July 10, 1928. 1,676,272

J. D. McEWEN

DERRICK

Filed April 19, 1926

Fig. 1.

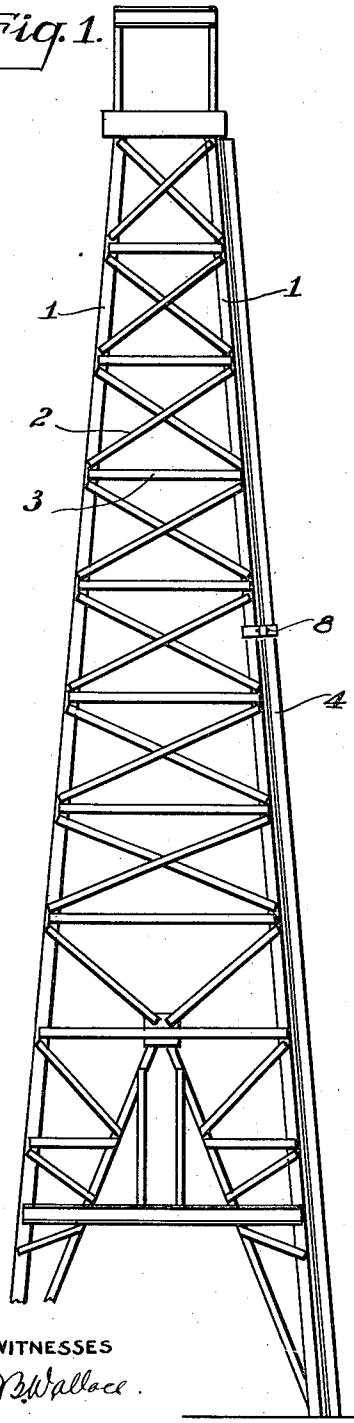


Fig. 2.

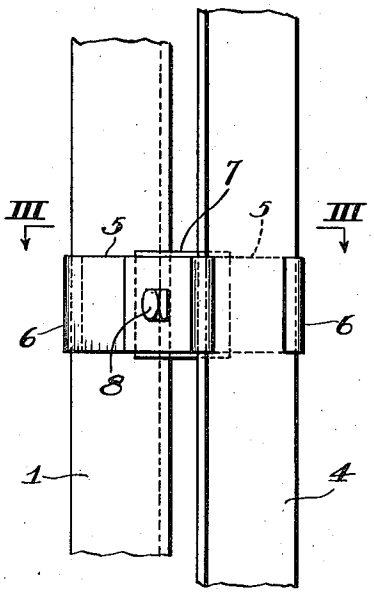
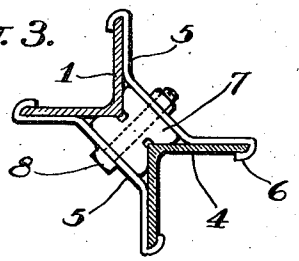


Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

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DERRICK.

Application filed April 19, 1926. Serial No. 102,900.

This invention relates to structural steel derricks for oil, gas and other wells, and more particularly to a reenforcing structure for derricks and other structural elements of a like character.

In a copending application Serial No. 102,899 filed April 19, 1926, I have described means for reenforcing structural steel derricks or the like by providing detachable reenforcing columns which are secured to the derrick posts or columns by suitable clamping brackets to produce a composite column having a large radius of gyration for increasing the strength of a derrick for certain operations such as drilling and pulling casing, the reenforcing elements being adapted for removal and use on other derricks when the derrick is utilized for lighter working operations such as pumping.

The present invention relates to reenforcing members for structural steel derricks or the like, and differs from that set forth in the above-mentioned copending application in the manner of attaching the reenforcing members to the derrick posts or structural steel columns, it being among the objects of this invention to provide a simple form of connecting members for securing the reenforcing structure to the main derrick structure.

My present invention, like the aforementioned application, provides a reenforced derrick column produced by a particular arrangement and assembly of structural steel parts to form a composite column having a relatively large radius of gyration to obtain increased strength in the column for a given cross-sectional area of metal.

In the accompanying drawing constituting a part hereof, and in which like reference characters designate like parts, Fig. 1 is an elevational view of a structural steel derrick embodying the principles of my invention; Fig. 2 is an enlarged elevational view of a portion of the reenforced derrick column; and Fig. 3 is a transverse sectional view of the column taken along the line III—III, Fig. 2.

The derrick shown in Fig. 1 comprises the usual angle corner columns 1 to which there are secured braces 2 and struts 3 arranged to constitute panels. The left hand column of the derrick represents a post such as normally used for pumping and minor operating functions, and the right hand column illustrates the application of a reenforcing member to the column for drilling and casing stripping operations.

Referring to Fig. 3 of the drawing, the derrick column 1 is an angle bar with its back turned outwardly of the derrick, and is reenforced by a similar angle bar 4 which is disposed with its apex in alignment with the apex of the derrick column 1 but has its back facing inwardly of the derrick. The reenforcing angle bar 4 is secured to the angle bar 1 by a plurality of substantially channel-shaped clamping bars 5 having overlapping edges 6 for engaging the ends of the angle bars. The members 5 are formed to engage the backs of the angle bars over a relatively large area to provide rigidity, and they may be held in their proper spaced relation by a clamping block 7 having openings therein in alignment with openings in the clamping bars adapted to receive clamping bolts 8 by means of which the angle bars, clamping bars and block 7 are severally joined to constitute a unitary composite derrick column. The clamping bars 5 as shown in Fig. 2 are employed in short sections preferably in the region of the panel points 9 as shown in Fig. 1.

The lateral spacing of the angle bars 1 and 4 and the dimensions of the block 7 and clamping bars 5 may be varied for altering the spaced apart relation of the angle bars to afford reenforced columns having different radii of gyration.

It is evident from the foregoing description of my invention that a reenforcing structure for derrick columns made in accordance therewith provides a relatively strong column which may be conveniently assembled to the derrick posts by the use of relatively simple clamping means comprising a minimum number of parts, thereby readily permitting the assembling and disassembling of the reenforcing elements. The reenforcing structure is of such design as will permit the interchangeable use of parts with other derricks of similar construction so as to permit of the application of the reenforcing members to different derricks

in the same field of operation in accordance with the service requirements for which the derricks are used.

Although I have described a specific embodiment of my invention it will be obvious to those skilled in the art that the shapes and proportions of the reenforcing and clamping members may be varied without departing from the principles herein set forth, for instance the clamping block 7 may be dispensed with without altering the disposition of the angle bars and the cooperating clamping members.

I claim:

1. In a derrick structure comprising columns formed by two angle bars placed back to back and spaced apart in parallel relation, means for connecting the angle bars comprising a block adapted to be positioned between the angle bars and having opposite grooves for receiving the corners of the bars and having a bolt hole positioned transversely to the plane of said grooves, a pair of clamps each adapted to engage the adjacent outer edges of the two bars, and a bolt adapted to hold the clamps against the bars and against the block, whereby to rigidly position and hold the angle bars in proper relation.

2. In a derrick structure comprising columns formed by two angle bars placed back to back and spaced apart in parallel relation, means for connecting the angle bars, said means comprising pairs of clamps having their ends turned upon themselves to form terminal hooks adapted to engage adjacent edges of the parallel angle bars, the intermediate portion of said clamps being adapted to fit between and bear against the adjacent legs of the angle bars, the clamps being perforated at their middle points, and a bolt adapted to connect the clamps whereby to hold the angle bars in properly spaced parallel connected relation.

3. In a derrick structure comprising columns formed by two angle bars placed back to back and spaced apart in parallel relation means for connecting the angle bars, said means comprising pairs of clamps having their ends turned upon themselves to form hooks adapted to engage adjacent edges of the parallel angle bars, the intermediate portion of said clamps being adapted to fit between and bear against adjacent legs of the angle bars, the clamps being perforated at their middle points and a bolt adapted to connect the clamps and to draw them together against the angle bars, whereby to hold the angle bars in properly spaced parallel connected relation, and means between the angle bars to positively space them apart and to furnish an abutment for the clamps thereon.

4. In a derrick structure comprising columns formed by two angle bars placed back to back and spaced apart in parallel relation, means for connecting the angle bars, said means comprising pairs of clamps having their ends turned upon themselves to form terminal hooks adapted to engage adjacent edges of parallel angle bars, the intermediate portion of said clamps being turned inward at angles adapting the outer portions of the clamps near the hooks to lie against the backs of the angle bars and so to form positive abutments therefor, and means to hold the clamps in position on the angle bars, whereby to positively space apart and connect the angle bars.

In testimony whereof, I sign my name.

JOHN D. McEWEN.