July 6, 1926. 1,591,077

C. H. BESSE

DERRICK BRACE

Filed May 11, 1925

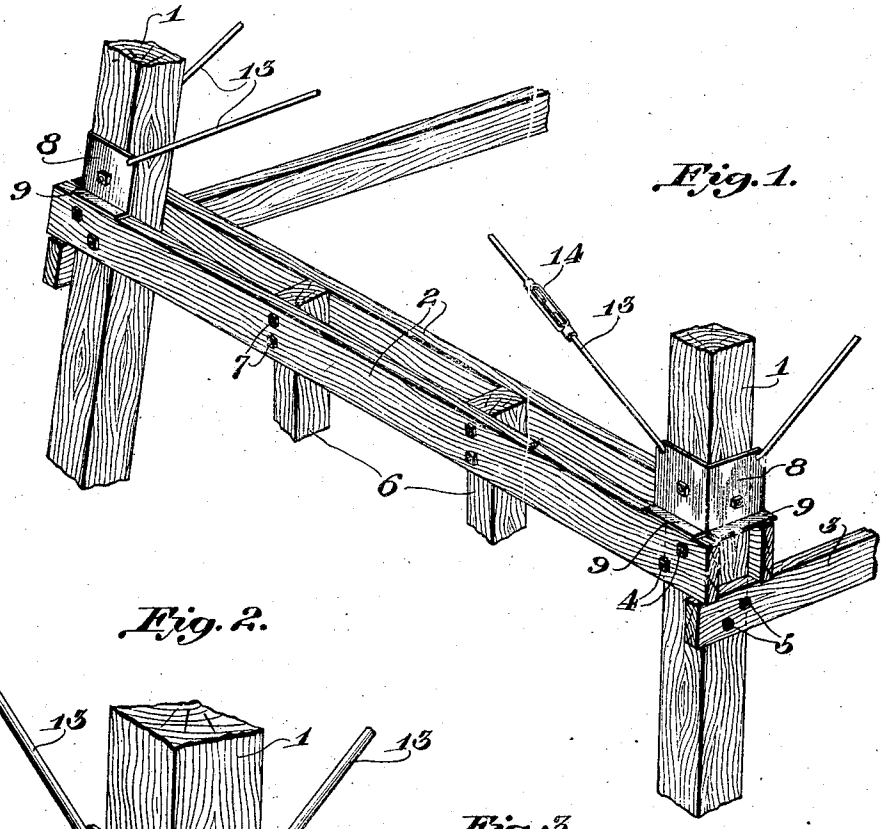


Fig. 1.

Fig. 2.

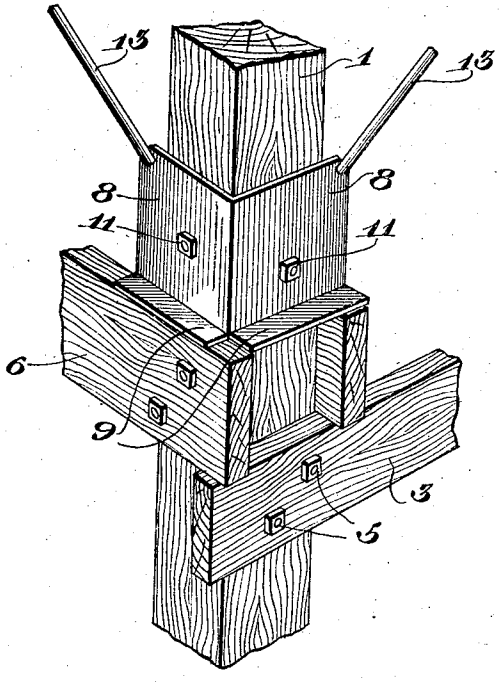
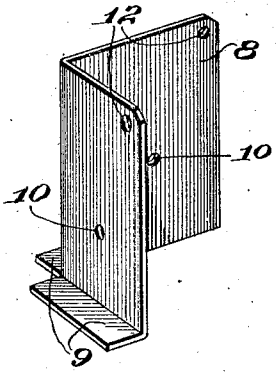


Fig. 3.



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UNITED STATES PATENT OFFICE.

CARL H. BESSE, OF TULSA, OKLAHOMA, ASSIGNOR OF ONE-THIRD TO FRANK M. MAHAN AND ONE-THIRD TO EARNEST McCARTY.

DERRICK BRACE.

Application filed May 11, 1925. Serial No. 29,532.

This invention relates to improvements in those forms of derricks or tower constructions wherein a system or arrangement of braces is employed to rigidify and stabilize the same, the invention having for an object to provide a novel form of connection for the first or lowermost set of braces whereby said braces may be practically and securely connected or anchored at their lower ends to the derrick or tower leg.

It is likewise an equally important object of the invention to provide a novel form of device which when attached or connected to the legs or leg sections of a derrick or tower will serve for a two-fold function, first, as a connecting or anchoring means for the first and lowermost set of braces and second, as an effectual stop or bracing means for the plank girths of the derrick or tower construction, whereby such girths will be prevented from having upward movement with respect to the derrick or tower legs during the application of upward or vertical stresses thereto as for example in well drilling derricks during the course of spudding in or drilling, during which operations, upward stresses or thrusts are imparted to the plank girths; also, when material strains or stresses are applied to the bull and calf wheels of oil well drilling rigging, which wheels are connected to posts or similar bearing devices with the first or lowermost set of the forward and rearward plank girths.

Other objects of the invention 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 thereupon, set out one embodiment of the same.

In these drawings:—

Figure 1 is a fragmentary detail in perspective of a derrick construction having the plank girths and leg sections thereof provided with the invention;

Figure 2 is an enlarged fragmentary detail in perspective showing specifically the mounting of the device with respect to one of the derrick or tower legs and the adjacent portion of certain of the plank girths; and,

Figure 3 is a detail in perspective of the improved device.

Having more particular reference to the drawings, in connection with which like characters of reference will designate corresponding parts throughout, it will be noted that I have herein shown my invention as being applied to that form of derrick construction generally employed in the drilling of oil wells, wherein the numerals 1 designate certain of the legs of such construction, which legs are interconnected and relatively braced in proximity to their lower portions through the medium of pairs of forward and rearward plank girths, certain of which are illustrated herein and designated for the purpose of convenience by the numeral 2, while other plank girths 3 are secured to the opposite or right angularly opposed sides of the derrick construction, as is indicated in the Figure 4.

The usual and generally accepted method of connecting these plank girths 2 and 3 to the derrick legs 1 consists of the passing of heavy bolts 4 through the opposite ends of the plank girths 2, which ends, as shown, extend transversely across the opposite sides or faces of the adjacent legs 1 and also, extend for a distance slightly beyond the same as is clearly illustrated in the Figures 1 and 2. Lock nuts or other suitable fastening devices are engaged with the screw threaded extremities of the shanks of these bolts 4 for an obvious purpose. Other and similar bolts 5 are passed through the opposite end portions of the right angularly arranged plank girths 3 and through adjacent portions of their respective legs 1, it being noted in this connection that the end portions of said girths 3 are disposed at substantially right angles to the adjacent end portions of the girths 2 and are positioned directly beneath and abut the adjacent extended end portions of the girths 2.

Bull and calf wheels supporting and bearing posts 6 are supported in substantially vertical positions between the intermediate portions of the plank girths 2 by passing bolts or other suitable fastening devices 7 through said girths 2 and the adjacent upper end portions of the posts 6.

As hereinbefore stated, during the so-called "spudding in" or initial drilling operations, a great amount of upward stress is

applied to the plank girths and especially, those indicated by the numeral 2. Also, during certain drilling operations, considerable strain and stress is directed to the bull and calf wheel supporting posts. Hence, it becomes desirable to provide a derrick involving such elements of construction with means for more securely and positively bracing the plank girths at their points of connection with the legs 1 whereby to prevent relative vertical or other undue movement of said girths with respect to the leg. It also becomes desirable to provide means for securely connecting or anchoring the lowermost or first set of braces to the leg sections 1 in order that the derrick construction will be effectually braced to withstand those strains and stresses to which it is subjected during a drilling operation and also, to prevent swaying of the same. To this end, I provide the derrick construction with a plurality of combined angle bracing and connecting plates generally indicated by the numeral 8, said plates being constructed of metal of suitable strength and preferably of that metal commonly known in the art as "boiler plate", the right angularly opposed sides of each of said plates being of a width slightly greater than the width of the adjacent face portions of the legs 1 adjacent which they are arranged in order that the marginal portions of the plates will project for distances beyond such legs, as is clearly indicated in the Figure 2. Right angularly and outwardly disposed abutting or stop flanges 9 are formed integral with the lower end portions of the right angularly disposed sides of the plates 8 and are of widths such as to permit of their flush engagement entirely across the upper or adjacent marginal portions of the plank girths 2, one of these flanges 9 resting upon and extending parallel to one of the plank girths 2 while the right angularly arranged one is adapted to be engaged with and extended transversely over the marginal portions of the extended ends of the pair of plank girths 2 as is shown in the Figures 1 and 2. To secure these plates 8 in proper position upon their respective legs 1, bolt openings 10 are formed in the intermediate portions of the right angularly arranged side thereof and receive bolts 11 therethrough, such bolts, in turn, passing through adjacent portions of the legs 1 and having nuts or other suitable locking devices turned into engagement with their screw threaded extremities, which as will be noted, are shown in this particular embodiment to be positioned adjacent to the outer faces of the plate sides. Also, in this connection, it is to be noted that the bolt receiving opening 10 in the right angularly arranged sides of the plates 8 are arranged one above the other so that with the passage of bolts therethrough and through adjacent portions of the corresponding leg 1 at substantially right angles with respect to each other, one bolt will be accordingly positioned above the other and by consequence, a firm and positive connection of the plate 8 with its particular leg 1 will be ensured.

In addition to serving as a form of bracing device for the plank girths hereinbefore described, it will be also understood that by forming openings 12 in the upper and outer corner portions of the right angularly opposed sides of each of the plates 8, effectual means will be provided whereby connection or anchoring of the lower ends of the turnbuckle braces generally used in derrick constructions of this character and indicated herein for the purpose of convenience by the numeral 13 will be afforded, said braces, as is usual, being formed in sections which in turn are adjustably interconnected through the medium of turnbuckles 14 engaged in their adjacent screw threaded extremities, as shown in the Figure 1. Since the outer marginal portions of the right angularly arranged sides of the plate 8 are extended beyond the adjacent faces of their respective legs 1, it of course will be appreciated that the openings 12 formed in the upper and outer corner portions of the plate 8 will be readily accessible to the hooked or headed lower ends of the turnbuckle braces 13 and in consequence, by this arrangement, interference with their attachment or installation will be prevented.

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. The combination with a derrick construction having portions of the legs thereof interconnected by superposed plank girths, the plank girths engaging certain of the sides of the legs being paired and arranged in spaced parallel relation, and having their operative ends overlappingly and abuttingly engaged with the upper marginal portions of the remaining girths, of bracing means engaged with each of said legs immediately above the paired girths, and abutment means carried by said bracing means, certain of which are disposed longitudinally of and in abutting engagement with the adjacent marginal portions of one of each of the paired girths, and the remaining abutment means being disposed transversely of and in abutting engagement with the adjacent marginal portions of the overlapping opposite ends of said paired girths.

2. The combination with a derrick construction having portions of the legs thereof interconnected by superposed plank girths, the plank girths engaging certain of the sides of the legs being paired and arranged

in spaced parallel relation and having their opposite ends overlappingly and abuttingly engaged with the upper marginal portions of the remaining girths, of bracing means engaged with each of said legs immediately above the paired girths, and laterally offset horizontally positioned abutments integral with the lower portions of each of said bracing means, certain of said abutments being disposed longitudinally of and in abutting engagement with the adjacent marginal portions of one of each of the paired girths, and the remaining abutments being disposed transversely of and in abutting engagement with the adjacent marginal portions of the overlapping opposite ends of such paired girths.

3. The combination with a derrick construction having portions of the legs thereof interconnected by superposed plank girths, the plank girths engaging certain of the sides of the legs being paired and arranged in spaced parallel relation and having their opposite ends overlappingly and abuttingly engaged with the upper marginal portions of the remaining girths, of bracing means engaged with each of said legs immediately above the paired girths, each of said bracing means comprising an angularly formed plate, the opposed sides of which are of widths greater than the width of the adjacent side of the derrick leg engaged thereby, and laterally extending horizontally positioned abutment flanges formed integral with the lower sides of each of said plates, one of each of said abutment flanges being disposed longitudinally of and in abutting engagement with the adjacent marginal portions of one of each of the paired girths, and the remaining abutment flanges on said bracing means being disposed transversely of and in abutting engagement with the adjacent marginal portions of the overlapping opposite ends of said paired girths, the upper extremities of said sides of the bracing means having bracing receiving openings formed therein.

In witness whereof I have hereunto set my hand.

CARL H. BESSE.