Aug. 1, 1939. O. OLSEN 2,167,992

BALANCING STICKS

Filed Sept. 21, 1938

Fig. 3

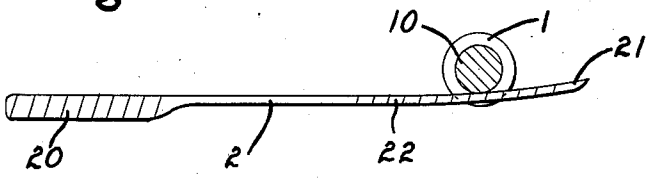



Fig. 2

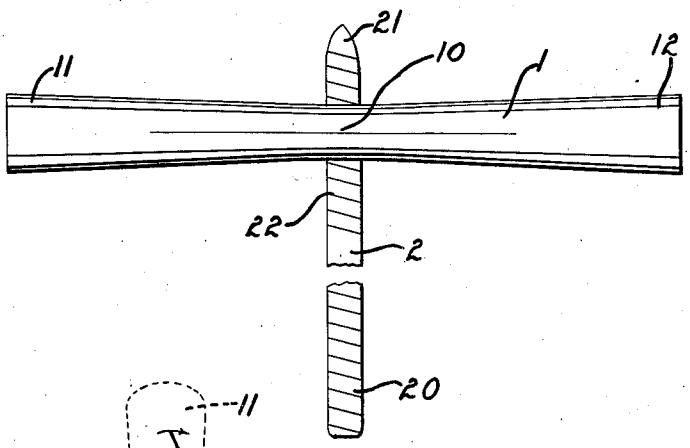



Fig. 1

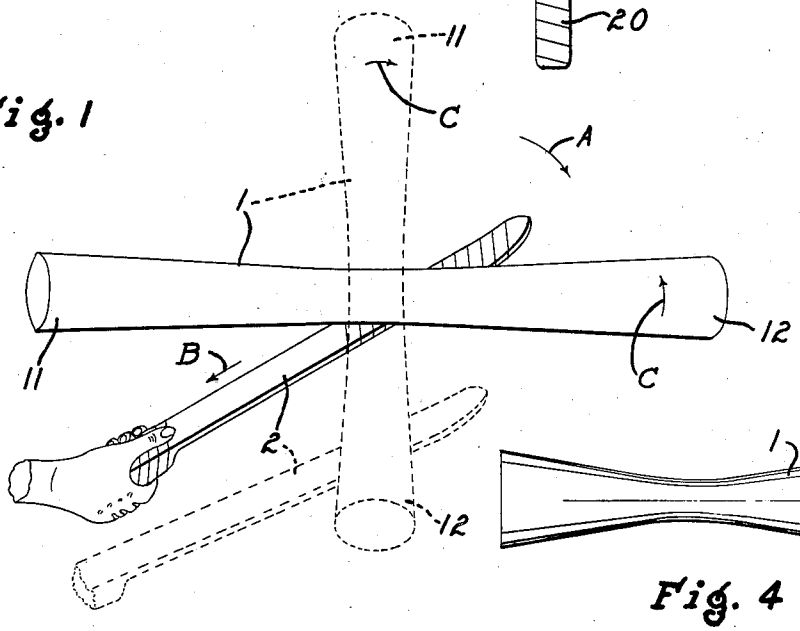






Fig. 4

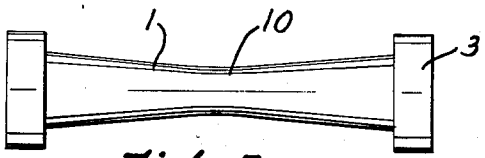



Fig. 5

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## BALANCING STICKS

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Application September 21, 1938, Serial No. 230,953

4 Claims. (Cl. 46—47)

This invention relates to a game or toy attractive to children, by which skill and dexterity, somewhat similar to those of a juggler, may be acquired and displayed.

It is an object of the invention to provide such a game or toy which is simple and cheap to manufacture, sufficiently rugged that it will not quickly be destroyed, and which will serve as a means of amusement to the user.

My invention is shown in the accompanying drawing, and the principles thereof will be readily understood from such drawing and from this specification, wherein the invention is shown and described in a preferred form, and the scope of my invention will be defined by the claims at the end of this specification.

In the accompanying drawing the invention has been shown with several modifications, all within the scope of my invention as hereinafter defined.

Figure 1 is a perspective view, showing the parts of the game or toy and the manner of their use.

Figure 2 is a plan view of the game pieces, shown in a position of use, and Figure 3 is an elevation, with one of the pieces shown in section.

Figure 4 is an elevation of a slightly modified form of one of the pieces, and Figure 5 is a similar view showing a further modified form.

There are two pieces employed which are entirely separate the one from the other. One of these is a striker stick, and the other is a balancing stick. The balancing stick 1 is of generally circular cross section, and considerably elongated; that is to say, its length is a number of times any given diameter. While its cross section is preferably circular, it may be polygonal, throughout a part or all of its length, so long as its cross section is approximately circular. Preferably, instead of being of uniform diameter and cross section throughout, its mid-point 10 is of the least diameter, and from this mid-point it extends to enlarged ends 11 and 12, which are alike. Preferably the taper is uniform throughout its length each way from the mid-point 10. Thus it tends to balance, statically and dynamically, about this mid-point. Such a balancing stick may conveniently be made of wood.

The striker stick 2 is of convenient length, formed with a handle 20 at one end, and outside of this handle it is preferably somewhat flexible. Its upper surface should be substantially flat, and I prefer that its extreme tip 21 be curved upward somewhat. Like the balancing stick 1, the striker stick 2 may conveniently be formed of wood, its flexibility being achieved by making it, outside of the handle, of comparatively thin section, and employing the natural resilience of the wood. Its handle may be wrapped to afford a convenient grip, and its outer or striking portion may also be wrapped or otherwise coated with a frictional material, as indicated at 22.

Further in order to assure good frictional engagement between the striker portion of the striker stick 2 and the struck portion of the balancing stick 1, the surface of either or both may be roughened or coated with frictional material, for instance the reduced central portion at least of the balancing stick may be covered with a varnish or the like having a tendency to remain slightly tacky. A similar expedient may be employed in addition to or as a substitute for the wrapping at 22.

The user with his right hand grasps the striker stick 2 by its handle, and places the balancing stick 1 on top of the outer or distant portion of the striker stick, with its reduced mid-portion 10 resting upon the striker stick, and with the length of the balancing stick at an acute angle to the length of the striker stick, substantially as shown in full lines in Figure 1. The balancing stick 1 is now twirled by the left hand of the user in the direction of the arrow A, the user simultaneously urging the balancing stick somewhat upwardly by the use of the striker stick, and drawing the latter somewhat inwardly in the direction of the arrow B. The balancing stick begins to twirl about a vertical axis through its mid-point 10, and also, by reason of the movement of the striker stick in the direction of the arrow B, it commences to rotate about its own axis in the direction of the arrow C, as it is thrown upward in the air by the upward movement of the striker stick. As it rotates through the dash line position of Figure 1, and, falling, again approaches the full line position, but with the ends 11 and 12 reversed, it is again struck by the striker stick in the same manner, lifting it upwardly and tending to rotate it about its own axis and to twirl about the vertical axis more rapidly. By reason of the fact that the stick 1 is tapered, and the stick 2 is flat, the left and right edges of the striker stick bear along the incline of the balancing stick 2, at opposite sides of the latter's mid-point, and this engagement tends to continue the twirling of the balancing stick about the vertical axis through its mid-point. The result is that the balancing stick is caused to continue to twirl and to rotate about its own axis, and the player, by a skill of manipulation that is not difficult to acquire, can

cause this twirling and rotating action to continue for a considerable period of time.

The maintenance of the balancing stick in a horizontal plane, as it twirls about the vertical axis, even though it may not be struck wholly accurately, is assisted by the gyroscopic effect imparted to it by its rotation about its own axis, and arising in part by reason of the enlargement of its ends. Also, the faster it twirls, the less likely is it to be disturbed by an inaccurate impulse. Indeed, these effects, and especially the gyroscopic effect of rotation about its own axis, may be heightened by increasing the taper of the stick 1, as shown in Figure 4, thus placing a larger part of the mass of the stick at a greater distance from the center of rotation about its own axis, and increasing the relative angle of inclination between the balancing stick and the edges of the striker stick. It may also be heightened, as in Figure 5, by adding masses 3 as circular rings about the ends of the stick 1, these masses being an appreciable part of the total weight of the stick and acting as gyroscopes to maintain the stick rotating in a horizontal plane, notwithstanding that it may be twirling also about a vertical axis through its mid-point. A like effect might be achieved by making the balancing stick hollow.

A player may accomplish a variety of movements with such game pieces. The twirling balancing stick 1 may be thrown upward to a considerable distance and caught again as it descends, and meanwhile it may twirl through several revolutions while free in the air, and its twirling and rotation may be continued and accelerated as it is again struck and thrown upward. It may be tossed, twirling and rotating, from one player to another, each having a striker stick. The flexibility of the striker stick assists, not only in insuring frictional engagement between the two sticks for an appreciable time interval, as both move upwardly acceleratedly, in contact, but also in reacting somewhat as a whip to throw the balancing stick upward, and to give it an added impulse to twirl and to rotate. The upturn of the end 21 also assists in attaining these ends. The game or toy will be found amusing, and will assist the user in acquiring a skill of manipulation which will be interesting and amusing.

What I claim as my invention is:

1. A game or toy comprising a striker stick and a balancing stick, the balancing stick being substantially circular in cross-section, and of smaller diameter at its center than at its ends, whereby when manipulated by the striker stick it may be twirled end for end in a horizontal plane, and rotated about its own axis, and the striker stick being substantially flat and tacky on its upper surface, and flexible.

2. A game or toy comprising a striker stick and a balancing stick, the balancing stick being substantially circular in cross section, and of smaller diameter at its center than at its ends, whereby when manipulated by the striker stick it may be twirled end for end in a horizontal plane, and rotated about its own axis, and the striker stick being substantially flat on its upper surface, and formed as a handle at one end, the striker stick being somewhat flexible, outside of the handle, and slightly upwardly curved at its tip, distant from the handle, and its flat surface having a frictional surfacing to improve its grip on the surface of the balancing stick.

3. A game or toy comprising a balancing stick of substantially circular cross section, tapering from a reduced diameter midway between its ends uniformly to enlarged diameters at its ends, and of a length equal to several times its greatest diameter, and masses circularly disposed about its ends to increase its gyroscopic balance when rotating on its own axis, and a separate striker stick with which to strike the balancing stick from below, adjacent its middle, to effect such rotation.

4. A game or toy comprising a balancing stick of substantially circular cross section, tapering from a reduced diameter midway between its ends uniformly to enlarged diameters at its ends, and of a length equal to several times its greatest diameter, and masses circularly disposed about its ends to increase its gyroscopic balance when rotating on its own axis, and a separate striker stick with which to strike the balancing stick from below, adjacent its middle, to effect such rotation, and to twirl the balancing stick end for end in a horizontal plant, the engaging surfaces of the sticks having frictional surfaces for increasing the frictional pull of one upon the other.

OLE OLSEN.