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FOLDING DERRICK BASE

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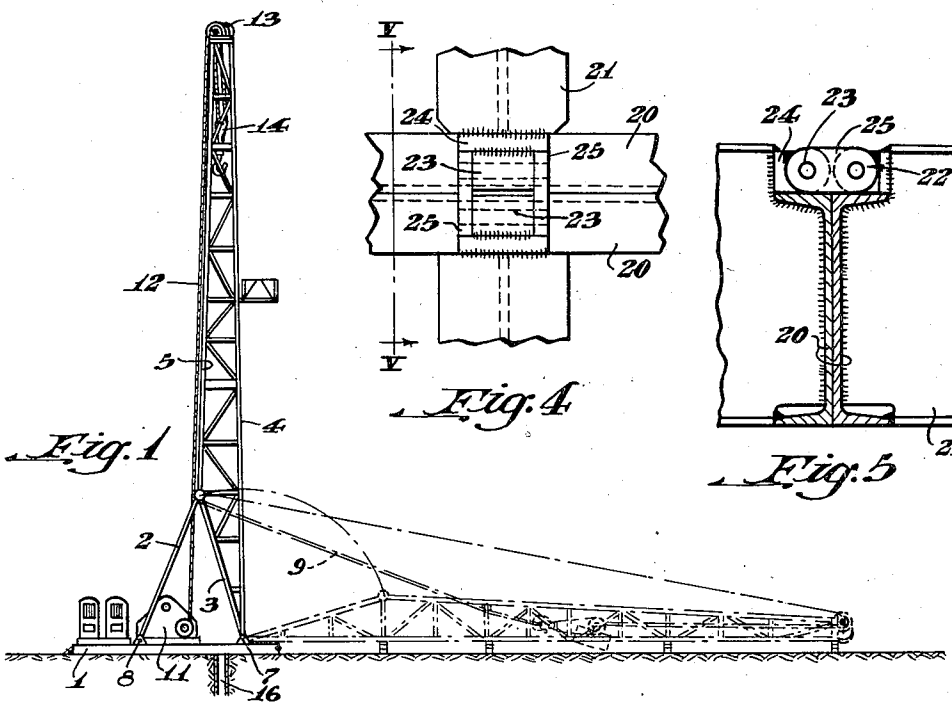

Fig. 1

Fig. 4

Fig. 5

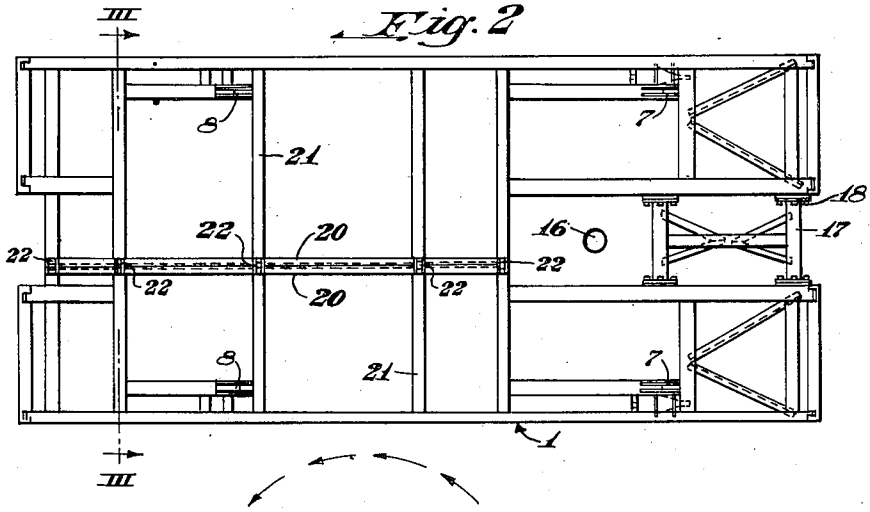

Fig. 2

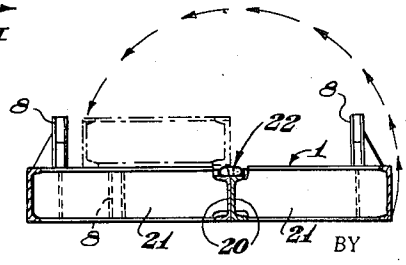

Fig. 3

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FOLDING DERRICK BASE

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6 Claims. (Cl. 189—21)

This invention relates to bases on which superstructures are mounted, and more particularly to the bases on which oil well masts or derricks are supported.

In the case of many portable derricks it has been necessary heretofore to take their supporting bases apart if they are to be transported from one location to another along a highway, because the bases are wider than highway regulations permit. The maximum width of a load allowed by such regulations is usually about eight feet, while most portable derrick bases are wider than that. By having to take the base apart and reassemble it at a new location the advantages of portability are lost to some extent. These advantages include decreased time and labor required for taking down and setting up the derrick.

It is among the objects of this invention to provide a portable oil well derrick base which can be transported over a highway without being dismantled, which can be quickly and easily prepared for transportation and for receiving a derrick at a new location, and which forms a compact structure while being transported.

In accordance with this invention an oil well derrick base is formed from a horizontal framework, preferably of the structural type, which is divided longitudinally into two sections neither of which is wider than the maximum width permitted for transportation over a highway. These two sections are hinged together so that when it is desired to move the base from one location to another one section can be folded over on top of the other section. The sides of the framework are provided with upwardly projecting members for connecting a derrick to the base, and so the two sections of the framework are preferably of different widths so that when they are folded together those members will pass each other instead of holding the two sections apart. The two sections of the framework adjoin each other for only part of their length, the remainder thereof being spaced apart to form an open area adapted to be placed over a well. The outer end of this area is preferably closed by a bracing member rigidly but detachably connected to the two sections of the framework. This bracing member has to be removed before the base can be folded for transportation as well as before it can be skidded from one well to another without being folded.

The preferred embodiment of the invention is illustrated in the accompanying drawing in which Fig. 1 is a side view of a derrick structure showing in broken lines the position of the tall section of the derrick when it has been lowered prior to transportation to a new location; Fig. 2 is an enlarged plan view of the derrick base; Fig. 3 is a transverse section of the base taken on the line III—III of Fig. 2; Fig. 4 is an enlarged plan view of one of the hinges for connecting the two base sections together; and Fig. 5 is a vertical section taken on the line V—V of Fig. 4.

Referring to Fig. 1 of the drawing, the bottom of an oil well mast or derrick is shown mounted on a base 1, the mast being made in two independent structural sections detachably connected together. One of these sections is relatively short and includes the lower portions 2 of the two rear legs of the mast supported by inclined braces 3 connected to the base.

The other or tall section of the mast consists of the remaining portion thereof and includes the front legs 4 which are mounted on the base, and the upper portions 5 of the rear legs. The adjacent ends of the rear legs are detachably connected together in any suitable manner. Due to the formation of the mast in the two independent but detachably connected sections just described it can be erected by fabricating or assembling it along the ground and then raising it to upright position. For this purpose the lower ends of the front legs are detachably connected to the base by means of hinge brackets 7 mounted on the base to permit the tall section of the mast to be swung in a vertical plane. The lower ends of the rear legs are likewise connected to the base by upwardly projecting brackets 8. After the short section has been mounted on the base the tall section can be swung upwardly in any suitable manner for attachment to the other section, but preferably by a sling 9, shown in broken lines, in the manner disclosed in our copending application Serial No. 407,923, filed August 22, 1941, now Patent No. 2,271,578. The draw-works 11 for the well is shown mounted on base 1, and a cable 12 extends from the draw-works up over the crown-block 13 and down into the mast where it suspends a traveling block 14 for supporting the drill stem used in rotary drilling.

It is a feature of this invention that when the mast has been lowered and both sections of it removed from base 1 so that the entire structure can be moved to a new location, the base can be readily transported without first dismantling it. Accordingly, the base, which is a structural steel framework, is divided longitudinally into two sections. These two sections adjoin each other for the major portion of their

length, but, as shown in Fig. 2, the front portions of the sections are spaced apart to provide an open area through which the well 16 can be drilled. The front end of this open area normally is closed by a spreader or bracing member 17 that is rigidly but detachably connected to the two sections by bolts 18 or the like. The adjoining sides of the two sections of the framework are formed by parallel longitudinal members 20, such as channels welded to the ends of the transverse I-beams 21 of the base, as shown in Figs. 3 and 5. Mounted on top of these channels are hinges 22 that hinge the two sections of the base together so that one section can be folded over on top of the other. To permit the two sections to lie flat on each other the hinges are disposed below the upper plane of the base. For this purpose the channels 20 are of less height than the I-beams 21 so as to form upper recesses between the beams for receiving the hinges. As shown in Figs. 4 and 5, each hinge preferably has a double pivot formed by welding two laterally spaced cylindrical pins 23 to blocks 24 welded to the adjoining ends of the I-beams. The ends of these pins are provided with axially projecting reduced extensions on each pair of which a plate 25 is pivotally mounted.

The brackets 7 and 8 by which the mast is attached to the base are mounted thereon adjacent its opposite edges, and are prevented from striking each other when the base is folded, which would prevent the two sections from lying flat on top of each other, by hinging the base off center as shown in Fig. 2. That is, the two sections of the framework are of different widths, but the width of the wider section is no greater than the maximum allowed for loads on a highway. Thus, as shown in Fig. 3, when the narrow section of the framework is folded over on top of the wide section the derrick brackets 7 and 8 on the latter are disposed outwardly of the outer edge of the narrow section while those on the outer edge of the narrow section project down into the wide section. This nested effect permits the two sections to lie flat on top of each other in compact form.

It is obvious that before the base can be folded in this manner the bracing member 17 must be removed from the front end of the framework. Likewise, if the base is to be merely skidded from one well to another without being folded it is necessary to first remove the bracing member so that the base can be pulled away from the first well. But when in place this brace helps make the framework rigid and also provides a support for flooring in front of the well.

According to the provisions of the patent statutes we have explained the principle and construction of our invention and have illustrated and described what we now consider to represent its best embodiments. However, we desire to have it understood that, within the scope of the appended claims, the invention may be practiced otherwise than as specifically illustrated and described.

We claim:

1. A portable base for an oil well derrick, comprising a horizontal framework divided longitudinally into two sections side by side for part of their length and spaced apart for a portion of their length to provide an open area adapted to be positioned over a well, and means hinging said sections together whereby one section can be folded over onto the other for transportation.

2. A portable base for an oil well derrick, comprising a horizontal framework divided longitudinally into two sections side by side for part of their length and spaced apart for the rest of their length, a bracing member extending across the outer end of said space between the sections and detachably connected thereto with the inner end of said space adapted to be positioned over a well, said framework being adapted to be skidded away from the well after said bracing member has been removed, and means hinging said sections together whereby one section can be folded over onto the other after the removal of said bracing member.

3. A portable base for an oil well derrick, comprising a horizontal framework divided longitudinally into two sections of different widths, derrick-receiving members projecting upwardly from the opposite sides of the framework, and means hinging said sections together whereby when one section is folded over onto the other for transportation said members on the wide section of the framework are disposed outwardly of the outer edge of the narrow section, and said members on said narrow section project into said wide section.

4. A portable base for an oil well derrick, comprising a horizontal framework divided longitudinally into two sections, the adjoining sides of said sections being formed by parallel longitudinal members the upper surfaces of which are disposed below the upper plane of the framework, and hinges mounted on and connecting said members with the tops of the hinges below said plane.

5. A portable base for an oil well derrick, comprising a horizontal framework divided longitudinally into two sections of different widths disposed side by side for part of their length and spaced apart for a portion of their length to provide an open area adapted to be positioned over a well, derrick-receiving members projecting upwardly from the opposite sides of the framework, and means hinging said sections together whereby when one section is folded over onto the other for transportation said members on the wide section of the framework are disposed outwardly of the outer edge of the narrow section, and said members on said narrow section project into said wide section.

6. A portable base for an oil well derrick, comprising a horizontal framework divided longitudinally into a plurality of sections, derrick-receiving members projecting upwardly from the opposite sides of the framework, and means hinging said sections together so they can be folded over against each other for transportation, the lower section of the folded base being wider than the section resting on top of it whereby the derrick-receiving members on said lower section are disposed outwardly of the outer edge of the section on top of it.

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