Dec. 1, 1964 R. V. IKENBERRY 3,159,401

GRAVITY BOWLING BALL PROJECTOR

Filed April 13, 1962

FIG. 1

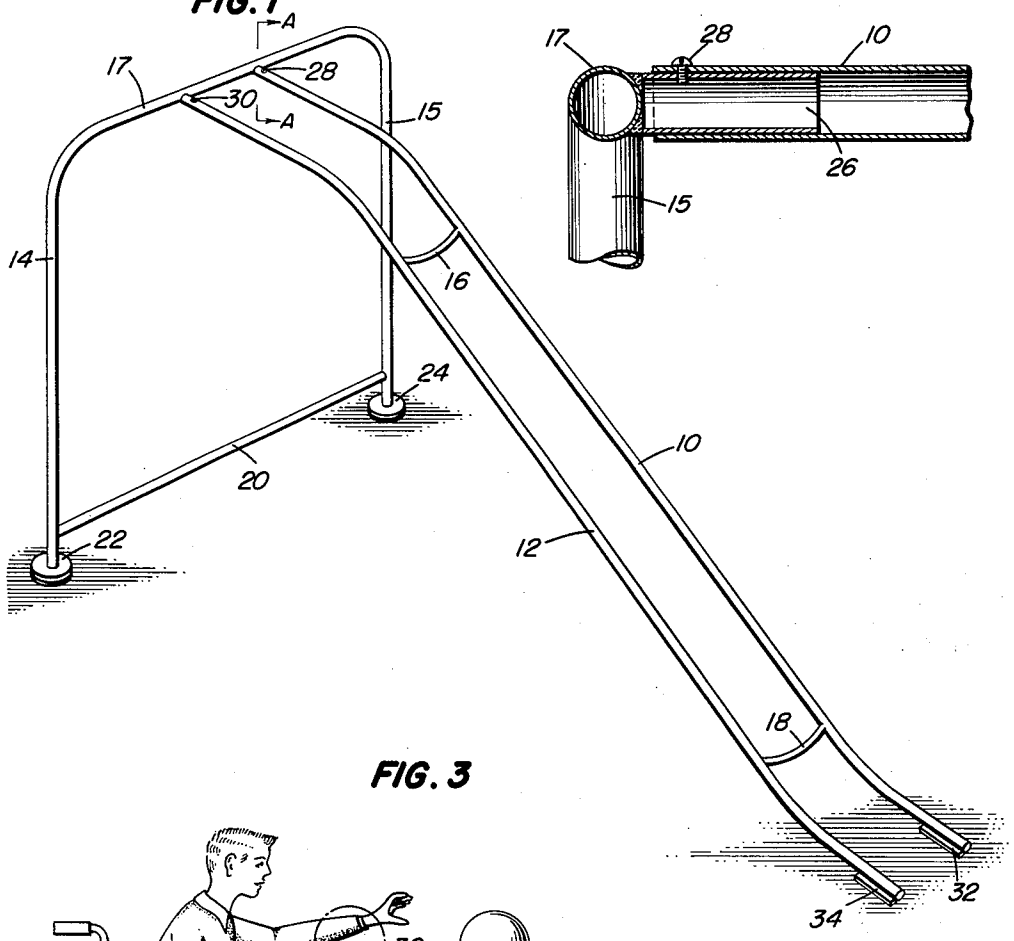
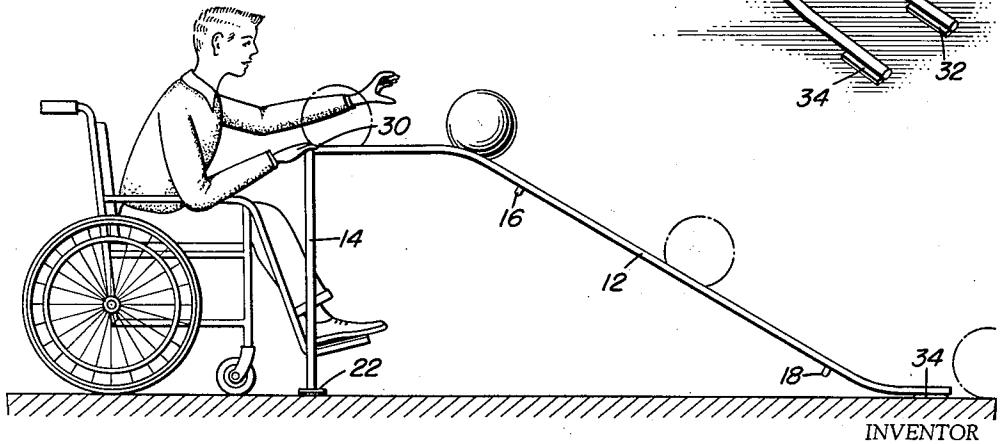


FIG. 2

FIG. 3



INVENTOR

Robert V. Ikenberry

United States Patent Office

3,159,401
Patented Dec. 1, 1964

3,159,401

GRAVITY BOWLING BALL PROJECTOR

Robert V. Ikenberry, 728 15th NE., Mason City, Iowa

Filed Apr. 13, 1962, Ser. No. 187,382
2 Claims. (Cl. 273—54)

This invention generally relates to a bowling accessory. More particularly, this invention relates to a device for assisting the forward projection of a bowling ball.

As is well known, bowling is the most popular participant sport. The popularity of bowling is in large part due to the fact that people having only a minimum amount of strength and athletic ability can participate. The only exception to this are those people who are confined to wheel chairs or who suffer from some crippling disease of the limbs.

It is therefore a primary object of this invention to provide a bowling accessory which will enable persons with disabled limbs to derive enjoyment and exercise from the sport of bowling.

Another object of this invention is to provide a bowling aid which will allow disabled persons to participate to a limited degree in the sport and still retain certain elements requiring skill and kinesthetic judgment.

An additional object of this invention is the provision of a bowling aid which will obviate the necessity for the various preliminary motions required to set a bowling ball in motion.

A further object of this invention is to provide a bowling accessory which allows an enjoyable variation from the usual method of projecting the bowling ball on an accurate and directed path.

An additional object is to provide a bowling aid which may be easily constructed of readily obtainable inexpensive materials and which may be easily handled in its operation.

Other objects and advantages will be readily apparent after reading the following specific description in conjunction with the drawings.

In a broad sense the present invention relates to a device for assisting disabled persons in projecting a bowling ball down a bowling alley toward bowling pins, comprising in combination:

(*a*) An elevated inclined trackway,

(*b*) The mid portion of said trackway sloping at an angle between about 15° and 75° with respect to the horizontal,

(*c*) The upper end portion of said trackway being substantially horizontal,

(*d*) The lower portion of said trackway having a slope which gradually changes from between 15° and 75° to being substantially horizontal,

(*e*) The bottom end of said lower portion forming a base which is adapted to support the lower end of the inclined trackway upon the surface of a bowling alley,

(*f*) The upper end portion of said elevated inclined trackway being joined to and supported in an elevated position by a supporting framework disposed in a substantially vertical plane, said supporting framework having spaced apart feet members which are adapted to rest upon the surface of a bowling alley.

In order that the invention, in a particular embodiment, may be more fully understood the following drawings are provided, wherein:

FIGURE 1 is a perspective view of the bowling accessory;

FIGURE 2 is a cross sectional view along A—A of FIGURE 1; and

FIGURE 3 is an elevation view showing the position of a person utilizing the invention and a ball at various stages in the operation of the device.

Referring now the FIGURE 1, it will be seen that an

elevated inclined trackway is formed by members 10 and 12. As shown, these members consist of light-weight metal tubes (e.g. made of aluminum) which have been shaped so as to have a certain contour. The distance between tubular members 10 and 12 is not critical, but must be less than the diameter of the particular type of bowling ball being used, but not so small that the bowling ball will tend to be unstable and roll off of the trackway during its downward path. It will be seen that bracing members 16 and 18 are provided between members 10 and 12 to maintain the members 10 and 12 in a fixed spatial relationship with regard to one another. Bracing members 16 and 18 must of course not obstruct the downward rolling movement of the ball in the inclined trackway and accordingly they are preferably curved or bent downwardly out of the way. Any number of bracing members could of course be employed.

The portion of the elevated trackway between bracing members 16 and 18 can conveniently be referred to as the mid portion of the trackway. The mid portion of the trackway is preferably sloped at an angle between about 30° and 60° with respect to the horizontal although under some circumstances it is conveivable that this mid portion of the trackway could be sloped at an angle between about 15° and 75° with respect to the horizontal. The precise angle used for this mid portion is not critical and may be varied depending upon the particular strength, cost and availability of materials.

The portion of the trackway above bracing member 16 can conveniently and generally be referred to as the upper end portion of the trackway and it will be noted that the majority of this portion is substantially horizontal. The purpose of having this section substantially horizontal is so that the user of the device can rest one or more balls thereon (see FIGURE 3). While a ball is resting on this upper end portion of the trackway the user of the device is able to aim the entire device at the desired angle and then by a slight forward push on the bowling ball send it on its way down the mid portion of the trackway.

The portion of the trackway below the brace 18 can conveniently be referred to as the lower portion of the trackway and it will be noted that this portion has a slope which gradually changes from the 15°–75° slope of the mid portion to be substantially horizontal. It is this portion of the trackway which translates the angular downward movement of the bowling ball to a substantially horizontal movement.

The bottom end of said trackway may simply rest upon the surface of the bowling alley, and such ends thereby forming a base which supports the lower end of the inclined trackway. Another possibility is that the lower extremities of the bottom end of the lower portion be provided with suitable pads 32 and 34. The pads 32 and 34 are shown as being adhesively secured to the lower ends of members 10 and 12 but it will be appreciated that no invention would be involved in securing such pads by means of screws, bolts, etc. The pads assist in protecting the surface of the bowling alley and are preferably made of some soft rubber, resin or leather material. Such pads also facilitate sliding movement of the front end of the inclined trackway when desired.

The upper end portion of the elevated inclined trackway must be supported. This can be accomplished by attaching the ends of members 10 and 12 to a supporting framework disposed in a substantially vertical plane. The supporting framework is seen to consist of upstanding side members 14 and 15 which merge into a horizontal cross member 17. The lower ends of vertical members 14 and 15 are joined together by cross bracing member 20. The very bottoms of vertical members 14 and 15 are shown as being provided with feet members 22 and 24, which in their simplest form may comprise circular

washers having rubber on the surface which is to contact the floor. The rubber or other soft surface on the bottom of feet 22 and 24 will minimize the possibility of the bowling alley surface being marred or scratched.

The supporting framework may be connected to the inclined trackway in any suitable manner. As is shown in FIGURE 2, this may for example be accomplished by providing cross member 17 with two forward extensions 26 which are adapted to fit within the interior of tubuluar trackways 10 and 12. When members 26 and 10 have been fitted together they can be fixed together by means of screw 28. Such a construction permits ready disassembly of the trackway and the supporting framework in the event that it should be decided that this is preferable to having all of the components simply welded together.

In accordance with a preferred embodiment of this invention essentially all of the inclined trackway and supporting framework is made from light-weight aluminum tubing. Also, wherein the supporting framework has been shown to consist of a single piece of tubing in an inverted U-shape, it will be apreciated that no invention would be involved in making this framework of a plurality of different pieces.

Referring now to FIGURE 3 for a different explanation as to the use of the invention, it will be seen that a person in a wheelchair or other suitable support may be positioned near the supporting framework end of the elevated inclined trackway. The person in the wheelchair may then grasp the supporting framework and by twisting or turning it slightly position the entire assembly upon the surface of the bowling alley so that a bowling ball will be given the correct directional guidance. When the user has lined up the entire device to the position which he thinks will knock down the maximum number of pins, all that he need then do is to give the bowling ball a slight forward push in order to start it on its way down the mid portion of the inclined trackway.

Whereas the bowling accessory has been shown as mounted on rather flat slidable feet or pad arrangements, it would of course not involve invention to substitute equivalent means such as wheels, ball bearings, etc.

Once the ball has been started down the inclined mid portion and has then rolled down the alley and hit some pins, the user will thereafter be able to judge whether or not the device was aimed correctly. If not, then changes can be made with very slight manipulation of the device. It will also be appreciated that the user can easily shift the device by tilting it backwards so that the front base portions 32 and 34 rise off the surface of the bowling alley. These front base members can thereafter be positioned in a different location. The very slight physical force needed to manipulate and operate the present device is unique.

It is thus seen that the present invention provides a light-weight, durable assembly which may be easily manipulated with very little muscular exertion.

It will be readily recognized that a great number of variations in construction and design of the device might be made. For example, rather than utilizing the parallel tubes shown, no invention would be involved in substituting a channel suitable to receive a bowling ball and having suitable curvature to allow gravitational propulsion of a ball traveling therein. It should therefore be understood that the inventor does not desire to be limited to the details of construction as described in the above specific embodiment, but only to what fairly falls within the scope and spirit of the invention as described in the claims appended hereto.

What is claimed is:

1. A device for assisting disabled persons in projecting a bowling ball down a bowling alley toward bowling pins, comprising in combination:

(*a*) an elevated inclined trackway composed of two spaced apart aluminum tubes having a configuration which is at least partially curved,

(*b*) the midportion of said trackway sloping at an angle between about 30 and 60° with respect to the horizontal,

(*c*) the upper end portion of said trackway being disposed in a substantially horizontal plane and having a length sufficient to accommodate at least one bowling ball in a resting position,

(*d*) the lower portion of said trackway having a slope which gradually changes from between 30 and 60° to being substantially horizontal,

(*e*) the said two tubular elements of said inclined trackway being braced together at at least two intervals by braces extending between the two tubes,

(*f*) the bottom end of said lower portion of said trackway forming a base section which is adapted to support the lower end of the inclined trackway upon the surface of a bowling alley, said base section comprising two relatively flat base members attached to the lower end extremities of said tubular members,

(*g*) the upper end portions of the tubes of said elevated, inclined trackway being joined to and supported in an elevated position by a supporting framework disposed in a substantially vertical plane, said supporting framework comprising at least two vertically disposed side members spaced from one another by a substantially greater distance than the width of said trackway and at least one horizontal member across the top of said two side members, said two vertical members having spaced apart feet members which are adapted to rest upon the surface of a bowling alley.

2. A device for assisting disabled persons in projecting a bowling ball down a bowling alley toward bowling pins, comprising in combination:

(*a*) an elevated inclined trackway,

(*b*) the midportion of said trackway sloping at an angle between about 15° and 75° with respect to the horizontal,

(*c*) the upper end portion of said trackway being substantially horizontal,

(*d*) the lower portion of said trackway having a slope which gradually changes from between 15° and 75° to being substantially horizontal,

(*e*) the bottom end of said lower portion of said trackway forming a base section which is adapted to support the lower end of the inclined trackway upon the surface of a bowling alley,

(*f*) the upper end portion of said elevated inclined trackway being joined to and supported in an elevated position by a supporting framework disposed in a substantially vertical plane and adapted to receive the front end of a wheel chair, said supporting framework having spaced apart feet members which are adapted to rest upon the surface of a bowling alley.

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DELBERT B. LOWE, *Primary Examiner.*