March 8, 1949. H. J. WOOLSLAYER ET AL 2,463,841

FOLDING SUBSTRUCTURE

Filed May 22, 1947 2 Sheets-Sheet 1

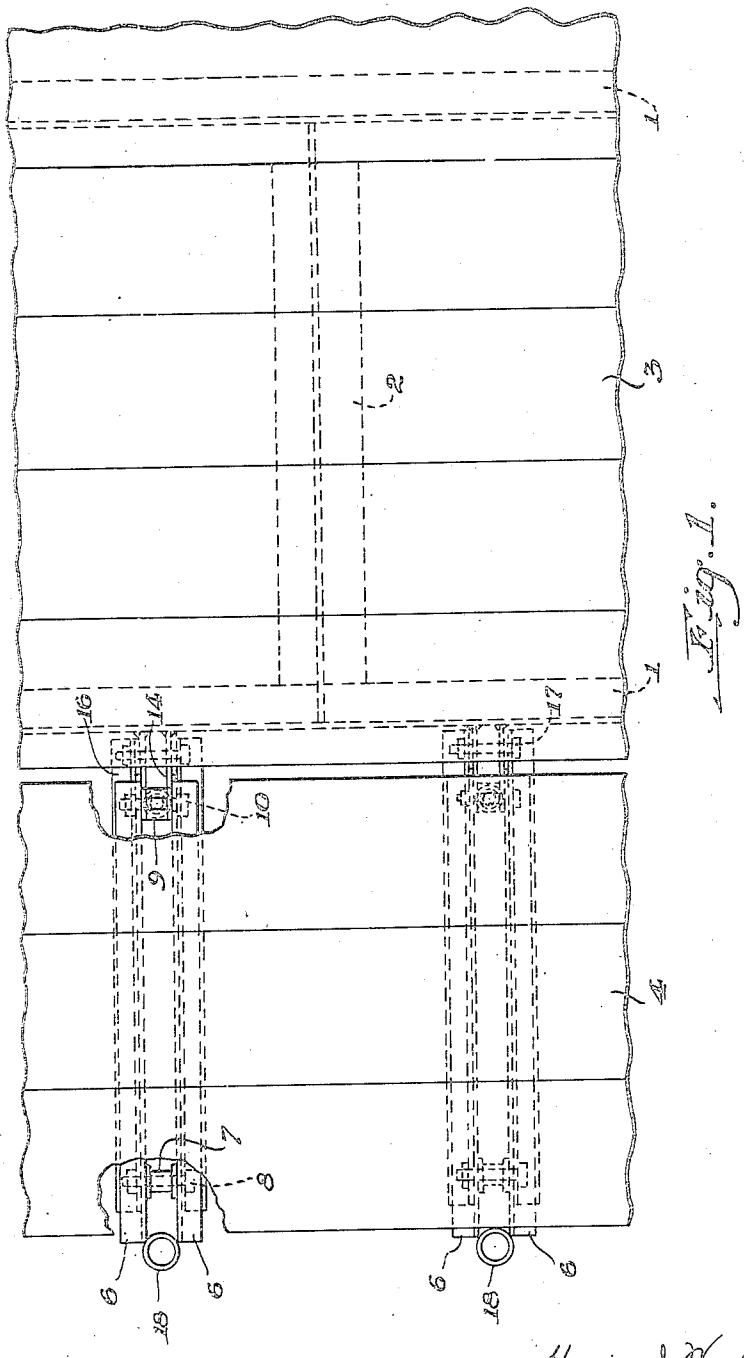


Fig. 1.

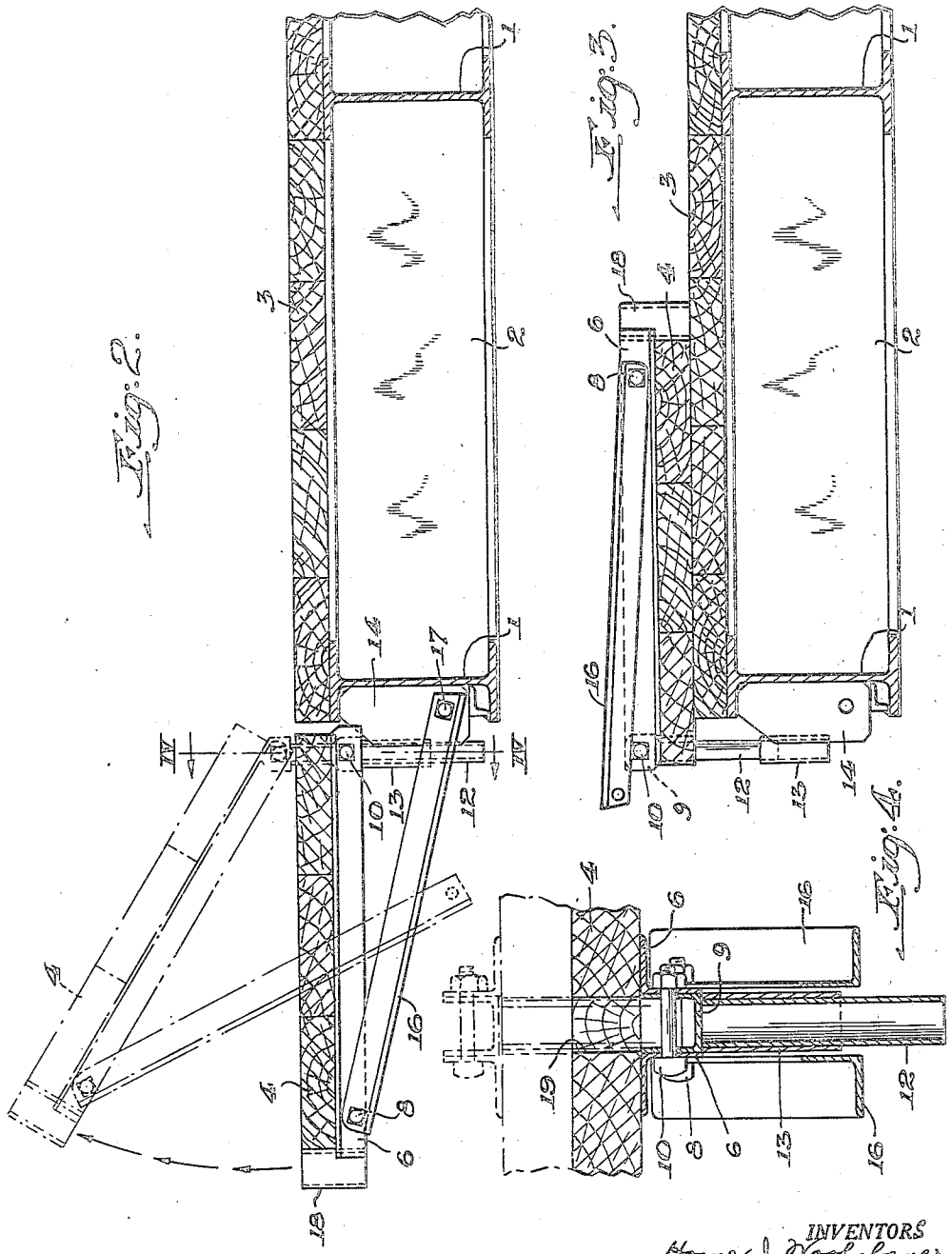
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FOLDING SUBSTRUCTURE

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6 Claims. (Cl. 189—21)

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This invention relates to substructures for oil well derricks and the like, and more particularly to substructures for portable derricks.

In the building of portable derrick structures it frequently is found that floor space in addition to that normally used is required. The size of the substructure, however, is limited by dimensions suitable for highway transportation. For this reason it is common practice to build an auxiliary floor or walkway beside the main substructure and to connect them together by removable brackets. Although it would be more convenient to hinge the extension to the main substructure so that they could be folded together for transportation, ordinary hinges would project above the floor level and thus prove a hazard to workmen on the floor.

It is among the objects of this invention to provide a substructure which has a lateral extension that can be folded over onto the substructure, and which is hinged to the extension by means which do not project above the floor. Another object is to provide an improved bracket for connecting a floor extension to a substructure or the like.

In accordance with this invention a plurality of laterally spaced vertical socket members are rigidly connected to a side of a substructure that supports a main floor. These members are located below the floor level and outwardly beyond its edge. A plug member, slidably mounted in each socket, projects above it. Extending horizontally away from the same side of the substructure are substantially parallel bars for supporting a floor extension. Means are provided for supporting the outer ends of these bars, such as braces detachably connected to the substructure. The inner ends of the bars are pivotally connected on a horizontal axis to the upper ends of the plug members. When it is desired to fold the floor extension over onto the main floor, the plugs are raised in the sockets so that the bars can be swung upwardly and then inwardly and down over the substructure. If desired, the positions of the plug and socket members can be reversed, with the plugs secured to the side of the substructure.

The preferred embodiment of the invention is illustrated in the following drawings in which Fig. 1 is a fragmentary plan view, partly broken away, of our substructure and extension; Fig. 2 is a fragmentary vertical section; Fig. 3 is a view similar to the preceding view, but with the floor extension folded back onto the main floor; and Fig. 4 is an enlarged vertical section through one

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of the connecting brackets taken on the line IV—IV of Fig. 2.

Referring to the drawings, a substructure is formed from parallel horizontal I-beams 1 connected together by transverse beams 2. Planks are laid on the substructure to form a main floor 3 for a portable derrick or other structure (not shown). At one or more sides of the substructure the floor is extended outwardly to provide a greater floor area. The drawings show such a floor extension 4 formed from planks at one side of the substructure. These planks rest on and are secured to parallel angle bars 6 extending horizontally away from the adjacent side of the substructure. The bars are arranged in pairs having their vertical flanges adjacent each other, but not touching. The outer ends of the bars in each pair are spaced apart by a metal spool 7 (Fig. 1) through which a bolt 8 extends, while their inner ends are spaced apart by a U-shape connecting member or spacer 9, such as shown in Fig. 4. A pivot pin or bolt 10 pivotally connects the bars to the spacer.

Welded to the bottom of spacer 9 is the upper end of a long plug 12 which may be in the form of a short length of pipe. This plug is slidably mounted in a vertical tubular socket 13 likewise formed from a short length of pipe. The socket is supported in fixed position by a pair of parallel vertical plates 14 to the outer edges of which it is welded. The plates are welded to the side beam 1 of the substructure and project a short distance beyond the flanges of that beam. The spacer normally rests on top of the socket with the upper flanges of bars 6 in substantially the same plane as the upper surface of the substructure.

The outer ends of the bars may be supported in any suitable manner, but preferably by inclined braces 16 the outer ends of which are pivotally mounted on bolts 8. The inner ends of the braces are detachably connected to the lower portions of plates 14 by means of bolts 17 extending through them. Short sleeves 18 may be welded to the outer ends of the horizontal bars for receiving hand rail posts.

It will be seen in Fig. 2 that there are no hinges nor other connections projecting up between the main floor and the floor extension. When it is desired to transport the substructure with its extension to a new location, the bolts 17 that hold the lower ends of the braces are removed and then the floor extension is lifted to lift the supporting bars 6. This pulls the plugs 12 upwardly in sockets 13 and allows the bars to be swung upwardly as shown in broken lines in Fig. 2. The

bars are swung up through their vertical position and then inwardly and down over the substructure until the floor extension lies flat on the main floor as shown in Fig. 3 and as indicated in broken lines in Fig. 4. The side of the extension nearest the plugs is notched at 19 (Fig. 4) to receive the plugs when the extension is folded. The unit now is narrow enough to transport over a highway. The telescoping connection between plugs and sockets permits the extension to accommodate itself to floor planks of different thicknesses when the unit is folded.

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 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 floor extension bracket for a substructure carrying a main floor, said bracket comprising a pair of telescoping vertical plug and socket members, connecting means adapted to rigidly connect one of said members to a side of said substructure, a bar normally extending horizontally away from said members and adapted to support a floor extension, a support for supporting the outer end of said bar, and pivot means pivotally connecting the inner end of the bar on a horizontal axis to the upper end of the other of said members, whereby when said other member is raised relative to said one member, said bar can be swung upwardly and then inwardly and down over said substructure.

2. A floor extension bracket for a substructure carrying a main floor, said bracket comprising a vertical socket member adapted to be rigidly connected to a side of said substructure, a plug slidably mounted in the socket and projecting above it, substantially parallel spaced bars normally extending horizontally away from the upper end of said plug and being adapted to support a floor extension, a support for supporting the outer ends of the bars, and pivot means extending horizontally through the inner ends of the bars for pivotally connecting them to the upper end of the plug, whereby when said plug is raised in the socket, said bars can be swung upwardly and then inwardly and down over said substructure.

3. A floor extension bracket for a substructure carrying a main floor, said bracket comprising a vertical socket member adapted to be rigidly connected to a side of said substructure, a plug slidably mounted in the socket and projecting above it, a connecting member rigidly mounted on the upper end of the plug, substantially parallel spaced bars straddling said connecting member and normally extending horizontally away from it, said bars being adapted to support a floor extension, a support for supporting the outer ends

of the bars, and a pivot pin extending horizontally through said connecting member and the inner ends of the bars, whereby when the plug is raised in the socket, said bars can be swung upwardly and then inwardly and down over said substructure.

4. The combination with a substructure for supporting a main floor, of a pair of telescoping vertical plug and socket members, connecting means rigidly connecting one of said members to a side of said substructure below the floor level and outwardly beyond the edge of the floor, a bar normally extending horizontally away from said side of the substructure for supporting a floor extension, a support for supporting the outer end of said bar, and pivot means pivotally connecting the inner end of the bar on a horizontal axis to the upper end of the other of said members, whereby when said other member is raised relative to said one member, said bar can be swung upwardly and then inwardly and down over said substructure.

5. The combination with a substructure for supporting a main floor, of laterally spaced vertical socket members rigidly connected to a side of said substructure below the floor level and outwardly beyond the edge of the floor, a plug slidably mounted in each socket and projecting above it, substantially parallel bars normally extending horizontally away from said side of the substructure for supporting a floor extension, supports for supporting the outer ends of said bars, and pivot means pivotally connecting the inner ends of the bars on a horizontal axis to the upper ends of the plugs, whereby when said plugs are raised in said sockets, said bars can be swung upwardly and then inwardly and down over said substructure.

6. The combination with a substructure for supporting a main floor, of laterally spaced vertical socket members rigidly connected to a side of said substructure below the floor level and outwardly beyond the edge of the floor, a plug slidably mounted in each socket and projecting above it, a connecting member rigidly mounted on the upper end of the plug, substantially parallel spaced bars straddling said connecting member and normally extending horizontally away from it for supporting a floor extension, a brace connected to the outer ends of the bars, means for detachably connecting the inner end of the brace to the substructure, and a pivot pin extending horizontally through said connecting member and the inner ends of the bars, whereby when said brace is disconnected from the substructure the plug can be raised in said socket and said bars then can be swung upwardly and then inwardly and down over the substructure to fold the floor extension over the main floor.

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No references cited.