April 29, 1924. 1,492,074

C. H. DAYTON

TOY

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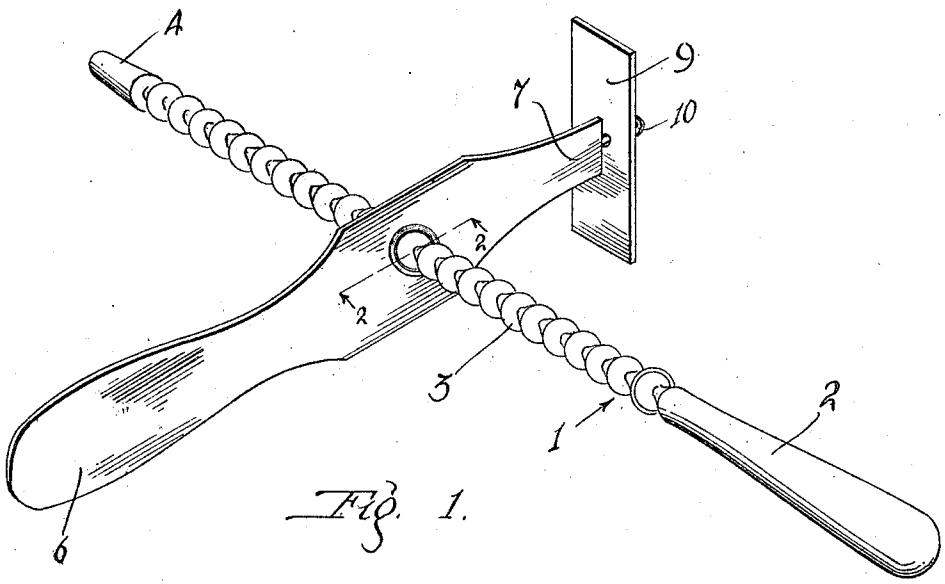


Fig. 1.

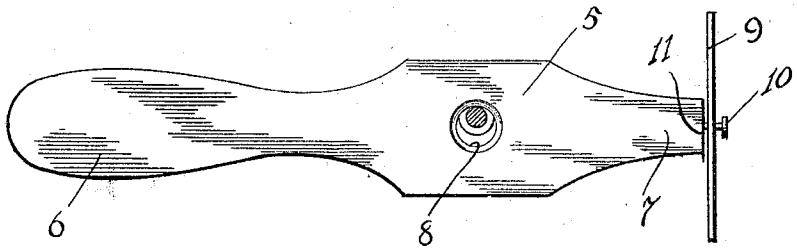


Fig. 2.

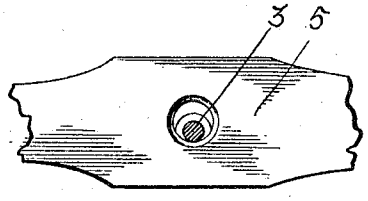


Fig. 3

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UNITED STATES PATENT OFFICE.

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TOY.

Application filed March 16, 1923. Serial No. 625,563.

To all whom it may concern:

Be it known that I, CLEVELAND H. DAYTON, a citizen of the United States, and a resident of Newman, in the county of Douglas and State of Illinois, have invented a new and useful Improvement in Toys, of which the following is a full, clear, and exact description.

My invention relates to improvements in toys, and more particularly to that type of toy in which a small wheel or blade is caused to rotate in one of two directions at will, and it consists in the combinations, constructions, and arrangements herein described and claimed.

An object of my invention is to provide a toy of the character described in which a vibratory movement is converted into a rotary movement, and in which the direction of rotation may be instantly changed at will.

A further object of my invention is to provide a toy of the character described in which the cooperating parts may not become accidentally disengaged from one another when the toy is in operation.

A further object of my invention is to provide a toy of the character described, a part of which may be converted to other use than a toy without in any way altering the operative characteristics of that part when desired.

A further object of my invention is to provide a toy of the character described that is simple in construction, durable, and thoroughly practical for the purpose intended.

Other objects and advantages will appear in the following specification, and the novel features of the invention will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings, forming part of this application, in which—

Figure 1 is a perspective view of an embodiment of my invention,

Figure 2 is a view along the line 2—2 of Figure 1, and

Figure 3 is a fragmentary view of the mechanism illustrated in Figure 2, but with the grooved rod in another operative position.

In carrying out my invention, I make use of a rod 1 having a handle portion 2 at one end thereof in axial alinement with the rod. The major portion of the rod 1 is provided with a plurality of annular V-shaped grooves 3 concentric with the axis of the rod. This structure provides therefore a series of bead-like formations upon the outer surface of the rod, and which is clearly illustrated in Figure 1 of the drawing. The rod 1 is provided with a tapered tip 4 at the outermost end thereof.

A wheel supporting member 5, having an integral handle portion 6 and a constricted tip portion 7 at the opposite end thereof, is provided with a transverse opening 8 through its central portion arranged to permit the projection of the rod 1 therethrough. The opening 8 has its opposite peripheral edges beveled as indicated in Figures 2 and 3, thereby providing a relatively sharp inner wall. The diameter of this inner wall is slightly larger than the greatest diameter of the grooved portions 3 of the rod 1. The wheel supporting member 5 may be constructed of a thin piece of wood or fiber, or any other relatively light material which may be shaped or formed in the manner described.

A device which I choose to call a wheel, consisting of a flat rectangular plate 9 of a relatively light material, such as cardboard or fiber, is provided with an opening transversely therethrough at a central point. This wheel 9 is rotatably supported upon a metal pin 10 secured in the outermost end wall 11 of the constricted portion 7 of the wheel supporting member. The wheel therefore will rotate in a plane transverse to the plane of the supporting member. It is important that the opening through the plate or wheel 9 be slightly larger than the diameter of the pin 10.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood. The chief purpose of my invention is to provide an amusing and mystifying toy in which the wheel 9 may be rotated at will in one of two directions, and in which the direction of rotation may be reversed instantly without ceasing the manual operation of the device. This is done by grasping the wheel supporting member 5 by the handle 6. The left hand is most convenient for this purpose. The rod 1 is then grasped in the right hand by means of the handle 2, and the tapered tip 4 is projected through the beveled opening 8 in the central part of the wheel supporting member.

The grooved rod 1 is then moved forward in the opening 8 so that the beaded or grooved portion 3 contacts with the upper peripheral edge of the opening 8 (see Figure 2). When the rod has been moved forward to the full extent of the grooved portion 3, it is manually drawn back in the opposite direction, but this time the grooved portion 3 must contact with the lower peripheral edge of the opening 8 (see Figure 3). As this is done, the wheel 9 will rotate in one direction and will continue to rotate at a high rate of speed as long as the movement of the grooved rod 9 is continued in a forward direction, contacting the upper edge of the opening 8 and in a reverse direction contacting the lower peripheral edge of the opening 8.

Let us assume now that it is desired without knowledge of those observing the operation of the device, to reverse the direction of the wheel 9, an act which may appear mystifying to those who are uninitiated. To this end it is merely necessary to actuate the grooved rod 1 so that the grooved portion thereof contacts the lower peripheral edge of the opening 8 as the rod 1 is moved forward through the opening, and to contact the upper peripheral edge of the opening when the rod is reversed and withdrawn through the opening. The direction of rotation of the wheel 9 will be almost instantaneously reversed. The slight alteration of the operation of the rod 1 is not noticeable to others unless they are watching closely the movement of the rod, and even then it is doubtful whether the shift when made, would be apparent.

While I have here described one embodiment of my invention, it should be understood that the wheel 9 may be mounted upon the outer tapered end of the rod 4 and the member 5, which heretofore has been employed as a wheel supporting member, moved relative to the rod to cause the constant rotation of the wheel. If, however, the present embodiment of my invention is carried out, the rod 1 may be made to serve other purposes and still successfully function as a part of the toy, such as the provision of an ornamental hand portion 2 and the use of the rod as a companion stick or cane.

Since the rotative movement of the wheel 9 depends entirely upon impulses given thereto by the movement of the pin which is mounted upon the wheel supporting member, it is essential to the successful and efficient operation of the device that the wheel supporting member be relatively light in weight and is as free as possible to receive the vibratory motion that is imparted thereto by the movement of the grooved rod 1. I am well aware that a vibratory movement of the rod in other devices is made use of to actuate a wheel that is mounted directly upon the rod, but in these cases, the rod is relatively heavy and efficient operation of the wheel is difficult. In my present device, I have provided a construction which permits a maximum movement of the wheel supporting member and therefore the device is extremely efficient in operation, since very little of the force applied by movement of the grooved rod is expended in moving a relatively heavy body.

I claim:

1. A toy of the character described comprising a wheel supporting member having an opening transversely therethrough, a wheel rotatably mounted on one end of said wheel supporting member, and a rod having a plurality of transverse grooves on its outer wall arranged to be moved through said opening in said supporting member.

2. A toy of the character described comprising a wheel supporting member having an opening transversely therethrough, a wheel loosely mounted for rotation on one end of said wheel supporting member, and a rod having a plurality of transverse grooves on its outer wall arranged to be moved through said opening in said supporting member.

3. A toy of the character described comprising a wheel supporting member having an opening transversely therethrough, a wheel loosely mounted for rotation on one end of said wheel supporting member, and a rod having a plurality of transverse grooves on its outer wall arranged to be moved through said opening in said supporting member, said grooved portion of said rod having its greatest diameter slightly less than the diameter of said opening in said supporting member.

4. A toy of the character described comprising a wheel supporting member having an opening transversely therethrough, a substantially rectangular wheel rotatably mounted on one end of said wheel supporting member, and a rod having a plurality of transverse grooves on its outer wall arranged to be moved through said opening in said supporting member.

5. A toy of the character described comprising a wheel supporting member having an opening transversely therethrough, a wheel rotatably mounted on one end of said wheel supporting member, and a rod having a plurality of transverse grooves on its outer wall arranged to be moved through said opening in said supporting member, said rod having a handle portion at one end thereof.

CLEVELAND H. DAYTON.