

W. H. HEINE.

FLY WHEEL.

APPLICATION FILED JULY 23, 1910.

986,978.

Patented Mar. 14, 1911.

Fig. 2.

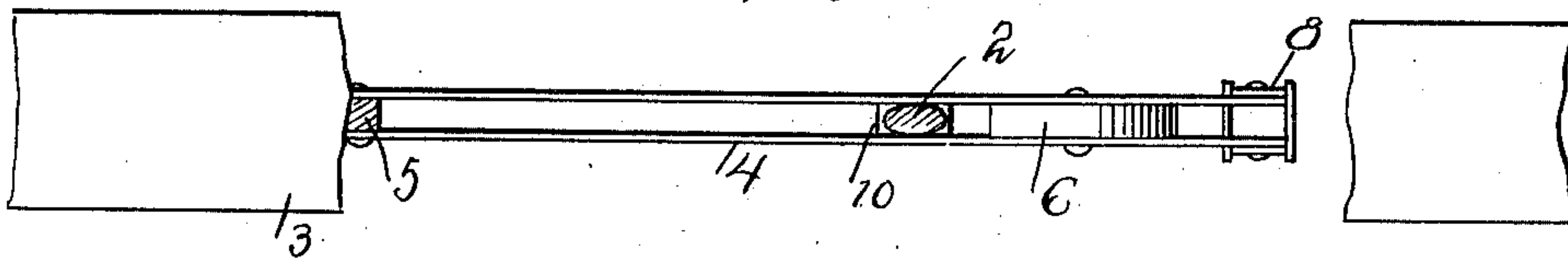
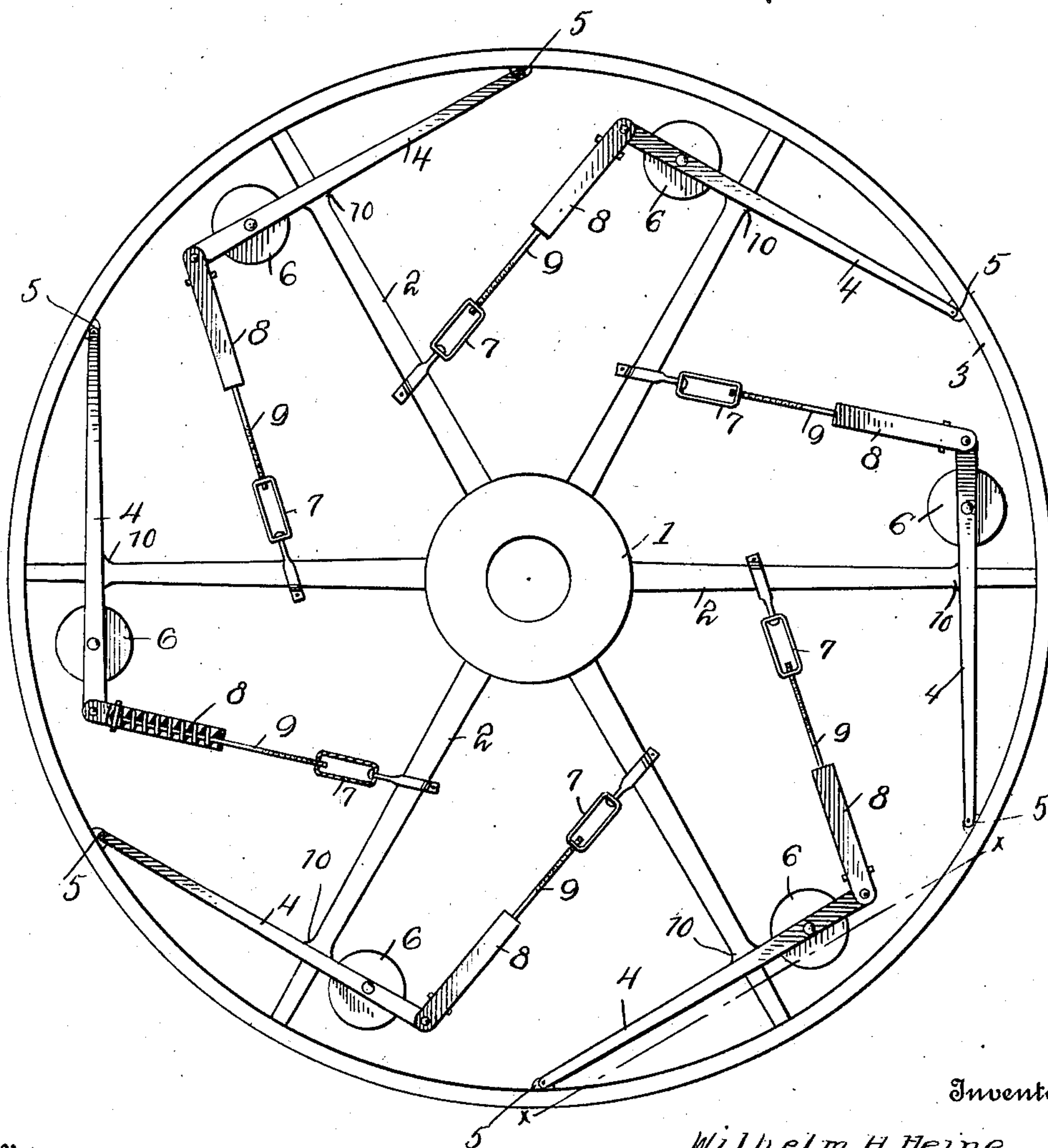


Fig. 1.



Inventor

Wilhelm H. Heine.

By

Victor J. Evans

Attorney

Witnesses  
William Smith  
O. B. Hillyard.



# UNITED STATES PATENT OFFICE.

WILHELM H. HEINE, OF HONOLULU, TERRITORY OF HAWAII.

FLY-WHEEL.

986,978.

Specification of Letters Patent.

Patented Mar. 14, 1911.

Application filed July 23, 1910. Serial No. 573,385.

*To all whom it may concern:*

Be it known that I, WILHELM H. HEINE, a citizen of the United States, residing at Honolulu, in the Territory of Hawaii, have invented new and useful Improvements in Fly-Wheels, of which the following is a specification.

The purpose of the present invention is the provision of a fly wheel which will modify the power expended for rotating the same, the invention contemplating weights connected with the fly wheel in a novel manner and connecting means between the weights and parts of the fly wheel for varying the resistance offered to the outward movement of the weights under centrifugal action when the fly wheel is in motion.

The invention consists of the novel features, details of construction and combination of parts, which hereinafter will be more particularly set forth, illustrated in the accompanying drawing, and pointed out in the appended claim.

Referring to the drawing, forming a part of the application, Figure 1 is a side view of a fly wheel provided with a series of weights embodying the invention. Fig 2 is a sectional view on the line  $x-x$  of Fig. 1.

Corresponding and like parts are referred to in the following description, and indicated in both views of the drawing, by the same reference characters.

The fly wheel may be of any construction and as shown comprises a hub 1, spokes 2 and a rim 3. A weighted arm is provided for each spoke and is arranged so as to cross a spoke intermediate of its ends. The weighted arms 4 are pivoted at their outer ends to the rim of the wheel at 5 and their inner ends are connected to the spokes next in order by means of connections embodying springs. Each of the arms 4 comprises parallel members or bars, which are arranged to extend along opposite sides of the spokes. Weights 6 are mounted upon the inner ends of the arms 4 and in practice fly outward under centrifugal action when the wheel is rotated. The connecting means between the inner ends of the arms 4 and the spokes comprise turnbuckles 7 and spring clevises 8. The spring clevises 8 may be of

any formation and the turnbuckle 7 may be of usual construction and serve to vary the effective tension of the spring clevises so as to offer a greater or less resistance to the outward movement of the weights 6. Each spring clevis consists of a frame, which is pivotally connected to an arm, a rod 9 having slidable connection with the frame and a spring mounted upon the outer end of the rod 9 and confined between the same and the frame. One end of the turnbuckle 7 has screw-thread connection with the rod 9 and the opposite end is connected by means of a swivel joint with a link attached to the spoke. The arms 4 are limited in their inward movement by means of stops 10, which consist of shoulders cast upon the spokes 2. It will thus be understood that adjustment of the turnbuckle 7 varies the tension of the spring, forming connecting means between the arm and spoke, so that more or less speed is required to cause outward movement of the weights. By reason of the inner or free ends of the weighted arms being connected to the spokes in the manner shown the outward movement of the weights under centrifugal action modifies the speed of the fly wheel and particularly is this the case when the load varies, thereby enabling the fly wheel to cause the engine to run nearly uniformly.

From the foregoing description, taken in connection with the accompanying drawing, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the device which I now consider to be the embodiment thereof, I desire to have it understood that the device shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claim appended hereto.

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

In combination a fly wheel embodying spokes and a rim, arms crossing the spokes and pivoted at their outer ends to the rim, each of said arms comprising spaced mem-

bers embracing the spokes, weights mounted upon the free ends of the arms, means for limiting the inward movement of the arms, spring connections between the weighted ends of the arms and the succeeding spokes, and means for varying the tension of the spring connections.

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

WILHELM H. HEINE.

Witnesses:

P. H. BURNETT,  
Wm. E. HEINE.