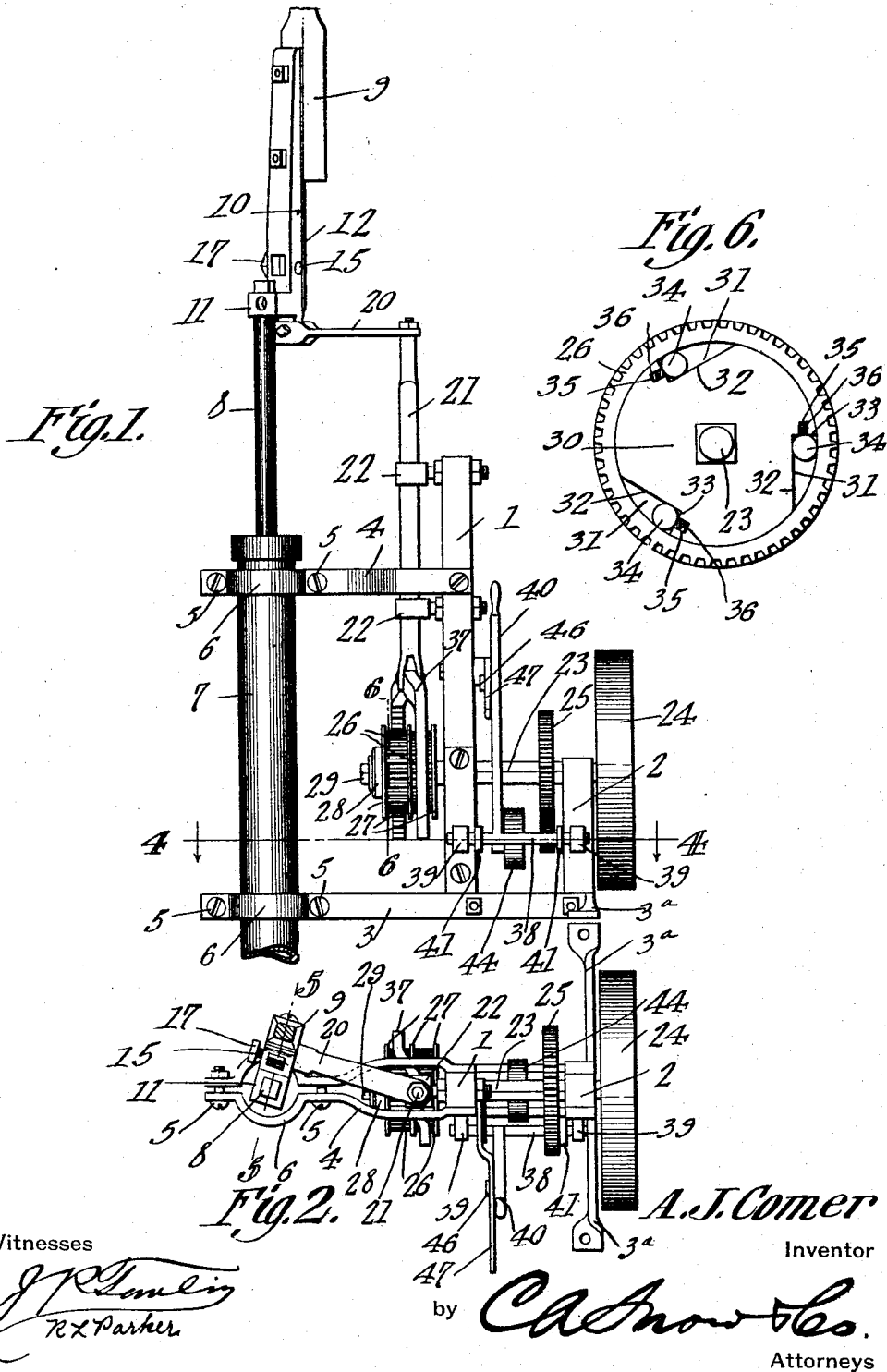


1,220,196.

A. J. COMER.
WINDMILL ENGINE.
APPLICATION FILED NOV. 10, 1915.

Patented Mar. 27, 1917.
2 SHEETS—SHEET 1.



Witnesses

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2 SHEETS--SHEET 2.



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UNITED STATES PATENT OFFICE.

ANDREW J. COMER, OF CULLISON, KANSAS.

WINDMILL-ENGINE.

1,220,196.

Specification of Letters Patent.

Patented Mar. 27, 1917.

Application filed November 10, 1915. Serial No. 60,724.

To all whom it may concern:

Be it known that I, ANDREW J. COMER, a citizen of the United States, residing at Cullison, in the county of Pratt and State of Kansas, have invented a new and useful Windmill-Engine, of which the following is a specification.

The present invention appertains to mechanical movements, and aims to provide a novel and improved mechanism for connection with the reciprocatory rod of a windmill, in order that the reciprocation of said rod can be utilized for operating a churn, or any other suitable device or contrivance, in order that the energy of the wind can be utilized for useful purposes.

It is the object of the invention to provide a novel and improved attachment applicable to the pump standard and windmill rod, and embodying novel means whereby the reciprocation of said rod imparts a rotatory movement to a pulley wheel which can be belted to a churn, electric current generator, or the like.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a side elevation of the attachment as applied.

Fig. 2 is a plan view thereof.

Fig. 3 is an enlarged fragmental elevation of the attachment, the line of view being at right angles to the line of view in Fig. 1.

Fig. 4 is an enlarged horizontal section taken on the line 4—4 of Fig. 1.

Fig. 5 is an enlarged sectional detail taken on the line 5—5 of Fig. 2, illustrating the coupling connecting the pump and windmill rods.

Fig. 6 is an enlarged sectional detail taken on line 6—6 of Fig. 1 to illustrate one of the ratchet devices.

In carrying out the invention, there is employed a suitable frame for supporting the working parts of the attachment, said frame embodying a relatively long standard 1 and

a relatively short standard 2, in connection with lower and upper pairs of bars or straps 3 and 4, respectively, projecting to one side and attached to the standard 1. A pair of bolts or other clamping elements 5 is engaged through each pair of said bars, and said bars are provided with separated curved portions 6 between the bolts 5 for snugly receiving the standard or casing 7 of the windmill pump, whereby when the bolts 5 are tightened, the bars 3—4 are clamped to the pump standard to act as brackets or braces for supporting the frame of the attachment with the standard 1 at any side of the pump. The remote ends of the bars 3 are preferably provided with angular terminals 3^a which may be bolted or otherwise fastened upon the floor or base.

The pump or sucker rod 8 which extends through the standard or casing 7, is coupled at its upper end to the lower end of the reciprocatory windmill rod 9, and to this end, a coupling or casting 10 is bolted or otherwise attached to the lower end of the rod 9 and has a loop 11 for receiving the upper end of the rod 8. A depending leaf spring 12 is secured between the rod and upper end of the coupling 10 and is provided at its lower end with an angularly extending latch pin 13 working in an aperture 14 in the coupling 10 adjacent the loop 11, whereby the spring 12 normally projects the latch pin 13 into an aperture of the rod 8 to attach said rod 8 to the coupling. In order to readily release the latch pin 13, a rock shaft 15 is carried by the coupling 10 and has a cam 16 within an opening with which the coupling 10 is provided adjacent the spring 12, one end of the shaft 15 having a hand piece 17 which can be swung, so that the cam 16 flexes the spring 12 outward to release the latch pin 13 from the rod 8. This allows the rods 8 and 9 to be detached and separated, to disconnect the windmill proper from the pump.

The lower end of the coupling 10 is provided with a depending ear 18 to which is attached by means of a bolt or securing element 19 a horizontal arm 20 having its other end pivotally engaged to the upper end of a reciprocatory rod 21 mounted for sliding movement between the bars 4 in guides or bearings 22 attached to the standard 1. The arm 20 is pivoted to the upper end of the rod 21 to swing in a horizontal plane, while said

rod 21 is slidable vertically, so that when the rod 9 is reciprocated, the rod 21 will also be reciprocated likewise.

The reciprocation of the rod 21 is utilized for rotating a horizontal shaft 23 journaled through the standards 1 and 2 and having one terminal projecting below the rod 21, a fly wheel 24 being secured upon the other terminal of the shaft 23. A gear wheel 25 is secured upon said shaft between the standards, and a pair of annular gears or toothed rims 26 are mounted loosely upon the shaft 23 below the rod 21. These annular gears 26 are disposed between disks or plates 27 mounted loosely upon the shaft 23, to hold said gears in place, and the outermost disk 27 is held upon said shaft 23 by means of a washer 28 and a nut 29 threaded upon the shaft and hold the washer 28 in place.

The gears 26 are connected by ratchet devices with the shaft 23, and to this end a wheel or disk 30 is provided for each of the gears 26, the gear being mounted for rotation upon said wheel, and said wheels being keyed or otherwise secured upon the shaft 23 so as to be rigid therewith. Each of the wheels 30 is provided in its periphery with recesses 31 forming spiral surfaces 32 merging or vanishing into the periphery of the wheel, and shoulders 33 at the deeper ends of the recesses 31 or at the inner ends of the walls 32. Rollers or balls 34 are disposed within the recesses 31 to bind wedgedly between the walls 32 and gear 26, said rollers being released when they are moved adjacent the shoulders 33. Said shoulders are provided with recesses 35 in which coiled wire expansion springs 36 are seated, said springs tending to move the rollers 34 away from the shoulders to bind between the walls 32 and gear 26. When the gear 26 is rotated clockwise, as seen in Fig. 6, the gear 26 will tend to roll the rollers 34 in the same direction, whereby said rollers assisted by the springs 36 will bind between the gear and wheel 30 to cause said wheel to rotate with the gear. When the gear 26 is rotated in the opposite direction, the rollers 34 are moved toward the shoulders 33 whereby the gear 26 turns without turning the wheel 30. The wheels or disks 30 of the two gears 26 are in reversed positions, so that the gears 26 in being rotated in opposite directions will impart a practically continual rotatory movement to the shaft 23. Thus, the gears 26 in being rotated in opposite directions back and forth are operable to rotate the shaft 23 in one direction.

In order to connect the gears 26 and rod 21, a double rack 37 of inverted U-shape straddles the gears 26 and has its limbs or rack portions meshing with the gears 26 at opposite sides thereof, so that when the rack 37 is reciprocated, the gears 26 are rotated in opposite directions. The bend or inter-

mediate portion of the rack 37 is pivoted to the lower end of the rod 21. Consequently, when the rod 21 is reciprocated, the shaft 23 is rotated in one direction.

In order to connect the shaft 23 with the device to be operated, the rock shaft 38 is journaled in bearings 39 attached to the standards 1—2 below the shaft 23, and the rock shaft 38 has an upwardly projecting hand lever 40, and a pair of arms 41 projecting between said standards and having a short horizontal counter shaft 42 journaled through the free ends thereof. The terminals of the counter shaft 42 are movable vertically in vertical slots 43 with which the standards are provided below the shaft 23. A pulley wheel 44 is keyed upon the counter shaft 42, and also a gear wheel or pinion 45 which is arranged to mesh with the gear wheel 25 when the counter shaft 42 is raised. By swinging the hand lever 40, the rock shaft 38 can be oscillated for raising and lowering the counter shaft 42 to connect and disconnect the counter shaft and shaft 23. The wheel 44 can be belted to the churn, dynamo, or other device, and by operating the lever 40, the churn or other device can be readily connected to and disconnected from the driving shaft 23.

The lever 40 is provided adjacent its upper end or handle with an outstanding pin or lug 46 and a latch lever 47 is fulcrumed to the standard 1 and has a pair of notches 48 engageable with the lug 46, whereby the lever 40 can be held in either position with the gear wheel 45 in or out of mesh with the gear wheel 25. The latch lever 47 can be readily lifted to release the lever 40.

The present attachment provides admirable means for operating a churn or other device from a windmill, and the numerous advantages of the mechanism will be obvious from the foregoing taken in connection with the drawings without further comment being necessary.

Having thus described the invention, what is claimed as new is:

1. A windmill engine embodying a standard, upper and lower bars attached to and extending to one side from said standard and having clamps at their free ends for embracing the casing of a windmill pump to hold said standard at any side of the pump, a vertically reciprocatory rod adjacent to said standard, guides for said rod carried by the standard, a horizontal arm pivoted to the upper end of the rod and attachable at its free end to the windmill rod, a horizontal shaft journaled through said standard, and an operative connection between said rod and shaft.

2. A windmill engine embodying a standard, upper and lower pairs of bars attached to said standard and extending to one side therefrom, said bars having separated

curved portions adjacent to their free ends
for embracing the casing of a windmill
pump, means for connecting the bars of the
two pairs for causing said portions to clamp
5 the casing, said bars holding the standard
at any side of the pump, a vertical recipro-
catory rod adjacent to the standard and be-
tween the bars of the upper pair, guides for
said reciprocatory rod carried by the stand-
10 ard, a horizontal arm pivoted to the upper
end of the reciprocatory rod and attachable
at its free end to the windmill rod, a hori-
zontal shaft journaled through said stand-
ard between the upper and lower pairs of

bars, a pair of gears rotatable in opposite 15
directions and mounted upon said shaft,
ratchet devices for connecting said gears
and shaft in opposite directions, and a
double rack attached to the lower end of the
reciprocatory rod and straddling and mesh- 20
ing with said gears.

In testimony that I claim the foregoing
as my own, I have hereto affixed my signa-
ture in the presence of two witnesses.

ANDREW J. COMER.

Witnesses:

L. M. HUTCHISON,
ROY L. MILLER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."