April 7, 1925. 1,533,041

H. R. SLATER

DERRICK

Filed Aug. 5, 1922 2 Sheets-Sheet 1

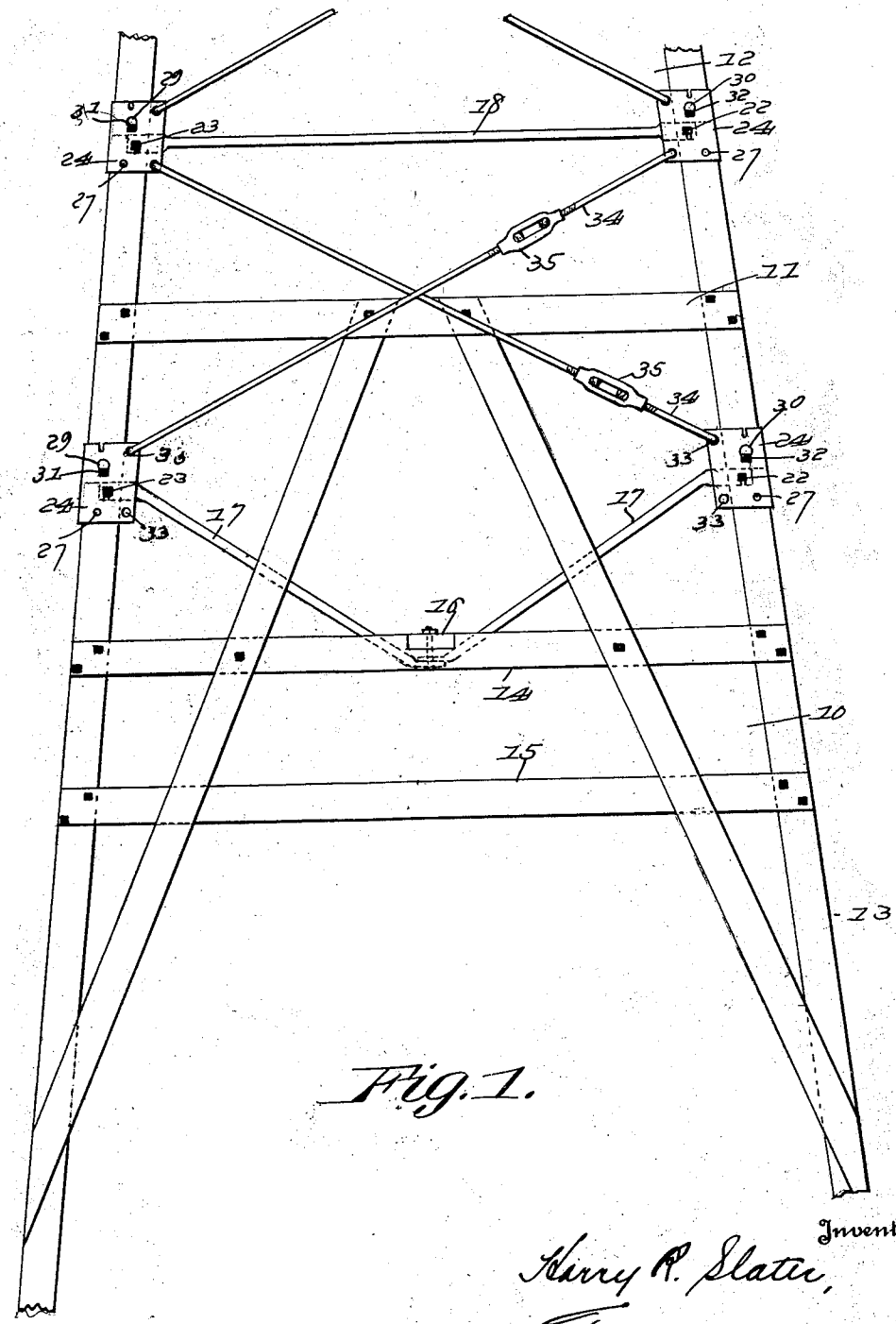


Fig. 1.

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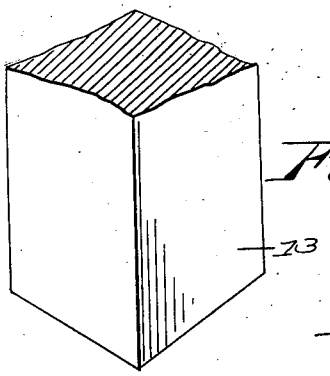


Fig. 2.

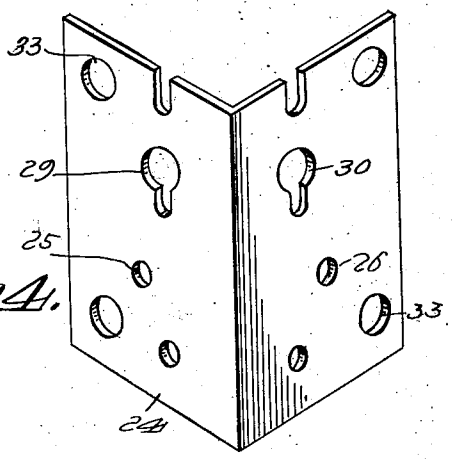


Fig. 4.

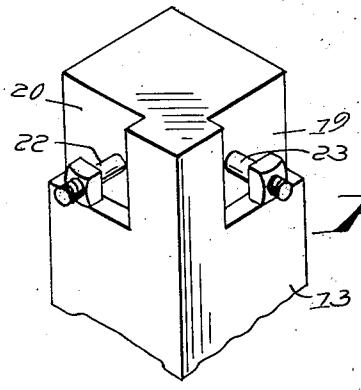


Fig. 3

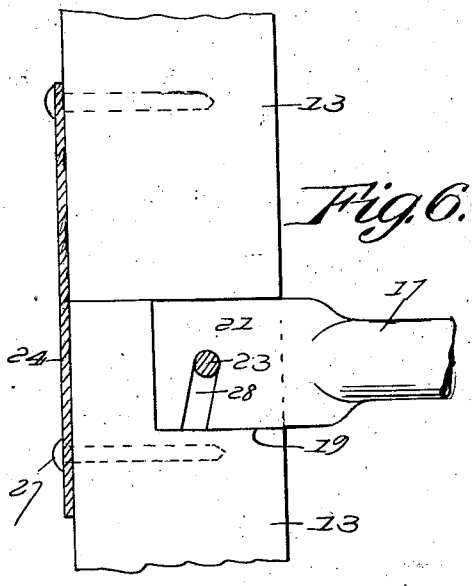


Fig. 6.

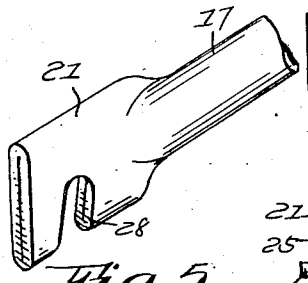


Fig. 5.

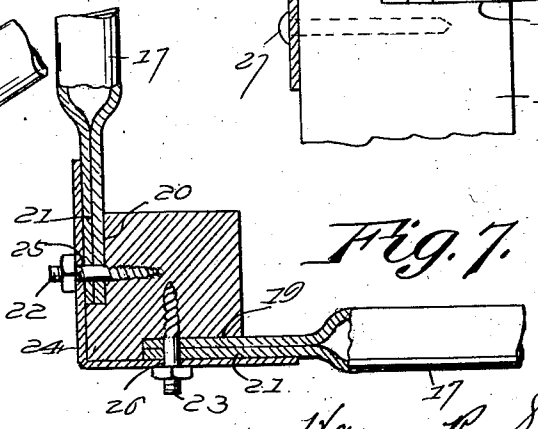


Fig. 7.

Inventor,

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Attorney

Patented Apr. 7, 1925. 1,533,041

UNITED STATES PATENT OFFICE.

HARRY R. SLATER, OF OSAWATOMIE, KANSAS.

DERRICK.

Application filed August 5, 1922. Serial No. 579,920.

To all whom it may concern:

Be it known that I, HARRY R. SLATER, a citizen of the United States of America, and resident of Osawatomie, in the county of Miami and State of Kansas, have invented certain new and useful Improvements in Derricks, of which the following is a specification.

This invention relates to rigs for well drilling, primarily, although the devices constituting the invention may be employed in other structures that are to be erected and dismantled.

An object of this invention is to produce improvements in structures of the character indicated wherein braces and girts may be associated with anchorages carried by posts, legs or the like, where the structure is sectional in character, and in which the sections are assembled with relation to one another and anchored.

It is an object of this invention furthermore to provide novel means in which the successive structures or units of the whole structure, serve to retain the girts in place so as to prevent accidental disengagement of the said girts with their anchorages; and the invention furthermore contemplates the provision of metallic members or the like, spanning the joints between the units, and effective to interengage with members carried by the units and constituting anchorages for braces extending preferably from one joint to another, although the length of the braces is immaterial and may be modified to suit particular requirements.

With the foregoing and other objects in view, the invention consists in the details of construction, and in the arrangement and combination of parts to be hereinafter more fully set forth and claimed.

In describing the invention in detail, reference will be had to the accompanying drawings forming part of this application wherein like characters denote corresponding parts in the several views, and in which—

Figure 1 illustrates a view in elevation of a fragment of a derrick embodying the invention;

Figure 2 illustrates a perspective view of a fragment of one of the legs;

Figure 3 illustrates a perspective view of the upper end of one of the leg sections;

Figure 4 illustrates a perspective view of one of the corner plates;

Figure 5 illustrates a perspective view of a fragment of one of the girts;

Figure 6 illustrates a view in elevation of two leg sections and the joints between them and the relation of the girt thereto, a corner plate being in section; and

Figure 7 illustrates a sectional view of a fragment of the device.

In the present embodiment of the invention, as illustrated in Fig. 1, there are three sections of a derrick shown, identified by the numerals 10, 11 and 12. All of the sections except the bottom and top sections will be of identical construction, their tapers differing, it being understood that the legs of the derrick usually converge toward the top. The posts or legs 13 of the bottom section are connected by braces 14 and 15, but the number of braces, or the manner of their application to the legs is immaterial to a disclosure of the present invention.

The cross member 16 is to be associated with a walking beam in known manner, and this element 16 is connected by the girts 17 with the corner posts 13. The posts of each succeeding section would be connected by girts 18, preferably horizontal, but the manner of anchoring the girts 17 or 18 to the posts is preferably the same, and hence a disclosure of one will suffice as an understanding of the construction of the others.

The upper end of each sectional leg is provided with recesses or seats 19 and 20, the depth of which is approximately equal to the thickness of the head 21 of the girt, and the legs are provided with studs 22 and 23 which project outwardly therefrom within the area of the recessed portions, the said studs constituting anchorages for corner plates 24 that are provided with apertures 25 and 26 to receive the studs 22 and 23 respectively, the said studs, in the present embodiment of the invention, being preferably threaded to receive nuts by which the plates

are held in place, although auxiliary fastenings 27 may be employed, such as nails or the like, extending through the plates for holding them on the leg sections.

The heads 21 of the girts have slots 28 forming clearances to receive the studs, and when the said girts are applied to the studs, they serve to retain the legs in proper spaced relation to each other, as will presently appear.

After the heads of the girts have been applied to the studs and the next succeeding unit of the derrick has been installed, the lower ends of the leg sections of the superimposed unit serve to hold the girt in place, by reason of the fact that the lower ends of the leg sections bear against the heads of the girts.

Each plate is further provided with buttonhole slots 29 and 30 which receive the heads of studs 31 and 32 respectively, whereas the shanks of the studs enter the restricted portions of the slots, while the heads of the studs bear against the outer surfaces of the plates. The plates are further provided with apertures such as 33 near their corners, to receive the ends of braces 34, which braces preferably extend from a plate on one section to a plate of the contiguous section but diagonally, so that the braces of one section on a side, cross each other as shown in Fig. 1.

The braces may be, of course, provided with the usual turnbuckles 35 to increase or diminish the tension and to permit the ready dismantling of the sections.

From an inspection of the drawing, it will be apparent that when a superimposed section is being installed, the heads of the studs 31 and 32 will be inserted in the enlarged portions of the slots 29 and 30, and that as the section is lowered into position, the parts will assume the position shown in Fig. 1.

It will also be apparent that when the girts are applied previous to the application of a superimposed section, the heads having the slots in the nature of hooks can be inserted on the studs 22 and 23, and all of this will result in producing a derrick that can be expeditiously set up or removed, whereas the strength of the structure will be such as that possessed by derricks which are not portable.

From the fact that each plate is secured to a leg and projects above the end of the leg to which it is secured, it forms a seat and guide for a leg of the next succeeding section, and this furthermore facilitates the assembling of the said sections.

Another advantage which this invention possesses is that it is a comparatively inexpensive production, on account of the fact that the corner plates can be made by the stamping processes, and in fact, the girts could be so manufactured.

While the studs have been shown as having screw-threaded inner ends to effect their anchorage in the legs, the inventor does not wish to be limited with respect to this detail.

The girts could be taken out of their engagement with the studs or posts by removing the plates or distorting them to such an extent as to permit the girts to be moved outwardly past the end of the studs.

I claim:

1. In a derrick, a plurality of frame structures in superimposed relation, each section including corner supporting elements, plates at the joints of the said sections, the upper end of each corner supporting element having recesses in its sides forming seats, girts having slotted heads lying in the recesses of two opposed corner supporting elements, anchoring elements projecting from the corner supporting elements into the said recesses and engaging in the slots of the heads of the girts, means by which the corner supporting elements of the superimposed sections are connected to the plates, and braces extending from one plate diagonally to plates above and below at other joints of the frame structures.

2. In a derrick, a plurality of superimposed sections having corner posts, the upper end of the corner posts of each section having recesses in its sides, girts each having slotted heads fitted in recesses of the said corner posts, anchoring devices projecting from the posts into the slots of the heads of the girts, said girts of one section being engaged by the lower ends of the posts of the superimposed section whereby the displacement of the girts from the anchoring means is prevented.

3. In a derrick, a plurality of frame sections in superimposed relation to one another, the said sections including corner posts, girts, each of which extends from one post of a section to another post of said section, elements projecting from the sides of each post engaged by the girts, the said girts of one section being engaged by the superimposed sections for retaining the girts in engagement with the said elements.

4. In a derrick, a plurality of superimposed sections including corner posts, girts each connecting two corner posts and engaging anchorages carried by the said corner posts, the said girts being in such relation to the superimposed sections as to be engaged by the posts thereof for holding the girts in position.

5. In a derrick, a plurality of superimposed frame structures having corner posts, the corner posts of one section fitting on the ends of the corner posts of the succeeding

section, girts extending from one corner post to another, and members on the upper ends of each corner post engaged by the girts, the said girts being held in such engagement by the superimposed posts of the contiguous section of the derrick, substantially as described.

6. The herein described derrick comprising a plurality of superimposed sections including corner posts, the said corner posts of each section having their upper ends recessed to form seats, studs projecting from the posts within the area of the recesses, girts having slotted heads fitted on the studs of two posts the said girts being engaged by the lower ends of the posts of the superimposed section, whereby the said girts are held in place.

HARRY R. SLATER.