

Dec. 9, 1930.

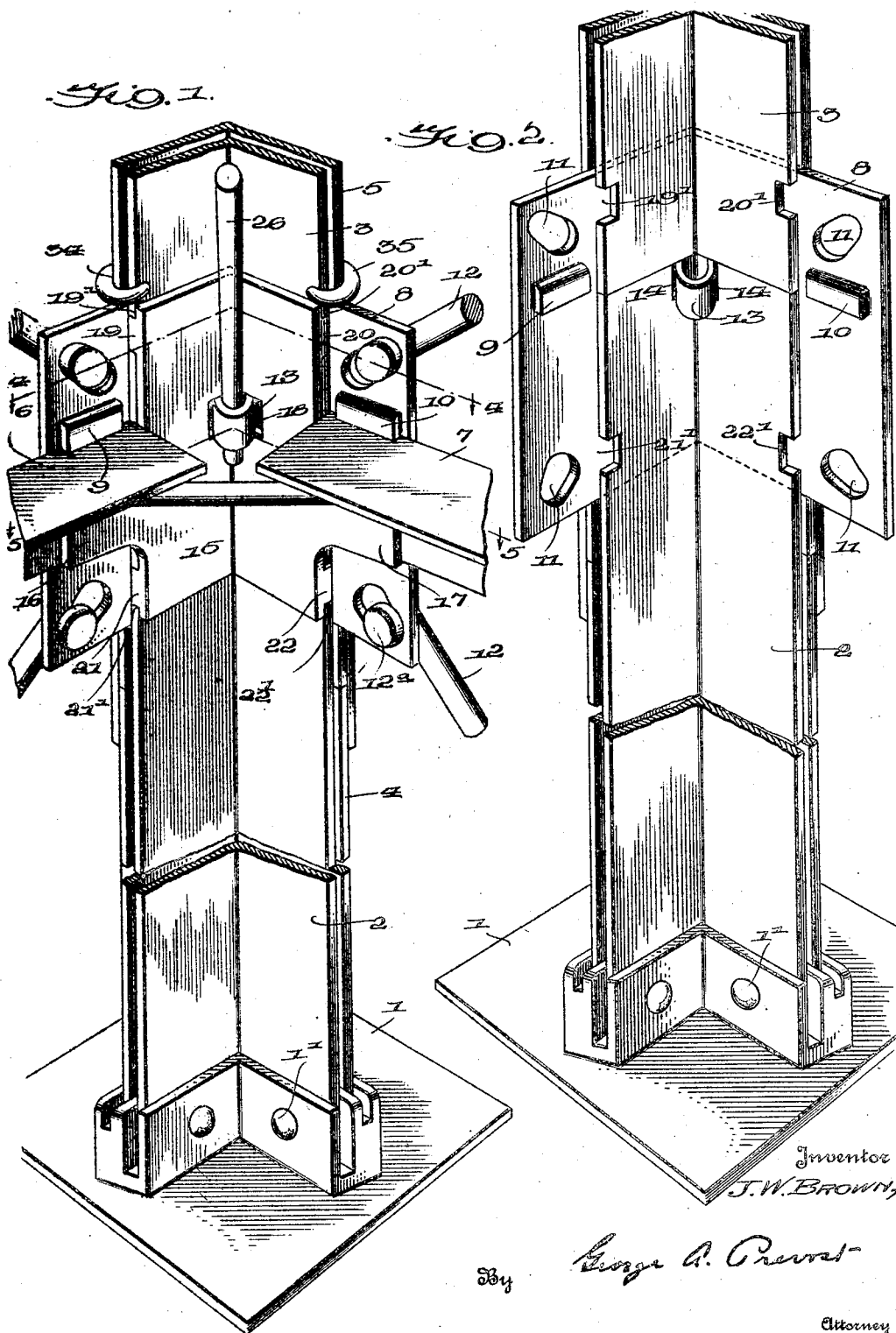
J. W. BROWN

1,784,572

DERRICK

Filed Oct. 31, 1927

3 Sheets-Sheet 1



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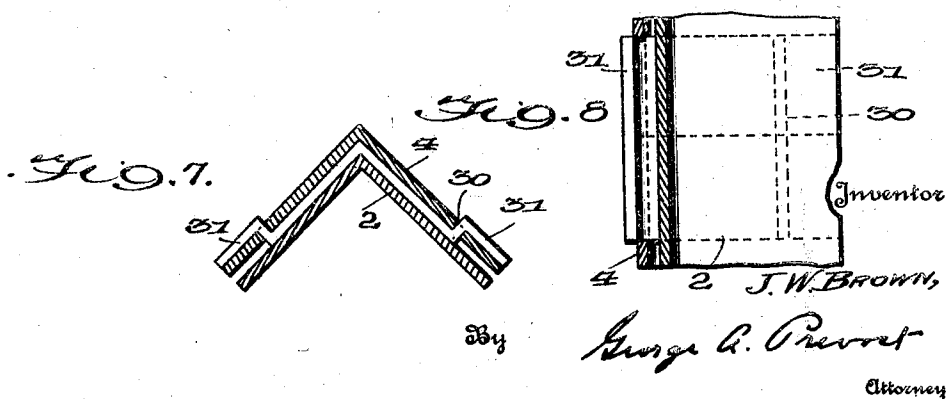
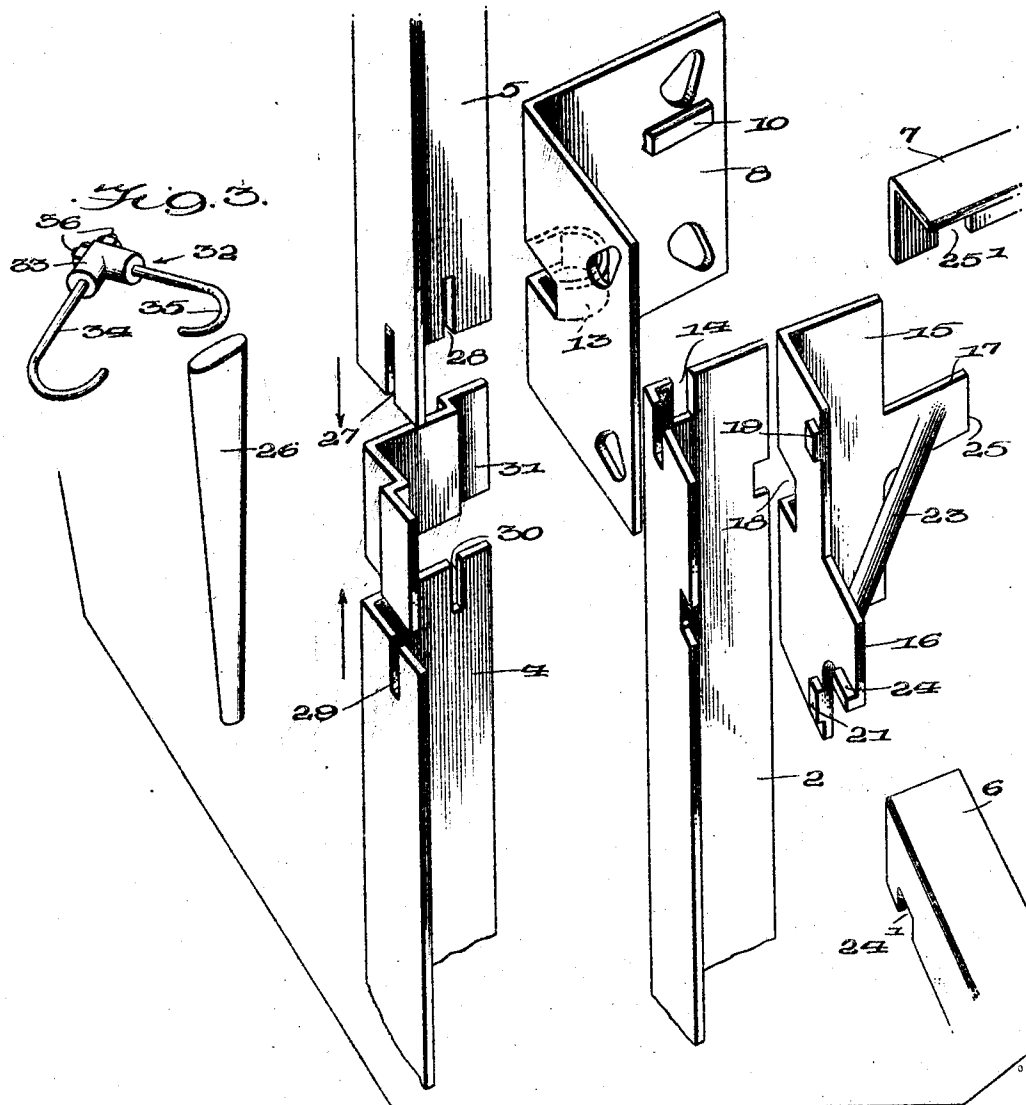
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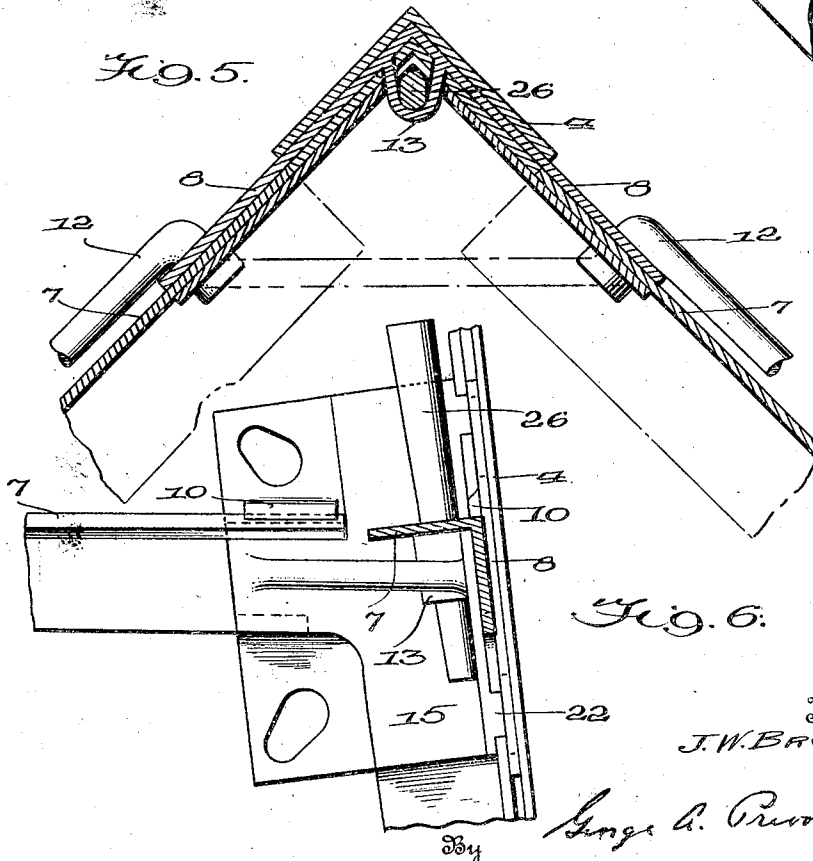
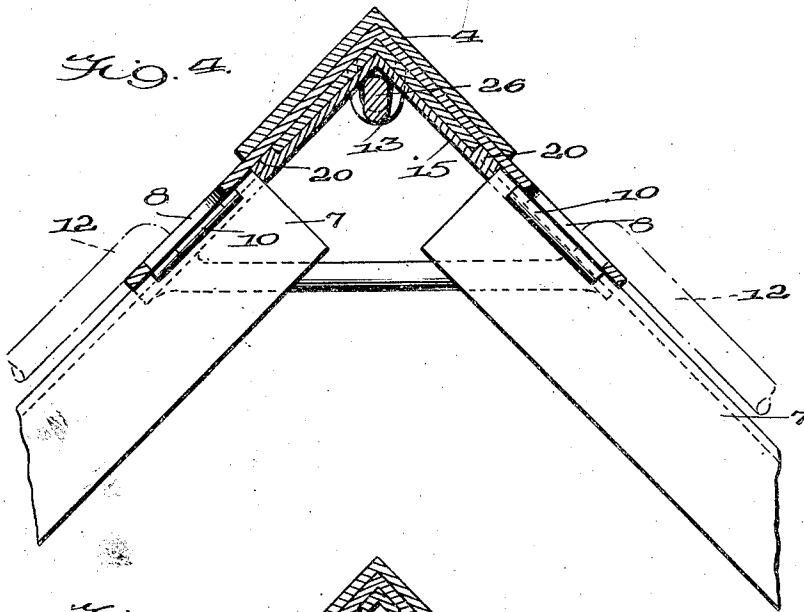


Fig. 6.

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UNITED STATES PATENT OFFICE

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DERRICK

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My invention consists in new and useful improvements in angle iron derricks, skeleton towers and the like employed in connection with oil wells, and has for its object to provide a derrick which may be readily assembled and dismantled, and provided with joints which will securely clamp the adjacent leg sections and girts of the derrick at their points of intersection, both at the extremities of the derrick, and intermediate thereof.

Another object of my invention is to provide a joint of the above character, which will not only secure the members of a skeleton tower or derrick together, but will lend additional support to the same.

A still further object of my invention is to provide a joint and clamping means, which may be employed on derricks equipped with additional angle iron supporting legs or re-legs.

With the above and other objects in view which will appear as the description proceeds, my invention consists in the novel features herein set forth, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims.

In the drawings, in which numerals of like character designate similar parts throughout the several views,

Fig. 1 is a perspective view of the inside of a derrick leg, showing an assembled intermediate joint and re-leg clamping means,

Fig. 2 is a similar view with the inner clamping plate of the joint and the girts removed,

Fig. 3 is a disassembled view showing the different parts of the derrick and joint clamp,

Fig. 4 is a sectional view, taken on line 4—4 of Fig. 1,

Fig. 5 is a sectional view taken on line 5—5 of Fig. 1,

Fig. 6 is a vertical sectional view, taken on line 6—6 of Fig. 1,

Fig. 7 is a sectional view of a re-leg section joint, and

Fig. 8 is a vertical section of the same.

Referring to the drawings, 1 represents the base upon which the derrick is supported, 2 and 3 designate sections of the common leg of the derrick, 4 and 5, sections of the re-leg or

supporting leg, and 6 and 7, horizontally extending girts, interposed between the upright legs of the derrick, all of which members are substantially of conventional type.

8 represents the outer clamping plate of the common leg joint, which comprises an angular plate of suitable metal provided with two inwardly projecting lugs 9 and 10, arranged on the inner surface thereof toward the upper extremity of each arm of the angle. At each of the four corners of this angular plate 8, I provide a key hole slot 11, adapted to receive and grip the ends of the brace rods 12, as hereinafter set forth. The central portion of the plate 8 is cut out and bent inwardly to form a U-shaped ear 13 adapted to register with vertical slots 14 in the upper edge of the lower section 2 of the common leg of the derrick, as clearly shown in Figs. 2 and 3.

15 represents the inner clamping plate of the joint, which is also angular in shape and provided with horizontal projections or arms 16 and 17, on the vertical edges thereof, said arms being braced by a rod 23 which may be integral therewith, or secured thereto in any suitable manner. The central portion of the plate 15 is cut out as at 18 to receive the ear 13 on the outer clamping plate 8, as hereinafter set forth. The leg engaging face of the inner clamping plate 15 is provided along its vertical edges near the upper and lower extremities thereof, with projecting lugs 19, 20, 21 and 22, the lugs 19 and 20 being adapted to register with recesses 19' and 20' respectively, in the lower portion of the upper section 3 of the derrick leg, while the lugs 21 and 22 are adapted to register with the recesses 21' and 22' respectively, in the upper portion of the lower section 2 of the derrick leg, when the clamps are in place as clearly shown in Fig. 1 of the drawings.

The horizontal arms 16 and 17 of the inner clamping plate 15 are provided along the lower edges of their engaging faces, with projecting lugs 24 and 25, adapted to register with recesses 24' and 25' respectively, in the lower edge of the horizontal girts 6 and 7, when the device is assembled.

26 represents a wedge key which is in-

serted in the U-shaped ear 13 when the parts are assembled as shown in Fig. 1, to secure the clamping plates 8 and 15 tightly together.

As before stated, the releg or supporting leg is composed of sections 4 and 5. These sections are provided on their adjacent edges with vertical slots 27, 28, 29 and 30 as clearly shown in the disassembled view in Fig. 3.

31 represents an angular connecting member provided with step-shaped arms, adapted to register with said lugs 27, 28, 29 and 30 to secure said releg sections against lateral movement.

32 represents a temporary releg clamp adapted to be used while the device is being assembled. This clamp comprises a V-shaped lug 33, each leg of which is apertured longitudinally to receive the straight threaded end of hook members 34 and 35, which hook members engage the edges of the common leg and releg of the derrick, as shown in Fig. 1, to retain the same in place. The hooks 34 and 35 are adjustable by means of nuts 36 on the straight ends thereof.

The assembly of my improved derrick is as follows:

The lower section 2 of the common leg, is secured in place upon the base support 1, by means of bolts 1', or any other suitable means. The outer clamping plate 8 is then applied to the outer face of the section 2, the U-shaped ear 13 engaging the vertical slots 14 in the upper edge of said section 2, and the upper section 3 of the common leg is applied immediately above the section 2, its lower edge abutting the upper edges of the U-shaped ear 13, and leg section 2, as clearly shown in Fig. 2. The angle iron girts 6 and 7 are then placed on either side of section 2 of the derrick leg, with the vertical face of each angle adjacent the inner face of the clamping plate 8, the upper edges abutting the under surfaces of the lugs 9 and 10. The inner clamping plate 15 is then applied to the inner surface of the common leg sections 2 and 3, the lateral arms 16 and 17 engaging the lower surfaces of the horizontal angle of the girts 6 and 7, to support the same while the lugs 24 and 25 on said arms register with the recesses 24' and 25', respectively, in the vertical portions of said girts. The lugs 19 and 20 on the inner clamping plate 15 engage the recesses 19' and 20' respectively, in the upper section 3 of the common leg, and the lugs 21 and 22 engage the recesses 21' and 22' respectively, in the lower section 2 of the common leg, while the U-shaped ear 13 of the outer plate 8 passes through the aperture 18 in the central portion of the inner clamping plate 15, to permit the wedge key 26 to be passed therethrough to secure the elements in place.

The releg or reinforcing leg may now be applied as follows: The lower section 4 of the releg is mounted and secured in place

on the base 1, in the same manner as the lower section 2 of the common leg, and the connecting member 31 is inserted in the slots 29 and 30 in the upper edge of said lower section 4, substantially one-half of said connecting member projecting above the upper edge of said section. The upper section 5 of the releg is then lowered into position, the slots 27 and 28 in the lower edge thereof, engaging the projecting portion of the connecting member 31. After this section 5 is in its place, and while the remainder of the sections of the releg are being assembled, the temporary clamp 32 is slipped over the vertical edges of the common leg, and the releg sections, as shown in Fig. 1, and the nuts 36 tightened to retain the members in place during the completion of the assembly.

The brace rods 12, having angularly disposed enlarged heads 12a, are secured in place on the outer clamping plate 8, said enlarged heads 12a engaging the key hole slots 11 in said plate.

From the foregoing, it is believed that the operation construction and advantages of my invention may be readily understood by those skilled in the art without further description, it being borne in mind that numerous changes may be made in the details disclosed without departing from the spirit of the invention, as expressed in the claims.

What I claim and desire to secure by Letters Patent is:

1. In a derrick, leg sections and girts having an interlocked connecting member, comprising inner and outer clamping parts, recesses at predetermined points in said leg sections and girts, lugs on the adjacent faces of said clamping parts, adapted to engage and interlock with said recesses, and means for securing said clamping parts together in said interlocked relation.

2. In a derrick, leg sections and girts having an interlocked connecting member, comprising inner and outer V-shaped clamping parts, recesses at predetermined points in said leg sections and girts, lugs on the adjacent faces of said clamping parts, adapted to engage and interlock with said recesses, and means for securing said clamping parts together in said interlocked relation, comprising an apertured ear on one of said clamping parts, adapted to extend through an opening in the other part, one of said leg sections being provided with vertical slots at the joint end, adapted to receive said ear, and a wedge key for engaging the aperture in said ear to secure the clamping parts together.

3. In a derrick, a plurality of abutting angle-leg sections, vertical slots in the adjacent horizontal edges of each of said sections, and a common connecting member comprising a central angular portion, each end of which projects outwardly in a flange, a wing

on the end of each flange lying parallel to
the respective arm of said angular portion,
the adjacent vertical slots in said sections
being adapted to engage said flanges with
said angular portion lying against the inner
5 surface of the leg section and the wings ly-
ing against the outer surface.

In testimony whereof I affix my signature.

JAMES W. BROWN.

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