C. K. COTTEN.

COUNTERBALANCING DEVICE FOR PUMPS.

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914,385. Patented Mar. 9, 1909.

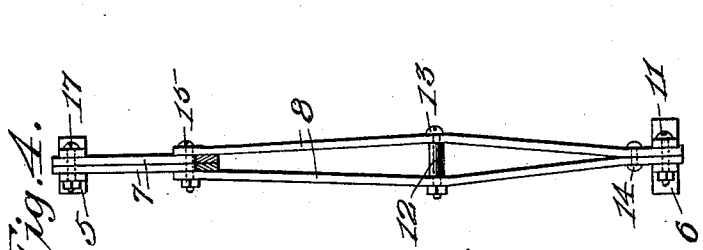


Fig. 4.

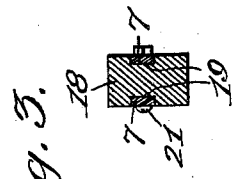


Fig. 3.

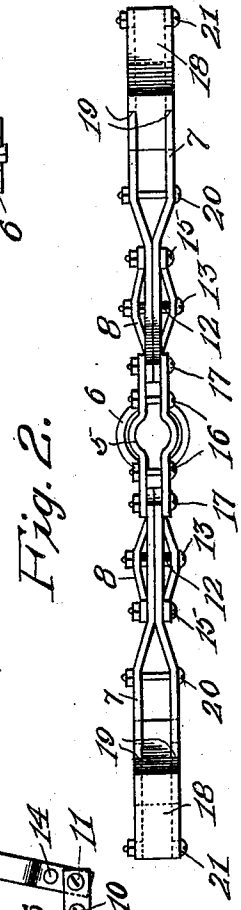


Fig. 2.

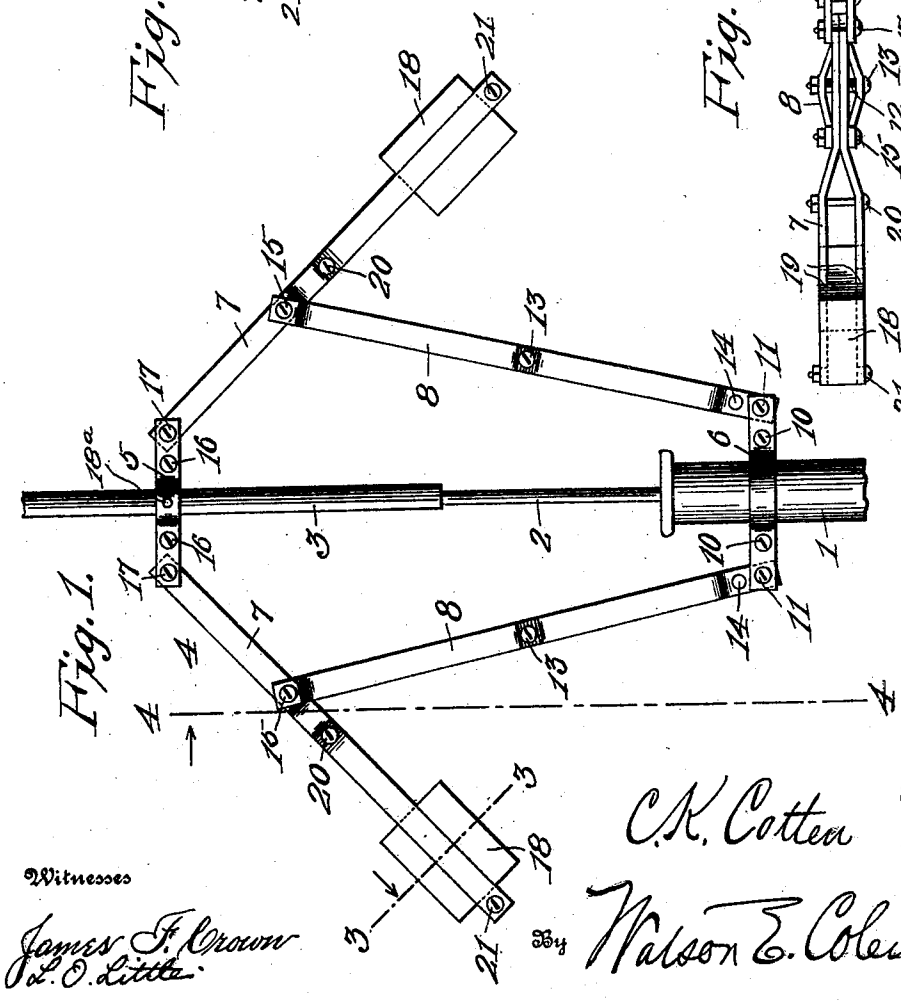


Fig. 1.

Witnesses

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COUNTERBALANCING DEVICE FOR PUMPS.

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Application filed August 24, 1908. Serial No. 449,967.

To all whom it may concern:

Be it known that I, CHARLES K. COTTEN, a citizen of the United States, residing at San Angelo, in the county of Tom Green and State of Texas, have invented certain new and useful Improvements in Counterbalancing Devices for Pumps, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in counterbalancing attachments for pumps and more particularly those operated by wind mills.

The object of the invention is to provide a device of this character which will be simple and practical in construction, easy to apply to any pump and effective in operation; and to further provide a device of this character which will exert a perpendicular pull on the pump rod and prevent lateral strain and friction.

With the above and other objects in view, the invention consists of the novel features of construction and the combination and arrangement of parts hereinafter fully described and claimed, and illustrated in ithe accompanying drawings, in which—

Figure 1 is a side view of a wind mill operated pump having the invention applied thereto; Fig. 2 is a plan view of the attachment removed from the pump; Fig. 3 is a detail cross section through one of the weights and the arm or lever which carries it; and Fig. 4 is a detail vertical section taken on the line 4—4 in Fig. 1.

In the drawings 1 denotes the pump casing, 2 the piston rod of the pump, 3 the wind mill operating rod which is connected to the rod 2 and 4 the improved counterbalancing attachment which comprises upper and lower clamps 5, 6, two weighted levers 7 and two supporting links 8. The lower clamp 6 is applied to the pump casing and consists of two metal straps opposed to each other and their central portions curved outwardly in opposite directions to engage the pump casing and their spaced ends united by inner and outer clamping bolts 10, 11. The outermost bolts 11 also serve as fulcrum pins for the lower ends of the links 8 each of which latter consists of two metal straps spaced apart adjacent their centers by a spacing sleeve 12 and a bolt or rivet 13. The lower ends of the straps of the links 8 are brought together and arranged between the ends of the clamp straps 6 and they are also preferably fastened together by a rivet 14. The upper ends of the straps of said links 8 receive the weighted levers or arms 7 between them and they are pivotally united to the latter by bolts 15. The upper clamp 5, which is similar to the lower one, is arranged upon the operating rod 3 and it consists of two straps having their central portions curved outwardly to receive the rod 3 and their spaced ends united by inner and outer bolts 16, 17. If desired, a bolt 18[a] may be passed through the central parts of the clamp straps 5 and through the rod 3 to more effectively unite said parts and prevent all possibility of the clamp slipping upon the operating rod. The outer bolts 17 also serve to pivotally unite the inner ends of the levers 7 to the clamp 5. Each of said levers is composed of two metal straps, the upper ends of which are brought together and between the straps of the clamp 5 and the link 8 and united by the bolts 15, 17 and the outer ends of which are disposed in parallel relation to slidably receive a weight 18 between them. The weights 18 are here shown in the form of rectangular blocks having their opposite side faces grooved, as at 19, to receive the straps of the levers; and they are adapted to be held in an adjusted position upon the latter by clamping bolts 20, 21 which pass through the straps of said levers. It will be seen that when the bolts 20, 21 are loosened the weight blocks 18 may be moved inwardly or outwardly upon the levers according to the size of the pump and the well which the invention is applied to.

It will be understood that the weights may be constructed and adjusted in other ways than that mentioned and that the several parts of the attachment may be of other shape and construction, but they are preferably made of metal straps, bolts and rivets, as shown and described because they may be produced at a small cost and will be easy to apply to different sizes and makes of pumps.

In operation, it will be seen that when the pump rod 3 moves downwardly the weights on the levers 7 will be lifted and that when said pump rod moves upwardly to lift the water the weights will descend. Said weights therefore assist in elevating the water and put a load upon the rod upon its down stroke, thereby counterbalancing the weight of the water and equalizing the strain upon the wind mill. It will be seen that the pump rod

will be caused to exert a perpendicular pull and there will be no lateral strain and consequently no binding and friction.

Having thus described the invention what is claimed is:

A counterbalancing attachment for a pump comprising upper and lower clamps to respectively engage the pump rod and the pump casing, levers pivoted at their inner ends to the upper clamp and each composed of two straps having their outer ends spaced apart in parallel relation, weight blocks having grooves to receive the spaced straps of the levers, clamping bolts passed through said spaced straps to adjustably secure the weights upon the levers and links between the lower clamp and the intermediate portions of the levers.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

CHARLES KAVENDOR COTTEN.

Witnesses:

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