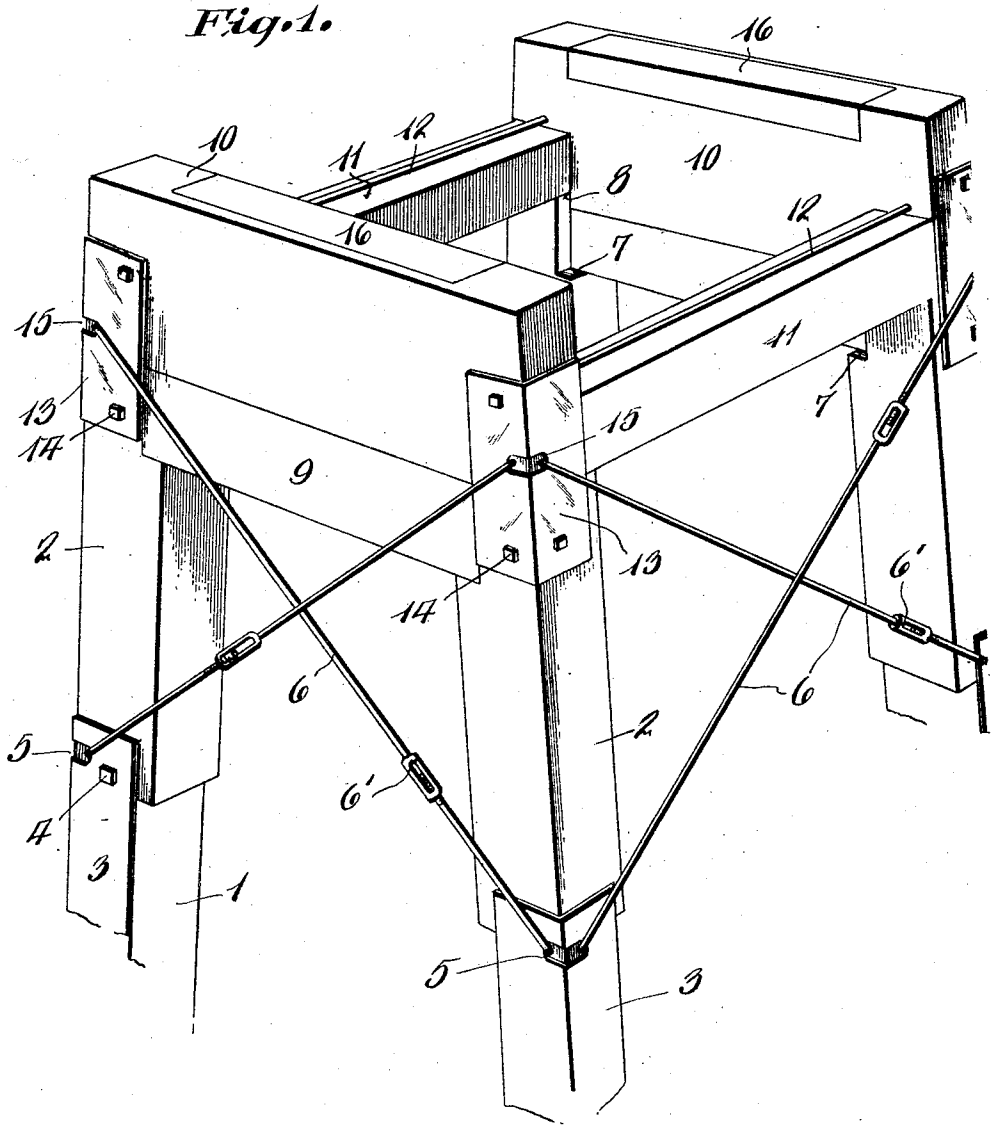
Nov. 16, 1926. 1,607,510

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OIL WELL DERRICK HEAD CONSTRUCTION

Filed July 5, 1923 2 Sheets-Sheet 1

Fig. 1.




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OIL WELL DERRICK HEAD CONSTRUCTION

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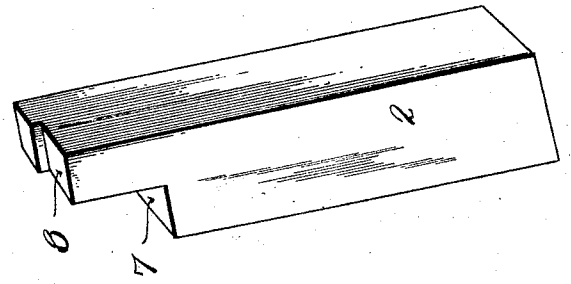



Fig. 4.

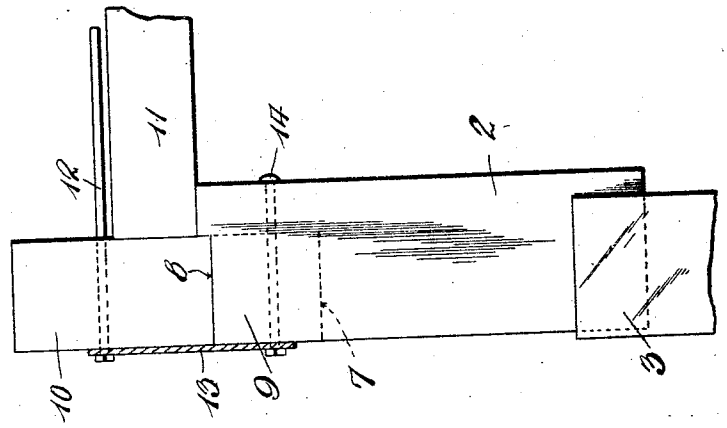



Fig. 3.

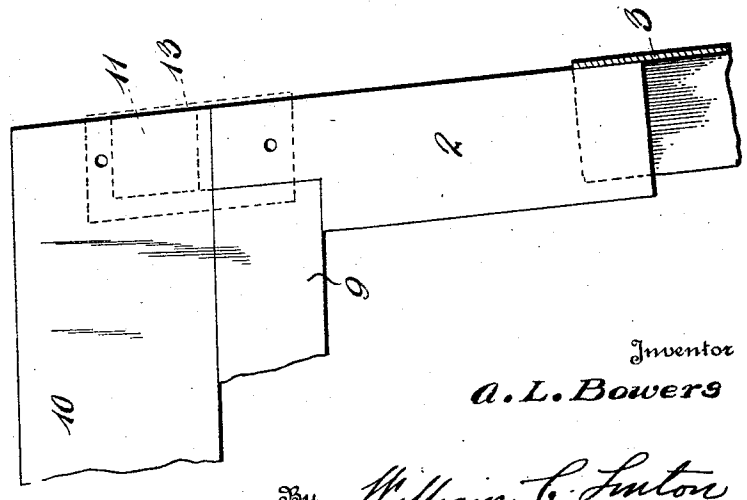



Fig. 2.

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Patented Nov. 16, 1926. 1,607,510

# UNITED STATES PATENT OFFICE.

ARLAN L. BOWERS, OF BRISTOW, OKLAHOMA, ASSIGNOR TO FRANK M. MAHAN, OF PAWHUSKA, EARNEST McCARTY, OF WYNONA, AND CARL H. BESSE, OF BURBANK, OKLAHOMA.

## OIL-WELL-DERRICK-HEAD CONSTRUCTION.

Application filed July 5, 1923. Serial No. 649,745.

This invention relates to improvements in derrick constructions, having for an object to provide a novel and strong head construction for derricks employed in the drilling of oil, gas, and artesian wells, such as is illustrated and claimed in my copending United States application for Letters Patent, serial numbered 649,746, wherein the invention embodies means for effectually withstanding the stress and weight applied thereto with installation and operation of the well drilling rig.

It is likewise an object of the invention to provide a derrick head construction wherein the supporting beams and bolsters are arranged and supported in a manner to prevent their collapse, as by twisting or buckling and yet, to render the operation of assembly simple and readily effected.

Other objects will be in part obvious and in part pointed out hereinafter.

In order that the invention and its mode of operation may be readily understood by persons skilled in the art, I have in the accompanying illustrative drawings, and in the detailed following description based thereon, set out one possible embodiment of the same.

In these drawings:—

Figure 1 is a fragmentary perspective view showing the construction of the improved derrick head;

Figure 2 is a fragmentary side elevation of one of the supporting sections showing the positioning of the bolster and supporting means thereon;

Figure 3 is a similar view partly in section taken at substantially right angles to the Figure 2; and

Figure 4 is a detail in perspective of one of the supporting sections.

Having more particular reference to the drawings, in connection with which like characters of reference will designate corresponding parts throughout, the improved head construction is especially adapted for use upon oil well rig derricks, wherein the derrick includes a plurality of rectangularly arranged leg sections indicated herein by the numeral 1, each of said leg sections having positioned upon its upper end and supported thereon, short supporting sections 2, which as will be noted, are of cross sectional size greater than the leg sections 1. The supporting sections 2 are secured in longitudinal alignment with the upper ends of the leg sections 1 by means of angle bracket plates 3 bolted to adjacent portions of the leg sections and supporting sections 2 as indicated at 4 and having transversely disposed corner slots 5 formed in the opposite ends thereof whereby to permit the connection of sectional adjustable struts 6 thereto in the manner indicated in the Figure 1 (this matter being illustrated and claimed in my copending parent application).

The upper ends of each of the supporting sections 2 are shouldered, as indicated at 7, while the upper extremities of the reduced portions thereof are provided with right angularly disposed shouldered seats 8.

Oppositely arranged transversely disposed bolsters 9 are seated in the opposed shoulders 7 formed upon the upper ends of the supporting sections 2, as shown in the Figure 1, while the lower side opposite end portions of the supporting beams 10 are seated in the shouldered seats 8 formed upon the reduced portions of said supporting sections 2, as is also shown in the Figures 1 and 3. In this connection, it is to be noted that the bolsters 9 and the opposed supporting beams 10 are arranged in parallel relationship upon the opposite sides of the derrick and to firmly interconnect the same and to relatively brace them, bracing bars or timbers 11 are engaged at their lower side opposite end portions with the ledges formed by the positioning of the supporting beams 10 within the shouldered seats 8, as shown in the Figure 3, whereupon tie rods 12 are passed through the opposite end portions of the supporting beams 10 and have the nuts upon their opposite ends tightened so as to effect the clamping engagement of the several bracing timbers 11 in their seated positions upon the upper ends or ledges provided upon the free ends of the reduced portions of the supporting sections 2. Thus, liability of lateral displacement of the bracing timbers 11 with respect to the supporting sections 2 and the bolsters and supporting beams 9 and 10 will be prevented.

To effect further bracing of the head construction of the derrick, angle bracket plates 13 are arranged over the upper extremities of the outer sides of the supporting sections 2 and extend upwardly over the adjacent extremities of the supporting beams 10, as shown in the Figures 1, 2 and 3; these angle

plates being securely bolted in position, as indicated at 14 and having corner slots 15 formed transversely of the intermediate portions thereof, adapted to be engaged by the upper or free hooked extremities of the sectional adjustable struts 6, which struts, as will be noted, are disposed diagonally of and between the short sections 2. Thus, by tightening the turnbuckles 6′ of the struts 6, proper tension may be applied thereto for effectually bracing the derrick head construction.

Bearing surfaces are provided upon the upper sides of the several supporting beams 10 by arranging L-shaped irons 16 thereon, as shown in the Figure 1.

With my improved derrick head construction, I am enabled to provide the derrick with means which will effectually support and successfully withstand the great stress to which devices of this character are subjected with installation and operation of a well drilling rig. By proper adjustment of the sectional adjustable struts 6 through the medium of the turnbuckles 6′ proper tension may be had throughout the head construction whereby to avoid any liability of any twisting or buckling of the same.

Furthermore, by reason of the novel arrangement of the bolsters and the supporting beams which are positioned and supported thereupon as well as the arrangement of the bracing timbers with respect thereto, it will be appreciated that other means are provided for lessening any possibility of the buckling, twisting, or collapsing of the head construction with the application of material weight or stress thereto.

Manifestly, the construction shown is capable of considerable modification and such modification as is within the scope of my claims, I consider within the spirit of my invention.

I claim:

1. A derrick including rectangularly spaced legs, supporting sections secured to and arranged in longitudinal alignment with the upper ends of said legs having their upper ends shouldered, bolsters received in the shouldered extremities of said supporting sections and arranged in oppositely disposed relationship, supporting beams received upon the upper ends of said supporting sections and arranged parallel to said bolsters, oppositely disposed bracing timbers arranged at substantially right angles to said bolsters and supporting beams and between certain of said supporting sections engaged at their opposite ends with the adjacent portions of said supporting beams and the upper ends of said supporting sections, and tie rods arranged parallel to said bracing timbers and connected at their opposite ends to adjacent portions of said supporting beams.

2. A derrick including rectangularly spaced legs, supporting sections secured to and arranged in longitudinal alignment with the upper ends of said legs, said sections having their upper end portions shouldered, opposed bolsters seated at their opposite ends upon said shoulders, supporting beams arranged upon the upper extremities of said supporting sections directly over and in parallel relation to said bolsters, bracing timbers engaged at their opposite ends upon the upper ends of said supporting sections and arranged between certain of the same transversely to said supporting beams, tie rods disposed in parallel relation to said bracing timbers and engaged at their opposite ends with the adjacent end portions of the supporting beams, and other tie rods arranged diagonally of and between said supporting sections and connected at their opposite ends to points adjacent the same.

3. A derrick including rectangularly spaced legs, supporting sections positioned upon the upper ends of said legs and arranged in longitudinal alignment therewith, said legs having their upper ends reduced and formed with opposed shoulders, opposed parallelly arranged bolsters seated at their opposite ends upon the shoulders of the reduced upper ends of the supporting sections, supporting beams seated at their opposite ends upon the upper extremities of the reduced ends of the supporting sections directly above the bolsters and in parallel relation thereto, the upper extremities of the reduced ends of said sections having sections formed therein whereby to receive said opposite extremities of the supporting beams, bracing timbers seated at their opposite ends upon the upper extremities of the reduced ends of the supporting sections and arranged transversely to said supporting beams, and tie rods arranged parallel to said bracing timbers and connected at their opposite ends to the adjacent portions of the supporting beams.

4. A derrick including rectangularly spaced legs, supporting sections positioned upon the upper ends thereof and arranged in longitudinal alignment with the same, the upper portions of said supporting sections being reduced and provided with opposed shoulders, the upper extremities of said reduced portions of the supporting sections having seats formed therein, opposed bolsters seated at their opposite ends upon said shoulders, supporting beams arranged directly above the bolsters in parallel relation thereto seated at the upper ends upon the seats formed in the upper extremities of the supporting sections, wear compensating means arranged upon and secured to the upper marginal portions of the supporting beams, bracing timbers seated at their upper ends upon the upper extremities of the supporting sections disposed transversely of said

supporting timbers, tie rods extending longitudinally of the bracing timbers and connected at their opposite ends to adjacent portions of the supporting beams, angle bracket plates engaged over the adjacent portions of the supporting sections, bolsters and supporting beams and bolted thereto, and other tie rods connected at their lower ends to points in proximity to the lower ends of the supporting sections extending diagonally of and between said supporting sections and having their opposite ends connected to the angle bracket plates.

5. A derrick head construction comprising spaced vertical supporting sections, relatively opposed parallel bolsters seated on the upper ends thereof, beams seated on the upper ends of said sections above and parallel to said bolsters, bracing means seated on the upper ends of the sections at angles with respect to the bolsters and beams and arranged between the same, and means for inter-connecting said beams.

6. A derrick head construction comprising spaced vertical supporting sections, relatively opposed parallel bolsters seated at their opposite ends on the upper ends thereof, beams seated at their opposite ends on the upper ends of said sections immediately above and parallel to said bolsters, bracing means seated at their opposite ends on the upper ends of said sections at substantially right angles with respect to the bolsters and beams and in proximity thereto, and means disposed coincidentally with said bracing means and engaging said beams for rigidly inter-connecting said beams.

7. A derrick head construction comprising spaced vertical supporting sections, relatively opposed parallel bolsters seated at their opposite ends on the upper ends of said sections, beams seated at their opposite ends on the upper ends of said sections immediately above and parallel to said bolsters, bracing timbers seated at their opposite ends on the upper ends of said sections and arranged at substantially right angles with relation to the bolsters and beams and disposed between the opposite end portions of the same, means for rigidly inter-connecting said beams and bracing means, angle bracket plates engaged over the adjacent portions of the supporting sections, bolsters, beams and bracing timbers, and connected thereto, and tie rods connected at their upper ends to said bracket plates and having their remaining ends fixedly connected at points in proximity to the lower ends of said sections.

In witness whereof I have hereunto set my hand.

ARLAN L. BOWERS.