Oct. 20, 1953 H. J. WOOLSLAYER ET AL 2,656,023

PORTABLE OIL WELL DERRICK

Filed Jan. 9, 1952 2 Sheets-Sheet 1

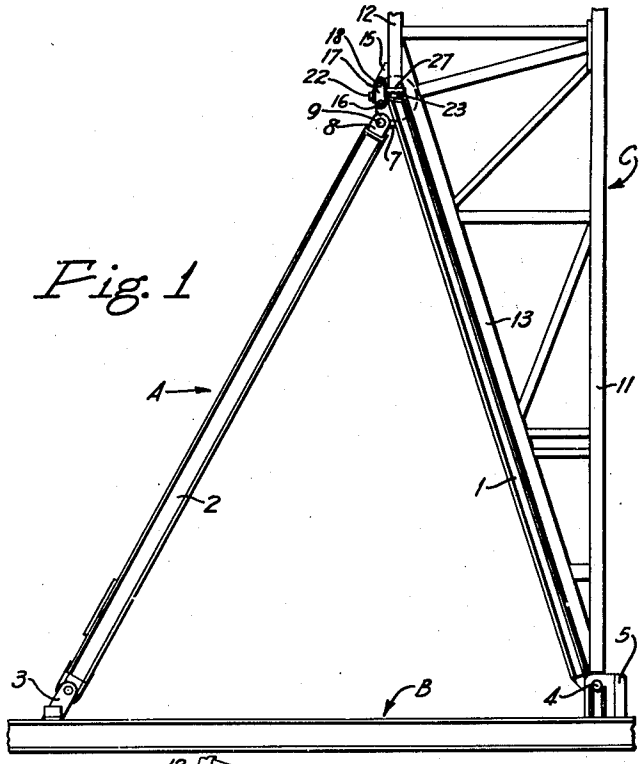


Fig. 1

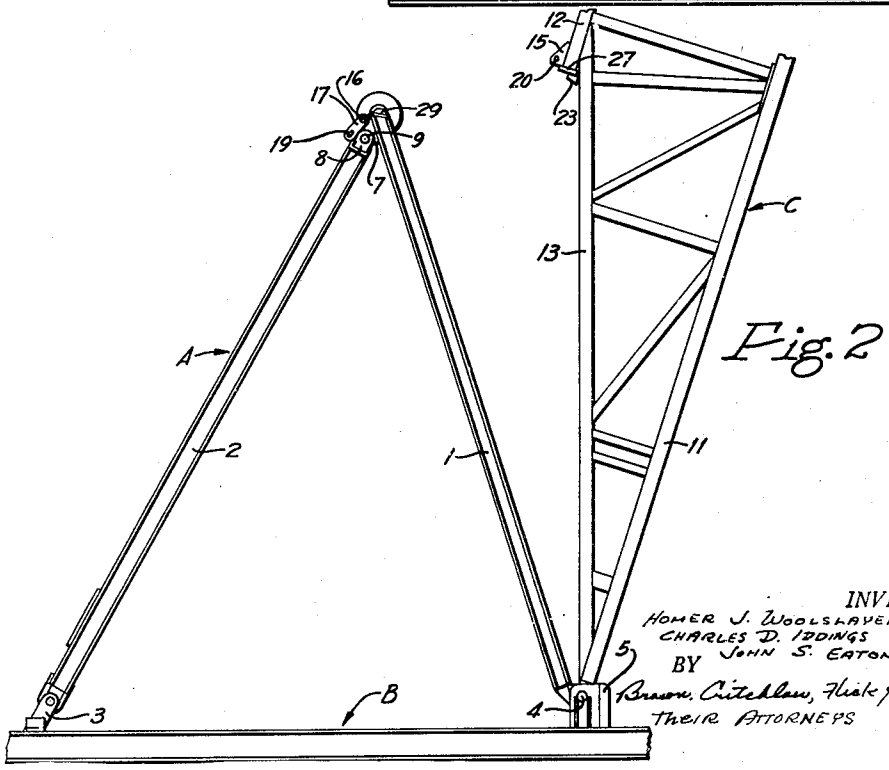


Fig. 2

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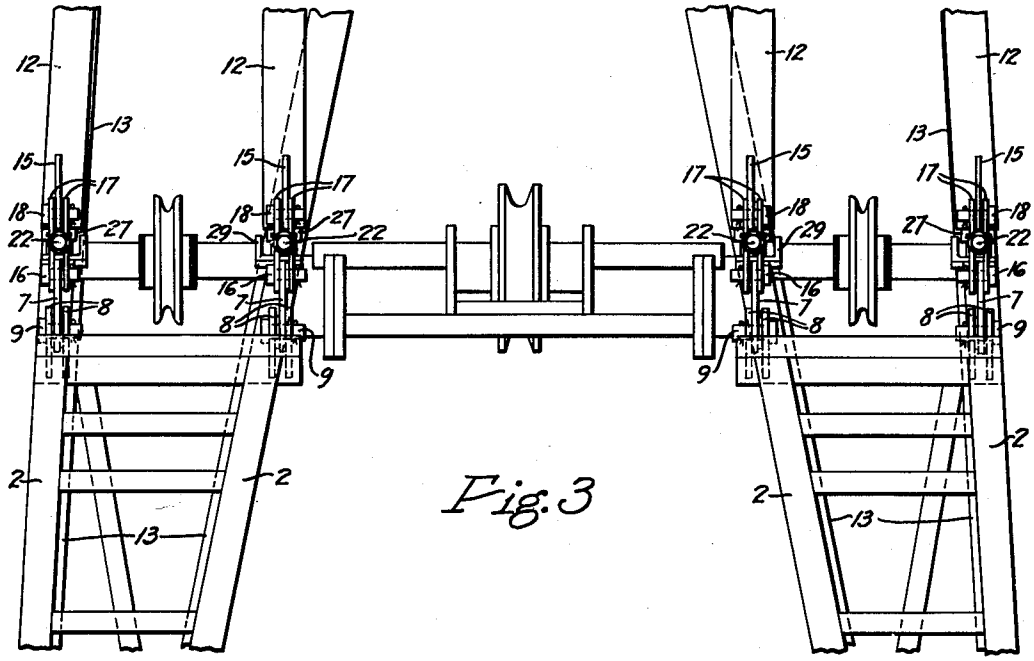


Fig. 3

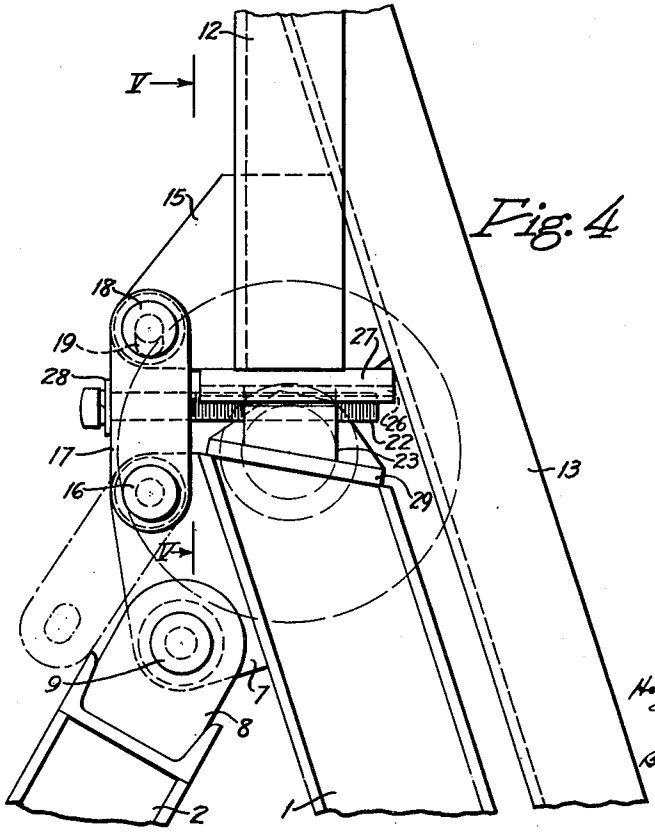


Fig. 4

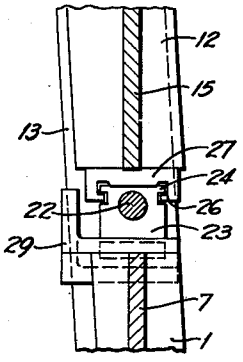


Fig. 5

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2,656,023

PORTABLE OIL WELL DERRICK

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Application January 9, 1952, Serial No. 265,687

9 Claims. (Cl. 189—15)

1

This invention relates to portable oil well derricks of the type in which a mast extending along the ground is swung up into upright position against a gin pole, and more particularly to the means for connecting the mast to the top of the gin pole.

It is among the objects of this invention to provide such a connection which permits a mast and gin pole to be quickly and easily connected or disconnected, and in which all slack can be taken up so that neither compressive nor tensile forces will create any movement in the connection.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which Fig. 1 is a fragmentary side view of the lower portion of a derrick; Fig. 2 is a similar view, but showing the mast swung forward away from the gin pole; Fig. 3 is an enlarged fragmentary rear view of the upper portion of the gin pole and the adjoining portion of the mast; Fig. 4 is a still larger fragmentary side view of the splice connection; and Fig. 5 is a fragmentary vertical section taken on the line V—V of Fig. 4.

Referring to Figs. 1 and 2 of the drawings, a derrick gin pole A is rigidly mounted on a substructure or base B of any suitable form. The gin pole has upwardly converging front and rear legs 1 and 2, respectively. The lower ends of the rear legs are detachably mounted in shoes 3 on the base, and the feet of the front legs are mounted in a well known manner on pivot pins 4 in the front shoes 5 of the derrick. The upper ends of the front legs are provided with rearwardly projecting vertical plates 7, the lower portions of which are received in bifurcated brackets 8 secured to the upper ends of the rear legs. The plates and brackets are pivotally connected together by pins 9, so that when the rear legs are disconnected from the base they can be swung forward against the front legs.

Also mounted on pivot pins 4 in the front shoes are the front feet of the mast C. The front legs 11 of the mast extend upward from the shoes to the top of the mast. The back legs 12 of the mast, however, do not extend down to the base but terminate directly above the top of the gin pole. Inclined braces 13 connect the lower portions of the mast's back legs to the lower ends of its front legs.

Projecting rearwardly from the lower end of each back leg of the mast is a vertical plate 15 above a gin pole plate 7. The upper end of each gin pole plate has a pin 16 extending through

2

it, on which a pair of links 17 are pivotally mounted for swinging in vertical planes. The plate is between the two links. When the links are swung up to their upper positions, they straddle the overlying mast plate 15, to which they are detachably connected by a pin 18 that extends through them and a hole in the plate. As shown in Fig. 2, the holes in the upper ends of the links are shown as vertical slots 19, while the hole 20 in plate 15 is round to fit the pin. The slots and round holes may be reversed, or all of the holes may be in the form of slots. The slots are necessary in order to permit the upper pins 18 to be inserted freely through the registering holes.

The links 17 will connect the mast to the top of the gin pole, but slots 19 would allow slack in the connections unless that slack is taken up in some manner. It is a feature of this invention that after the mast has been swung up against the gin pole and the upper ends of the links have been pinned to mast plates 15, a screw 22 is inserted between each pair of links and is screwed into a wedge block 23 that has upper horizontal side flanges 24 slidably mounted in grooves 26 in a bearing member 27 welded to the lower end of the adjacent back leg 12 of the mast, as shown in Figs. 4 and 5. The head of the screw is behind the links, and a washer 28 may be placed on the screw between the head and the rear edges of the adjoining links. When the screws are turned to the right, the wedge blocks are pulled back toward the links because the washers prevent the screws from moving forward. When the screws are turned in the opposite direction, they will move rearwardly, but as soon as the heads have moved back away from the links a short distance, the heads can be struck by a hammer to drive the screws and wedges forward. The lower surface of each wedge block is inclined upwardly and rearwardly and engages a similarly inclined upper surface of a lower bearing member 29 welded to the top of a front leg of the gin pole. Consequently, when the screws draw the wedges toward the links, the wedges slide up the inclined surfaces of the lower bearing members and thereby raise the back legs of the mast by swinging it slightly forward.

This wedging of the back legs of the mast upward away from the top of the gin pole raises mast plates 15 until pins 18 engage the upper ends of link slots 19, thereby taking all of the slack out of the connection. Vertical compressive forces in the connection are taken through the wedge blocks, while the links and their pins take the vertical tensile forces. In this way

undesirable motion in the structure is prevented. When it is desired to disconnect the mast from the gin pole, the screws 22 are turned to the left and then driven forward to slide the wedges away from the links. This allows the mast plates 15 to descend far enough to permit the upper pins 18 to be easily removed. The mast then can be swung forward and down to the ground.

According to the provisions of the patent statutes, we have explained the principle of our invention and have illustrated and described what we now consider to represent its best embodiment. 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 splice connection for a portable oil well derrick that has a gin pole and a mast mounted on a base with the front legs of the mast pivoted to the base near the front of the mast and with the lower ends of the back legs of the mast disposed above the gin pole, said connection comprising first vertical members connected to the upper part of the gin pole, vertical members on the back of the mast overlapped by the sides of said first vertical members, the overlapping portions of said members being provided with registering holes and vertical slots, removable pins extending through said registering slots and holes to connect the mast to the gin pole, wedges at the top of the gin pole spacing the lower ends of the back legs of the mast as far from the top of the gin pole as said pins and slots will allow, and means connected with the wedges for moving them laterally to permit the mast to tilt backward to loosen said pins in said slots so that they can easily be removed to disconnect the mast from the top of the gin pole.

2. A splice connection for a portable oil well derrick that has a gin pole and a mast mounted on a base with the front legs of the mast pivoted to the base near the front of the mast and with the lower ends of the back legs of the mast disposed above the gin pole, said connection comprising vertical tension members connected to the upper part of the gin pole and having vertical slots in their upper ends, removable pins extending through the upper ends of said slots and adjoining portions of the mast to connect the mast to the gin pole, wedges at the top of the gin pole spacing the lower ends of the back legs of the mast from the top of the gin pole and normally holding said pins in engagement with the upper ends of said slots, and means connected with the wedges for moving them laterally to permit the mast to tilt backward to lower said pins in said slots so that they can easily be removed to disconnect the mast from the top of the gin pole.

3. A splice connection for a portable oil well derrick that has a gin pole and a mast mounted on a base with the front legs of the mast pivoted to the base near the front of the mast and with the lower ends of the back legs of the mast disposed above the gin pole, said connection comprising vertical links pivotally connected at their lower ends to the upper part of the gin pole and having vertical slots in their upper ends, removable pins extending through the upper ends of said slots and the adjoining portions of the mast to connect the mast to the gin pole, wedges at the top of the gin pole spacing the lower ends of the back legs of the mast from the top of the gin pole and normally holding said pins in engagement with the upper ends of the link slots, and means connected with the wedges for moving them laterally to permit the mast to tilt backward to lower said pins in said slots so that they can easily be removed to disconnect the mast from the top of the gin pole.

4. A splice connection for a portable oil well derrick that has a gin pole and a mast mounted on a base with the front legs of the mast pivoted to the base near the front of the mast and with the lower ends of the back legs of the mast disposed above the gin pole, said connection comprising vertical tension members connected to the upper part of the gin pole, vertical members on the back of the mast overlapped by the sides of said tension members, the overlapping portions of said members being provided with registering holes and vertical slots, removable pins extending through said registering slots and holes to connect the mast to the gin pole, wedges at the top of the gin pole spacing the lower ends of the back legs of the mast as far from the top of the gin pole as said pins and slots will allow, and screws threaded in the wedges for moving the wedges into wedging position.

5. A splice connection for a portable oil well derrick that has a gin pole and a mast mounted on a base with the front legs of the mast pivoted to the base near the front of the mast and with the lower ends of the back legs of the mast disposed above the gin pole, said connection comprising vertical tension members connected to the upper part of the gin pole, vertical members on the back of the mast overlapped by the sides of said tension members, the overlapping portions of said members being provided with registering holes and vertical slots, removable pins extending through said registering slots and holes to connect the mast to the gin pole, wedges at the top of the gin pole spacing the lower ends of the back legs of the mast as far from the top of the gin pole as said pins and slots will allow, vertically spaced bearing members slidably engaged by the upper and lower surfaces of the wedges, one of said surfaces of each wedge and the engaging bearing member surface being inclined, and screws threaded in the wedges for sliding them along said inclined bearing surfaces to wedging position.

6. A splice connection for a portable oil well derrick that has a gin pole and a mast mounted on a base with the front legs of the mast pivoted to the base near the front of the mast and with the lower ends of the back legs of the mast disposed above the gin pole, said connection comprising vertical tension members connected to the upper part of the gin pole, vertical members on the back of the mast overlapped by the sides of said tension members, the overlapping portions of said members being provided with registering holes and vertical slots, removable pins extending through said registering slots and holes to connect the mast to the gin pole, wedges at the top of the gin pole spacing the lower ends of the back legs of the mast as far from the top of the gin pole as said pins and slots will allow, vertically spaced bearing members slidably engaged by the upper and lower surfaces of the wedges, each wedge and one of said bearing members being provided with interengaging slots and flanges disposed substantially horizontally for connecting that bearing member and wedge together, the other bearing member and the wedge having engaging inclined surfaces, and means connected with the wedges for moving them down

the inclined bearing member surfaces to permit the mast to tilt backward to loosen said pins in said slots so that they can easily be removed to disconnect the mast from the top of the gin pole.

7. A splice connection for a portable oil well derrick that has a gin pole and a mast mounted on a base with the front legs of the mast pivoted to the base near the front of the mast and with the lower ends of the back legs of the mast disposed above the gin pole, said connection comprising vertical tension members connected to the upper part of the gin pole, vertical members on the back of the mast overlapped by the sides of said tension members, the overlapping portions of said members being provided with registering holes and vertical slots, removable pins extending through said registering slots and holes to connect the mast to the gin pole, upper bearing members rigidly mounted on the lower ends of the back legs of the mast, a wedge supported by each of said bearing members and slidable across it, the lower surfaces of the wedges being inclined, lower bearing members rigidly mounted on the top of the gin pole and having inclined upper surfaces slidably engaged by the lower surfaces of the wedges, and manually operable means connected with the wedges for sliding them down the lower bearing members to permit the mast to tilt backward to loosen said pins in said slots so that they can easily be removed to disconnect the mast from the top of the gin pole.

8. A splice connection for a portable oil well derrick that has a gin pole and a mast mounted on a base with the front legs of the mast pivoted to the base near the front of the mast and with the lower ends of the back legs of the mast disposed above the gin pole, said connection comprising pairs of closely spaced vertical tension members connected to the upper part of the gin pole, vertical connecting members attached to the back of the mast and projecting between the tension members in said pairs, the overlapping portions of said members being provided with registering holes and vertical slots, removable pins extending through said registering holes and slots

to connect the mast to the gin pole, rearwardly tapered wedges at the top of the gin pole spacing the lower ends of the back legs of the mast as far from the top of the gin pole as said pins and slots will allow, and a screw extending substantially horizontally between each pair of tension members and threaded in the adjacent wedge, the head of the screw being located behind the tension members and exerting thrust against their rear edges to pull the wedge into position and hold it there.

9. A splice connection for a portable oil well derrick that has a gin pole and a mast mounted on a base with the front legs of the mast pivoted to the base near the front of the mast and with the lower ends of the back legs of the mast disposed above the gin pole, said connection comprising pairs of closely spaced vertical links pivotally connected at their lower ends to the upper part of the gin pole and having vertical slots in their upper ends, removable pins extending through the upper ends of said slots and the adjoining portion of the mast to connect the mast to the gin pole, rearwardly tapered wedges at the top of the gin pole spacing the lower ends of the back legs of the mast from the top of the gin pole and normally holding said pins in engagement with the upper ends of the link slots, and a screw extending substantially horizontally between each pair of links and threaded in the adjacent wedge, the head of the screw being located behind the links and exerting thrust against their rear edges to pull the wedge into position and hold it there.

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