

Sept. 25, 1928.

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1,685,238

DERRICK WALKING BEAM

Filed July 14, 1926

Fig. 2.

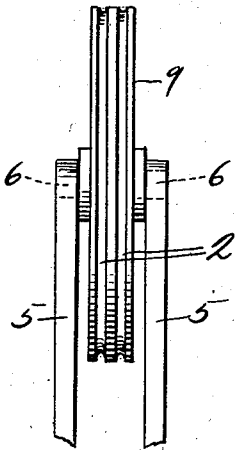


Fig. 1.

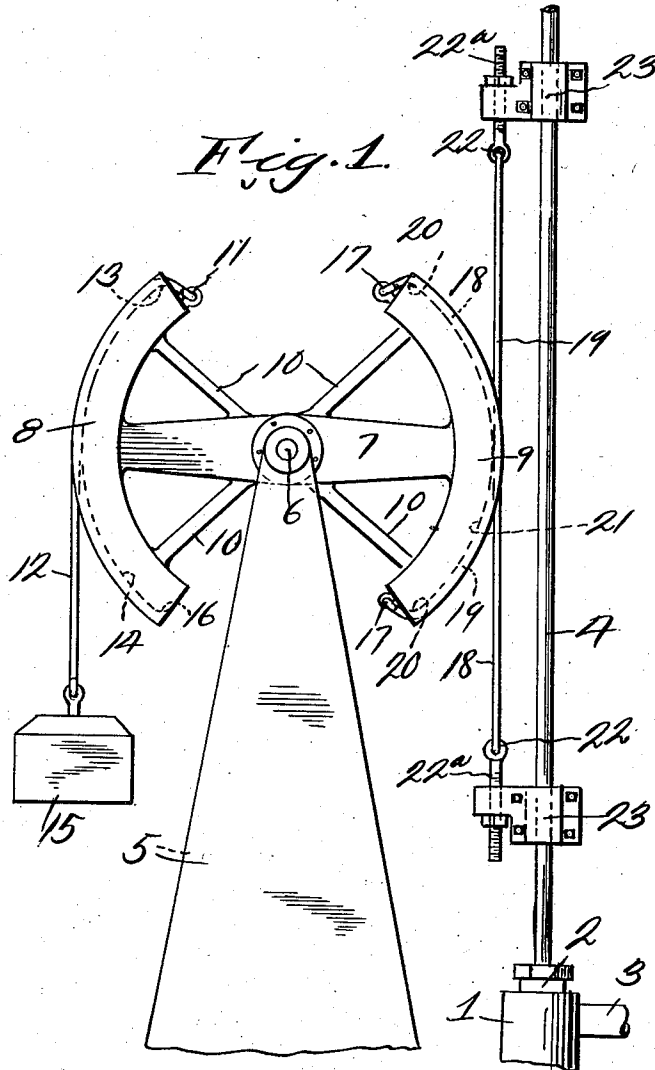
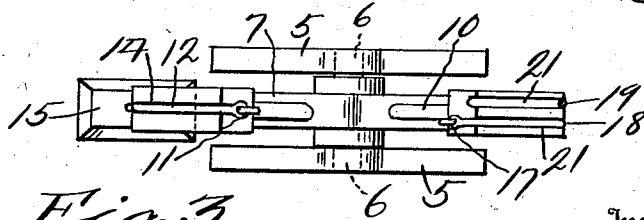


Fig. 3.

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DERRICK WALKING BEAM.

Application filed July 14, 1926. Serial No. 122,481.

The invention relates to walking beams for derricks, particularly of the oil pump type, and has for its object to provide a device of this character comprising a support having an elongated beam connected to the upper end thereof, the ends of which beam are provided with segmentally shaped and concentrically arranged members in spaced grooves of one of which oppositely extending flexible members connected to a pump rod are disposed, and upon oscillation of which beam the pump rod is reciprocated.

A further object is to connect a flexible member to the upper end of one of the segmentally shaped members, and which flexible member extends downwardly through a groove in the periphery of the segmentally shaped member and terminates in a weight positioned whereby during the oscillation of the beam one end of said weight may pass inwardly between the adjacent ends of the segmentally shaped members whereby the weight will not interfere with the operation of the device and will act as a counter weight.

A further object is to dispose the periphery of one of the segmentally shaped members in a position whereby during the oscillation of the beam the point of crossing of the flexible members will be in the plane of the upwardly and downwardly extending flexible members connected to the pump rod thereby insuring an accurate guiding of the rod in its reciprocation and preventing a side pull thereon.

With the above and other objects in view the invention resides in the combination and arrangement of parts as hereinafter set forth, shown in the drawing, described and claimed, it being understood that changes in the precise embodiment of the invention may be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings:—

Figure 1 is a side elevation of the beam showing the same applied to a pump rod.

Figure 2 is a side elevation of the walking beam showing the double grooves therein.

Figure 3 is a top plan view of the walking beam.

Referring to the drawing, the numeral 1 designates a well casing having a stuffing box 2 thereon and a discharge pipe 3. Slidably mounted in the stuffing box 2 and extending upwardly therefrom is a pump rod 4 which is reciprocated in the usual manner during a pumping operation.

Disposed adjacent the pump rod 4 are spaced supports 5 in bearings in the upper ends of which are rockably mounted the pintles 6 of the walking beam 7. The walking beam 7 is elongated as clearly shown in Figure 1, and has its ends provided with segmentally shaped members 8 and 9, which members are concentrically arranged in relation to each other, and the ends of the beam 7 are preferably formed integral with the members 8 and 9 intermediate their ends. Members 8 and 9 are braced in relation to the beam 7 by the brace arms 10, thereby forming a rigid structure. Secured at 11 to the upper end of the segmentally shaped member 7 is a flexible member 12, which flexible member extends over the rounded corner 13 of the upper end of the segmentally shaped member 8, and through the grooves 14 in the outer periphery of the member 8, whereby during the rocking of the walking beam 7 said cable will be at the same distance from the center of the walking beam 7 whereby the weight 15 carried by the lower end of the cable will exert a uniform pull on the beam at all times. By providing the space between the lower end of the segmentally shaped member 8 and 9, it will be seen that the weight 15 may move into said space during the oscillation of the beam 7, thereby allowing a relatively short flexible member 12 to be used. It will be noted that the lower end of the groove 14 is provided with a rounded shoulder 16 which will prevent cutting of the flexible member 12 during the oscillation of the beam.

Connected at 17 to the upper and lower ends of the segmentally shaped member 9 are cables 18 and 19, which cables extend over the rounded corners 20 and through the grooves 21 and into opposite directions in a vertical plane in parallel relation to the piston rod 4 and are anchored at 22 to adjusting screws 22^a which extend through clamps 23 carried by the piston rod 4, and which clamps may be adjusted upwardly or downwardly for taking up any slack which may develop in the cables 18 and 19. It will be noted that the cables 18 and 19 by extending through the grooves 21 will always be in a plane parallel to the plane of the pump rod 4, and will always be in the same plane, as the segmentally shaped member 9 is moved during the oscillation of the beam 7. Beam 7 may be oscillated in any suitable manner.

From the above it will be seen that a walking beam is provided which is particularly

adapted for use in connection with oil pumps and wells, is simple in construction and one wherein by providing the segmentally shaped member 9 a straight pull or push on the pump rod is assured at all times, thereby preventing bending of the pump rod, excessive wear of the stuffing box and insuring a maximum efficiency of the pump.

The invention having been set forth what is claimed as new and useful is:—

10 The combination with a pump rod, an oscillating walking beam adjacent said pump rod, of segmental members concentrically arranged and carried by the end of said beam,
15 a flexible member anchored to the upper end of one of said segmentally shaped members

in a groove in the outer periphery thereof, a weight carried by said flexible member, said weight being positioned whereby upon oscillation of the beam in one direction, one side 20 of said weight will pass between the adjacent ends of the segmental members, the other segmental member having its outer periphery adjacent the pump rod, flexible members connected to opposite ends of the last mentioned 25 segmental member, said flexible members extending through grooves in the periphery of the last mentioned segmental member and anchored to the pump rod at spaced points.

In testimony whereof I hereunto affix my 30 signature.

WILLIAM R. McDOWELL.