March 29, 1932. C. W. HOOVER 1,851,908

ROLLER SWING

Filed Jan. 6, 1930

Fig. 1.

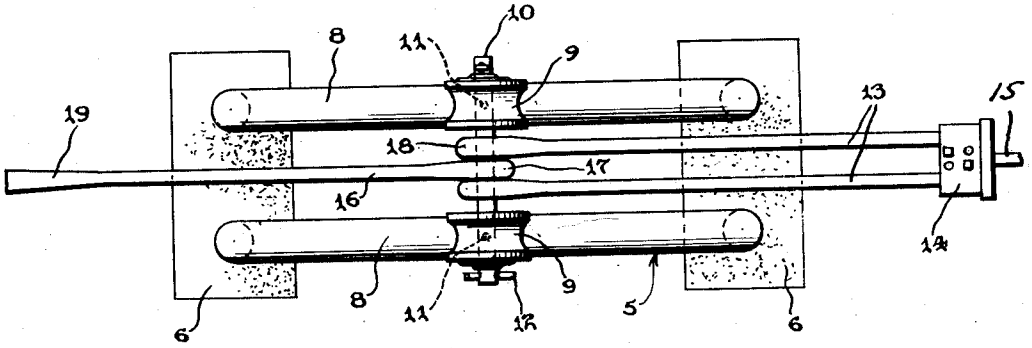


Fig. 2.

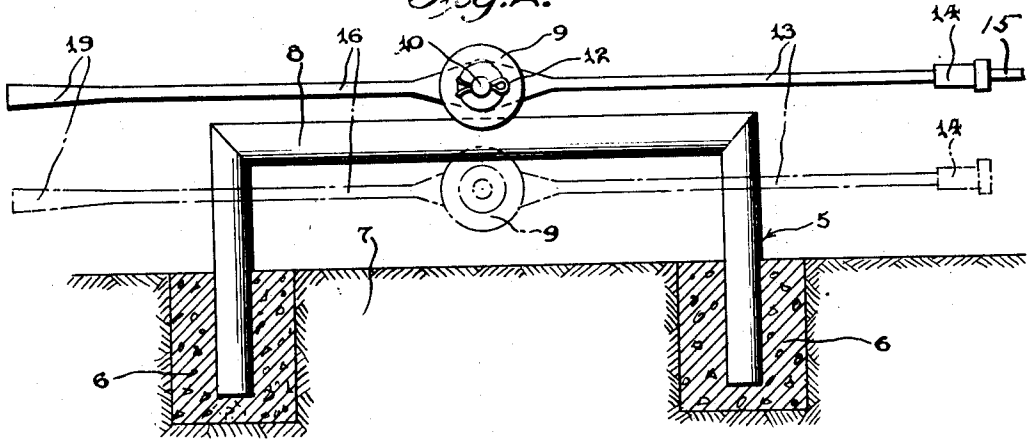
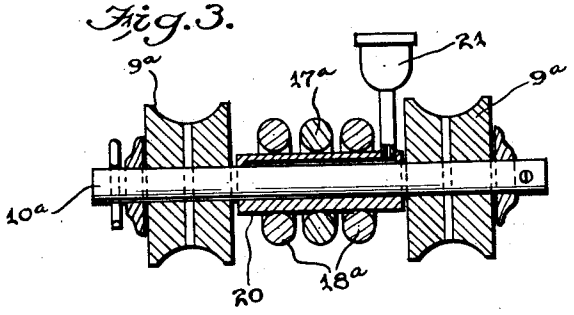


Fig. 3.



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UNITED STATES PATENT OFFICE

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ROLLER SWING

Application filed January 6, 1930. Serial No. 418,974.

This invention relates to improvements in vertical roller swings or guides for pump operating rods.

It is well known that when an oil field begins settling or the production decreases, the wells are usually pumped by power from a central station by means of rod lines extending from the power plant to a number of wells. Often, in the field, it is necessary to go over a hill or through a valley with a rod line in pumping, and the present invention relates to a roller swing or guide to handle the rod line over uneven surfaces.

The primary object of the invention is to furnish a roller swing, which will function either to hold the rod line up or down, depending on whether the line is extending across a hill or valley.

A further object is to provide a roller swing of this character, which will function indefinitely without getting out of order, and in actual practice, over a considerable period of time, some of these swings have functioned very efficiently and have operated with very little care.

With the foregoing objects outlined and with other objects in view which will appear as the description proceeds, the invention consists in the novel features hereinafter described in detail, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims.

Referring to the drawings,

Fig. 1 is a top plan view of my improved roller swing.

Fig. 2 is a side elevation of the same, with the rollers arranged to hold the rod line up. This view also shows in dotted lines, the arrangement of the parts when used as a hold-down.

Fig. 3 is a vertical sectional view of a modification.

In the drawings, 5 indicates a pair of inverted U-shaped tracks which are arranged side by side, and have the lower end portion of their legs embedded in masses of concrete 6 which are placed in holes in the ground 7 at the point where the swing is to be used. These masses of concrete have sufficient weight to hold the horizontal portions 8 of the tracks in proper position relatively to the ground surface, whether the swing is used to hold the rod line up or down. In Fig. 2, they are shown as holding the rod line up in full lines, and as holding the same down, in dotted lines.

It will be observed that the track portions 8 of the guides are of any suitable shape, so as to conform to the peripheries of a pair of rollers 9. For example, the tracks may be of cylindrical form, and the rollers may have grooves, the surfaces of which conform to the tracks. In the form of the invention illustrated in Figs. 1 and 2, these rollers are rotatably mounted on a hollow shaft 10 which is adapted to be filled with a suitable lubricant that is fed to the inner surfaces of the rollers by means of apertures 11 in the wall of the hollow shaft.

One of the rollers may be detachably mounted on the shaft by means of a cotter pin 12 or the like, so as to allow a pair of eye subs or connections 13 to be connected to the intermediate portion of the shaft. The outer ends of these subs may be connected by any suitable clamping device 14, to a portion 15 of the rod line.

Another eye sub or connection 16 has its eye 17 arranged on the shaft, between the eyes 18 of the pair of subs, and the sub 16 may have its outer end upset, if desired, as shown at 19, so that it can be connected to another portion of the pump rod line.

It will be understood that the eyes 17 and 18 hinge on the shaft, but in the construction shown in Figs. 1 and 2, the shaft, due to the pull of the pump rod line, is held from rotating, and it is only the rollers 9 which rotate as the shaft reciprocates back and forth on the tracks 8.

It may be seen from the dotted lines in Fig. 2, that the rollers may engage the under sides of the tracks 8, where the rod line is across a valley, and the roller swing is used as a hold-down.

It is manifest that the construction may be such that the shaft 10*a* will rotate with the rollers 9*a*, as shown in Fig. 3. In such case, the eyes 17*a* and 18*a* of the subs might engage a sleeve 20 which is pivotally mounted on the

shaft. In such a construction, the journal can be lubricated by means of a grease cup 21.

When the device is used as a hold-up, the force tends to push the pipes 5, further into the ground, but as the concrete masses 6 form relatively broad foundations, it will be understood that they will prevent sinking of the tracks. On the other hand, when the roller swing is used as a hold-down, the rollers are placed underneath the tracks 8, and the weight of the concrete more than offsets the force tending to lift the pipes 5.

Those skilled in the art will clearly understand that with a roller swing of the character described, the rod line will be prevented from dragging on the ground surface, and the line will endure for a much greater length of time than if it were allowed to drag and thus wear.

While I have disclosed what I now consider preferred embodiments of the invention in such manner that the construction, operation and advantages of the invention may be readily understood, I am aware that changes may be made in the details disclosed, without departing from the spirit of the invention, as expressed in the claims.

What I claim and desire to secure by Letters Patent is:

1. A roller swing comprising weight masses adapted to be embedded in the ground, substantially inverted U-shaped track members having legs rigidly connected with said masses, each track member having a substantially horizontal portion, rollers having their peripheries shaped to roll either on the top or bottom surfaces of the substantially horizontal portions of the track members, a shaft extending through and connecting said rollers, and means for connecting the shaft to portions of a rod line.

2. A roller swing for guiding a rod line, comprising weight masses adapted to be embedded in the ground, substantially inverted U-shaped track members having legs rigidly connected with said masses, each track member having a substantially horizontal cylindrical portion which is held in elevated position by the legs of that track member, rollers having grooved peripheries engaging said substantially horizontal cylindrical portions of the tracks, a shaft connecting said rollers, and means for connecting the shaft to portions of a rod line.

3. A roller swing for guiding a pump rod line or the like, including a pair of horizontally disposed weighted tracks, a plurality of rollers engageable with and shaped to roll either on the top or bottom surfaces of said tracks, a horizontal shaft extending through and joining said rollers, and oppositely extending subs pivotally connected to said shaft for swinging movement upwardly and downwardly and adapted to be interposed in a pump rod line or the like.

4. A roller swing for guiding pump rod lines or the like, comprising a pair of inverted U-shaped tracks having their legs embedded in weight masses, each track having a horizontal portion, rollers adapted to roll either on the top or bottom surfaces of the horizontal portions of said tracks, a horizontal shaft on which the rollers are mounted, and subs pivotally connected to said shaft for swinging movement upwardly or downwardly and adapted to be interposed in a pump rod line or the like.

5. A roller swing for guiding pump rod lines or the like, including spaced horizontal tracks having supporting legs, means for weighting said legs to prevent the track from moving upwardly, a horizontal shaft, rollers journaled on said shaft and shaped to roll on the top or bottom surfaces of the tracks, and subs pivotally connected to the shaft for swinging movement upwardly or downwardly and adapted to be interposed in a rod line.

6. In combination, weights adapted to be embedded in the ground, substantially inverted U-shaped tracks having legs embedded in the masses, each track having a horizontal portion, a horizontal shaft, rollers journaled on the shaft and shaped to roll on either the top or bottom surfaces of the horizontal portions of the tracks, and subs pivotally connected to the shaft for swinging movement upwardly and downwardly and adapted to be interposed in a rod line.

7. A roller swing for guiding a rod line, comprising spaced parallel horizontal tracks, a horizontal shaft, rollers shaped to roll on the top or bottom surfaces of said tracks and journaled on said shaft, and oppositely extending subs pivotally connected to the shaft for swinging movement upwardly and downwardly between said tracks.

8. A roller swing for guiding a rod line, comprising a pair of spaced substantially horizontal track members, a horizontal shaft, rollers fixed to said shaft and adapted to roll on either the top or bottom surfaces of said track members, and subs pivotally connected to the shaft between said rollers.

9. A roller swing comprising a pair of spaced horizontal cylindrical track members, rollers having curved and grooved peripheries adapted to roll on either the top or bottom surfaces of said track members, a horizontal shaft extending through and connecting said rollers, and means for pivotally connecting portions of a rod line to said shaft.

In testimony whereof, I have signed this specification.

CHARLES W. HOOVER.