

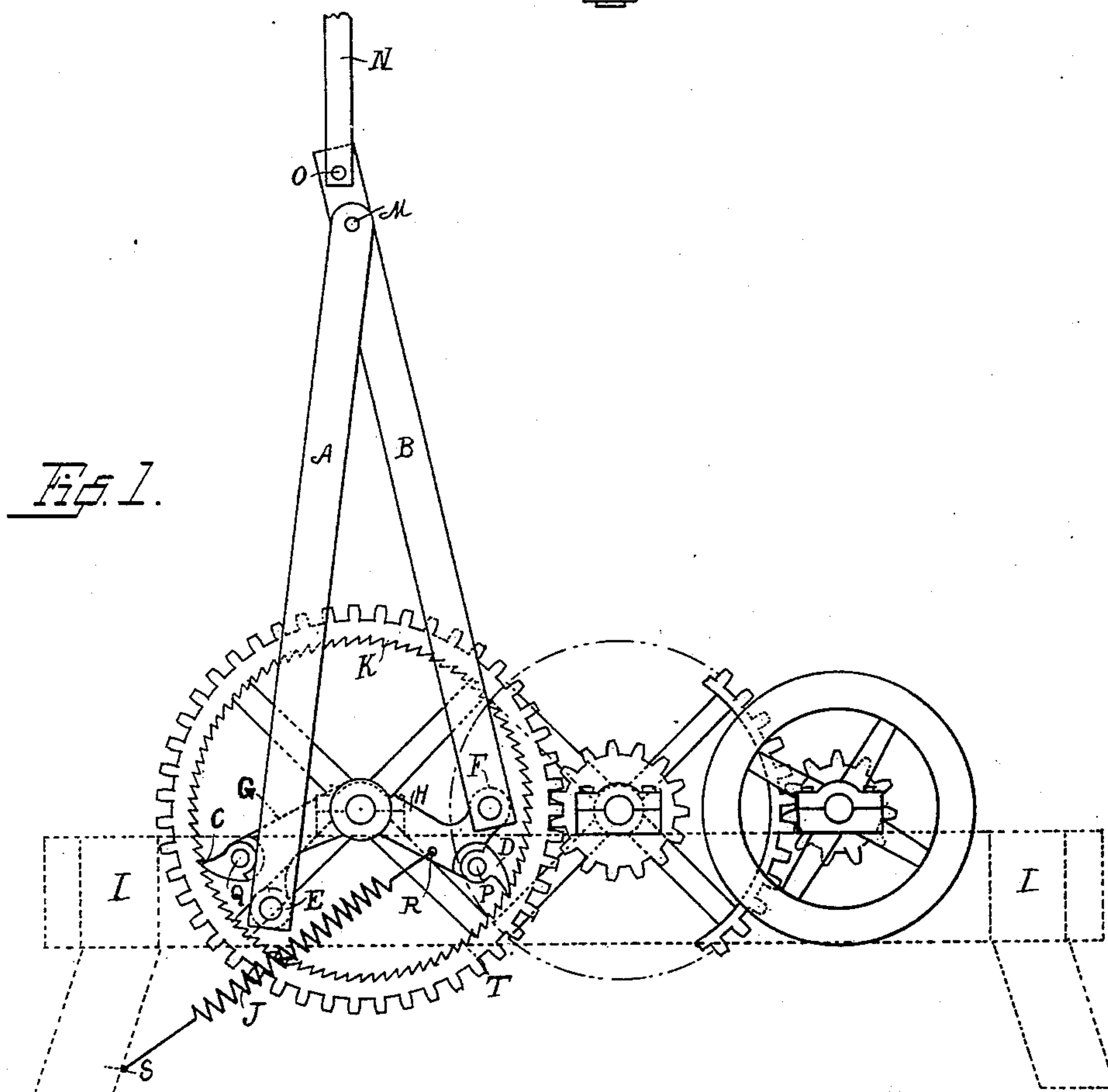
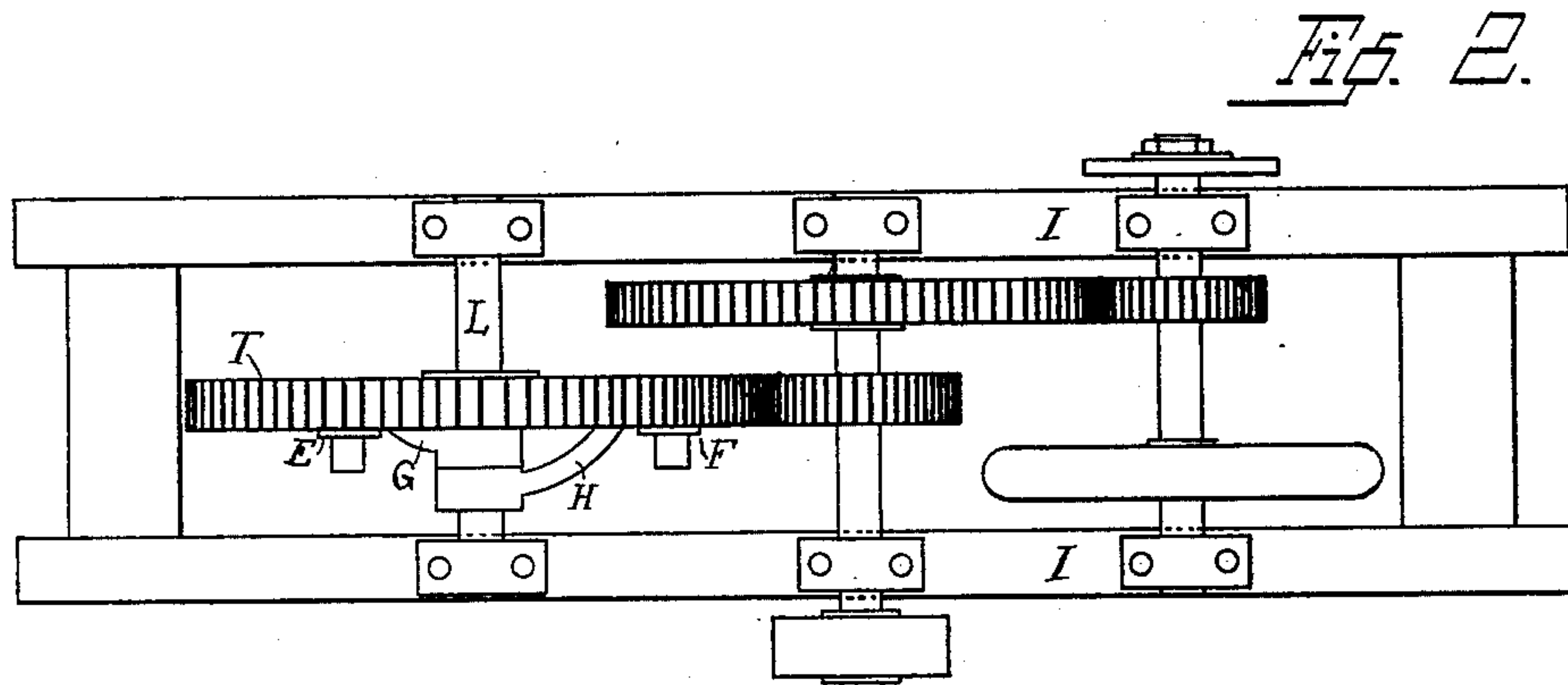
No. 630,899.

Patented Aug. 15, 1899.

L. KNOPF.
POWER TRANSMITTING MECHANISM.

(Application filed Mar. 13, 1899.)

(No Model.)



Witnesses.

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UNITED STATES PATENT OFFICE.

LOUIS KNOFF, OF LANSING, IOWA.

POWER-TRANSMITTING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 630,899, dated August 15, 1899.

Application filed March 13, 1899. Serial No. 708,930. (No model.)

To all whom it may concern:

Be it known that I, LOUIS KNOFF, a citizen of the United States, residing at Lansing, Al-
lamakee county, State of Iowa, have invented
5 certain new and useful Improvements in
Power-Transmitting Mechanism, of which the
following is a specification.

My invention relates to improvements in
power-transmitting mechanism, with especial
10 reference to the use of windmill-power.

The object of my invention is to provide a
form of mechanism specially adapted for use
in connection with windmills, with means for
relieving the strain upon the long connecting-
15 rod during the downward stroke, whereby vi-
bration or lateral bending of such rod may
be avoided, regard being also had for econ-
omy in the application of the power and for
the adaptation of the invention to windmills
20 of ordinary construction.

In the following description reference is
had to the accompanying drawings, in which—

Figure 1 is a side view of the driving-wheel
and gearing to which the motion of the wind-
25 mill is to be communicated, showing the pawl-
arms and the connecting pivot-bolts of the
pitmen. Fig. 2 is a plan view of the same.

Like parts are identified by the same refer-
ence-letters in both views.

30 Pitman-rods A and B are pivotally secured
together at M and connected at their lower
ends to branches E and F of the pawl-arms
G and H, the latter being loosely supported
on the shaft L of the driving gear-wheel T.
35 The gear-wheel T is provided with internal
ratchet-teeth K, with which pawls or dogs C
and D, carried by the arms G and H, are
adapted to engage. The pawls are pivotally
secured to the arms at P and Q, respectively,
40 and are arranged to engage the ratchet-teeth
when driven in the direction of movement of
the gear-wheel T—i. e., the left-hand pawl C
is adapted to engage the ratchet-teeth during
the upward stroke, and the right-hand pawl
45 D will engage the ratchet during the down-
ward stroke of their respective pawl-arms.
Each of the pawls is provided with a shoulder
adapted to engage the end of the pawl-arms
to limit the backward movement of the pawls,
50 while permitting them to oscillate in the di-
rection of motion, it being understood that
the pawls are held in position to engage the

ratchet-teeth by any suitable device, such as
are commonly employed in connection with
such mechanism.

The pitman B is secured to the connecting-
rod N of the windmill at o, so that the upward
movement of the latter is communicated to
the gear-wheel T through the pitmen B and
A, pawl-arms G, and dogs C, and the down- 60
ward stroke is similarly communicated to the
gear-wheel through the pitman B, pawl-arm
H, and pawl D. The application of power
from the rod N is thereby rendered substan-
tially continuous. 65

It will be observed that by connecting the
pitmen A and B to the branches E and F of
the pawl-arms I am able to secure a long pit-
man stroke within the gear-wheel T in the
arc of maximum leverage. This feature is 70
of especial importance where the power is
supplied by a windmill, owing to the loss of
power by slippage where the pitmen are per-
mitted to approach the line of centers.

It will be observed that the pawl-arm H is 75
connected to the frame I by a spring J, which
is attached to the pawl-arm and frame at the
points R and S, respectively. During the
upward stroke of the connecting-rod N the
spring J is extended, and by its reaction on 80
the downward stroke relieves the strain on
the rod N. This feature is also important
owing to the fact that the rod N is necessarily
long, and consequently apt to bend or vibrate
in its bearings during the downward stroke, 85
while by the use of the spring J the maxi-
mum duty is performed during the upward
stroke, the work being proportioned to the
relative strength of the rod in drawing or
pushing the load. 90

In the construction shown the wheel T con-
stitutes the driving-wheel in a chain of gears
through which motion may be communicated
to the point of use. These can obviously be
arranged in any manner suitable for the pur- 95
pose.

Having thus described my invention, what
I claim as new, and desire to secure by Letters
Patent, is—

1. The combination, with the connecting- 100
rod of a windmill; of a gear-wheel provided
with an internal ratchet; a pair of pawl-arms
loosely supported by the gear-wheel shaft;
pawls secured to said arms and arranged

to engage said ratchet on opposite sides to
actuate the gear-wheel; pitman-rods respec-
tively connecting the pawl-arms with the con-
necting-rod of the windmill; and a spring se-
cured to the frame, and connected with the
downwardly-acting pawl-arm, substantially
for the purpose set forth.

2. The combination, with the connecting-
rod of a windmill; of a gear-wheel provided
with an internal ratchet; a pair of pawl-arms
loosely supported by the gear-wheel shaft and
branched at their outer ends; a pawl secured
to one of the branches of each pawl-arm, said

pawls being arranged to engage the ratchet
on opposite sides, to actuate the gear-wheel;
pitman-rods respectively secured to the other
branches of said pawl-arms and connecting
the same with the windmill connecting-rod;
and a spring connecting the downwardly-act-
ing pawl-arm with the windmill-frame, sub-
stantially for the purpose set forth.

LOUIS KNOPE.

Witnesses:

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