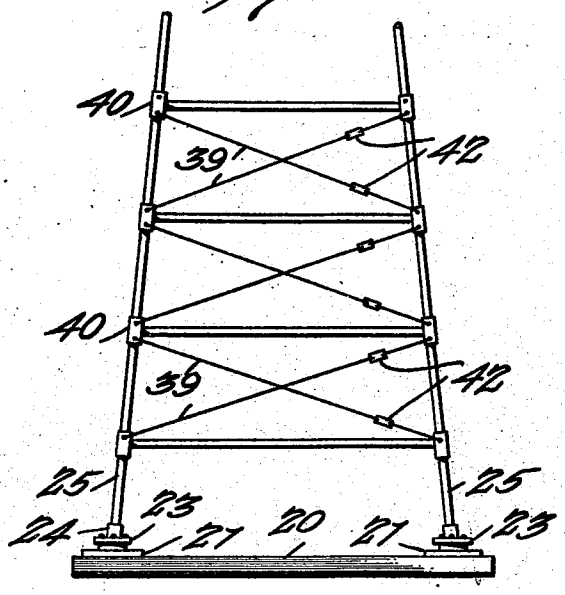
Dec. 7, 1926. 1,609,781

G. P. SLATER

OIL WELL DRILLING AND PUMPING DERRICK

Filed August 30, 1924 2 Sheets-Sheet 1

Fig. 8.



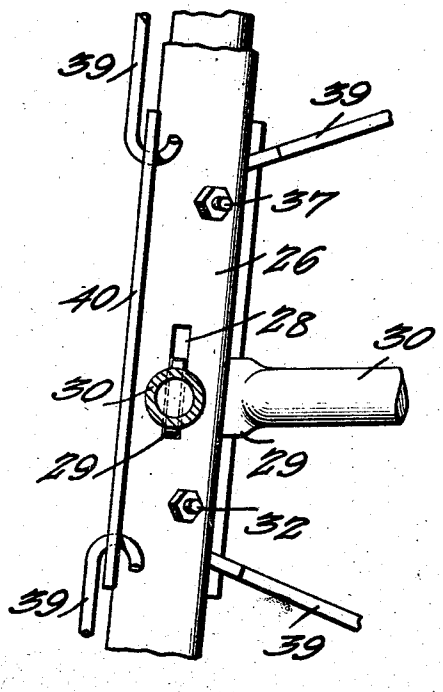




Fig. 7.

INVENTOR.
Guy P. Slater.
BY Thurston Adelman
ATTORNEY.

Dec. 7, 1926. 1,609,781

G. P. SLATER

OIL WELL DRILLING AND PUMPING DERRICK

Filed August 30, 1924 2 Sheets-Sheet 2

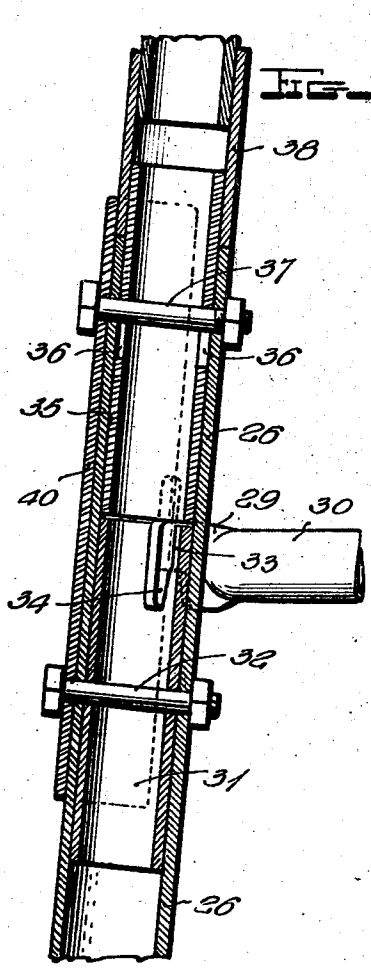



Fig. 2.

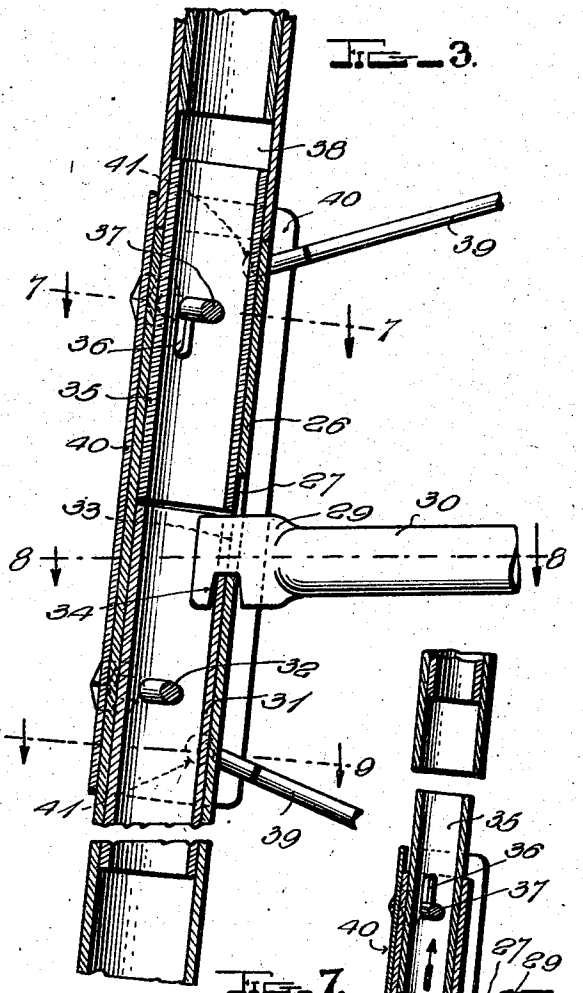



Fig. 3.

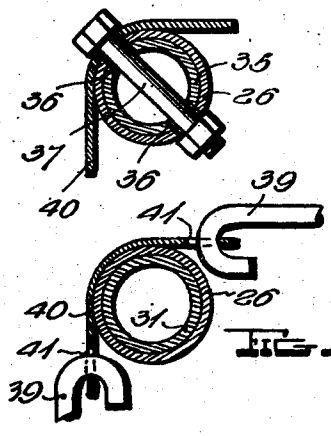



Fig. 4.

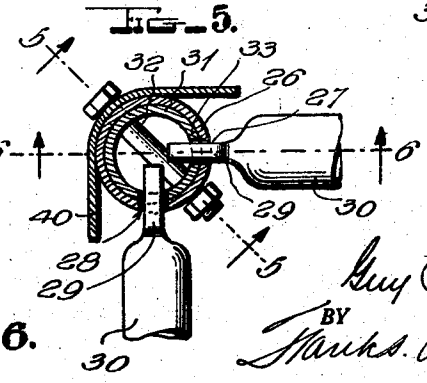



Fig. 5.




Fig. 7.

Fig. 6.

INVENTOR.
Guy P. Slater
BY
Hanks, Adamson & Hanks
ATTORNEY

Patented Dec. 7, 1926. 1,609,781

# UNITED STATES PATENT OFFICE.

GUY P. SLATER, OF TULSA, OKLAHOMA.

## OIL-WELL DRILLING AND PUMPING DERRICK.

Application filed August 30, 1924. Serial No. 735,106.

This invention relates to derricks, and particularly to the type of derrick used in the drilling of oil wells and pumping of the same, the said invention having for an object the provision of a sectional derrick having girths and braces at its joints, and an interlocking connection between the girths and sectional posts which practically precludes disengagement of the girths from the posts while the posts are in assembled relation to each other; the said invention furthermore providing a very strong joint or connection between the girths and the posts.

It is a further object of this invention to provide a derrick of the character indicated in which auxiliary girths and braces are associated with the posts during the drilling operation, but which may be expeditiously removed after the strain, due to the drilling operation is removed, in order that a large amount of equipment or structure may be removed and employed in connection with a derrick in which the drilling operation is to be conducted. The invention thus produced provides for the construction of a very strong derrick which will withstand the strain incident to its use in connection with drilling operations and a derrick which, after the drilling operation and the removal of the auxiliary bracing elements, will be of sufficient strength to operate in conjunction with the pumping of the well and such incidental work connected with it as is necessary to maintain the well.

It is a still further object of this invention to produce a derrick of the character indicated in which the structure of the derrick is supported on a base, and in which cushions or shock absorbing devices are employed for preventing undue shock and vibration to parts of the structure during the drilling operations, as it is well known that in moving the heavy well boring tools the structure is subjected to great strains as the tools are lifted or manipulated.

It is a still further object of this invention to produce auxiliary girth and brace mountings asociated with the posts, which mountings can be readily removed when the supplemental bracing equipment is to be dismantled.

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 side elevation partly in section of the assembly at one of the joints of the posts with the girths and braces applied thereto;

Figure 2 illustrates a sectional view on the line 5—5 of Fig. 5;

Figure 3 illustrates a sectional view on the line 6—6 of Fig. 5;

Figure 4 illustrates a sectional view of the equipment on a line corresponding with the line 7—7 of Fig. 3;

Figure 5 illustrates a view of the same on a line corresponding with the line 8—8 of Fig. 3;

Figure 6 illustrates a sectional view of the same on a line corresponding with the line 9—9 of Fig. 3;

Figure 7 illustrates a sectional view of one of the posts showing the parts in position to receive the head of a girth; and

Figure 8 illustrates a view in elevation of the derrick with the auxiliary braces omitted.

Initially, the braced joints will be described and the manner of assembling the parts to effect that result is substantially as follows: the posts each comprise a plurality of tubular sections and they may be of uniform diameter throughout their height or length. A section 26 of the tublular post has slots 27 and 28 formed in it of a size to receive the heads 29 of the girths 30. An internal tubular brace 31 is located in the tubular section of the post and it is held therein by a fastening 32, such as a bolt or the like, with its upper end above the lower edge of the slots 27 and 28. The tubular brace has its ends slotted as at 33 to register with the slots 27 and 28. The head 29 of a girth has its lower edge slotted as at 34 and when the said head is inserted in the slot of the tubular member and in a slot of the reinforcing tube, it can be forced down until the edges of the tubular member and reinforcing tube are partially embraced by the head 29 of the girth, as shown in Fig. 6 and elsewhere.

Figure 7 illustrates the relation of parts at the time the head of the girth is inserted in the post, and Figure 3 illustrates the parts when fully assembled and the head of

the girth is secured in the post against accidental displacement.

A superimposed internal tubular brace 35 is slidable in the post and it is forced downwardly with its lower end engaging the upper edge of the head of the girth so that the head of the girth is thereby wedged into place and held by the assembly of the tubular braces and the post section.

In order to facilitate the application to or the removal of the head from the post, each tubular brace 35 has slots 36 formed in it to receive the fastening or bolt 37 that extends diagonally through the post, as will presently appear, and this slot permits the tubular brace 35 to be elevated to a degree which will permit clearance for movement of the girth head into or out of the slot. The adjoining post section 38 is illustrated in Fig. 6 as having its end abutting the end of the section 26 with the tubular brace 31 extending into it, breaking the joint between the two post sections and this construction will be repeated at the several joints of the sections of the derrick structure.

As a means for further bracing the structure and producing anchorages for the braces 39 that extend diagonally with respect to the girths, a curved plate 40 is applied to each post at each intersection of a girth. The plates have apertures to receive the bolts 32 and 37 and they have apertures such as 41 into which the ends of the braces are hooked. The braces are, of course, provided with turnbuckles 42 which will permit them to be properly tensioned as the structure is being erected.

I claim:

1. A well drilling derrick having sectional posts, the said posts having slots therein, girths having heads projecting into the slots and interlocking with the said posts, and means within the posts for holding the heads of the girths against displacement.

2. In a derrick, a plurality of superimposed sections each comprising corner posts having slots, girths having heads to enter the slots and provided with recesses to receive portions of the posts for retaining the heads and posts in interlocked relation, and means to prevent displacement of the girths with relation to the posts.

3. In a derrick, a plurality of superimposed sections each comprising tubular posts having slots, girths having heads adapted to enter the said slots, the said heads having recesses to receive said posts at the edges of the slots, and means for holding the heads of the girths in engagement with the posts.

4. In a derrick, a plurality of superimposed sections each comprising tubular posts having slots, girths having heads adapted to enter the said slots, the said heads having recesses to receive posts at the edges of the slots, sectional sleeves within the posts, one of the sleeve sections within a post having its upper edge terminating between the ends of the slots, the said sleeve having slots at its upper end alining with the slots of the posts, and a sleeve within the post having its end in such relation to the head of the girth as to prevent displacement of the head of the girth from the sleeve and post.

5. A well drilling derrick having sectional posts, the said posts having slots therein, girths having heads projecting into the slots and interlocking with the said posts, apertured plates secured to the posts at approximately the intersection of the girths and posts, means for holding the plates in assembled relation to the posts, slotted sleeves within the posts movable with relation to other sleeves interengaging the heads of the girths, fastenings for the plates extending through one or more slots of each sleeve and through a post section for retaining the sleeves telescopically within the post section and retaining the plates, post section and sleeves in assembled relation to one another, and braces divergently connected to the said plates.

6. In a derrick, a plurality of superimposed sections each comprising corner posts having slots, girths having heads to enter the slots and provided with recesses to receive portions of the posts for retaining the heads and posts in interlocked relation, apertured plates secured to the posts at approximately the intersection of the girths and posts, means for holding the plates in assembled relation to the posts, slotted sleeves within the posts movable with relation to other sleeves interengaging the heads of the girths, fastenings for the plates extending through one or more slots of each sleeve and through the post sections for retaining the sleeves telescopically within the post sections and retaining the plates, post sections and sleeves in assembled relation to one another, and braces divergently connected to the said plates.

GUY P. SLATER.