J. N. ST. MARY.

POWER TRANSMITTING MECHANISM.

APPLICATION FILED NOV. 21, 1908.

916,624.

Patented Mar. 30, 1909.

2 SHEETS—SHEET 1.

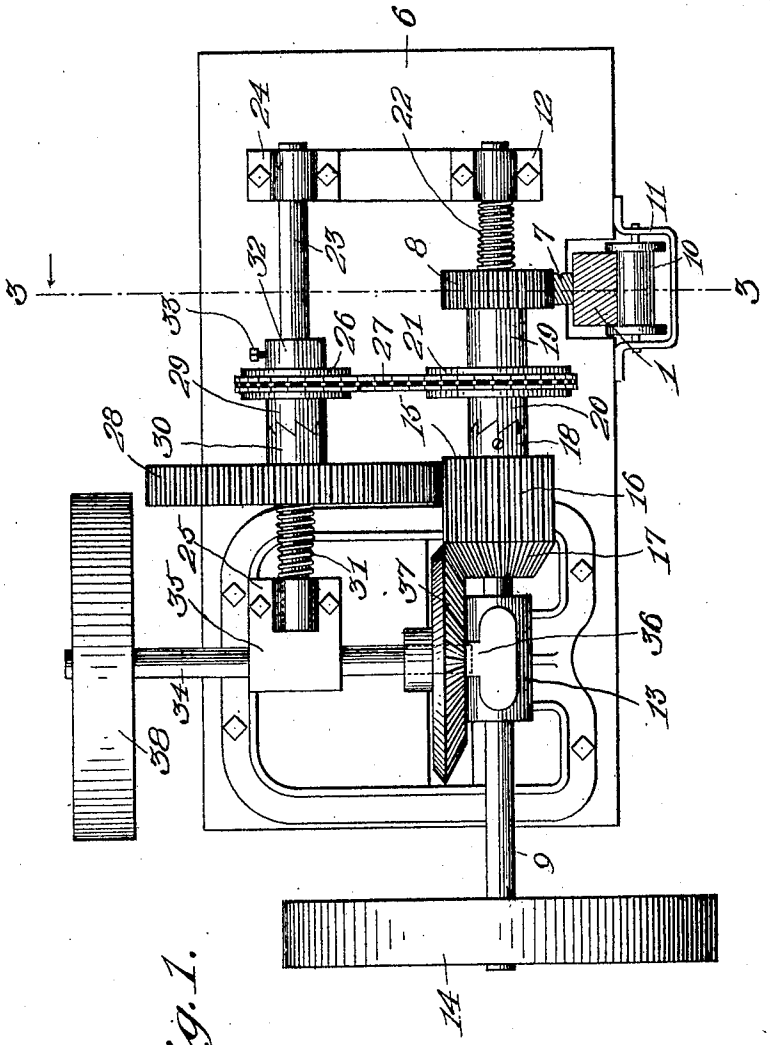


Fig. 1.

Witnesses

James F. Crowe

Mina L. Martin.

Inventor

John N. St. Mary

By Watson E. Coleman

Attorney

THE NORRIS PETERS CO., WASHINGTON, D. C.

J. N. ST. MARY.

POWER TRANSMITTING MECHANISM.

APPLICATION FILED NOV. 21, 1908.

916,624. Patented Mar. 30, 1909.

2 SHEETS—SHEET 2.

Fig. 2.

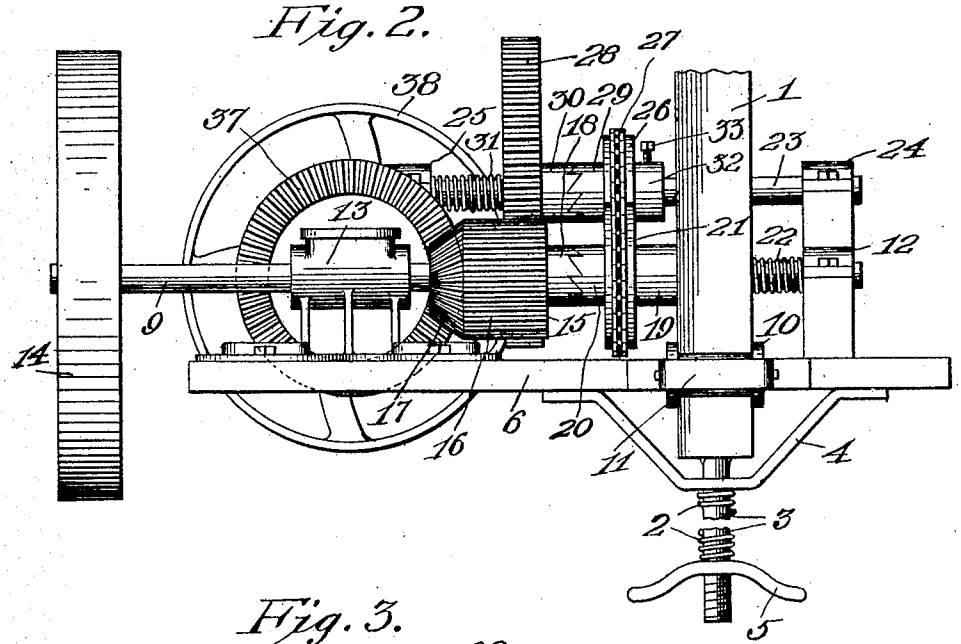
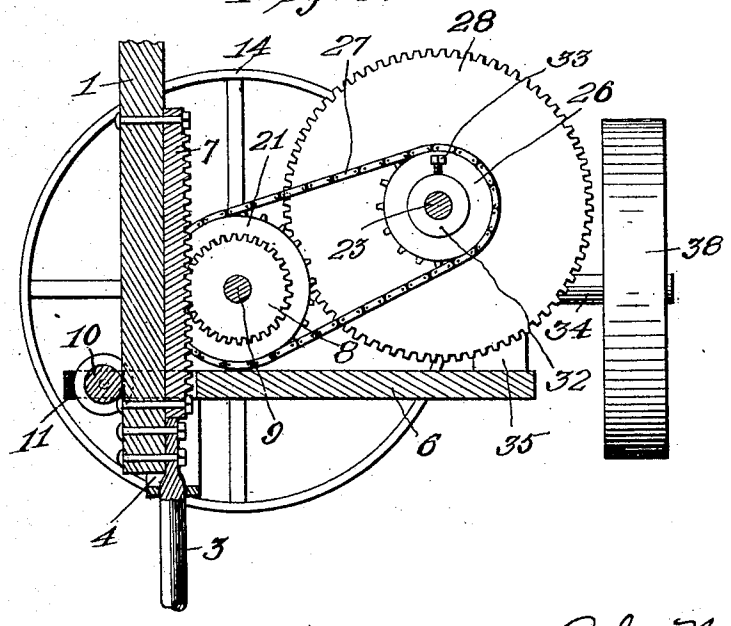


Fig. 3.



Witnesses

James F. Crown

Mrs L. Martini.

Inventor

John N. St Mary

By Watson E. Coleman

Attorney

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN N. ST. MARY, OF CALEDONIA, MINNESOTA.

POWER-TRANSMITTING MECHANISM.

No. 916,624. Specification of Letters Patent. Patented March 30, 1909.

Application filed November 21, 1908. Serial No. 463,901.

To all whom it may concern:

Be it known that I, JOHN N. ST. MARY, a citizen of the United States, residing at Caledonia, in the county of Houston and State of Minnesota, have invented certain new and useful Improvements in Power-Transmitting Mechanism, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in power transmitting mechanisms and more particularly to a device or mechanical movement for converting the reciprocatory movement of a windmill rod or the like into rotary motion.

The object of the invention is to improve the construction and operation of devices of this character and thereby render the same more practical and efficient and less expensive.

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 the accompanying drawings, in which—

Figure 1 is a plan view of the improved motion converting device; Fig. 2 is a side elevation of the same; and Fig. 3 is a vertical transverse section taken on the plane indicated by the line 3—3 in Fig. 1.

In the drawings 1 denotes a reciprocatory windmill rod or any equivalent reciprocatory element, the motion of which it is desired to convert into rotary motion. When said element 1 is a windmill rod, a coil spring 2 is preferably employed for assisting said rod in making its downward stroke. This spring is arranged upon a rod 3 secured to and depending from the lower end of the windmill rod and is confined between a bracket 4 and an adjusting nut 5, the latter being arranged on the threaded end of the rod 3. The bracket 4 is here shown provided upon a support 6 on which the motion converting device is mounted.

Fixed to the windmill rod 1 is a rack 7 which meshes with a gear 8 loose on a shaft 9. The rack is held against the pinion by means of an anti-friction roller 10 journaled in a bracket 11 on the support 1 and said rack is adapted to rotate the gear 8 alternately in opposite directions as the windmill rod is reciprocated. The shaft 9 is journaled in bearings 12, 13 and is adapted to rotate continuously in one direction, one of its ends being provided with a fly wheel 14.

Fixed to the shaft 9 by any suitable means is a member 15 having its intermediate portion shaped to provide a cog wheel or pinion 16, one of its ends shaped to provide a beveled pinion or gear 17 and its other end to provide a clutch member 18. The gear 8 is formed integral with another member 19 which is loose on the shaft so that it may rotate freely and slide longitudinally, and which has formed integral with it a clutch member 20 and a sprocket wheel or gear 21. A coil spring 22 arranged on the shaft 9 and confined between the bearing 12 and the member 19 actuates said member longitudinally on the shaft to maintain the co-acting clutch members 18, 20 in engagement with each other so that upon the down stroke of the windmill rod the movement of the member 19 will be imparted to the member 15 and hence to the shaft 9.

23 denotes a countershaft mounted in bearings 24, 25 on the support 6. Loose on this shaft is a sprocket wheel or pinion 26 connected by a sprocket chain 27 to the sprocket wheel 21 and also a spur wheel or gear 28 which meshes with the pinion or gear 16. The sprocket wheel 26 and the gear 28 carry co-acting clutch members 29, 30 which are maintained in engagement with each other by a coil spring 31 arranged on the shaft 23 and confined between the gear 28 and the bearing 25. The sprocket wheel 26 is prevented from shifting longitudinally by a collar 32 fixed on the shaft 23 by a set screw 33. The gearing just described is provided for the purpose of transmitting motion from the windmill rod to the shaft 9 when the windmill rod makes its up stroke, as presently explained. The motion of the shaft 9 is imparted to a driven shaft 34 preferably arranged at right angles to the shaft 9 and journaled in bearings 35, 36. Fixed to the shaft 34 is a beveled gear 37 which meshes with the beveled pinion 17 and also fixed to the outer end of said shaft 34 is a belt wheel 38 or any equivalent means for transmitting the motion of said shaft.

In operation, as the windmill rod reciprocates the gear 8 and hence the member 19 will be rotated first in one direction and then in the other on the shaft 9. Owing to the clutch members 18, 20 the movement of the member 19 when the windmill rod makes its

down stroke will be imparted to the shaft 9 and when the windmill rod makes its up stroke said member 19 will be rotated in the opposite direction and it will slip longitudinally on the shaft and not communicate its motion to the member 15 nor interfere with the rotation of the same with the shaft 9 under the momentum created by the fly wheel 14. When said member 19 is rotated on the up stroke of the piston, the sprocket chain 27 will impart the motion of said member to the sprocket wheel 26 and the latter through the clutch members 29, 30 will cause the gear 28 to be rotated and to impart motion to the pinion 16 of the member 15, the latter being rotated in the same direction in which it was rotated by the member 19 and, consequently, the shaft 9 is continuously rotated in one direction and its motion imparted by the beveled gears 17, 37 to the driven or belt wheel shaft 34.

Having thus described the invention what is claimed is:

1. The combination of a reciprocatory element, a rack carried by the reciprocatory element, a shaft, a member loose on the shaft and a gear carried thereby to mesh with the rack, a second member fixed to the shaft, a ratchet connection between the members, a countershaft, meshing gears on the two shafts, the one on the countershaft being loose, a sprocket wheel and an element on the countershaft, a ratchet connection between said element and said gear on the countershaft, and means for imparting the motion of the loose member on the first mentioned shaft to said sprocket wheel on the countershaft.

2. The combination of a reciprocatory element, a rack carried by the reciprocatory element, a shaft, a member loose on the shaft and a gear carried thereby to mesh with the rack, a second member fixed to the shaft, a ratchet connection between the members, a countershaft, meshing gears on the two shafts, the one on the countershaft being loose, a sprocket wheel carried by the loose member on the first mentioned shaft, a sprocket wheel upon the countershaft, a sprocket chain connecting said sprocket wheels, and a ratchet connection between the gear and the sprocket wheel on the countershaft.

3. The combination of a reciprocatory element, a rack carried by the reciprocatory element, a shaft, a member loose on the shaft and a gear carried thereby to mesh with the rack, a second member fixed to the shaft, a ratchet connection between the members, a countershaft, meshing gears on the two shafts, the one on the countershaft being loose, a sprocket wheel carried by the loose member on the first mentioned shaft, a sprocket wheel upon the countershaft, a sprocket chain connecting said sprocket wheels, a ratchet connection between the gear and the sprocket wheel on the countershaft, a fly wheel on the first mentioned shaft, a driven shaft and meshing beveled gears on the driven shaft and the first mentioned shaft.

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

JOHN N. ST. MARY.

Witnesses:
THOS. BURKLY,
JOHN SHEEHY.