DEVICE FOR CHANGING STROKE ADJUSTMENT OF WINDMILLS.

APPLICATION FILED SEPT. 16, 1904.
To all whom it may concern:

Be it known that I, FRANK S. LAFLIN, a citizen of the United States, residing at Corinne, in the county of Boxelder and State of Utah, have invented new and useful Improvements in Devices for Changing the Stroke Adjustment of Windmills, of which the following is a specification.

This invention relates to improvements in devices for changing the stroke adjustment of windmill-pumps without altering the length of stroke at the mill.

The object of the invention is to provide a pump-stroke-changing device to enable the windmill when being propelled by a light wind to operate the pump by a reduced stroke.

It frequently happens that when the wind becomes light there is not sufficient force to it to revolve the windmill, owing to the fact that there is so much weight to be lifted in the well, which results in no water of any consequence being drawn. I have found, however, that by introducing a device in the pump-rod whereby the stroke of the mill can remain the same but the stroke of the pump be changed that even in a light wind a small volume of water can be drawn, which in time fills the reservoir.

To this end my invention has for its object to provide a device for altering the stroke of a windmill-pump, which consists, primarily, of a rack fastened to one end of the pump-rod and connected to another point of the rod through the instrumentality of an adjusting mechanism capable of being quickly and conveniently adjusted from the ground at the will of an operator to set the stroke of the pump to be in accord with any force of wind.

My invention also comprehends improvements in the specific details of construction to be hereinafter described, and particularly pointed out in the claims.

In the drawings, Figure 1 is a perspective view of my improved device. Fig. 2 is a front elevation of the same. Fig. 3 is a side elevation.

The numeral 1 indicates a portion of a windmill-tower; 2, the crank-shaft of a windmill; 3, the pump-casing, and 4 the pump-rod.

Near the top of the tower the rod 4 is cut into sections 5 and 6, and at the end of the section 5 is fastened a rack-bar 7, while to the upper end of section 6 is fastened a yoke in which is mounted an engaging wheel 8 and a pinion 11. The rack-bar 7 is mounted on a bar of the tower 1, so that it may rock vertically, and its free end is curved up and over and is pivotally secured to the section 5. The curve of the end of the rack-bar is such that the sections 5 and 6 of the pump-rod are in exact vertical alinement when the parts are in normal position. To the upper end of the section 6 is secured the yoke 10, having bearings for the wheels 8 and 11, one of which, 11, is provided with teeth to engage the teeth 12 of the rack 7, while the other wheel 8 bears on the bottom of the bar and acts to relieve friction and form a guiding medium. On the outer end of the pinion-shaft is a sprocket-wheel 15, with which engages a section of sprocket-chain 16, connected by light rods 17 with a similar section of sprocket-chain 18, which passes around a sprocket-wheel 19. The sprocket-wheel 19 is mounted on a shaft of a suitable casing 20, fixed to the rod-section 6, and a handle 21 affords convenient means for revolving the said wheel.

In operation if the wind is blowing with sufficient force to revolve the windmill, and hence give to the pump-rod the required stroke to lift the water, the parts will be arranged as shown in Fig. 1—that is, the sections 5 and 6 of the pump-rod will be in alinement with each other. However, should the force of the wind be such that it will not revolve the windmill because of the lifting of the weight of the pump-rod and its charge of water the full stroke the operator revolves the handle 21, and through the chain-and-rod connection also revolves the sprocket 16 and pinion 11.

By reason of the pinion engaging the teeth of the rack-bar obviously the yoke 10 and its connected parts will move along the said bar. The rack-bar being pivotally connected to the tower, and as the rod-section 6 is supported by the rack-bar, the pivotal connection becomes a fulcrum on which the rod-section 6 swings. As the yoke 10 is moved toward the end of the fulcrum of the rack-bar the stroke of the pump becomes smaller, and therefore the weight incident to its lifting less, and as the revolving of the wind-wheel and its stroke are always the same irrespective of the force of the wind it will be seen that the parts can readily be adjusted to accommodate the wind, and water will be at all times pumped into the reservoir.

My invention is extremely simple in construction and durable in character and is ca...
pable of being adjusted to be in accord with
the varying forces of wind with convenience
and rapidity.

I claim—

1. In combination, a rod in sections, a piv-
oted bar connected to one section, wheels con-
nected to the other section, and means for
moving the wheels on the bar.

2. In combination, a frame, a sectional rod,
a bar pivoted at one end to the frame and hav-
ing its opposite end pivoted to one of the rod-
sections, means on the other rod-section for
engaging the bar, a revolving means mounted
on the rod-section which carries the engaging
means, and means connecting the revolving
means and the engaging means for altering
the position of the said rod-section on the bar
for changing the stroke of said rod-sections.

3. In combination, a rod in sections, a piv-
oted rack-bar connected to one of said sec-
tions, a pinion carried by the other section and
adapted to engage the rack-bar, and mechan-
ism also carried by said latter section for op-
erating the said pinion on the rack-bar.

4. In combination, a rod in sections, a piv-
oted rack-bar connected to one section, the
free end of the bar being curved up and over,
a gear-pinion carried by the other section
and normally in the curved end of the bar,
a wheel adjacent the pinion, a second wheel 30
distant from the first wheel, and a chain con-
necting the two wheels, the movement of said
chain changing the position of the pinion on
the rack to alter its vertical rocking move-
ment.

5. In combination, a frame, a sectional rod,
a bar connected to one section of the rod, a
pivot connecting the bar to the frame, a guide
carried by the other section of the rod, a re-
volving element carried by the guide, and
means turning the revolving element to cause
it to change its position on the bar for alter-
ing the vertical rocking movement of said bar
independently of the stroke of the rod-section
carrying the bar.

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

FRANK S. LAFLIN.

Witnesses:
C. G. ADNEY,
J. M. HARVEY.