

No. 837,040.

PATENTED NOV. 27, 1906.

D. P. CLARK.
LOCOMOTIVE TOY.
APPLICATION FILED APR. 6, 1906.

Fig. 1.

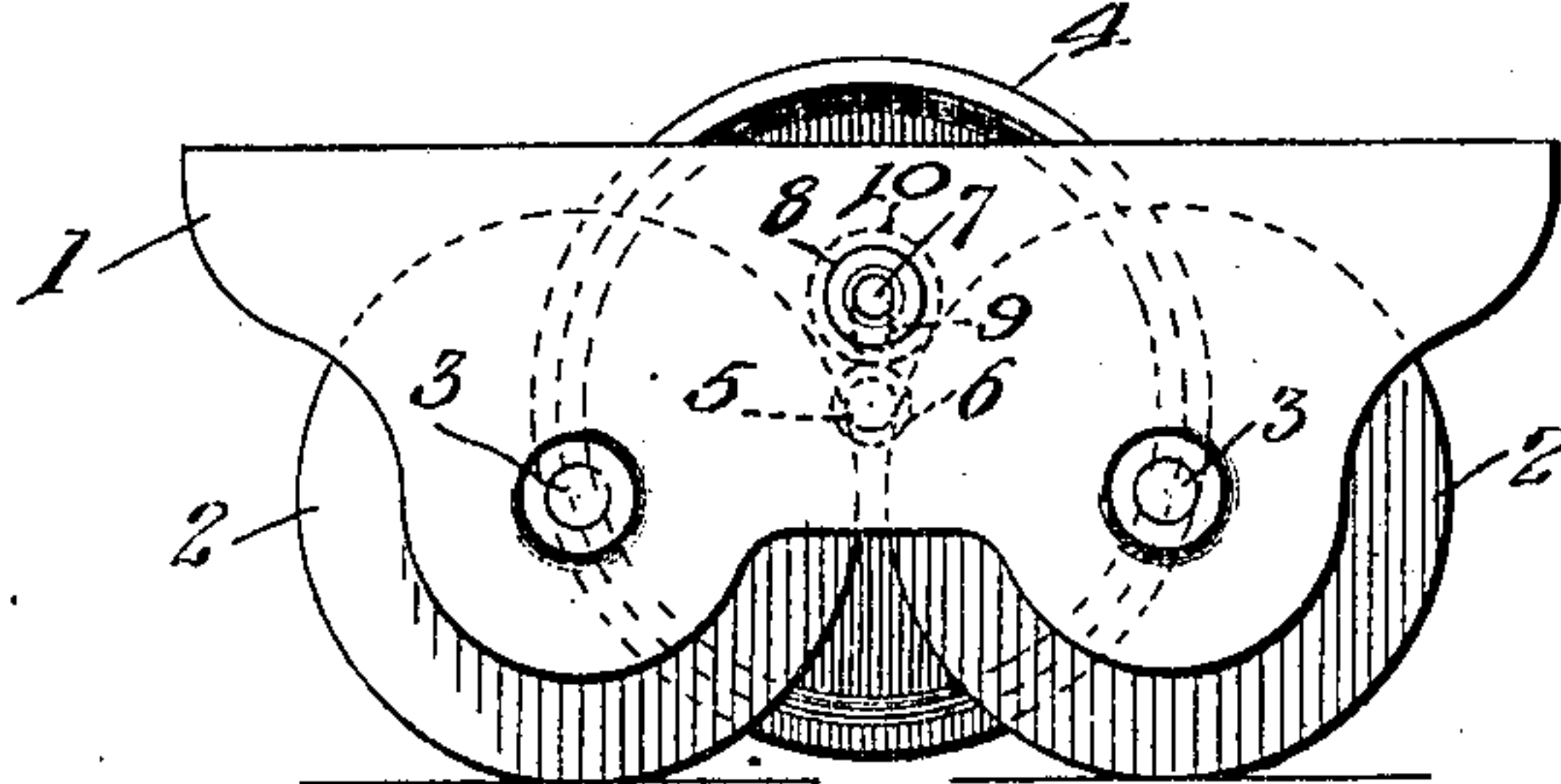


Fig. 2.

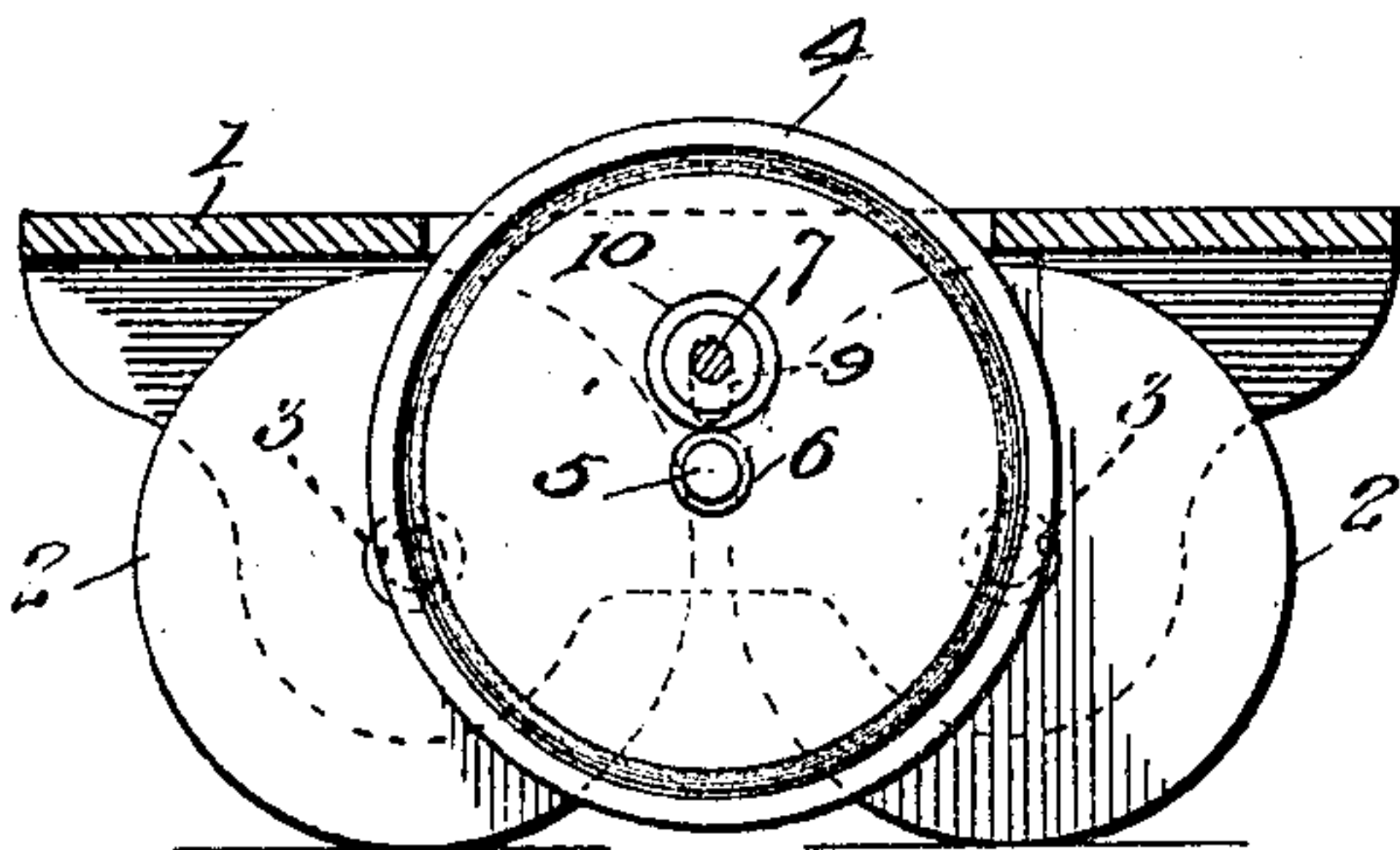


Fig. 3.

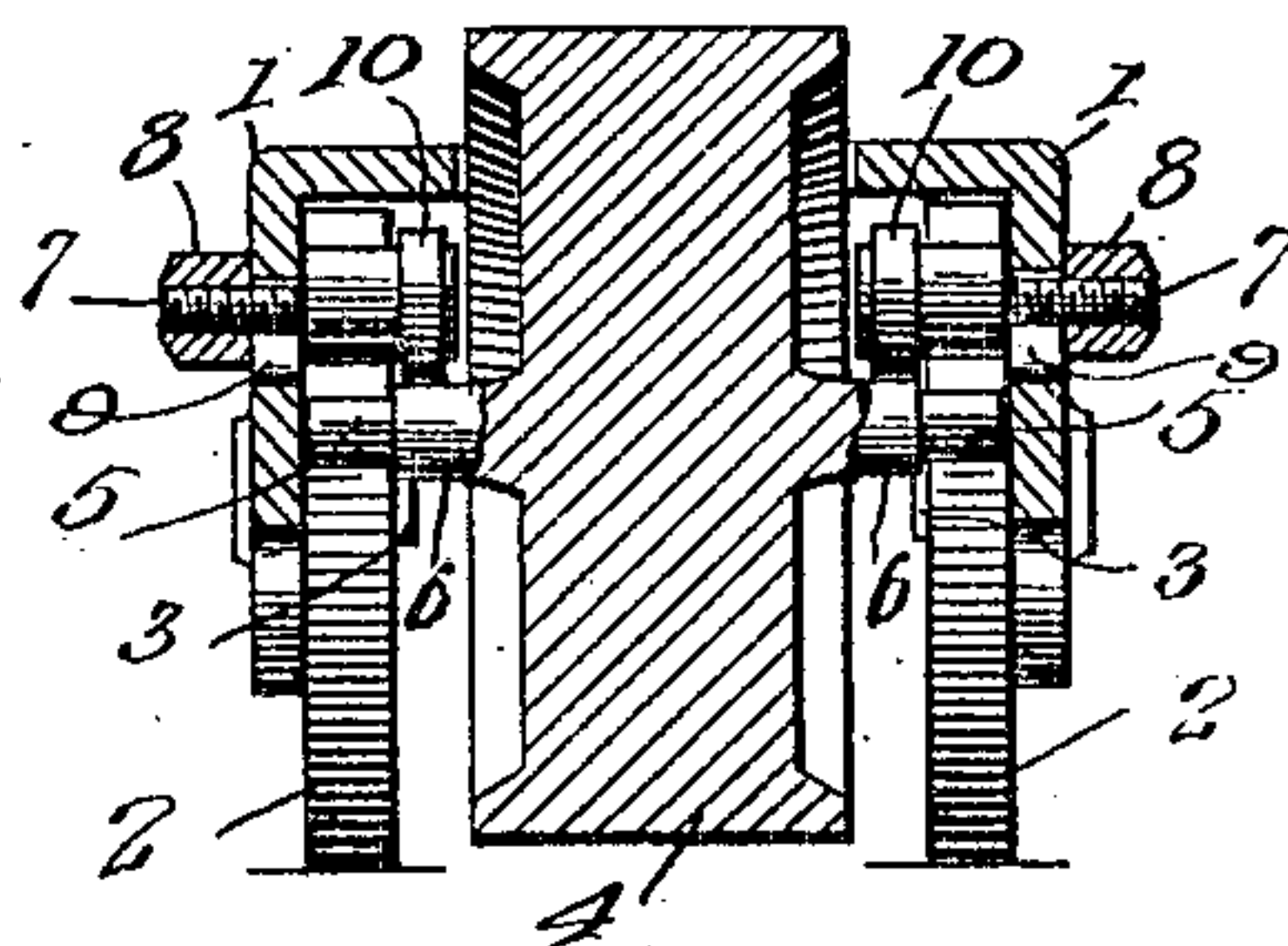
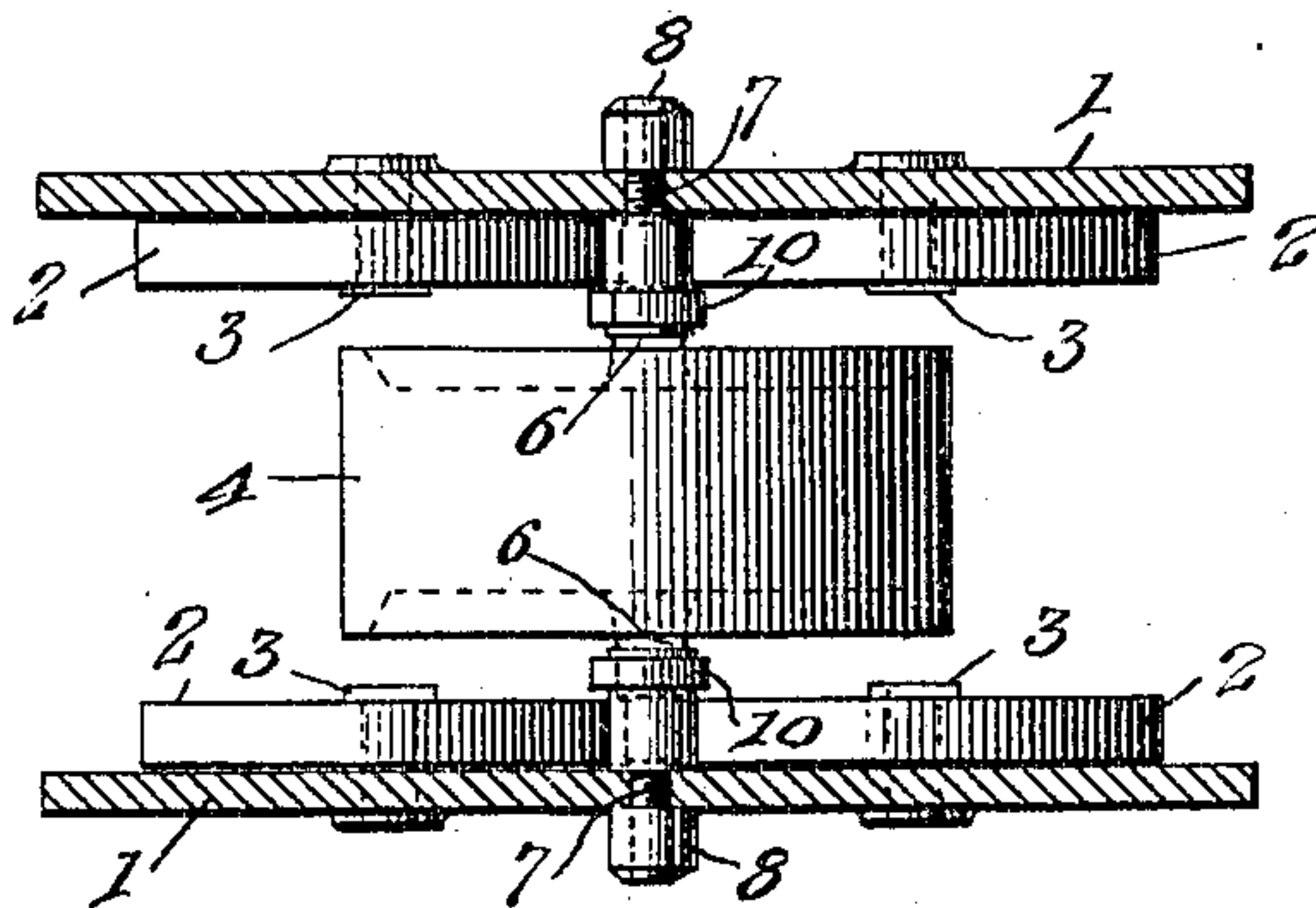


Fig. 4.



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LOCOMOTIVE TOY.

No. 837,040.

Specification of Letters Patent.

Patented Nov. 27, 1906.

Application filed April 6, 1906. Serial No. 310,203.

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 Locomotive Toys, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in locomotive toys wherein an inertia-wheel is utilized to propel the toy.

The special objects in view are essentially twofold: first, to provide for using an inertia-wheel whose radius is greater than that of the ground or driven wheels, which object is carried out by mounting the driven or ground wheels on stud-shafts, whereby the space between the centers of the opposite wheels is unobstructed and the inertia-wheel may be extended into such space, and, second, to provide means for forcing the inertia-shaft tightly against the surface or surfaces to which its motion is transmitted, yet without creating undue friction between the inertia-shaft and the means employed to so force it, which object is carried out by means of pressure devices adapted to be pressed upon by the hand and having antifriction-rollers between them and the inertia-shaft, all as hereinafter more clearly described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of my improved locomotive toy, showing the invention embodied in one form or arrangement of frame and wheels; Fig. 2, a longitudinal sectional view through the frame, showing the wheels in side elevation; Fig. 3, a transverse sectional view of the frame, showing the inertia-wheel also in section except as to its shaft; and Fig. 4, a horizontal sectional view of the frame, showing the several wheels in plan view.

The numeral 1 designates a frame for such type or character of toy as is to be propelled by the wheels and their arrangement, now to be described. For instance, the toy may embody a locomotive proper, an automobile, fire-engine, or a hook-and-ladder, while the propelling means will be in either case that now to be set forth. In this frame are mounted the ground-wheels 2, each upon its

own stud-shaft 3, which is held in the frame and extends through, but not essentially beyond, the wheel. The first result of this is that the space between the wheels upon opposite sides of the frame is left free and unobstructed, so that while the ground-wheels are properly mounted and the frame duly supported the space between the wheels upon opposite sides is left free to be utilized, not by an obstructing or functionless shaft or axle, but by the active element composed of the inertia-wheel 4. By this arrangement the inertia-wheel can be extended in diameter, and consequently in height and effectiveness, beyond a line passing through the axis of the opposite wheels. This proportionately-enlarged inertia-wheel will continue its momentum longer than in the case of an inertia-wheel contracted within the limits of the space between the axles of the ground-wheels, and then the distribution of the gross weight of the inertia-wheel by this arrangement may be made more effective by utilizing such weight in the extension of the diameter of the inertia-wheel. Thus I carry into effect the first object of my invention—that is, the utilization of a relatively large inertia-wheel compared with the distance measured by the radius of the ground or driven wheels, and thus I combine together such increased or maximum diameter of inertia-wheel with what may be termed “ordinary-sized ground-wheels.”

The inertia-wheel is mounted on a shaft 5, having roller-surfaces 6. This shaft is mounted in a manner to transmit rotary motion to the ground-wheels 2, and the preferred manner is that shown in the drawings—namely, by resting the shaft upon the peripheries of these ground-wheels—its location in this illustration being between the converging surfaces of the wheels on one side and the converging surfaces of the wheels on the other side of the frame; but in order to force this axle hard down upon its bearing (in this instance the peripheries of these ground-wheels) I provide pressure devices consisting of slidable shafts 7, having finger or thumb pieces 8 screwed or secured thereon and mounted to slide in slots 9 in the sides of the frame, so that these shafts 7 may have a range of movement to permit them to be forced toward the inertia-wheel shaft. The shafts 7 also carry antifriction-rollers 10,

which bear down on the roller-surfaces 6 of the inertia-wheel shaft, and thus transmit to that shaft the power or pressure applied by the hand to the pressure devices. This
 5 power or pressure is so applied when it is desired to get up momentum in the inertia-wheel. In this case the toy is taken in the hand, pressure by the fingers is applied to the pressure devices, and at the same time the
 10 ground-wheels are run on the floor or other surface in short strokes, as by placing the wheels on the floor and pushing the toy a foot or two, then raising it and reapplying it to the floor and pushing it over the same
 15 course, this being done several times until the speed developed in the ground-wheels is transmitted to the inertia-wheel in an accelerated degree, due to the excessive diameter of the ground-wheels compared with the diam-
 20 eter of the inertia-wheel axle. When the inertia-wheel is put under high speed, the toy is placed upon the floor or other surface, and by the momentum of the inertia-wheel it is driven smoothly, but strongly, and for a con-
 25 siderable distance or time and is capable of climbing inclines or "hills." The pressure of the inertia-wheel axle upon the ground-wheels insures practically all of the motion of these wheels when starting the device, as
 30 stated, being transmitted to the inertia-wheel; but then when the toy is running along the pressure devices cause little or no friction to be overcome by the inertia-wheel because of the presence of the antifriction-roll-
 35 ers 10 in contact with the roller-surfaces 6, and in the act of getting up speed in the inertia-wheel these antifriction-rollers 10 also prevent the retarding of the inertia-wheel while the speed is being so developed in it.
 40 Thus it will be seen that I have provided a locomotive toy in which it may be said that the maximum of results is obtained—that is, a toy in which the maximum size of inertia-wheel can be used in comparison with the size
 45 of the ground-wheels, while a great deal of pressure can be given the inertia-wheel to force it to take up practically all of the motion of the ground-wheels in the act of developing momentum in the inertia-wheel, and at
 50 the same time the pressure devices are prevented from unduly obstructing the inertia-wheel, either when developing momentum in it or when using it to run the toy, by undue frictional contact therewith.

Having thus fully described my invention, 55 what I claim as new, and desire to secure by Letters Patent, is—

1. In a locomotive toy, the combination, with a suitable frame, its ground-wheels, and stud-shafts on which they are mounted, of an 60 inertia-wheel mounted to transmit its momentum to said ground-wheels and extending into the space between opposite stud-shafts, and pressure devices slidably mounted on said frame and adapted to bear upon the in- 65ertia-wheel shaft when its momentum is being developed.

2. In a locomotive toy, the combination, with a suitable frame, its ground-wheels, and stud-shafts on which they are mounted, of an 70 inertia-wheel whose shaft is mounted on the converging surfaces of two adjacent ground-wheels and which extends into the space between opposite stud-shafts, and pressure de- 75vices slidably mounted on said frame and adapted to be forced down to bear upon the inertia-wheel shaft to increase its pressure upon the ground-wheel surfaces.

3. In a locomotive toy, the combination, with a suitable frame, and its ground-wheels, 80 of an inertia-wheel mounted to transmit its momentum to the ground-wheels, and pressure devices slidably mounted in the frame adapted to be forced down upon the inertia-wheel shaft. 85

4. In a locomotive toy, the combination, with a suitable frame, and its ground-wheels, of an inertia-wheel having its shaft mounted on the peripheries of the ground-wheels, and pressure devices consisting of shafts slidably 90mounted in the frame and having finger-pieces and antifriction-rollers, the latter to engage with the shaft of the inertia-wheel.

5. In a locomotive toy, the combination, with a suitable frame, its ground-wheels, and 95stud-shafts on which they are mounted, of an inertia-wheel having its shaft mounted on the peripheries of the ground-wheels, and pressure devices consisting of shafts slidably mounted in the frame and having finger- 100pieces and antifriction-rollers adapted to bear on the shaft of the inertia-wheel.

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

DAVID P. CLARK.

Witnesses:

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CHARLES A. BROWN.