formed of a plurality of sections connected together by plates 6 and suitably arranged bolts 7.

Each yoke 5 comprises a crown cross bar 8 of I-beam construction suitably secured, as by welding not shown, on top of the related mast, a pair of laterally extending side arms 9 on said bar, the arms 9 being laterally spaced apart, and a similarly extending arm 10 intermediate the arms 9 of said pair. The pair of arms 9 of one yoke 5 fit in between the arms 9 of the other yoke and the intermediate arm 10 of the one yoke overlaps the intermediate arm 10 of the other. A rod 11 extended through the interfitting arms 9 and the overlapping arms 10 pivotally connects the yokes 5 together intermediate the tops of the masts 1. The yokes 5 may be suitably braced to the masts 1 as by the diagonal brace bars 12.

As will now be seen, by virtue of the described pivotal connection of the yokes 5, the masts 1 are swingably connected together at the tops thereof so that each mast may be built up of the desired number of sections, the masts then laid end to end substantially horizontally on the ground, the yokes 5 pivotally connected together, and the structure erected by forcing the base ends of the masts 1 toward each other to cause the pair of masts to buckle upwardly. As will also be seen, the derrick may be thus erected with the masts in different angular relations so that the derrick may be erected to different heights as desired.

To facilitate erecting the derrick, the base ends of the masts 1 are mounted upon a pair of skids 13. Each skid 13 comprises a pair of parallel I-beams 14 having bevelled ends 15 to faciltate sliding of the skids along the ground. A pair of cross bars connect each pair of I-beams 13, as at 16, adjacent opposite ends of the skids, said bars 16 being also of I-beam form. Diagonal strut bars 17 intermediate the cross bars 16 brace the side bars 15 to hold the same in parallel relation.

The base ends of the masts 1 are fulcrumed on the pair of skids 13, respectively, as follows.

Extending across the skids 13 is a fulcrum rod 18 having its opposite ends suitably fixed on top of the side bars 14 of the skid. A pair of curved keeper plates 19 depend from the inner sides of the masts 1, respectively, said plates extending across the upright 2 on said inner side of the mast at the base thereof and being suitably affixed to said uprights, the arrangement being such that the lower ends of said uprights 2 and the plates 19 straddle the cross rods 18, said lower ends of the uprights resting and fulcrum-

ing on the side bars 14 of the skids 13. A foot plate 20 extends across said lower ends of the uprights 2 to which the plates 19 are attached but on the opposite sides of said uprights, said plates in the fully erected condition of the derrick resting on the side bars 14 of the skids 13. A pair of bearing plates 21 are provided on the side bars 14 of each skid 13 to support the lower ends of the outer pairs of uprights 2 in the fully erected condition of the derrick.

When the derrick is erected to the desired height, the masts 1 may be permanently connected together by suitable cross bars 23 extending therebetween and diagonal braces 24 between the cross bars, the cross bars 23 and braces 24 being arranged at any desired height on said masts.

As will be clear, in erecting the device in the manner already described, skids 13 slide on the ground into contiguous relation, the masts 1 fulcruming at their base ends thereon around the rods 18.

As will also be manifest, from an inspection of Figure 7, when the masts 1 are assembled end to end on the ground, the arms 9, 10 of the yokes 5 provide uprights supporting the upper ends of the masts 1 so that the latter incline from the skids 13 upwardly toward each other, to prevent said masts when assembled on the ground from assuming a dead center relation blocking movement of the skids 13 together. The advantage of this feature will be apparent.

The foregoing will, it is believed, suffice to impart a clear understanding of my invention without further explanation.

Manifestly, the invention as described is susceptible of modification without departing from the inventive concept, and right is herein reserved to such modifications as fall within the scope of the subjoined claim.

What I claim is:

A derrick structure comprising a pair of opposed masts of skeleton form and rectangular shape transversely, each including corner uprights converging upwardly relatively, vertically spaced cross bars connecting the uprights on each side of each mast, diagonal braces on each side of each mast intermediate the cross bars and connecting the uprights together on each of said sides, means pivotally connecting said masts together at their upper ends whereby said masts may be laid horizontally end to end in the ground and raised into upright position by moving the base ends of the same toward each other and elevating the pivotally connected ends of the masts, and a pair of skids for the base ends of the masts respectively, for facilitating moving said base ends together, the base ends of the masts being fulcrumed on the skids to permit the masts to assume upright position thereon, said means comprising a pair of interfitting yokes extending laterally from the upper ends of the masts, respectively, and connected in hinging relation, said yokes comprising arms supporting the masts at their upper ends, when said masts are laid end to end, in upwardly and inwardly inclined positions to thereby prevent the same from assuming a dead center relation blocking movement of their base ends together.

GUSTAVE J. CORMIER, JR.