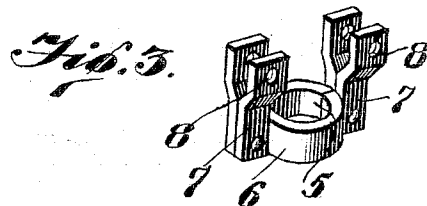
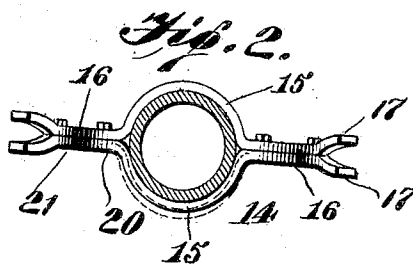
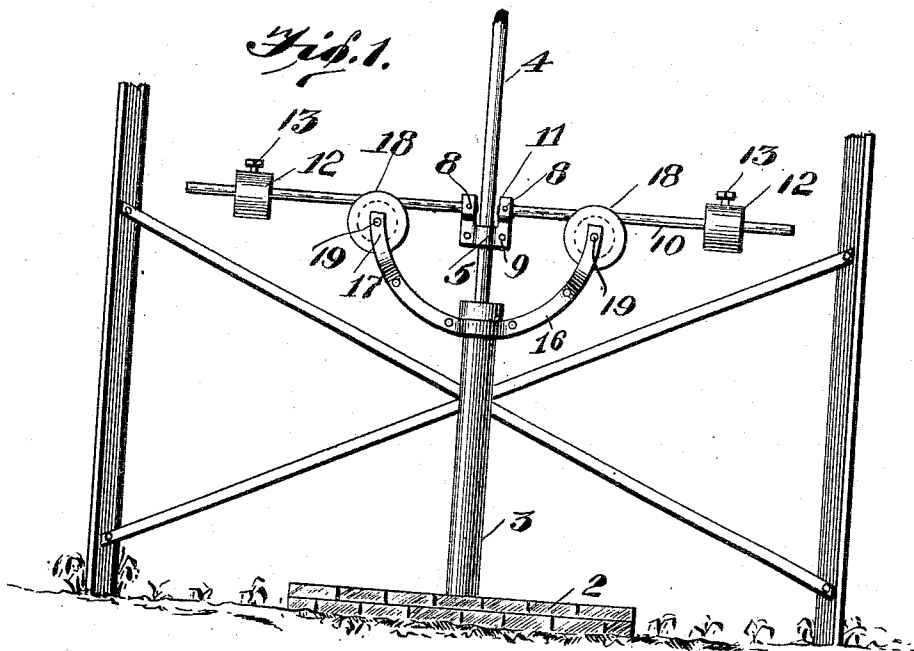


R. H. JOHNSON.
EQUALIZER FOR PUMP RODS.
APPLICATION FILED AUG. 25, 1910.

994,928.

Patented June 13, 1911.



WITNESSES:
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UNITED STATES PATENT OFFICE.

ROBERT H. JOHNSON, OF ANSON, TEXAS.

EQUALIZER FOR PUMP-RODS.

994,928.

Specification of Letters Patent. Patented June 13, 1911.

Application filed August 25, 1910. Serial No. 578,887.

To all whom it may concern:

Be it known that I, ROBERT H. JOHNSON, a citizen of the United States, residing at Anson, in the county of Jones and State of Texas, have invented new and useful Improvements in Equalizers for Pump-Rods, of which the following is a specification.

The invention relates to improvements in equalizers for pump rods, and one of the objects thereof is to provide a device of this character, which while operating to assist in elevating the column of water in a pump, is designed to sustain the pump rod in its fixed position and preclude any possibility of the same turning in a horizontal plane.

Another object of the invention is to provide an adjustable fulcrum for the weighted levers, which may be manipulated without entirely dismantling the component parts thereof.

A further object of the invention is the provision of a device of this character, which is simple of construction, thoroughly reliable and efficient in operation, and inexpensive in manufacture.

With these and other objects in view, the invention consists in the construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawings, and pointed out in the claims hereunto appended.

In said drawings:—Figure 1, is a side elevation illustrating the application of my equalizer to a pump rod, which is actuated by a wind-mill. Fig. 2, is a top plan view of the adjusting fulcrum. Fig. 3, is a perspective view of the rod clamp.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

Referring to the accompanying drawings, the numeral 2, designates the upper end portion of the well, which is of the ordinary well known construction, and has mounted therein in the usual manner a pump casing or barrel 3, the latter being of the required length and has its upper end rising above the well. Working within the pump casing or barrel 3, is the ordinary pump rod 4 for connection with a wind-mill or other operating device, (not shown). Mounted upon the pump rod 4 is a clamp, which comprises a pair of duplicate sections 5, each of which is formed from a single piece of metal, with an outwardly arched semi-cir-

cular medial portion 6, and laterally extending ears 7, the same being upwardly directed to provide bearing eyes or lugs 8, the semi-circular medial portions 6 of the sections being adapted to engage the pump rod 4, by embracing the same and are connected together by means of bolt members 9, whereby the clamp may be adjusted and secured to said pump rod at any desirable point throughout the length thereof. Connected between the bearing eyes or lugs 8 of the clamp are the inner ends of swinging weighted levers or arms 10, by means of pivots 11, the same being passed through the lugs or eyes 8 and said levers or arms 10, so that the latter may move in a vertical plane for a purpose as will be hereinafter more fully described. Adjustably mounted upon these levers or arms 10 are weight peas 12 the same carrying the usual set screws 13 for engaging the inflexible levers or arms 10, whereby said weight peas may be secured in adjusted position on the latter, for the counterbalancing of the pump rod 4 during the working of the pump.

Upon the pump casing or barrel 3 is mounted a clamp or bracket, the same comprising duplicate opposed sections 14, each of which is formed from a single piece of metal, the sections 14 being provided with outwardly curved central portions 15 to engage the pump casing or barrel 3, and with upwardly curved supporting arms 16, having outturned extremities 17 between which are rotatably mounted anti-friction guide rollers 18, the same being supported upon stud journals 19 having their bearings in the extremities 17. The sections 14 are united by means of inner and outer clamping bolts 20 and 21, the rollers 18 being peripherally grooved to receive the arms or levers 10, which work therein during the reciprocation of the pump rod on the operation of the pump.

In operation, it will be seen that when the pump rod 4 moves downwardly the weighted arms or levers 10 will be lifted and that when said pump rod moves upwardly to elevate the water in the well, the weighted arms or levers will descend. Said weight peas 12 therefore assist in elevating the water and put a load upon the pump rod upon its downward stroke, thereby counter-balancing the weight of the water and equalizing the strain upon the wind-mill or operating de-

vice. It will be observed that there will be no lateral strain upon the pump rod 4, and also that friction will be reduced to a minimum. As will be readily understood, the use of the inflexible bracket with its rollers 18, and the clamp carrying the arms 10, the latter also being inflexible, the reciprocating movement of the pump rod 4 provides a weight variation, due to the fact that the rods 10 reciprocate on the rollers 18 (which form the fulcrum for the rods), thereby moving the weights 12 toward and from the fulcrum. This variation insures greater possibilities in adjustment to provide for counterbalancing, enabling the operator to vary the weight during the traverse of the rod from one extreme of movement to the other, thereby aiding in overcoming unequal pressures occurring in the pump operation, as, for instance, the pressure provided when the pump-bucket is brought into contact with the water in the well or when it is about to leave the water, the adjustment of the clamp members 8 permitting of a proper application of the maximum and minimum counterbalancing weights at the proper time. The avoidance of lateral strain of the pump rod is due particularly to the fact that the arms 10 are inflexible and operates in the peripheral grooves of the rollers 18, the grooves being of sufficient depth to allow the arms 10 to occupy a position below the perimeter of said rollers to efficaciously resist any relative movements of the arms in a horizontal plane. Furthermore, the pump rod 4 will be caused to reciprocate in a true vertical plane when in operation.

From the foregoing it is thought that the construction and operation of the invention

will be clearly understood and therefore a more extended explanation has been omitted.

What is claimed is:—

1. In a device of the character described, the combination with a pump rod, and a pump casing, of a pair of inflexible arms pivotally connected to said pump rod, adjustable weights mounted on said arms, and a bracket carried by the pump casing and having a pair of rollers thereon, said rollers being provided with peripheral grooves within which said arms freely move.

2. In a device of the character described, the combination with a pump rod, and a pump casing, of a pair of inflexible arms pivotally connected to said pump rod, adjustable weights mounted on said arms, and a bracket carried by the pump casing and having a pair of rollers thereon, said rollers being provided with peripheral grooves within which said arms freely move, and the perimeter of the walls of the grooves extending above the upper side of the arms.

3. Equalizing mechanism for pump rods comprising a support adapted to be adjustably secured to the pump rod, oppositely-extending inflexible arms, pivotally carried by the support, weight members adjustable on said arms, and a stationary fulcrum member having a fulcrum for each arm, each arm being freely movable longitudinally on its fulcrum to provide for weight variation during the reciprocation of the pump rod.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ROBT. H. JOHNSON.

Witnesses:

J. R. GOLDEN,

O. M. CRENSHAW.