

(No Model.)

C. H. WILLIAMS & T. M. LASH.
MECHANICAL MOVEMENT.

No. 460,736.

Patented Oct. 6, 1891.

Fig. 1.

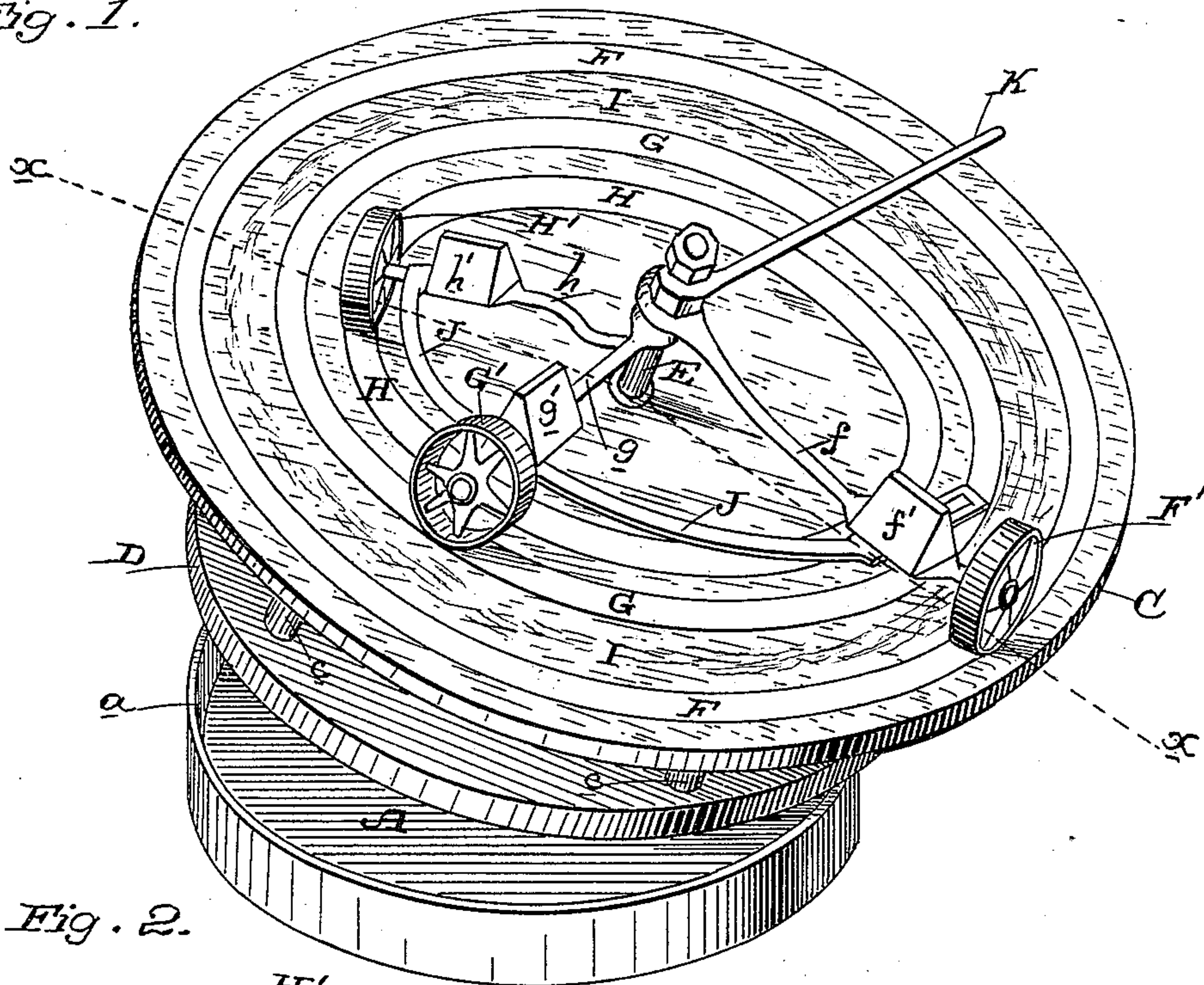
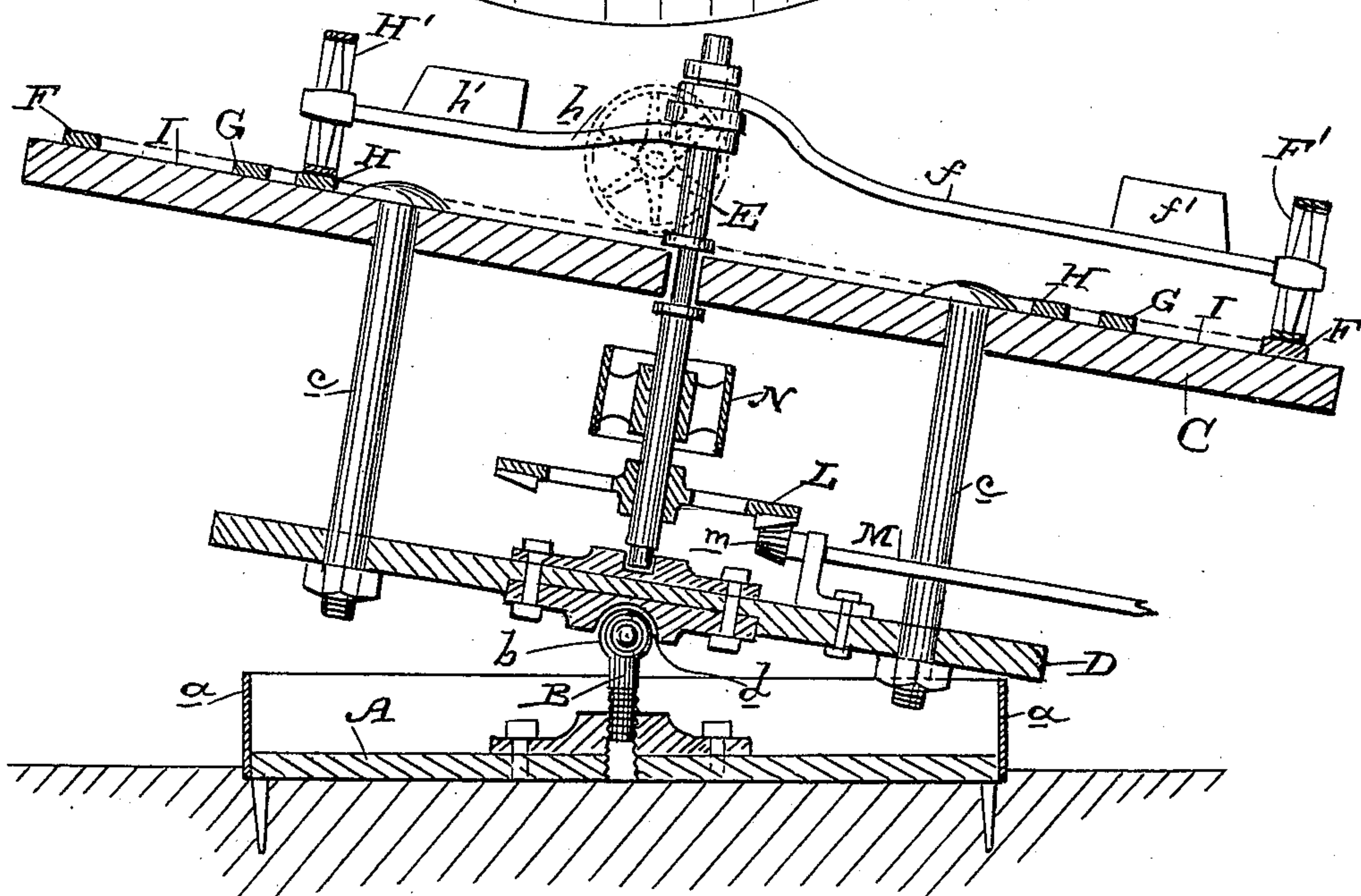


Fig. 2.



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MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 460,736, dated October 6, 1891.

Application filed January 27, 1891. Serial No. 379,340. (No model.)

To all whom it may concern:

Be it known that we, CHARLES HENRY WILLIAMS and TITO MARTIN LASH, both of the city of Sacramento, county of Sacramento, State of California, have invented a new and useful Improvement in Mechanical Movements; and we hereby declare the following to be a full, clear, and exact description of the same.

10 Our invention relates to that general class of mechanical movements which may be properly termed "tread-powers," in which the operation is dependent upon a continuously-moving weight, such as a horse or other
15 animal.

Our invention consists in the novel construction and arrangement of parts herein-after fully described, and specifically pointed out in the claims.

20 The objects of our invention are to provide a simple, effective, and economical power device, and to utilize the peculiar movement for the purposes of amusement in toys and instruction in educational appliances for schools
25 for illustrating the movements of orbital bodies.

Referring to the accompanying drawings for a more complete explanation of our invention, Figure 1 is a perspective view of our
30 mechanical movement. Fig. 2 is a vertical section of same.

A is a base secured firmly in suitable position either upon or depressed in the ground or upon a suitable truck where the device is
35 made portable. This base has around its rim a flange *a*, which forms a stop for limiting and regulating the tilting movement of the platform, as will be presently described. From the center of this base rises a bearing
40 or pivot-pin B, which is vertically adjustable by suitable means—as, for example, by being threaded in its seat, as shown. This pin is formed upon its upper end with a ball *b*.

C is the platform. It has secured to it by
45 suitable depending standards *c* the limiting-plate D. In the under side of this limiting-plate is made a socket *d*, in which the ball *b* of the pivot-pin B fits, thereby forming a ball-and-socket journal or joint about which the
50 platform C can circumferentially tilt or rock,

this movement being limited by the contact of its plate D with the rim-flange *a* of the base.

E is a central rotary shaft, having its lower end suitably stepped or pivoted in a bearing 55 in the center of the plate D, said shaft passing freely up through the platform and journaled therein, permitting it to turn.

Upon the platform C is an outer track F, a middle track G, and an inner track H, said 60 tracks being concentric, as shown.

Between the tracks F and G is the circular or endless path I, in which the horse is to travel.

F' is a wheel connected by an arm *f* with 65 the central shaft E, and said wheel is mounted upon and adapted to travel on the outer track F.

G' is a wheel connected with the central shaft by an arm *g* and adapted to travel upon 70 the middle track G.

H' is a wheel connected by an arm *h* with the central shaft E and adapted to travel upon the inner track H.

The arms of the several wheels may be fitted 75 with weight-boxes *f'*, *g'*, and *h'*, respectively, and they are all connected and held firmly in their relative position with respect to each other by means of a connecting-bar J. These wheels are all set upon the platform within 80 the same half-circle thereof and maintain to each other such positions that as the wheel F' is on the lowermost point of the track the wheels G' and H' are on a downgrade or incline. 85

K is a hold-back rod secured to the central shaft and between which and the arm of the wheel F' the horse is to be hitched, so that he can move forward in front of said wheel and check the motion of all the wheels, when 90 desired, by pulling back on the rod K.

Upon the lower portion of the central rotary shaft E is a gear L, which meshes with a pinion *m* on a shaft M, from which the power may be transferred to any suitable point. 95

The operation of the device is as follows: As the horse moves around on the platform C he tilts it down continuously around its circumference, the amount of its tilting being defined by the contact of the plate D below 100

with the flange *a* of the base. As the platform tilts it continuously creates an incline or downgrade in front of the wheel *G'*, down which it rolls continuously, and this wheel 5 pushes the wheel *F'* in front of it continuously. The incline is also presented in front of the rear wheel *H'*, and said wheel thereby assists the wheel *G'*; but its special purpose is to steady the movement of said wheel. The 10 wheel *F'* is the balance-wheel and is to be made sufficiently heavy to balance the weight of the other wheels, so that the horse's weight will be sufficient to cause the tilting of the platform continuously in front of said balance-wheel. The wheel *G'* may be termed 15 the "gravity-wheel," as from its downward movement on the incline the positive motion of the device is attained. The wheel *H'* may be termed the "steading-wheel." This rotary movement of the wheels is transmitted to 20 the central shaft *E*, which is thereby rotated, and its power may be taken to any suitable point desired—as, for example, through the gearing and shaft heretofore described or by means of a pulley directly upon it, such as is 25 represented by *N*. To this pulley may also be applied a suitable braking device.

The object of the vertical adjustment of the pivot-pin *B* is to vary the amount of tilting movement of the platform *C*. By raising 30 this pin the plate *D* will be raised higher, so that it will have more tilting movement before it is limited by contact with the flange *a*, and by lowering the pin this tilting movement is lessened. 35

The device may be used, as here illustrated, for a power device for driving machinery for different purposes, such as pumping water. It may also be used as a toy, and also as an 40 educational appliance in schools for the purpose of illustrating the revolution of bodies through given orbits.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is— 45

1. A mechanical movement comprising a circumferentially-tilting platform having a plurality of track-surfaces, a plurality of wheels, including a balance-wheel and steady- 50 ing-wheel, adapted to travel upon said track-surfaces, and a rotatable shaft, to which the arms of the wheels are connected, whereby the shaft is rotated, substantially as herein described.

2. A mechanical movement comprising a circumferentially-tilting platform, a wheel 55 mounted thereon and adapted to travel on an endless track, whereby it will roll continuously down the incline formed by the tilting of the platform, a balance-wheel connected with and 60 in front of the first and traveling upon an endless track on said platform, and a third wheel traveling on an endless track on the platform and connected with said other wheels 65 to steady them, substantially as herein described.

3. A mechanical movement comprising a circumferentially-tilting platform, a wheel 70 mounted on an endless track thereon and adapted to roll continuously down the incline formed by the tilting of the platform, a limiting-plate secured to and beneath the platform, and a fixed base having a vertically-disposed circumferential flange or stop below the limiting-plate and with which it comes in con- 75 tact to limit the tilting movement of the platform, substantially as herein described.

4. A mechanical movement comprising the circumferentially-tilting platform, a wheel 80 mounted upon an endless track thereon and adapted to roll continuously down the incline formed by the tilting of the platform, a limiting-plate secured to and under the platform, a fixed base with a circular flange for limiting the tilting movement of the plate and plat- 85 form, and the central ball-and-socket support and joint between the base and the limiting-plate, substantially as herein described.

5. A mechanical movement comprising the circumferentially-tilting platform, a wheel 90 mounted upon a circular track thereon and adapted to roll continuously down the incline formed by the tilting of the platform, a limiting-plate secured to and under the platform, a base with a circular flange for limiting 95 the tilting movement of the plate and platform, and the vertically-movable pivot-pin, with a ball on its upper end, fitting a socket in the limiting-plate, said pivot-pin forming an adjustable support and joint for 100 permitting and varying the tilting movement of the platform, substantially as herein described.

6. A mechanical movement comprising a circumferentially-tilting platform having an 105 endless path upon it, upon which a continuously-moving weight is adapted to be placed, a gravity-wheel mounted upon an endless track on the platform and adapted to roll down the incline formed by the tilting of the plat- 110 form due to the continuously-moving weight, and a balance-wheel mounted upon an endless track on the platform and connected with and in front of the gravity-wheel, sub- 115 stantially as herein described.

7. A mechanical movement comprising a circumferentially-tilting platform having an 120 endless path upon it, upon which a continuously-moving weight is adapted to be placed, a gravity-wheel mounted upon an endless track on the platform and adapted to roll down the incline formed by the tilting of the platform due to the continuously-moving 125 weight, a balance-wheel mounted upon an endless track on the platform and connected with and in front of the gravity-wheel, and a steadying-wheel mounted upon an endless track on the platform and connected with 130 and back of the other wheels, substantially as herein described.

8. A mechanical movement comprising the base with its stop-flange and pivot-pin, with

a ball on its upper end, the platform C, with its connected limiting-plate D, having a socket mounted upon the ball end of the pivot-pin of the base, said platform having
5 the circular path and the concentric tracks, the central rotary shaft, and the connected wheels mounted upon said concentric tracks

and connected to the rotary shaft, substantially as herein described.

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