No. 891,077. PATENTED JUNE 16, 1908.

J. R. JOHNSON.

PAWL AND RATCHET GEARING.

APPLICATION FILED DEC. 18, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

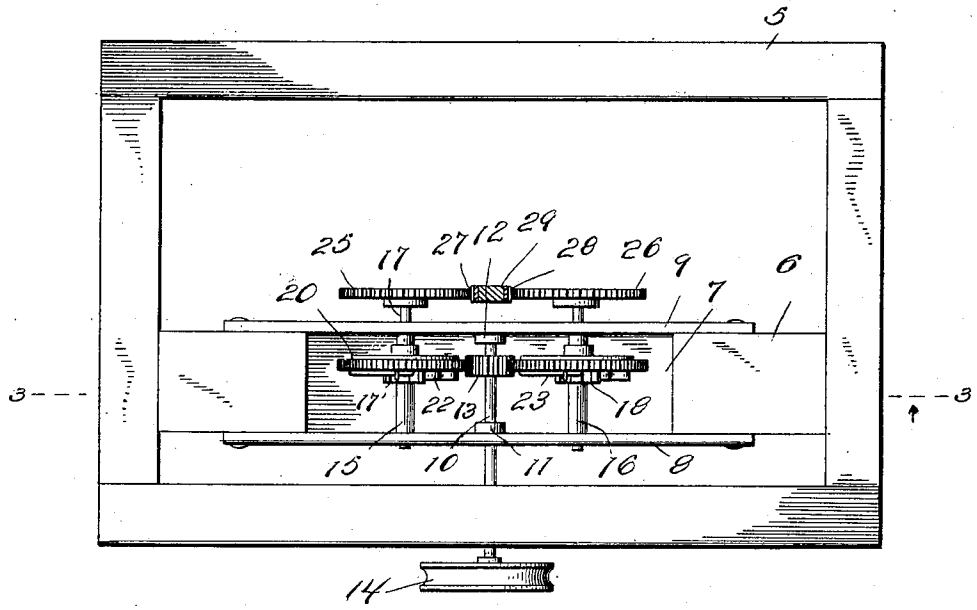
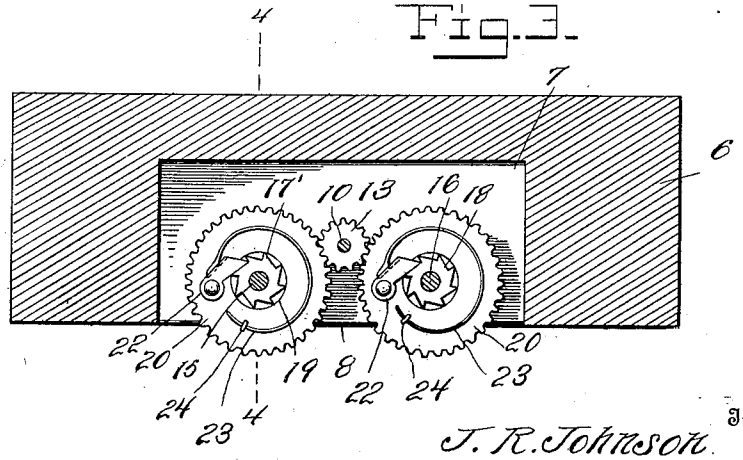


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 2.

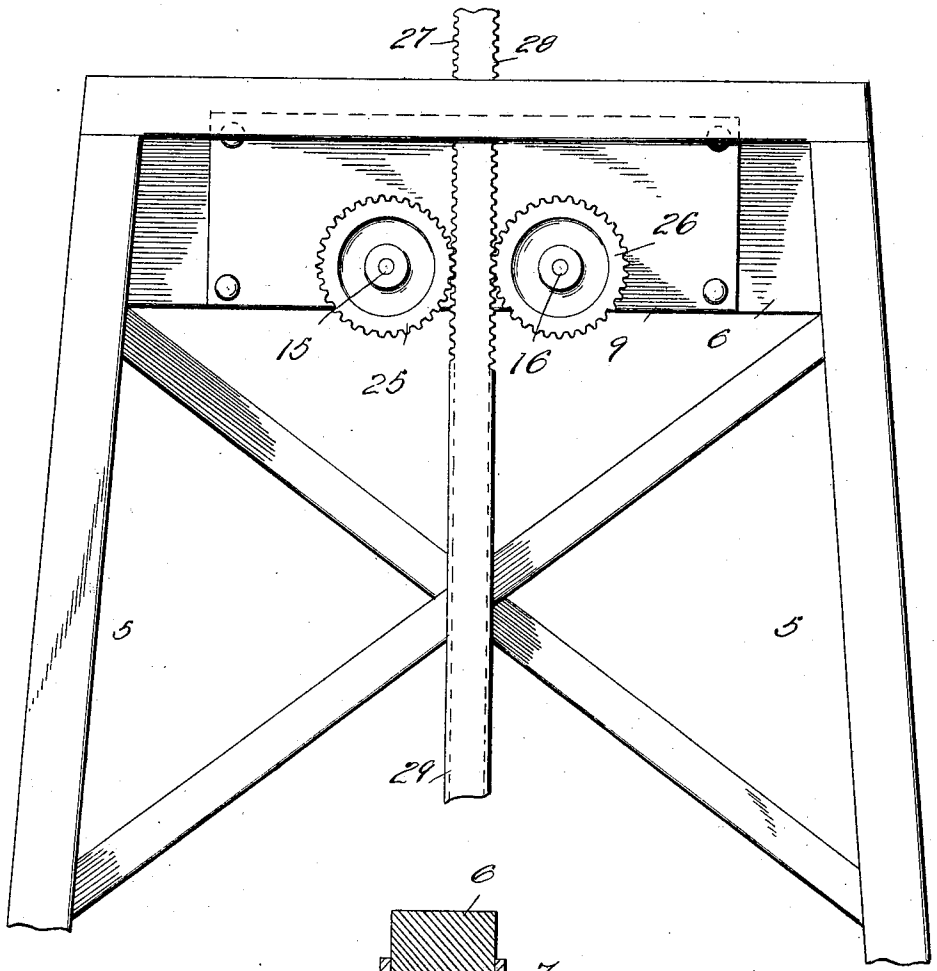
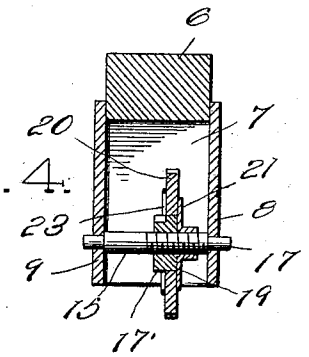


Fig. 4.



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UNITED STATES PATENT OFFICE.

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PAWL-AND-RATCHET GEARING.

No. 891,077. Specification of Letters Patent. Patented June 16, 1908.

Application filed December 18, 1905. Serial No. 292,196.

To all whom it may concern:

Be it known that I, JOHN R. JOHNSON, a citizen of the United States, residing at Homestead, in the county of Richland, State of North Dakota, have invented certain new and useful Improvements in Pawl-and-Ratchet Gearing; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to new and useful improvements in pawl and ratchet gearings and more particularly to a pawl and ratchet gear employed for the purpose of converting reciprocatory into rotary motion and adapted especially for use in connection with wind mill pump rods, as a means for transmitting power therefrom to a driven shaft.

The primary object of the invention is to provide a ratchet gear embodying a novel construction and assemblage of parts specifically including a ratchet wheel and a pinion provided with a pawl and formed to surround a hub extension of the ratchet wheel.

The invention also includes novel means for preventing the pinion from working axially from the said ratchet upon which the greatest strain is placed.

The details of construction will appear in the course of the following description in which reference is had to the accompanying drawings, forming a part of this specification, like characters of reference designating similar parts, throughout the several views, wherein:—

Figure 1 is a bottom plan view showing the application of the ratchet gearing comprehended in the present invention in a train of gearing between a wind-mill pump rod and a shaft driven therefrom. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical sectional view on the line 3—3 of Fig. 1, and, Fig. 4 is a detail vertical sectional view on the line 4—4 of Fig. 3.

Referring to the drawings, the numeral 5 denotes a portion of a windmill frame and 6 a cross beam extending transversely of the same and to one side of the center.

The beam 6 is recessed in its under face as shown at 7 and secured to the side face of the beam are plates 8 and 9 which serve as side walls for the said recess.

Mounted in alining openings in the plates 8 and 9 is a shaft 10 provided with collars 11 and 12 which abut the inner face of the plates 8 and 9 respectively. Mounted upon the shaft 10 intermediate the collars 11 and 12 is a pinion 13. The shaft 10 projects beyond the plate 8 and upon the extreme end of this portion of the shaft is mounted a pulley 14.

Journaled in the plates 8 and 9 upon each side of the shaft 10 and slightly below the same are shafts 15 and 16 which project slightly beyond the plate 9 as shown at 17.

The shafts 15 and 16 are threaded for a portion of their length, and upon the portions thus threaded are mounted ratchet wheels 17′ and 18, each of the said ratchet wheels being provided with an extension 19 upon which is rotatably mounted an annular gear wheel 20 which is held upon said extension by means of a plate 21 threaded upon the shafts and abutting the faces of the gears opposite the ratchet wheels.

Pivoted to each of the annular gears is a dog 22 which is arranged to engage the teeth of the ratchet wheel of its respective gear. Each of the dogs 22 is held normally in engagement with its respective ratchet wheel by means of a spring 23 which is secured as at 24 to the annular gear and which has its free end connected to the upper edge of the dog 22. The dogs 22 have the same relative arrangement upon the two angular gears 20, and the said gears are in mesh with the pinion 13. Mounted upon the extended portions 17 of the shafts 15 and 16 are gears 25 and 26 which are in mesh with series of ratchet teeth 27 and 28 upon opposite sides of a pump rod 29.

When the pump rod 29 is on its downward stroke, the gear 25 is revolved to rotate the shaft 15 and consequently the shaft 10, the shaft 16 being rotated independently of its annular gear. Upon the upward stroke of the rod 29 the operation is reversed, resulting in the shaft 10 being constantly rotated in the same direction.

The operating mechanism being located under the beam 6 and between the plates 8 and 9, is shielded from rain and snow.

The plates 21 positively prevent the gear wheels 20 from working axially from the side of the ratchets upon which the greatest strain is placed and the frictional resistance of the pawls prevents said gear wheels from working off in an opposite direction.

What is claimed, is:

The combination with a shaft and means for rotating said shaft alternately in opposite directions, said shaft being threaded for

a portion of its length, of a ratchet wheel mounted upon said threaded portion, said ratchet wheel being formed with an annular extension, a driving gear loosely mounted on said extension, a plate mounted upon said threaded portion and bearing against the side of said driving gear adjacent said extension, and a spring pressed displaceable pawl mounted upon the other side of said driving gear for engagement with said ratchet wheel.

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

JOHN R. JOHNSON.

Witnesses:
ERIK SOODE,
JOHN LANDON.