July 2, 1940. J. B. GRAHAM ET AL 2,206,185

APPARATUS FOR GUIDING AND STABBING SUCCESSIVE SECTIONS OF OIL OR GAS WELL CASINGS

Filed June 10, 1939 2 Sheets-Sheet 1

FIG. 1.

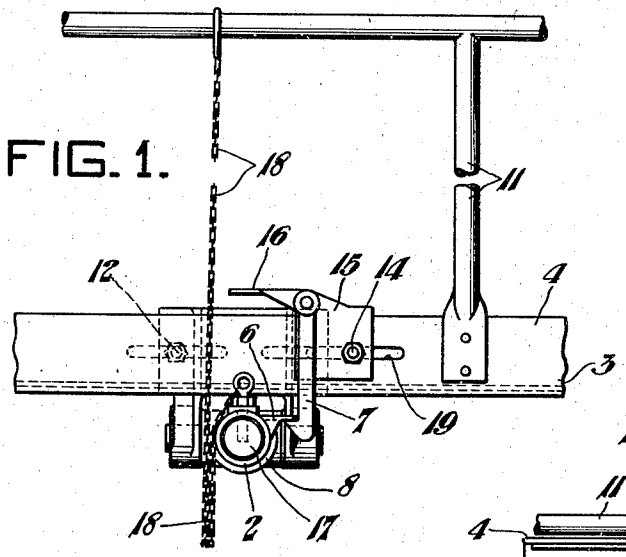


FIG. 2.

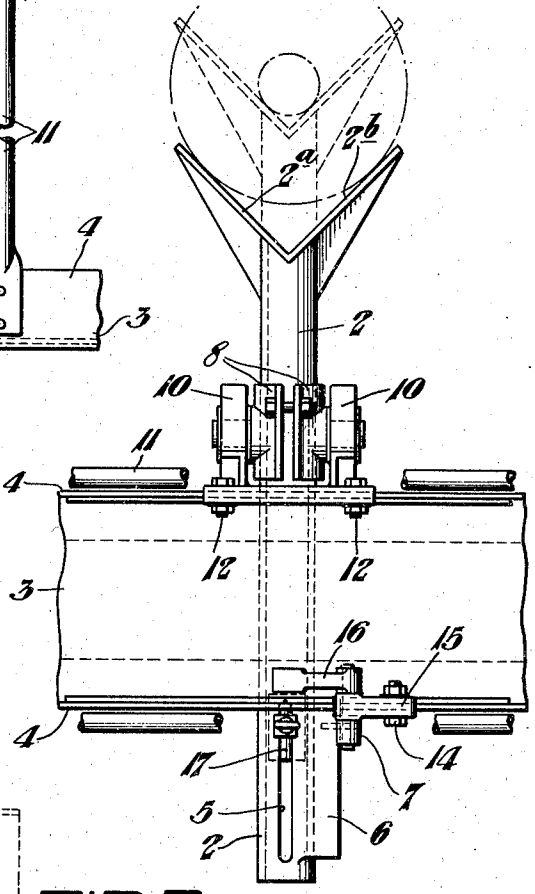
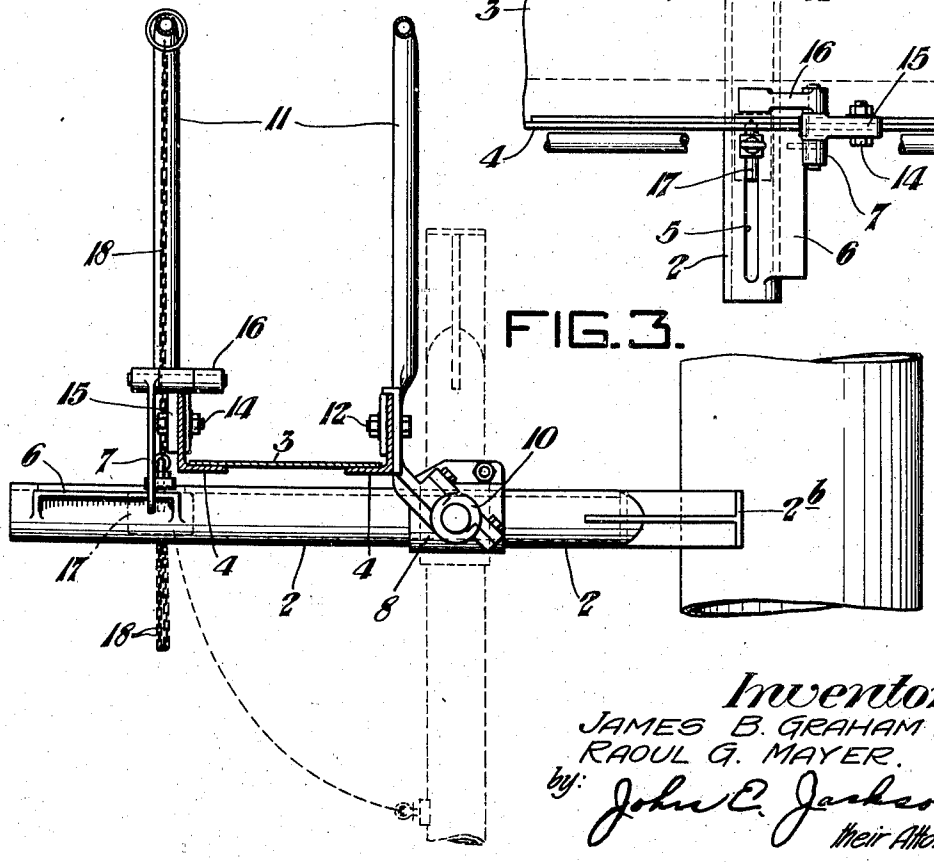


FIG. 3.



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FIG. 4.

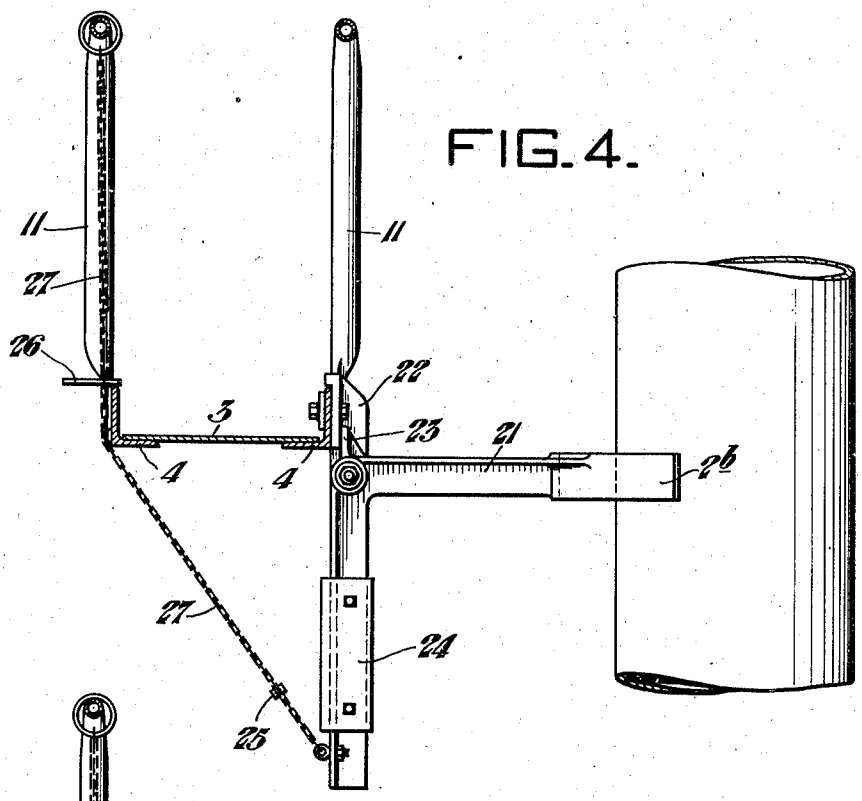
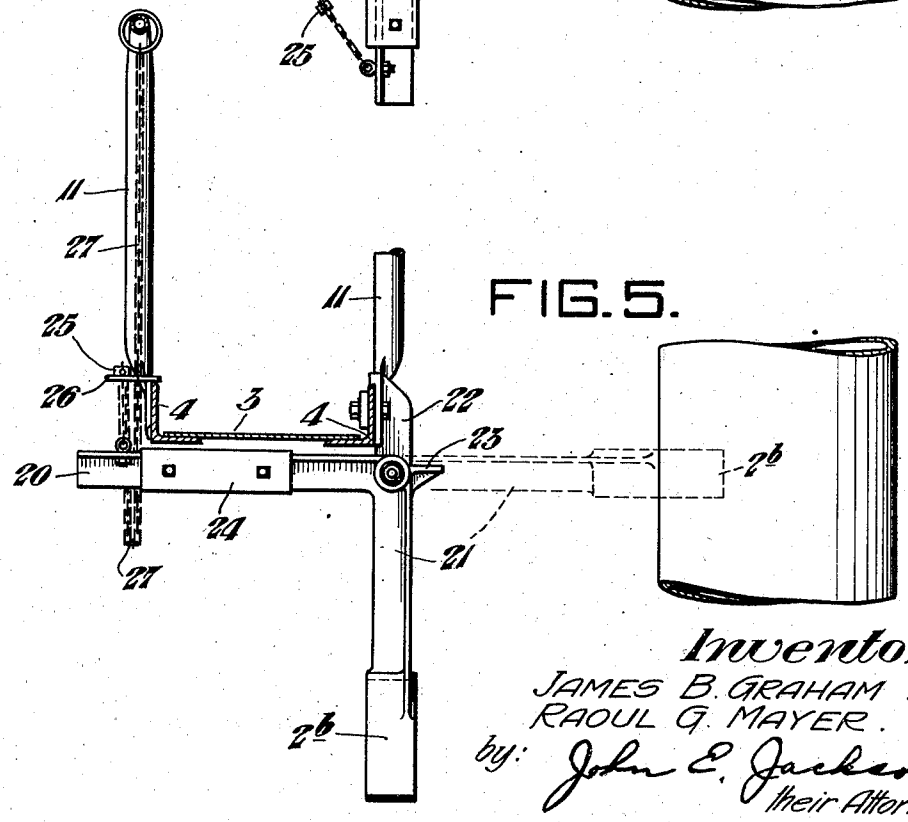


FIG. 5.



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APPARATUS FOR GUIDING AND STABBING SUCCESSIVE SECTIONS OF OIL OR GAS WELL CASINGS

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Application June 10, 1939, Serial No. 278,556

5 Claims. (Cl. 255—1)

This invention relates to apparatus for guiding and stabbing successive sections of oil or gas well casing prior to running them into the drilled hole or well and more particularly to apparatus for centering and holding the casing steady while being aligned with and joined to a preceding section by a screw or weld connection.

In setting casing in a well, it is the customary practice to lift it in the derrick by means of a rope or cable passing through pulleys to a power-operated winding drum. The lifting rope is fastened to one end of the casing section, so that, in the latter's elevated position, it is suspended lengthwise in the air. These lifting ropes are not so located as to permit the casing to hang centrally in the derrick to enable easy alignment of the casing with the preceding casing section, but tend to pull the casing toward one side or one corner of the derrick. This requires skillful operation to bring the casing section into vertical alignment with the preceding section in the hole to which it is to be joined by a screw or weld connection and to hold it in position during the forming of the joint.

An object of the present invention resides in holding the casing firmly at its top while it is being connected to an adjoining casing section within a well.

Another object of the present invention resides in adjustably supporting a guiding or stabbing device on a carriage so that it is readily adjusted to accommodate different diameters of pipe.

Other objects and advantages will become apparent as the description proceeds and reference is had to the accompanying drawings, in which:

Figure 1 is an end elevation of one form of the present invention;

Figure 2 is a top plan of Figure 1;

Figure 3 is a sectional side elevation showing the stabbing guide firmly holding a casing section;

Figure 4 is a sectional side elevation of another form of stabbing or guiding apparatus; and

Figure 5 is a view similar to Figure 4, but showing the guiding apparatus in inoperative position.

By the term "stabbing" is meant the operation of registering one end of a pipe joint with another, particularly in a threaded joint, where the threads of the male and female ends must be matched correctly before screwing together to avoid damage to the threads.

The apparatus of this invention may be considered as made up of two separate members each varying in type of construction and usable in different combinations; that is, a guiding and retaining or steadying member in combination with a supporting carriage. While the two members lend themselves to different forms of construction and combinations, the general purpose of each is identical.

The supporting carriage for the guide or steady rest may be of varied construction and a specific example of a desired supporting carriage construction is shown in our copending application Serial No. 263,313 entitled "Stabbing guide." In the present drawings, there is only shown a portion of the supporting carriage construction which includes a platform 3 which is known as a "stabbing board." The commercial angles 4 which have their horizontal legs facing each other to serve as a support for said platform 3, have attached to them the present guide or steady rest to be hereinafter described. This supporting carriage is adapted to be supported to derrick girts by bolts which pass through spaced openings formed in angles which are fastened to the derrick girts on opposite sides of the derrick, which construction is specifically shown in our above identified copending application.

By providing the plurality of spaced openings upon the derrick construction, it is possible to remove the bolts and adjust the position of the supporting carriage to the desired height, by inserting the bolts in the desired openings.

The supporting carriage is retained in position upon the derrick, in any conventional manner. The platform 3 affords a footing for the operator to stand on and, to assist in the safety of the operator, there is secured to one of the vertical legs of the member 4, a guard railing 11 of conventional design.

The guiding member or steady rest of the present invention comprises a structural member 2 provided on one end with two legs 2^a and 2^b formed thereon, which legs are so positioned and arranged as to form a V-shaped supporting surface. On the other end of said structural member 2, there is provided a centrally positioned elongated slot or opening 5, while a flange or latch engaging member 6 extends outwardly from said structural member 2 so that it is capable of being engaged by a pivoted latch 7.

Surrounding the structural member 2 at one side of the platform 3 is a sleeve 8 conforming to the shape of said structural member 2 and provided with a threaded bolt for securely retaining said structural member in position for pivotal movement on the bearing members 10 which may be of conventional design. The bearing members

10 are secured to the vertical flange of one of the angle members 4 by means of the bolts 12.

Secured to the vertical flange of the oppositely disposed angle member 6, by a threaded bolt 14, is a plate 15 to which is pivotally secured said latch 7, which latch is operated by movement of the treadle or foot lever 16 for disengaging said latch 7 from the latch engaging member 8 when it is desired to release said guiding member or steady rest from its operative position as shown in full lines in Figure 3 to its inoperative position shown in dotted lines.

Slidably mounted, for adjustment, within the slot or opening 5 is a counterweight 17. The adjustment of the counterweight automatically moves the steady rest into inoperative position as shown in dotted lines in Figure 3 when the latch member 7 is disengaged from the latch engaging member 8.

The adjustment necessary to be made to the counterweight 17 is determined upon the adjustment of the structural member 2 for various diametered pipes, which position of the counterweight must be such that upon release of the catch 7, the counterbalanced end of the structural member 2 automatically causes said structural member 2 to move upon its pivot within said bearings 10 so as to move the V-shaped supporting surface of the steady rest out of engagement with the casing section to an inoperative position as shown by the dotted lines of Figure 3.

When it is desired to align a new section of casing with that which is already in the well, the steady rest is moved from its dotted line position as shown in Figure 3 to the full line position by operating the chain 18 to raise the structural member 2 until the latch 7 engages the undersurface of the latch engaging member 8. The threaded bolt on sleeve 9 is then loosened so that adjustment of the structural member 2 forming the guiding member or steady rest can be moved into position so as to contact the casing section to be aligned. When properly positioned to engage the casing section, the bolt on sleeve 9 is tightened to retain said steady rest in its adjusted position, after which, the counterweight 17 is moved on the structural member 2 to the point necessary to cause said steady rest to pivot on its bearings 10 for disengaging the V-shaped supporting surface from the casing section after the latch 7 is released.

Each of the vertical legs of the angles 4 is provided with slots 19 so that the guide or steady rest may be moved transversely on said platform 3 in order to properly align the vertex of the V-shaped supporting surface with the casing section to be held in position during its alignment with the casing section within the well.

In the construction shown in Figures 4 and 5, there is shown a modified form of guiding member or steady rest. In this construction, the guiding member or steady rest comprises a right-angled structural member consisting of the arms 20 and 21, the latter having formed thereon the legs 2^a and 2^b so positioned and arranged as to form a V-shaped supporting surface. This right-angled structural member is pivotally supported to a plate 22 secured to the vertical leg of one of the channel members 4 in the manner similar to that described with respect to the construction shown in Figures 1 to 3. This permits adjustment of the steady rest transversely of the platform 3 to properly position the V-shaped supporting surface for guiding the pipe to be aligned with the casing section within the well. The arm 21 has formed integrally thereon a lug 23 adapted to abut the face of plate 22 and serve to maintain the steady rest in proper operating position while the arm 20 is provided with a counterbalance weight 24, which counterbalance weight is adjustable on said arm to cause said steady rest to move upon its pivot when the stop 25 is removed from the slotted stop rest 26. Secured to the end of arm 20, in any conventional manner, is a chain 27 upon which the stop 25 is mounted so that upon movement of the chain to position the stop 25 within the slotted stop rest 26, the steady rest will move upon its pivot from its operating position as shown in full lines in Figure 4 to its inoperative position as shown in Figure 5.

While we have shown and described specific embodiments of the present invention, it will be seen that we do not wish to be limited exactly thereto, since various modifications may be made without departing from the scope of the invention, as defined by the following claims.

We claim:

1. In combination with a supporting carriage, a device for guiding and stabbing successive sections of oil or gas well casing while being aligned with and joined to a preceding casing section comprising a structural member having a V-shaped supporting surface, means for pivotally supporting said guide on said carriage, an adjustable counterweight on the end of said structural member, cooperating means on said carriage and structural member for holding said guide in operative position and means for releasing said guide from operative position so that the counterweight will automatically move said guide on its pivot to an inoperative position.

2. In combination with a supporting carriage, a device for guiding and stabbing successive sections of oil or gas well casing while being aligned with and joined to a preceding casing section comprising a structural member having a V-shaped supporting surface, means for pivotally supporting said guide on said carriage, an adjustable counterweight on the end of said structural member, cooperating means on said carriage and structural member for holding said guide in operative position, means for releasing said guide from operative position so that the counterweight will automatically move said guide on its pivot to an inoperative position, and means for controlling the movement of said guide to properly align the V-shaped supporting surface with a casing section to be guided for joining with a preceding casing section located within a well.

3. In combination with a supporting carriage, a device for guiding and stabbing successive sections of oil or gas well casing while being aligned with and joined to a preceding casing section comprising a structural member having a V-shaped supporting surface, means for pivotally supporting said structural member intermediate its ends on said supporting carriage so that it is movable in a vertical plane to its operative and inoperative positions, a counterweight arranged on one end of said structural member so as to unbalance the same and automatically move it to one of said positions, and means for moving said structural member to the other of said positions.

4. In combination with a supporting carriage, a device for guiding and stabbing successive sections of oil or gas well casing while being aligned with and joined to a preceding casing section

comprising a longitudinally extending structural member having a V-shaped guiding portion arranged on one end thereof and a counterweight adjustably arranged on the opposite end thereof, said structural member being pivotally attached to said supporting carriage intermediate its ends so as to be movable in a vertical plane, and means for releasably holding said structural member in its operative position so as to position said V-shaped guiding portion next to said casing, said counterweight adapted to automatically move said structural member to its inoperative position so as to position said V-shaped guiding portion away from the casing.

5. In combination with a supporting carriage, a device for guiding and stabbing successive sections of oil or gas well casing while being aligned with and joined to a preceding casing section comprising an angular structural member having a V-shaped guiding portion arranged on the end of one of the arms thereof and a counterweight adjustably arranged on the other arm thereof, said angular structural member being pivotally attached to said supporting carriage intermediate said arms and the ends of said structural member, and means for releasably holding said structural member in its inoperative position so as to position said V-shaped guiding portion away from said casing, said counterweight adapted to automatically move said structural member to its operative position so as to position said V-shaped portion next to the casing.

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