D. P. CLARK.

POWER PLANT.

APPLICATION FILED MAR. 13, 1912.

1,054,339. Patented Feb. 25, 1913.

Fig. 1.

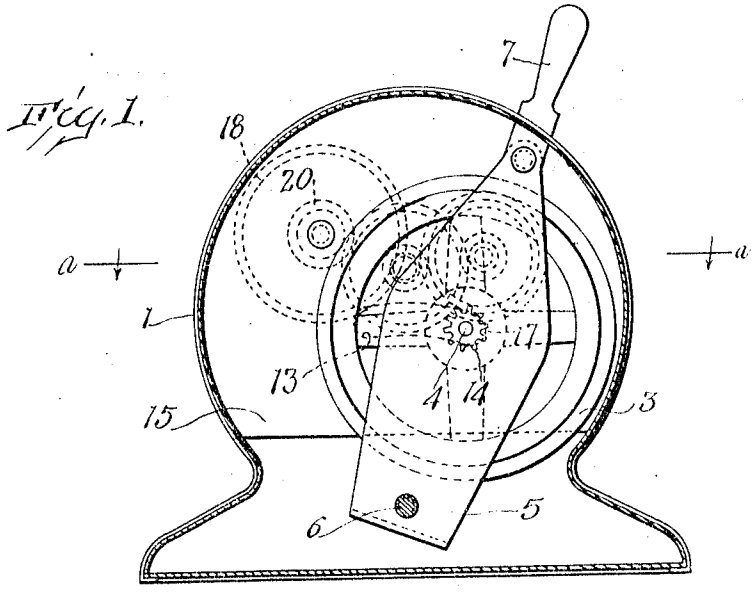


Fig. 2.

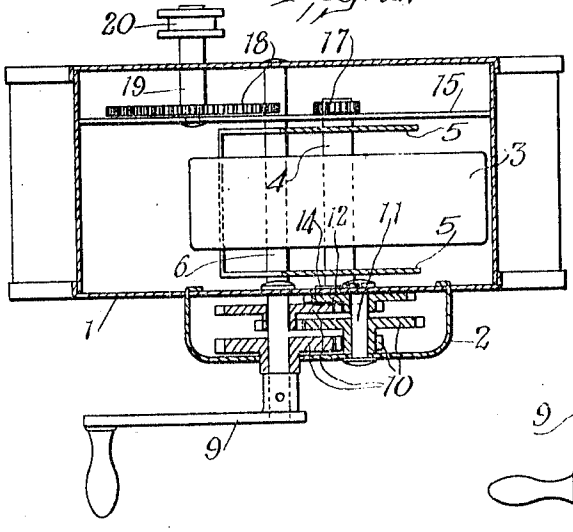
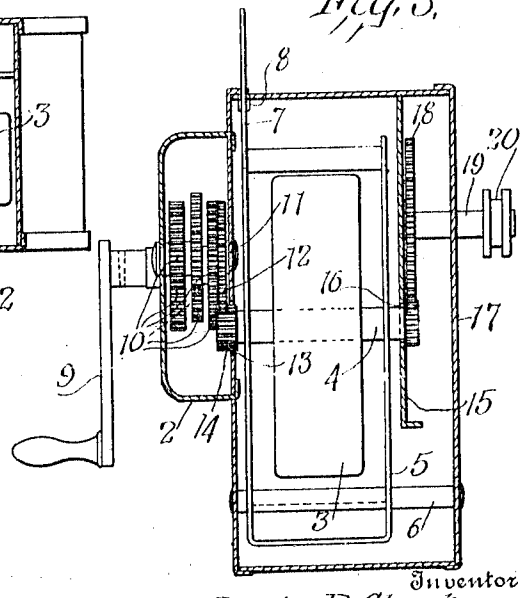


Fig. 3.



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POWER PLANT.

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To all whom it may concern:

Be it known that I, DAVID P. CLARK, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Power Plants, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to power plants, and the object of the invention is to provide a stationary power plant for toys in which the power will be generated and stored in an inertia wheel motor.

To this end it is a further object of the invention to provide a power plant of this character in which the motor will be movable from one position to another to bring it into operative relation, first, with the actuating devices to generate the power therein and, second, with the devices by means of which the power is transmitted to the toy to be driven.

In the accompanying drawings, Figure 1 is a section taken vertically of a device embodying my invention, showing the trains of gearing in dotted lines; Fig. 2 is a horizontal section taken on the line *a a* of Fig. 1; and Fig. 3 is a vertical section taken centrally through Fig. 1, showing the inertia wheel and its supporting frame in full lines.

In these drawings I have illustrated one embodiment of my invention and have shown the same as comprising a casing having mounted thereon actuating devices for the motor and devices to transmit power from the motor to the toy or other operable device which is to be driven. The motor itself is movably mounted within the casing and can be manipulated from the exterior of the casing to operatively connect it, first, with the actuating devices to enable the power to be generated therein, and then to disconnect it from the actuating devices and connect it with the power transmission devices to cause the power to be transmitted from the motor to the device to be driven.

The device may, of course, be embodied in various forms but that herein shown is of a highly practical character and is a typical embodiment of the invention.

As here shown the device comprises a casing 1 having mounted on one side thereof a gear housing 2. The motor, in the present instance, comprising an inertia wheel 3 carried by a shaft 4 which is mounted in a frame 5 movably supported by the casing 1. The frame 5 in the particular device here illustrated is substantially U-shaped and is pivotally supported in the casing, preferably by having its lower portion mounted upon a shaft 6 which, in turn, is mounted in the side members of the casing. In this arrangement of the device the point of pivotal support for the motor frame 5 is near the bottom of the casing and the inertia wheel or motor is mounted in the upper portion of the frame. Means are provided for moving the motor about the axis of the shaft 6 and one convenient form of means for accomplishing this consists in extending one of the arms of the frame 5 upward, as indicated at 7, and through a slot 8 formed in the wall of the casing. The upwardly projecting part of the frame extends some distance beyond the outer wall of the casing and forms a handle by means of which the motor may be moved in either direction about the axis of its supporting shaft 6.

Any suitable actuating means may be provided for imparting movement to the inertia wheel to generate the power. As here shown this actuating means comprises a handle 9 journaled in the walls of the gear housing 2 and casing 1 and connected by a train of multiplying gearing 10 with a shaft 11 having mounted thereon a gear 12. That portion of the side wall of the casing 1 adjacent to the gear housing 2 has formed therein a curved slot 13 through which extends the adjacent end of the shaft 4. Mounted on this end of the shaft 4 is a pinion 14 adapted to be moved into and out of mesh with the gear 12 when the motor is moved toward or away from said gear. When the pinion 14 is in mesh with the driving gear 12 it will be apparent that the rotation of the handle 9 will cause the inertia wheel to be rotated at a very high rate of speed. In that side of the casing opposite the gear housing 2 there is provided a supporting wall 15 which is secured to the walls of the casing and has formed therein a curved slot 16 which is substantially similar to and is arranged substantially parallel with the slot 13 in the wall of the casing 1. The opposite end of the motor shaft 4 extends through the slot 16 in the wall 15 and has mounted thereon a driving member or pinion 17 adapted to mesh with a gear 18 mounted on a shaft 19 journaled in the wall 15 and the adjacent side wall of the casing 1. One end of the shaft 19 pro-

jects beyond the side wall of the casing and is provided with a suitable power transmission device, such as a driving pulley 20. The slots 13 and 16 being arranged directly opposite one to the other it will be apparent that when the motor is moved in one direction the pinion at one end of the shaft 4 will be moved into operative engagement with its gear and the pinion at the opposite end of the shaft will be moved out of operative engagement with its gear.

In operation the motor frame is first moved in a direction to cause the pinion 14 to mesh with the gear 12 and the handle 9 is then operated to impart motion to the inertia wheel. When sufficient power has been generated in this wheel the handle 7 is actuated to swing the motor frame 5 about its axis and carry the pinion 14 out of mesh with its gear and the gear 17 into mesh with the gear 18, thus imparting rotatory movement to the shaft 19 and driving pulley 20 from which it is transmitted to the toy or other operable device which is to be driven.

While I have shown and described one embodiment of my invention it will be understood that this has been chosen for the purpose of illustration only and that numerous modifications can be made therein without departing from the spirit of the invention. For example, it will be obvious that the character of the connections between the motor and the actuating device and the power transmission device, respectively, may be of any suitable kind, such as friction gearing instead of toothed gearing. Therefore, I wish it to be understood that I do not desire to be limited to the details of construction shown and described in the accompanying drawing and specification.

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

1. In a device of the character described, a supporting frame, an inertia wheel mounted for bodily movement on said frame, a driving member operatively connected with said inertia wheel and having bodily movement therewith, a manually operated device to impart rotatory movement to said inertia wheel, a power transmission device, and means operable from the exterior of said frame to move said inertia wheel bodily to bring said driving member into operative relation with said power transmission device after rotatory movement has been imparted to said inertia wheel.

2. In a device of the character described, an inertia wheel having both rotatory movement and bodily movement, a manually operated actuating device comprising a gear to impart rotary movement to said inertia wheel, a power transmission device also comprising a gear, two pinions connected to and movable with said inertia wheel and adapted to mesh with the respective gears, and means for imparting bodily movement to said inertia wheel to move one of said pinions out of mesh with its gear and the other of said pinions into mesh with its gear.

3. In a device of the character described, a casing, a gear mounted at one side of said casing, a handle, a train of gearing connecting said handle with said gear, a second gear mounted on the opposite side of said casing, a power transmission device connected with said second gear, a frame pivotally mounted on said casing, a shaft mounted on said frame, an inertia wheel mounted on said shaft, pinions secured to the opposite ends of said shaft and adapted to mesh with the respective gears, and means to move said frame about its pivotal center to disengage one of said pinions from its gear and to engage the other of said pinions with its gear.

4. In a device of the character described, a casing comprising walls having slots therein, a supporting frame mounted within said casing, a shaft journaled in said frame and having its ends extending through said slots, an inertia wheel mounted on said shaft, pinions carried by the opposite ends of said shaft, a gear supported by said casing and adapted to mesh with the pinion at one end of said shaft, a manually operated device for actuating said gear, a second gear supported by said casing and adapted to mesh with the pinion at the other end of said shaft, and a power transmission device connected with said last-mentioned gear, said gears being so arranged on said housing that when said shaft is moved toward one end of one of said slots one of said pinions will be caused to mesh with its gear and when said shaft is moved toward the other end of said slot the other pinion will be caused to mesh with its gear.

5. In a device of the character described, a casing having a supporting wall mounted within the same and spaced away from the adjacent side wall, said supporting wall having a slot, a gear housing mounted on the side wall of said casing opposite said supporting wall, said side wall having a slot therein corresponding to and arranged opposite the slot in said supporting wall, a gear mounted in said gear housing, a handle, a train of gearing mounted in said gear housing connecting said handle with said gear, a shaft mounted in said supporting wall and the adjacent side wall of said casing, a gear mounted on said shaft adjacent to said supporting wall, and a driving pulley secured to said shaft on the outside of said casing, a motor frame pivotally supported in the lower part of said casing, a shaft journaled in the upper part of said motor frame and having its ends extending through the respective slots, pinions car-

ried by said shaft arranged to be moved into and out of mesh with the respective gears, and a handle secured to said motor frame and extending beyond the wall of said casing, whereby said inertia wheel can be moved from one position to another.

6. A power plant comprising a casing, a frame movably mounted in said casing, an inertia wheel mounted on said frame, pinions connected to and movable with said inertia wheel, a gear mounted on said casing and adapted to mesh with one of said pinions, a manually operated actuating device, multiplying gearing connecting said actuating device with said gear, a second gear mounted on said casing and arranged to mesh with another of said pinions when the first pinion is out of mesh with its gear, and a power transmitting device connected with said last-mentioned gear and arranged outside of said casing.

7. In a device of the character described, a supporting structure, a frame movably mounted on said structure, a motor mounted on said frame and having a shaft, pinions carried by said shaft, an actuating device mounted on said supporting structure and comprising a gear, a power transmission device also mounted on said supporting structure and comprising a gear, said gears being so arranged with relation to said pinions that the movement of said frame will disengage one of said pinions from one of said gears and engage the other of said pinions with the other of said gears.

8. In a device of the character described, a supporting structure, a frame movably mounted on said structure, a motor mounted on said frame, an actuating device mounted on said supporting structure, and a power transmission device also mounted on said supporting structure, said parts being so arranged relatively one to the other that the movement of said frame in one direction will move said motor into operative relation with said actuating device and movement of said frame in the opposite direction will move said motor out of operative relation with said actuating device and into operative relation with said power transmission device.

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

DAVID P. CLARK.

Witnesses:
W. F. HAFNER,
MORRIS BAUMGARTEN.