Oct. 31, 1933. R. H. HIERS 1,932,968

TOY DRUM

Filed April 5, 1933

Fig. 1.

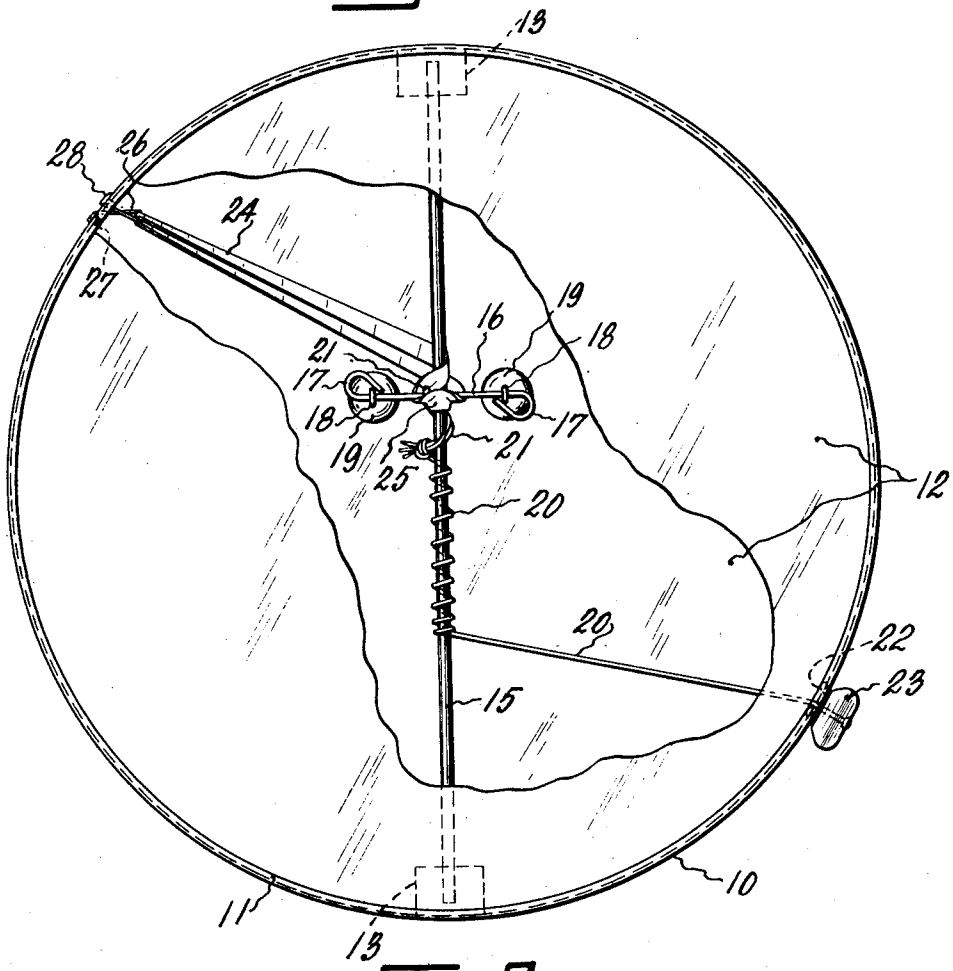
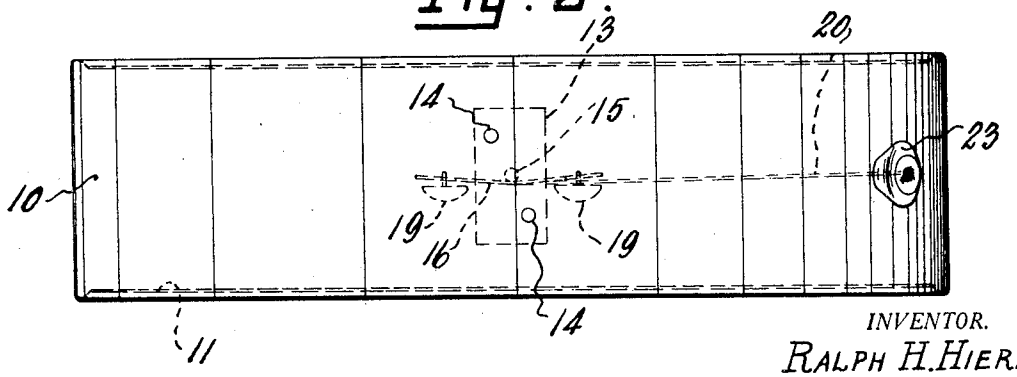


Fig. 2.



INVENTOR.
RALPH H. HIERS
BY Chapin & Neal
ATTORNEYS.

Patented Oct. 31, 1933

1,932,968

UNITED STATES PATENT OFFICE

1,932,968

TOY DRUM

Ralph H. Hiers, Granville, Mass., assignor to Noble & Cooley Co., Granville, Mass., a corporation of Massachusetts

Application April 5, 1933. Serial No. 664,561

3 Claims. (Cl. 46—46)

This invention relates to toy drums or similar percussion instruments of the type in which an internal mechanism is provided to produce a series of taps against the inside of the drum head. The major problem in constructing a toy of this character is to produce a satisfactory product at the lowest possible cost, since the main market lies in chain stores and similar establishments dealing in inexpensive merchandise. This problem is becoming increasingly important in view of generally declining prices and purchasing power. Recently the general reduction of commodity price levels has left these prior devices in a position where their relatively high cost of manufacture was fast rendering them unsalable. A need has therefore arisen for an operating mechanism which is simpler in construction, easier of assembly, and less expensive in the parts required. It is to the production of such a mechanism that my invention relates.

A percussion operating mechanism of the prior art type will be briefly described so that the nature of the problems solved by the present invention may be better understood. In the prior device a shaft is journaled in spaced relation to the drum head or heads and carries a cross piece on the ends of which hammers in the nature of small buttons are loosely mounted. A string is secured at one end to the shaft, and after being wound helically upon the shaft passes out through a hole in the drum body and terminates in a handle or button by which it may be grasped and which prevents it from being drawn back into the interior of the drum. Finally, a helical spring is mounted on the shaft, attached to it at one end, and anchored to the drum body at the other. When the string is pulled and then released to be wound up by the spring the shaft is rotated and the hammers are thrown out against the drum heads. In this construction there are three points of anchorage to the rotating shaft, where the cross member, the string, and the helical spring are coupled to it. This multiplicity of anchoring points of course increases the cost, and it is one object of the present invention to reduce the number of anchoring points to one. A further characteristic of the prior mechanism was that the pull on the string exerted an unbalanced pull on the shaft, requiring a large shaft to withstand the strain. In the construction which I have invented the load on the shaft is at all time substantially balanced, and a very small and consequently inexpensive shaft can be used with no danger of bending.

The present invention will now be described with reference to the accompanying drawing, in which:

Fig. 1 is a plan view of a drum embodying my invention, one drum head being partially broken away to illustrate the mechanism; and

Fig. 2 is a side elevation thereof.

The invention has been shown as applied to a small two headed drum, but can obviously be applied to a single headed drum or tambourine, or to any similar percussion instrument. The body of the drum is shown at 10, consisting of a metal hoop or ring with beaded edges 11 to retain the drum head or heads 12. Inside the drum body are diametrically opposite blocks 13, which may be made of wood and may each be secured to the drum body by a pair of nails 14. A hole is drilled in each block into which the ends of a slender rod or shaft 15 may fit. The blocks thus serve as inexpensive bearings in which the shaft may rotate. Secured to an intermediate point of the shaft 15, preferably by spot welding, is a wire cross-piece 16 having each end formed into a loop 17. Before these loops are closed the eye 18 of a button 19, of the general type used for shoes, is slipped over each end of the wire so that when the loops are bent into their final formation the buttons will be loosely retained upon the ends of the cross member.

The end of a string or cord 20 is formed into a loop 21, which is slipped over one end of the cross-piece, thereby anchoring the cord to the shaft 15 without the necessity of providing a separate fastening means. The cord is wound in a helix around the shaft 15 and passes out through an eye 22 formed in the drum body 10. A button 23 fastened to the end of the cord serves both as a handle and as a retainer to prevent the cord being drawn back into the drum. A rubber band 24 in the usual commercial endless form is slipped over both arms of the cross-piece as indicated at 25. The band is then carried around the shaft 15 in a direction opposite to that taken by the cord 20, and has its outer end secured to the drum body. In the case shown this latter anchorage is provided by a U-shaped wire clip 26, passed through the band and then through a hole 27 formed in the drum body. With its ends bent in opposite directions as shown at 28 this clip forms a permanent and simple anchorage for the band.

If the cord 20 is pulled the rod 15 will be rotated by the unwinding of the cord. At the same time the band 24 will be wound up, subjecting the rod to an increasing torque which will act to rotate the rod in the opposite direc-

tion when the pull on the cord is released. It will be observed that while the sideways pull of the band on the rod increases as the band is wound up, this pull is exactly counterbalanced by the equal and opposite pull of the cord. If the pull on the cord is varied the pull of the band automatically adjusts itself to the same amount by a compensating rotation of the shaft. The rod, being thus freed of any forces tending to bend it, can be made very small, with a consequent reduction in cost. A further reduction in cost is permitted by the functioning of the cross-piece as an anchorage for both the cord and the rubber band, the anchoring of the latter to the cross piece in a simple manner being made possible by the use of an endless band which is inherently in loop formation and which does not require any knots for securing it.

The manner of use of the device will be apparent to one familiar with the prior devices, although the present mechanism will be somewhat smoother and easier in operation due to the balancing of the forces tending to flex the rod. As the rod rotates the buttons 19 will be thrown outwardly by centrifugal force, and will strike in rapid succession against the drum head so as to produce a roll. The rhythm can be controlled by the proper rapid manipulation of the cord 20.

What I claim is:

1. In a percussion instrument of the character described and comprising a drum body and one or more drum heads, a shaft journaled at opposite ends in the drum body, a cross-piece secured to the shaft intermediate its length, drum head striking hammers secured loosely to the ends of the cross-piece, a cord secured to the shaft, wound helically thereon, and passing to an exposed position, and spring means secured to the drum body and including a portion wound upon the shaft in a direction substantially opposite to that taken by the cord so that when the cord is pulled the spring will be tensioned while the bending forces on the shaft will be substantially balanced.

2. In a percussion instrument of the character described and comprising a drum body and one or more drum heads, a shaft journaled at opposite ends in the drum body, a cross-piece secured to the shaft intermediate its length, drum head striking hammers secured loosely to the ends of the cross-piece, a cord having a loop formed in one end encircling the cross-piece, the cord being wound helically on the shaft, and passing to an exposed position, and an endless rubber band anchored to the drum body and looped over the cross-piece so as to be wound upon the shaft when the latter is turned by the unwinding of the cord.

3. In a percussion instrument of the character described and comprising a drum body and one or more drum heads, a pair of blocks secured to the inside of the drum body and provided with aligned journal holes, a shaft extending across the interior of the drum body and journaled in said holes, a wire cross-piece spot welded to the shaft intermediate the ends of the shaft and having its ends formed into loops, drum head striking hammers provided with eyes loosely retained by said loops, a cord having a loop formed in one end encircling the cross-piece, the cord being wound helically on the shaft and passing out through a hole in the drum body, a retaining button secured to the exposed end of the cord, an endless rubber band looped over both arms of the cross-piece and passing around the shaft in the opposite direction to that taken by the cord, and a clip holding the band to the drum body, the band and cord extending away from the shaft in substantially opposite directions, so that when the cord is pulled the bending forces on the shaft will be substantially balanced.

RALPH H. HIERS.