Dec. 10, 1963 A. J. RIPEPE 3,113,773

SIMULATED BOWLING PIN ASSEMBLY

Filed Dec. 2, 1960 2 Sheets-Sheet 1

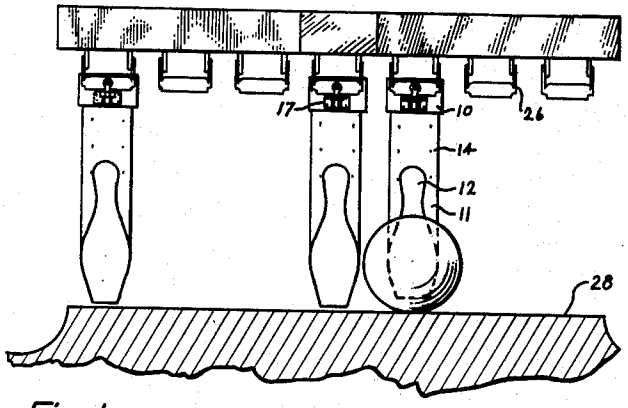


Fig. 1.

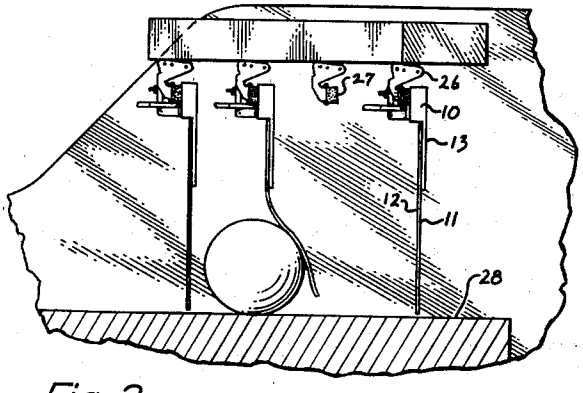


Fig. 2.

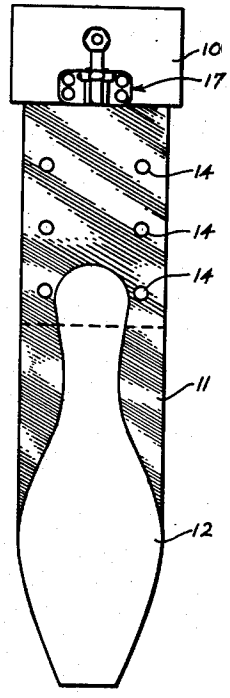


Fig. 3.

INVENTOR.
ADOLPH J. RIPEPE
BY
ATTORNEY

Dec. 10, 1963 A. J. RIPEPE 3,113,773

SIMULATED BOWLING PIN ASSEMBLY

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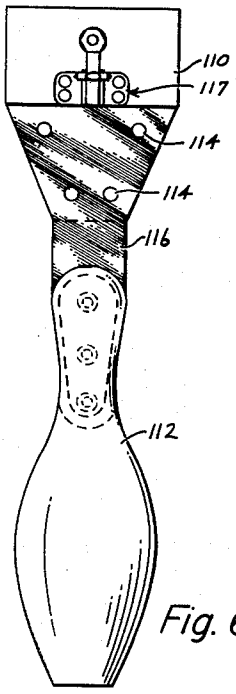


Fig. 6.

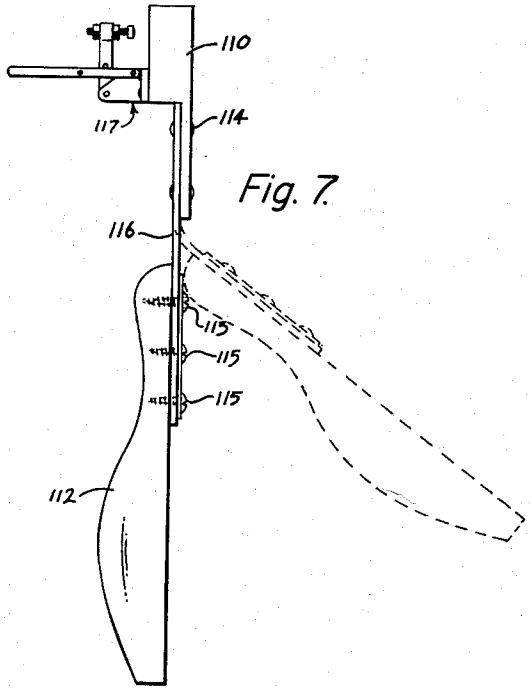


Fig. 7.

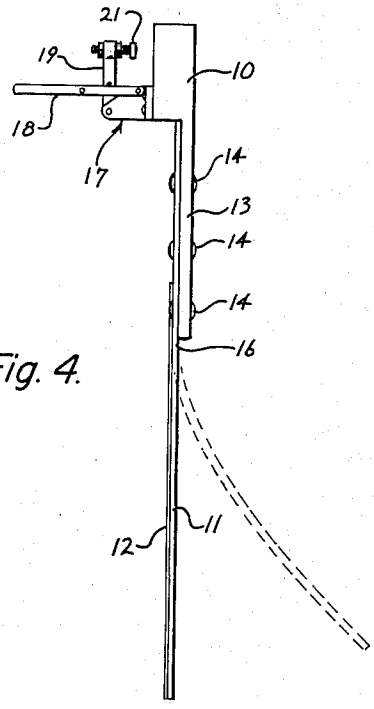


Fig. 4.

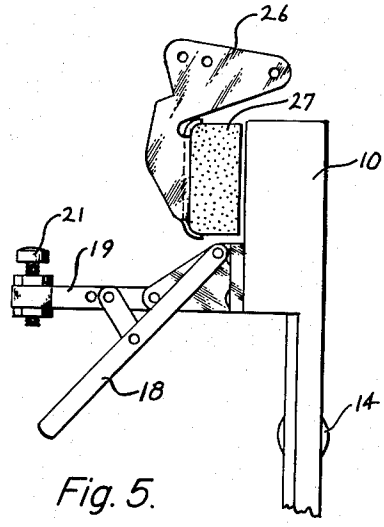


Fig. 5.

INVENTOR.
ADOLPH J. RIPEPE
BY John J. McLaughlin
ATTORNEY

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SIMULATED BOWLING PIN ASSEMBLY

Adolph J. Ripepe, Phoenix, Ariz.
(6012 E. Hampton, Tucson, Ariz.)

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5 Claims. (Cl. 273—41)

My invention relates to a simulated bowling pin assembly for use with automatic pin setting equipment.

When bowling pins were set up manually it was a simple procedure to have a pin boy set up an individual pin or particular combination of pins less than the total rack for individual practice or instruction. With automatic pin setting equipment, however, which is now coming into general use, it is extremely difficult to set up an individual pin or group of pins, so that practice and instructing customs have suffered. To set up an individual pin, for example, it is necessary that a service man familiar with construction and maintenance of the complicated pin setting equipment be used to set up the individual pin by means of a long hooked rod, a time-consuming, costly operation. Another possibility is to crawl under the pin resetting portion of the equipment from the front to set up individual pins, but this is not a practical method of meeting the problem because the spotter of the individual pins will then be out on the alley, and time must be permitted for him to return to the foul line before the practising bowler can release his ball.

Another problem of practising either individually or with an instructor is that each time the rack forming a part of the pin resetting mechanism runs through its cycle a record is made on a tabulator, which forms the basis for accounting systems in bowling establishments. If the pin respotting mechanism is rented, the proprietor must pay a stated amount for the total number of cycles through which the equipment passes. When the equipment is owned by the proprietor the same cycling and tabulating operation is normally used as part of his accounting system, and the cash receipts should reflect payments equal to total tabulations of all pin setting equipment in an establishment.

Regardless of whether the automatic pin setting equipment is owned or leased, therefore, the cost of practice or instruction sessions, in which the equipment is not used fully in its intended manner, become prohibitive and practice and instruction therefore suffer. To remedy this situation, the bowling proprietors owning their own automatic pin setting equipment frequently provided special rates for practice under certain circumstances, but such sessions are limited and they also give rise to accounting problems, adding to the cost of the proprietors.

The principal object of the present invention is to make possible unlimited practice and instruction, under circumstances best calculated to improve the bowler's skill while still avoiding the problems discussed here and above, with respect to the automatic pin setting equipment.

Another object is the provision of a simulated bowling pin assembly for use with automatic pin setting equipment, which may be used without requiring cycling of the pin respotting mechanism, so that the tabulating equipment will not be operating and a flat charge for practice and instruction sessions can be made.

A further object is the provision of a simulated bowling pi nassembly, which may be attached to a standard part of the automatic pin setting equipment, so that it will occupy a position substantially exactly coinciding with the position of a selected pin.

A still further object is the provision of a simulated bowling pin assembly, one or a number of which may be attached to a standard portion of the pin resetting equipment to occupy substantially the same positions as the pins which they replace and which, while giving the same appearance as standard three-dimensional pins, permit the ball to pass through to the end of the alley without affecting the positioning of the simulated pins in any way.

Still a further object is the provision of a simulated bowling pin assembly, which may be suspended from a standard part of an automatic pin setting equipment in a position normally occupied by a standard pin, and which is attached to swing out of the way when contact with the ball is made, but without being detached.

In accordance with the general features of my invention I provide a simulated bowling pin assembly, comprising a block and clamp for attachment to a standard part of the automatic pin setting equipment, specifically the pin respotting assembly of such equipment, above a pin location, and a hinged pendant portion, forming at its lower part the outline of a bowling pin, and so positioned that the bottom of the pin just clears the surface of the bowling alley. When such a pin is struck with a bowling ball, it moves about its hinged portion to permit the ball to pass through to the end of the alley and then returns immediately to its pendant position, with the simulated bowling pin in substantially the identical position which the standard pin would occupy on the alley.

Since automatic pin setting equipment can be set to prevent operation of the pin respotting assembly, usually by the mere opening of an electric switch, the ball return may continue to operate, but the rack forming a part of the pin respotting mechanism does not cycle.

With no pins to be removed or respotted, the ball is quickly returned to the foul line of the alley, and practice or instruction may continue at an accelerated rate. Since the simulated bowling pin assembly is releaseably attached to a standard part of the pin setting mechanism and is not disturbed by the action of the bowling ball, practice may be continued as long as is desired at a given pin or group of pins. If a change is to be made, it is only necessary to make on trip beneath the rack and a few seconds only are required to change the position of the simulated bowling pin of the present invention.

I have found in actual practice that if a simulated bowling pin assembly is attached at the 1, 7 and 10-pin positions, it is usually possible with most bowlers to go through an entire lesson period without ever having to change the positions of any of the simulated pin assemblies. With bowlers having particular problems, however, it may be necessary to take a few moments to shift the positions of the simulated pins, and of course the illustrative starting arrangement of the 1, 7 and 10-pins may be varied in any way to suit the needs of a particular bowler at a given time.

Other specific objects and features of the invention will be made apparent from the consideration of the following detailed description taken with the accompanying drawings wherein:

FIG. 1 is a front elevational view partly in section indicating one manner in which the simulated bowling pin assembly of the present invention may be utilized;

FIG. 2 is a side elevational view of FIG. 1;

FIG. 3 is a front elevational view showing one form of the simulated bowling pin assembly;

FIG. 4 is a side elevational view;

FIG. 5 is a fragmentary side elevational view showing the manner in which the simulated bowling pin assembly may be attached to a standard part of a pin respotting assembly;

FIG. 6 is a front elevational view showing a modified form of the invention, and

FIG. 7 is a side elevational view of the assembly shown in FIG. 6.

Referring now first to FIGS. 3, 4 and 5, the embodiment of the invention there shown comprises a block **10** having a pendant portion **11** on the front of which a simulated bowling pin **12** is attached. The pendant portion **11** is suitably attached to a downwardly projecting portion **13** of the block **10** and fixed by means of rivets **14**. The portion of the pendant **11** immediately below the point of attachment to the block forms a hinge, as at **16**. The pendant portion **11** is made of a suitable flexible, resilient material such as a rubber or a fabric-reinforced strip of semisoft rubber, although other materials such as various plastics may be used.

The exact material to be employed is without significance, as long as it has the property of flexing to permit movement, as indicated by the dotted line in FIG. 4, and quick return to pendant position, as shown by the full lines. When the material comprising the pendant portion is formed of sheet rubber, for example, the hinge **16** may merely comprise the upper portion of the pendant portion. I may, of course, provide a regular hinge, such as the conventional piano hinge, but I have found the use of such a special hinge for the purpose not only costly, but actually more subject to wear and loss of function than a hinge merely comprising a section of resilient, flexible material.

The simulated bowling pin **12** preferably comprises a relatively thin strip of white rubber or plastic secured in face to face relation with the flat pendant portion **11** by means of a suitable adhesive. I have on occasion merely applied the outline of a bowling pin on the pendant portion **11** by means of light-colored rubber-base paint, having an overall thickness of, say, two to three thousandths of an inch. Optionally, however, it may be 1/32" to 1/16" thick and comprise a solid rubber strip attached by adhesive. It should be of a material to withstand the impact and wear of a ball striking it. Suitably the pendant portion is formed of 1/8" thick good grade black rubber strip which may, if desired, be reinforced with a thin layer of fabric. It is, of course, obvious that the pendant portion **11** and the simulated bowling pin **12** should be of contrasting colors, and I have found that black rubber strip for the pendant **16** and off-white rubber for the simulated bowling pin make an ideal combination.

The block **10** and portion **13** may be formed of any suitable material, and I have found that a good grade of plywood is suitable for the purpose. To the front face of the block **10** I attached a clamp **17**, which is of the quick-acting type, with a toggle mechanism as shown (see FIG. 5) including an operating lever **18** and clamping arm **19**, with an adjustable headed pin **21** for engaging the part of the mechanism to which the simulated bowling pin assembly is to be attached. The clamp **17** may be of standard type, and I have found that either a Number 202 Destaco Toggle Clamp or an H–200 KNU-Vise Clamp may be used with satisfaction.

While the simulated bowling pin assembly of the present invention may be constructed in various ways and with various dimensions, depending upon the specific mechanism to which it is to be attached, I have obtained very good results when using the assembly on AMF type equipment if the overall length is 26¾", and the block **10** with its downward projection **13** is a total of 12" in length. The length of the pendant portion **11** is such as to provide the overall dimension of the assembly as indicated, allowing a suitable top portion for adjustment to the block. The width of the pendant as well as the width of the block **10** may be, for example, 4 13/16" to conform generally with the width of the standard bowling pin, which the simulated pin **12** resembles in outline and dimension.

As already pointed out, the simulated bowling pin assembly of the present invention is attachable to any type of automatic pin setting equipment using the standard part for attachment, so that the simulated pin will occupy the same position at the pin end of the bowling alley which would be occupied by the real or standard pin. In the drawings, in FIGS. 1, 2 and 5, I illustrate part of a standard respotting assembly of a type manufactured by American Machine and Foundry Co., which is known universally as AMF. While equipment in commercial use will differ somewhat in structure from those shown in published patents, Patent No. 2,781,195 may be referred to for identification of the respotting mechanism, the bracket **26** being generally similar to the "clamping bar **374**" shown in the drawings of such patent. The pin gripping bracket **26** is provided in such equipment, and it cooperates with a second pin gripping bracket (not shown) which grips pins still standing after a first ball has been thrown, and lifts them free of the alley while the fallen pins are swept from the alley and gutters at the side of the alley. The bracket **26** carries a sponge rubber face **27** which normally grips the front edge of the pins when they are lifted. Looking at FIG. 5, it is seen that when the block **10** is placed against the sponge rubber pad **27** and the clamp **17** operated by the lever **18**, the pendant portion with the simulated bowling pin will lie just to the rear (to the right in FIGS. 2 and 5) of the position occupied by the pin gripping bracket **26**. Since this bracket is slightly ahead of the pin position, so that as it moves towards its cooperating bracket to engage front and back portions of the head of the pin, the pin gripping bracket **26** is actually slightly ahead of the pin position. The result is that, with the arrangement shown in the drawings, the simulated pin will center in the circular spot on the alley indicating the pin position.

FIGS. 1 and 2 indicate schematically as far as it is possible, the top surface **28** of the bowling alley normally supporting the standard pins, with the usual gutters at the side. As there shown, also, there is a pin gripping bracket **26** for each of the pins. These brackets are displaced from each other both laterally and longitudinally in the same way as the pins themselves are spaced. In FIGS. 1 and 2 there is a simulated bowling pin assembly attached at the 1, 3 and 7-pin positions. I have chosen these positions for illustration on the drawing because they best indicate the displacement of the pins, and in side elevation all three elevations are shown, one simulated pin assembly not being obscured by the other. As shown, particularly in FIGS. 1 and 2, the simulated pin assembly just clears the surface of the alley and the bowling ball may roll freely under a simulated pin assembly, as the drawings indicate. If the simulated bowling pin assembly were set up in the manner shown, it would probably be used for the purpose of practicing a so-called "pocket hit" between the one and three pins, but I have shown only the three-pin being struck by the ball, to illustrate the manner in which the bowler may throw at a single pin or group of pins if he should desire. It may be repeated at this time that, when the simulated bowling pin assembly is used in the manner shown in FIGS. 1 and 2 or with any other pattern of pins selected by the instructor or bowler in practice, the pin respotting assembly which carries the brackets **26** is not operated, the only activity being that the simulated pin will immediately return to its pendant position, and the ball will be returned back to the bowler.

If desired, the simulated bowling pin may be three-dimensional as shown in the embodiment of the invention illustrated in FIGS. 6 and 7. In this form of the invention the parts may be constructed in general the same as described in the first embodiment, and I have employed the same reference characters to identify like or similar parts with, however, the prefix 1 to indicate modification. It will be noted that the simulated pin **112** is in the form of substantially a half pin and attached to the pendant **111** by screws **115**. The pendant may be formed of black, hard rubber, as in the previous embodiment, and the simulated bowling pin **112** of any suitable material, such as molded wood, solid compacted papier-

mache, various molding compounds, white rubber composition, various plastics and the like. The only requirement is that it have sufficient strength and resiliency to withstand the impact of the bowling ball, and remain attached to the pendant portion **111**. In general I have found no particular advantage in teaching using the half relief structure of the present embodiment over the mere pin outline, but some players in practice have indicated a preference for the half relief structure, particularly when practising certain types of spares where the ball is slightly deflected from its course when striking the pin.

I have described my invention in detail, and shown specific embodiment thereto, in order that those skilled in the art may understand a practising of same. The scope of the invention, however, is defined by the claims.

I claim:

1. A combination assembly of a simulated bowling pin sub-assembly and automatic pin setting equipment, comprising a block, means for attaching the block to a portion of said pin setting equipment above a spot on a bowling alley surface normally occupied by a bowling pin, hinge means suspended from said block, and a pendant member defining the outline of a standard bowling pin secured to said hinge means, said pendant member clearing the said alley surface only slightly to position said standard bowling pin outline substantially in the same attitude occupied by a bowling pin, whereby when said pendant member is struck by a bowling ball, the said pendant member may swing about said hinge means and permit the bowling ball to continue its rolling course along the bowling alley.

2. A combination assembly as defined in claim 1 wherein said hinge means comprises a flap of resilient material, and said pendant member comprises a flat resilient strip of relatively dark-colored organic material which is a continuation of said flap to the front face of which a flat layer of light-weight organic material is adhesively secured forming the outline of a bowling pin.

3. A combination assembly as defined in claim 1 wherein said pendant member carries on its forward face a projection in substantially half relief of a standard bowling pin, said projection formed of relatively resilient material having the general resiliency characteristics of a bowling pin.

4. A combination assembly of a simulated bowling pin sub-assembly and automatic pin setting equipment, comprising a block, a clamp associated with said block for releasably clamping the said block to a standard pin gripping member forming a part of a pin respotting mechanism of said automatic pin setting equipment, hinge means depending from said block, and a pendant member projecting downwardly from said hinge means, said pendant member having on its forward face a simulated pin member in the size and outline of a bowling pin, the parts being so constructed and arranged that when the block is attached to the pin gripping member forming a part of the respotting mechanism, the said simulated pin will occupy substantially the same position on a bowling alley as would the standard pin which would normally be associated with the same gripping member.

5. A combination assembly as defined in claim 4 wherein said hinge means and pendant member comprise a flat strip of rubberlike material, and said simulated pin member comprising a light-colored strip of similar material.

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