Feb. 26, 1924. 1,485,308

R. H. STEGEMAN

HOLDING DEVICE FOR SUCKER RODS

Filed Dec. 22, 1922

FIG. 3.

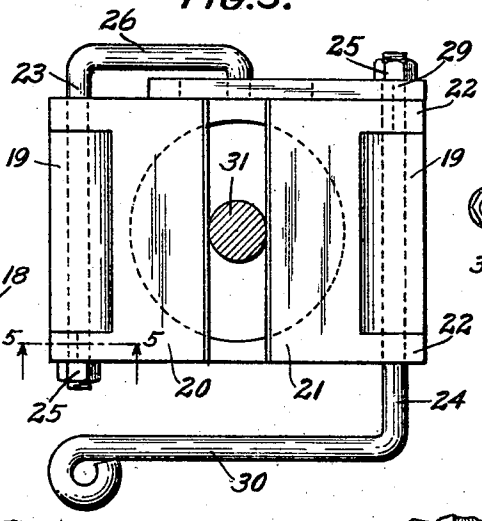
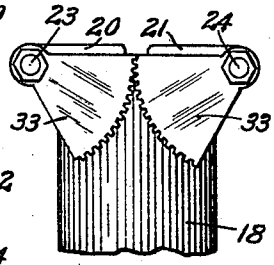


FIG. 6.



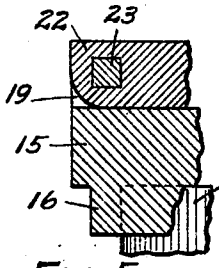


FIG. 5.

FIG. 2.

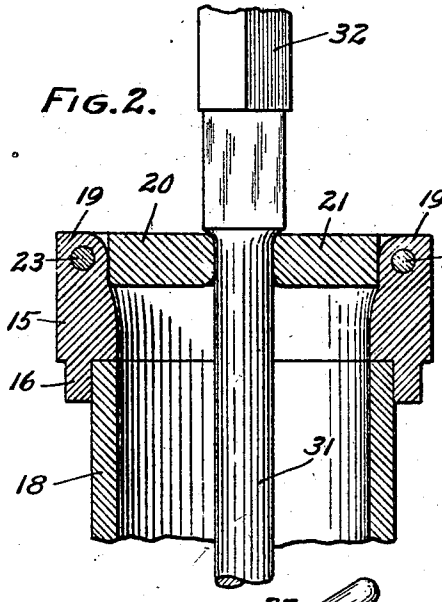


FIG. 1.

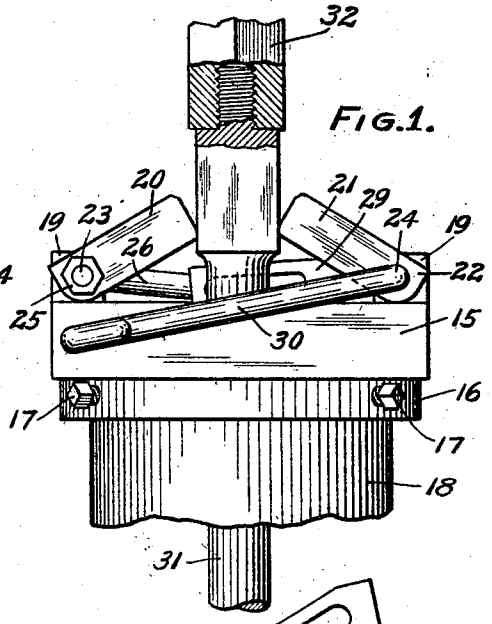
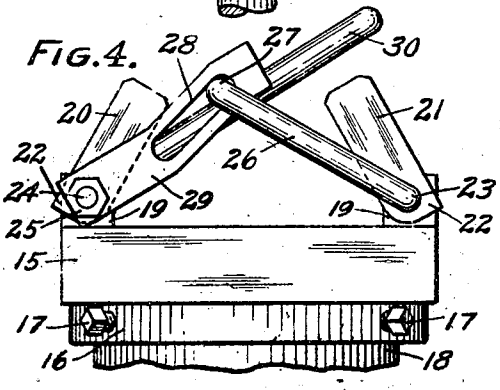


FIG. 4.



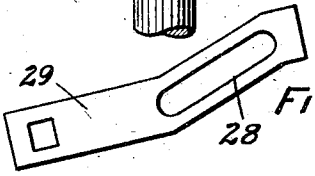


FIG. 7.

INVENTOR
RALPH H. STEGEMAN
BY Hazard & Miller
ATT'YS.

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UNITED STATES PATENT OFFICE.

RALPH H. STEGEMAN, OF ANAHEIM, CALIFORNIA.

HOLDING DEVICE FOR SUCKER RODS.

Application filed December 22, 1922. Serial No. 608,585.

To all whom it may concern:

Be it known that I, RALPH H. STEGEMAN, a citizen of the United States, residing at Anaheim, in the county of Orange and State of California, have invented new and useful Improvements in Holding Devices for Sucker Rods, of which the following is a specification.

My invention relates to devices for holding sucker rods within well tubings, which operate to automatically engage and hold the sucker rod as it is withdrawn, section after section, from the tubing in order to permit unscrewing and removal of the withdrawn sections.

It is a purpose of my invention to provide a holding device of the above described character which includes a plurality of jaws or gates mounted to occupy expanded position in which unrestricted upward movement of the sucker rod within the well tubing is permitted, and a contracted position in which they engage any one of the coupling members of the sucker rod to prevent downward movement of the latter within the tubing. The jaws or gates are freely movable to either of the two extreme positions so as to render the engagement thereof with the coupling members automatic in preventing downward movement of the sucker rod within the tubing so that should the sucker rod be unintentionally released, the jaws will automatically move to a contracted position to engage the coupling members and thus check the dropping of the sucker rod.

It is also a purpose of my invention to provide a holding device for sucker rods in which the jaws are mounted to prevent distortion thereof under the lateral strain exerted by the sucker rod as it is moved downwardly into a position in which the coupling member engages the jaws.

A further purpose of my invention is a provision of simple and efficient means for manually and simultaneously moving all of the jaws to either contracted or expanded position, or to a fully opened position in which the unrestricted movement of the sucker rod may be effected in either direction between the jaws.

Although I have herein shown and described only two forms of holding device embodying my invention, it is to be understood that various changes and modifications may be made herein without departing from the spirit of the invention and the spirit and scope of the appended claims.

In the accompanying drawing,

Figure 1 is a view showing in side elevation one form of holding device embodying my invention, in applied position with respect to a well tubing and sucker rod,

Figure 2 is a vertical sectional view of Figure 1 with the jaws in coupling engaging position,

Figure 3 is a top plan view of the holding device shown in the preceding views with the sucker rod in section,

Figure 4 is a view showing the holding device in side elevation and with the jaws in fully opened position,

Figure 5 is a vertical sectional view taken on the line 5—5 of Figure 3,

Figure 6 is a view showing in side elevation another form of holding device embodying my invention,

Figure 7 is a detail view showing in perspective one of the arms comprising the holding device shown in Figure 4.

Similar reference characters refer to similar parts in each of the several views.

Referring specifically to the drawing and particularly to Figures 1 and 2, my invention, in its present embodiment, comprises a support 15 which is of annular form to provide an opening substantially of the same diameter as that of the well tubing to which it is adapted to be applied. This support 15 is provided with a depending collar 16 in which are mounted set screws 17, the collar receiving the upper end of a well tubing designated at 18, and the screws being adjusted to engage the well tubing so as to securely clamp the support upon the tubing. The support 15 also includes projections 19 which are bored longitudinally, as indicated in dash lines in Figure 3, and which provide abutments and mountings for the jaws of the holding device.

The holding device includes two jaws 20 and 21, which are recessed at their outer edges to accommodate the projections 19 and to provide spaced ears 22 which engage the opposite end of the abutments or projections in the manner clearly shown in Figure 3. These jaws are shown as pivotally mounted upon the abutments or projections 19 by means of rods or shafts 23 and 24, which extend through the bores of the projections 19 and through the ears 22 of the jaws. As shown in Figure 5, portions of the rods 23 and 24 are squared and with correspondingly shaped openings formed in the

ears so that rotation of the rods would effect movement of the jaws. The rods are confined within the projections and ears by means of nuts 25 which are threadedly fitted on the free ends of the rods. The other ends of the rods are extended to provide means for simultaneously moving both of the jaws to any of the positions which the jaws are capable of occupying.

As clearly shown in Figure 4, the rod 23 is provided at one end with a right angular extension 26 having a bent free end 27 which works within a slot 28. An arm 29 is fixed to the adjacent end of the rod 24 by means of one of the nuts 25. The other end of the rod 24 is extended by an operating crank 30 which is disposed at one side but in spaced relation to the support, as clearly shown in Figure 3.

In the operation of the holding device, a sucker rod designated at 31 can be extended through the support by moving the jaws 20 and 21 to fully opened position, as shown in Figure 4. When withdrawing the sucker rod from the tubing 18, the coupling members designated at 32 will abut against the under side of the jaws so as to swing the latter from the contracted position shown in Figure 2 to the expanded position shown in Figure 1, thereby permitting of the withdrawal of the sucker rod. As soon as any one coupling member 32 has passed beyond the jaws 20 and 21, the jaws will, by virtue of gravity, return to contracted position so as to prevent return movement of the sucker rod into the well tubing. The projecting section of the sucker rod will now be unscrewed and removed in the usual manner, and it will be understood that succeeding sections of the sucker rod can be withdrawn, held by the device and ultimately removed.

By virtue of the connection between the jaws 20 and 21, it will be clear that the movement of either jaw to expanded or contracted position will effect a corresponding movement of the other jaw, because the arm 29 fixed to the rod 24 has operative engagement with the rod 23 so that movement of either rod effects movement of the other. When it is desired to move the jaws to completely open position, as shown in Figure 4, the crank 30 can be gripped to move and actuate the rod 24, thereby swinging the jaws to the elevated position shown.

It is to be particularly noted that the projections 19 of the support 15 are associated with the jaws 20 and 21 in such manner that the jaws are at all times in contact with the projections so that any lateral stress or strains exerted on the jaws will be taken up by the projections as the latter form abutments for the jaws to prevent the latter from being distorted or torn from the support.

Referring now to Figure 6, I have here shown another form of holding device embodying my invention, in which the support and jaws are mounted in the same manner as described in connection with the first form of holding device. However, in the present form, a different operative connection is provided between the two jaws to effect simultaneous movement thereof. This connection, in the present instance, comprises quadrants 33 fixed to the rods 23 and 24 and arranged to mesh with each other at all times so that movement of either jaw operates the quadrants to effect a corresponding movement of the other jaw.

I claim as my invention:

1. A holding device of the character described comprising a support, elongated projections formed on the support, jaws having recesses to receive the projections and ears engaging the ends of the projection, shafts extending through the ears and projections and fixed to certain of the ears, and means for rotating the shafts.

2. A holding device of the character described comprising a support, jaws, a mounting for movably supporting the jaws including shafts, an operative connection between the shafts and comprising a slotted arm whereby movement of one shaft effects a corresponding movement of the other shaft, and manually operable means for moving one of the shafts.

3. A holding device of the character described comprising a support having an opening therein through which a sucker rod is adapted to extend, and jaws mounted on the support to normally swing into position engaging beneath any coupling member of the sucker rod, upwardly extending abutment projections on said support serving to take up strains and stresses exerted on the jaws to prevent distortion or tearing of the jaws from the support.

4. A holding device of the character described comprising a support, a pair of jaws on said support, and a mounting for the jaws to permit the latter to occupy expanded or contracted positions, said mounting including shafts fixed to the jaws and extended beyond the jaws, with one of the shafts operatively connected by means of a slot to the other jaw, and the other shaft bent to provide a handle.

5. A holding device of the character described comprising a support, projections formed on the support, shafts extending through the projections, jaws fixed to the shaft, and a slotted arm fixed to one of the shafts, the last mentioned shaft being provided with an extension bent to form a handle and the other shaft provided with an extension rod within the slot of said arm.

In testimony whereof I have signed my name to this specification.

RALPH H. STEGEMAN.