W. TAFT.

ANTIFRICTION ROLLER.

APPLICATION FILED JUNE 29, 1915.

1,182,816. Patented May 9, 1916.

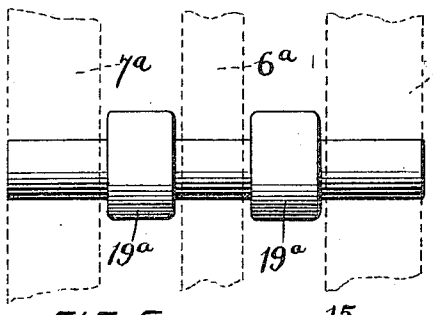


FIG. 5.

FIG. 1.

FIG. 2.

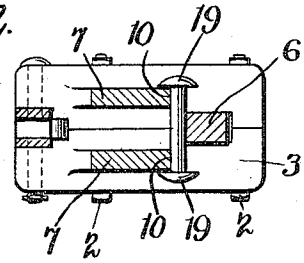


FIG. 3.

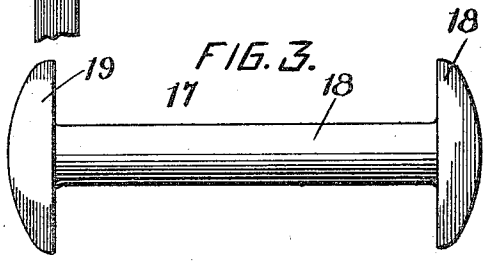
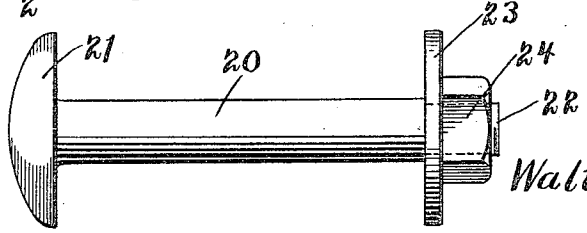


FIG. 4.



Witnesses

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ANTIFRICTION-ROLLER.

1,182,816. Specification of Letters Patent. Patented May 9, 1916.

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To all whom it may concern:

Be it known that I, WALTER TAFT, a citizen of the United States, residing at Wilmington, in the county of New Hanover, State of North Carolina, have invented certain new and useful Improvements in Antifriction-Rollers, of which the following is a description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to anti-friction rollers for pump rods, and has for its object to provide an article of manufacture suitable for use with a form of wind wheel pumps in universal use in which if desired the wind wheel may be disconnected and an ordinary form of pump handle may operate the pump rod to lift water from a well. It is with the operation of the pump rod by the handle, said handle being fulcrumed in the end of a fulcrum arm, which is itself pivotally mounted on the pump casting, that this device is particularly adapted.

Similar reference numerals indicate corresponding parts in all the figures of the drawings, in which—

Figure 1 is a perspective view of an ordinary form of pump head showing my improved anti-friction rollers in place. Fig. 2 is a horizontal section taken on line 2—2, of Fig. 1. Fig. 3 is an enlarged view of one of my improved anti-friction rollers. Fig. 4 is an enlarged view of a modified form of construction of my improved anti-friction roller, and Fig. 5 is an enlarged view of a modified form of roller in which the retaining enlargements are placed midway its ends.

Referring to the drawings by numerals, 1 is a form of pump head in common use in which the parts are cast in halves and secured together by bolts 2, thus providing the base portion 3 to which the upper end of the well tube 4 is secured, and opening 5 through which the pump rod 6 passes. A bracket 7 extending up from the base portion has a horizontally extending portion 8 in which an opening 9 is formed through which the pump rod passes. As shown, the bracket 7 is provided with a face 10 lying parallel with one edge of the pump rod 6.

An opening 11, formed in the end of the base 3, is provided for the reception of the lower end of a fulcrum link 12, said link being pivotally mounted in the opening 11 on pin 13. The upper end of link 12 is bifurcated to receive the pump handle 14 which is pivotally mounted on pin 15 passing through the upper end of link 12. The pump handle 14 extends between the members of the bracket 7 and is pivotally secured by pin 16 to the pump rod.

The parts as above described are of the ordinary form of pump now in common use.

With the parts as described above, the openings 9 and 5 of the pump head receive all the friction and wear of the pump rod when pump is being operated by the handle.

The device consists of a spool-shaped or headed anti-friction roller 17, one or more of said rollers to be located between the pump rod 6 and the face 10 of the bracket 7 when the parts of the pump head are assembled, the body portion 18 of the roller resting, as clearly shown in Fig. 2, and adapted to have a rolling contact on the surface 10 of the bracket and have a rolling contact with the near edge of the pump rod 6. The body portion 18 of the roller is provided with heads 19 at both ends, said heads being adapted to rest beyond the outside faces of the bracket and to retain the roller in place, the diameter of the body 18, when in contact with the surface 10 and the edge of the pump rod, being just sufficient to center the rod 6 in the openings 9 and 5. The bracket throughout the portion provided with the bearing face 10 is open through its center, as shown in Fig. 2, through which opening the pump handle operates. The halves of the bracket are formed integral with the corresponding portion of the head, and when the parts are assembled make a single bracket with the parts as described.

My improved anti-friction roller may be formed in one piece, as shown in Fig. 3, or as shown in Fig. 4, the ordinary form of headed bolt may be used, in which the body 20 is provided with the head 21, and the screw-threaded end 22, on which may be slipped the ordinary washer 23 of a diameter approximately that of the head 21, said washer being held in place by the nut 24.

In operation, the device acts as a traveling roller bearing, the movement of the roller being in the direction of movement of the pump rod, the vertical movement of said roller being approximately one half that of the pump rod.

A continuous lateral pressure is maintained on the rollers to hold said rollers in place and prevent their dropping in the

following manner: With a downward movement of the handle from the position shown in dots to that shown in full lines or to lift the pump rod, the power is applied to the outer or grip end of the handle, part of said power, due to the fact that link 12 is pivoted at its lower end, will have a tendency to swing the upper end of link 12 to the left or away from the pump rod, said tendency of the link and with it the handle to draw back will drag in the same direction on the pump rod and thereby grip the rollers between the pump rod and the surface 10. Upon the completion of the downward movement of the outer end of the handle and upward movement of the pump rod, which may be called the power movement whereby the water is elevated, the tendency of the pump rod is to drop both from its own weight and the weight of the column of water above the piston. The outer end of the handle is of sufficient weight, when properly fulcrumed, to cause an outward tendency to the upper end of link 12, thereby maintaining pressure on the rollers to hold them in place and prevent their dropping. In the event that the rollers should drop, the results would not be radically different, since there is no side thrust on the pump rod in its downward movement due to the fact that no power to accomplish said downward movement is necessary by the handle.

As shown in Fig. 5 of the drawings, a modified form of roller may be used in which the space between the bracket arms 7^a is sufficiently greater than the width of the pump rod 6^a to permit the heads 19 at the ends of the body portion to be dispensed with and enlargements 19^a to be placed between the ends of the body portion to rest in the space between the sides of the pump rod and the inner faces of the bracket arms, in this position preventing lateral displacement of the roller and serving the same function as the enlarged end portions shown in the preferred form.

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

1. In an anti-friction device for pump rods, the combination of a pump head having a guide bracket provided with a vertical face, a pump rod adapted for movement parallel with the vertical face, a fulcrum link pivotally mounted on the pump head, a pump handle fulcrumed in the free end of the fulcrum link and connected to the pump rod, and a roller interposed between the pump rod and the vertical face of the bracket.

2. In an anti-friction device for pump rods, the combination of a pump head having a base portion, and a guide bracket extending from the base portion, provided with a vertical face, said base portion and guide bracket being provided with alining guide openings, a pump rod adapted for movement in the guide openings with one of its surfaces parallel with the vertical face, a fulcrum link pivoted at its lower end in the base portion, a pump handle fulcrumed between its ends in the free end of the fulcrum link and connected at its end to the pump rod, and a roller having a body portion and headed end portions, so located between the bracket and the pump rod as to bring one side of the body portion in contact with the vertical face and its opposite side in contact with one edge of the pump rod.

This specification signed and witnessed this 26th day of June, A. D. 1915.

WALTER TAFT.

In the presence of—
R. H. NORTHRUP.
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