No. 737,541. PATENTED AUG. 25, 1903.

L. WILLIAMS.

MEANS FOR ADJUSTING STROKES OF WINDMILLS.

APPLICATION FILED JAN. 18, 1902.

NO MODEL.

Fig. 1.

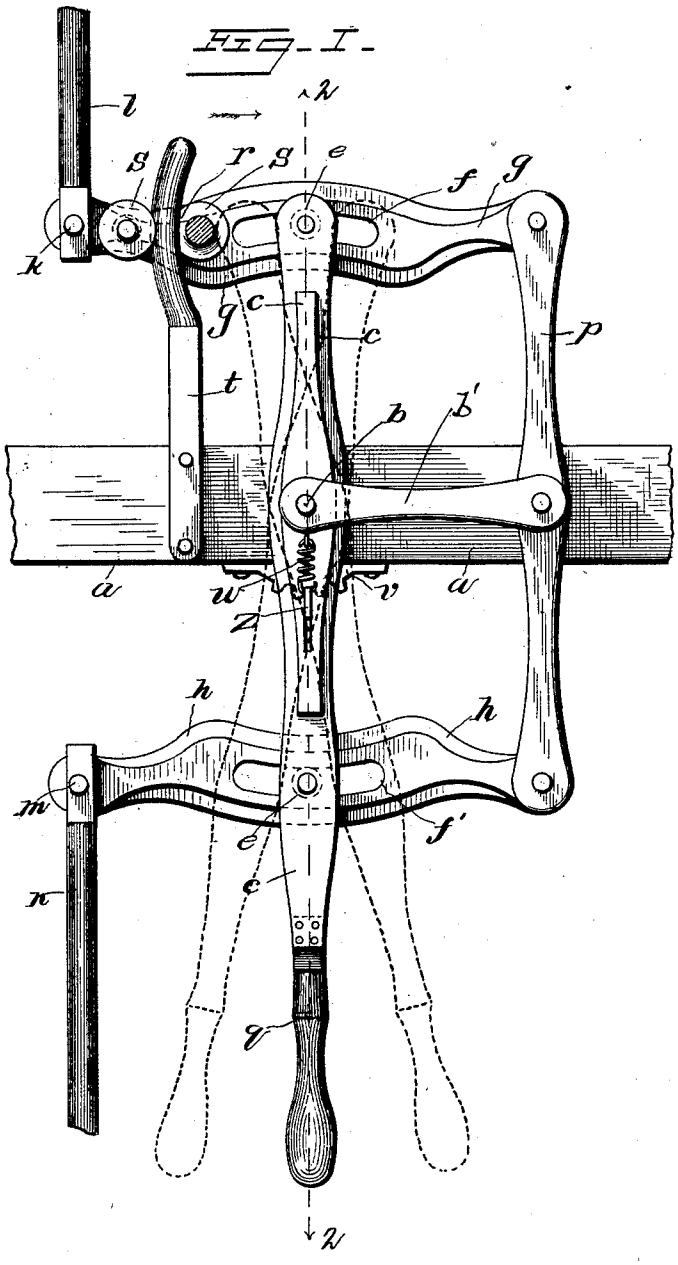
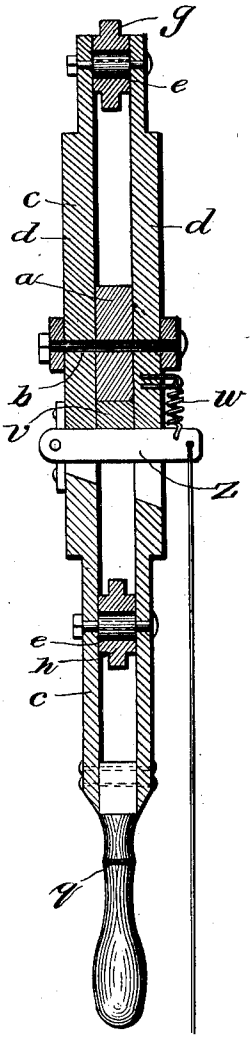


Fig. 2.



Witnesses

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No. 737,541. Patented August 25, 1903.

UNITED STATES PATENT OFFICE.

LAWRENCE WILLIAMS, OF COLUMBUS CITY, IOWA.

MEANS FOR ADJUSTING STROKES OF WINDMILLS.

SPECIFICATION forming part of Letters Patent No. 737,541, dated August 25, 1903.

Application filed January 18, 1902. Serial No. 90,246. (No model.)

To all whom it may concern:

Be it known that I, LAWRENCE WILLIAMS, a citizen of the United States, and a resident of Columbus City, in the county of Louisa and State of Iowa, have made a certain new and useful Invention in Means for Adjusting the Stroke of a Windmill; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the invention, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is a side elevation, partly in section, of my invention as applied. Fig. 2 is a section on the line 2 2, Fig. 1.

The invention relates to means for adjusting the stroke of a windmill or other power and the related movement of the work connection without stopping the action of the power mechanism; and it consists in the novel construction and combination of parts, as hereinafter set forth.

In the accompanying drawings, illustrating this invention, the letter *a* designates a bar or beam of the framework, to which is pivoted at *b* a lever *c*, usually consisting of two parallel bars or parts *d d*, between which, near its upper and near its lower ends, are provided antifriction fulcrum-rollers *e*, engaging arc-shaped slots *f f* of the upper and lower oscillating levers *g* and *h*, respectively. The upper oscillating lever *g* has its slot *f* curved upon a radius from the pivot *b* of the adjusting-lever *c* and is connected at one end by means of a pivot at *k* to the connecting-rod *l* from the power-crank, such being usually a windmill pump-rod. The lower oscillating lever *h* has its slot *f* also curved upon a radius from the pivot *b*, and its front end is connected, by means of a pivot *m*, to the connection *n* for the work, such being usually the lower portion of the windmill pump-rod, which may be considered as having an interrupted portion, and to the interrupted ends of which the levers *g* and *h* are connected. The rear ends of the levers *g* and *h* are connected by a lever connection consisting of a bar or bars *p*, which are pivoted thereto. The pivots for the front and rear connections are about equally distant from the curved slots. The oscillating levers *g* and *h* have therefore a parallel or nearly parallel relation to each other. From the pivot *b* a connecting fulcrum bar or bars *b'* extends to the middle portions of the connecting-lever *p* in such wise that this connection is held always at the same distance from the pivot *b* at its middle portion. The lower end of the adjusting-lever *c* is provided with a seat or means of attachment for a handle, (indicated at *q*.) Near its front end the upper oscillating lever *g* is provided with a passage *r*, having within it antifriction-rollers *s s*, adapted to engage a regulating-arm *t*, which is rigidly secured to the bar or beam *a* below it and extends upward through such passage and in connection with the fulcrum bar or bars serving to preserve the relative position of the pivotal points of connection of said levers to the power and work in such wise as to keep the power-rod and the work connection in line or as nearly so as the construction will admit. To the fixed portion *a* is secured a toothed rack or holder *v*, designed to be engaged by a latch *z*, connected to the adjusting-lever *c*, such latch being held in position by means of a spring *w* and being capable of adjustment with reference to the teeth of the holder, being provided with an operating-wire or other connection for the purpose. The teeth of the holder are adjusted for such lengths of stroke as may be desirable, and the latch control serves to hold the adjustment.

When attached to a windmill or other power, this device is designed to serve an important purpose in providing for the adjustment of the length of the power-stroke, and in connection therewith that of the work stroke, without stopping the power to which it is attached. It is especially desirable in connection with windmills for pumping water, as it gives the operator the advantage of adjusting the stroke of the pump to suit the force of the wind without leaving the ground or floor level of the windmill, as it can be readily placed in position within easy reach.

Having described this invention, what I claim, and desire to secure by Letters Patent, is—

1. The stroke-adjusting device, consisting of the arc-slotted parallel levers, the adjusting-lever connected to the slots thereof, the

lever connection at the rear ends of said parallel levers, and the fulcrum connection from the middle of such lever connection to the pivot or fulcrum of the adjusting-lever, substantially as specified.

2. The combination, in a stroke-adjusting device, with the pivoted adjusting-lever, of the upper and lower arc-slotted levers, their rear connecting-lever, the fulcrum connection from its middle portion to the pivot of the adjusting-lever, the regulating-arm, and an adjustable latch control, substantially as specified.

3. In means for adjusting the stroke of a reciprocatory rod, connected levers acting with said rod and having arc-shaped slots, and means engaging said slots for relatively changing the fulcrums of said levers to adjust the stroke of said rod, substantially as specified.

4. In means for adjusting the stroke of a reciprocatory rod, having an interrupted portion, levers having a parallel movement connecting the ends of said rod where interrupted, and a controlling-lever for changing the fulcrums of said levers to adjust the stroke of said rod, substantially as specified.

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

LAWRENCE WILLIAMS.

Witnesses:
E. N. MURDOCK,
E. C. KAUFFMAN.