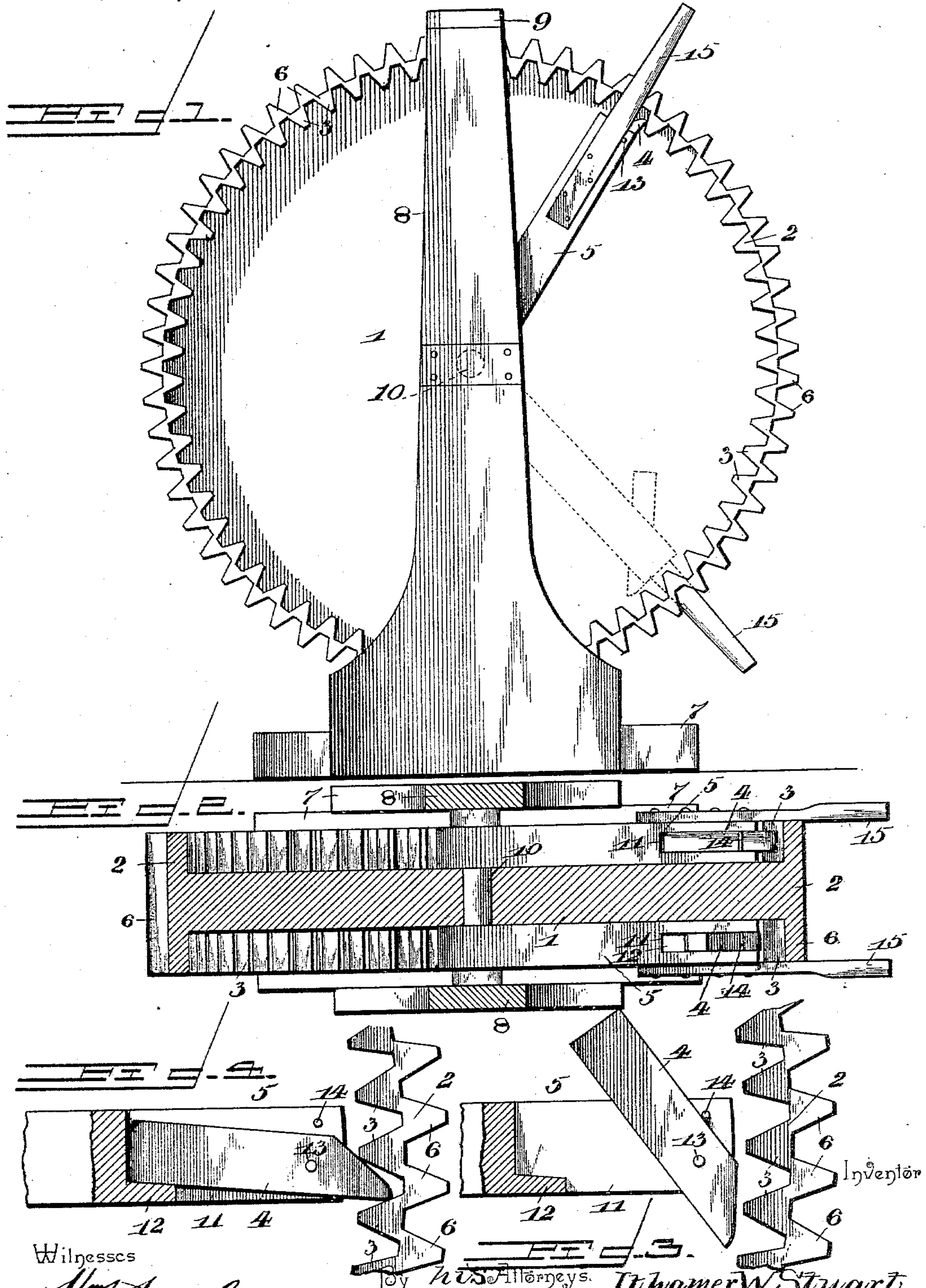


(No Model.)

I. W. STUART.
POWER WHEEL.

No. 566,632.

Patented Aug. 25, 1896.



Witnesses

H. F. Doyle.
U. B. Hillyard.

By his Attorneys.

I. W. Stuart.

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

ITHAMER W. STUART, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF
TO HENRY TURNER, OF SAME PLACE.

POWER-WHEEL.

SPECIFICATION forming part of Letters Patent No. 566,632, dated August 25, 1896.

Application filed April 24, 1895. Serial No. 547,026. (No model.)

To all whom it may concern:

Be it known that I, ITHAMER W. STUART, a citizen of the United States, residing at St. Louis, State of Missouri, have invented a new and useful Power-Wheel, of which the following is a specification.

My invention relates to a power or driving wheel for manually-operated motors, and has for its object to provide a simple construction, combination, and arrangement of parts whereby the binding or interference thereof with each other in operation is prevented and, furthermore, to provide efficient and positively-operating means for communicating motion from oscillatory members or levers to a rotary member or wheel without causing appreciable thrust in either of the parts.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claim.

In the drawings, Figure 1 is a side view of a motor constructed in accordance with my invention. Fig. 2 is a horizontal section of the same, showing the operating-levers in plan. Fig. 3 is a detail view of one of the clutch-pawls and the contiguous parts of the lever and wheel-rim, the pawl being shown in its detached or inoperative position. Fig. 4 is a view similar to Fig. 3, showing the pawl in its operative or engaged position.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

My invention is applied to a motor of the class in which is employed a rotary member, as a wheel, and pivotal coaxially-mounted operating-levers which are adapted to intermittently and alternately engage or clutch the wheel, or a fixed part thereof, to impart a continuous motion to the rotary member in a uniform direction, and in order to avoid thrust in a direction parallel with the operating-levers during the communication of motion from said lever to the rotary member, and also avoid both radial and lateral thrust or strain upon the rotary member at the moment of engagement between the parts, I have adopted a construction including a wheel having a web or body portion 1 and an inter-

nally-toothed rim 2, which projects laterally in opposite directions from the plane of the web, the teeth 3 being adapted for engagement by clutch-pawls 4, carried by the operating-levers 5.

Any suitable means may be provided for communicating motion from the rotary member of the improved motor to the mechanism to be operated, such as gear-teeth 6, which are externally disposed upon the rim.

It is obvious that in case of desiring to use a belt as the means for communicating motion the exterior surface of the rim may be constructed to adapt it to be traversed by a belt.

The rotary member is mounted in a suitable frame which, in the construction illustrated, includes a base 7, side uprights 8, and a cross-bar 9, connecting the upper ends of the uprights, and the axle 10 of the rotary member is mounted at its extremities in suitable bearings in said uprights, the inner surfaces of the uprights being spaced apart a distance slightly in excess of the width of the rim.

Mounted upon the exposed portions of the axle or shaft 10, between the plane of the web and the inner surfaces of the uprights, and adapted to turn freely thereon, are the operating-levers 5, above mentioned, and the outer surfaces of these levers are approximately flush with the lateral edges of the rim of the wheel, the width of the levers being approximately equal to the projection of said rim beyond the side surfaces of the web. The levers are provided at their outer ends with longitudinal slots 11 for the reception of the pawls 4, said pawls being pivotally mounted and having beveled extremities projecting beyond the outer ends of the levers to engage the internal gear-teeth. These pawls, when in engaging position, are approximately in alinement with the levers, or are radially disposed with relation to the rotary member or wheel, whereby during the transmission of motion from a lever to the rotary member the pressure of the outer extremity of the pawl upon the engaged tooth of the internal gear is in a direction parallel with a tangent of the wheel. Thus there is radial thrust neither toward nor from the shaft, and hence

binding of either the lever or the wheel, or increased friction due to pressure caused by the temporary engagement of the lever with the wheel, is avoided.

5 The means which I have shown for maintaining the pawl in its operative or engaging position is a fixed stop 12, located at the inner end of the slot 11, the pawl being pivoted at an intermediate point and projecting a greater
10 distance in rear of, or inwardly from, its pivot than in the opposite direction to cause a preponderance of weight at the inner end, and thus insure the return of the pawl by gravity to its operative position. In order
15 to limit the swinging movement of the pawl in the opposite direction, I employ a limiting-pin 14, located in the slot in rear of the pawl, as clearly shown in Figs. 3 and 4.

Any suitable means for communicating
20 oscillatory movement to the operating-levers may be employed, but in order to adapt the device for operation by hand I attach handles 15 to the outer surfaces of the levers and adapted to operate contiguous to the lat-
25 eral edges of the rim of the wheel, this arrangement serving to limit the lateral play of the levers and prevent frictional contact thereof with the surface of the web of the wheel.

30 From the above description it will be seen that by employing a wheel of considerable weight it can be used for storing power and expending it continuously to produce a uniform and steady motion, the same not being
35 materially affected by abrupt variations in the load.

It will be understood that any ordinary

mechanism for reversing the motion of a rotating part may be employed to reverse the direction of movement of the wheel embodied
40 in my improved motor, and that various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention. 45

Having described my invention, what I claim is—

A motor having a wheel provided with an internally-toothed rim which extends laterally in opposite directions from the plane of a
50 web forming its body portion, operating-levers mounted coaxially with the wheel within the circumference of said rim and approximately equal in width to the projecting portions of the rim, intermediately-piv-
55 oted pawls mounted upon the extremities of the levers and having a preponderance of weight at their inner ends whereby they are normally held in operative position, means
60 for limiting the swinging movement of the pawls in opposite directions, and handles attached to the outer sides of the operating-levers and arranged to operate contiguous to the lateral edges of the rim to limit the lat-
65 eral vibration of the levers, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ITHAMER W. STUART.

Witnesses:

JOHN OLINGER,
C. M. HELLIBRAND.