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2,086,939

METHOD OF REPAIRING IMPAIRED BOWLING PINS AND ARTICLE RESULTING THEREFROM

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FIG. 1

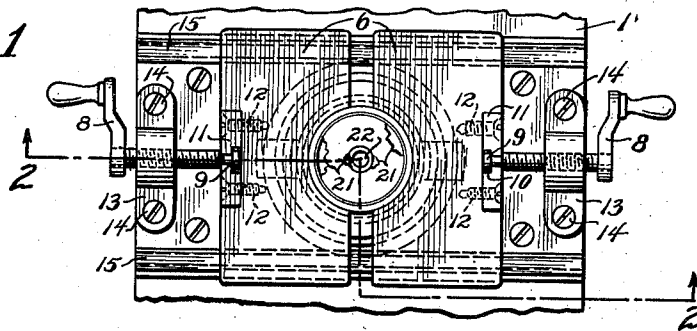


FIG. 2

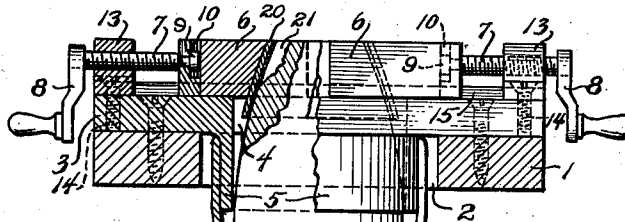


FIG. 5

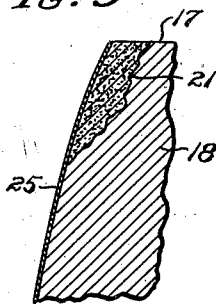


FIG. 4

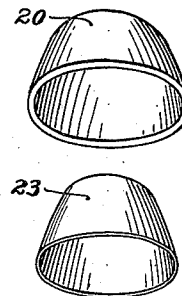
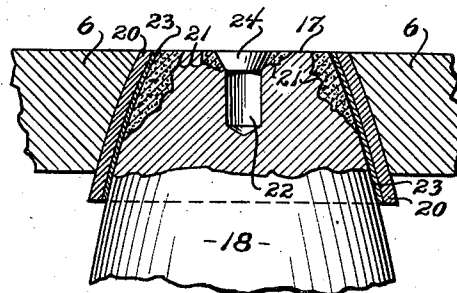


FIG. 3



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2,086,939

METHOD OF REPAIRING IMPAIRED BOWLING PINS AND ARTICLE RESULTING THEREFROM

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6 Claims. (Cl. 18—47.5)

My invention relates to the treatment of game pieces and the like to improve their serviceability and to prolong their normal usefulness, and more particularly, to an improved method and apparatus for repairing impaired bowling pins.

The average life of a bowling pin is at best comparatively short, and the consequent expense to bowling alley operators in keeping on hand the requisite number of sets of first quality pins is relatively heavy. Under ordinary conditions, the pins soon become dented or marred from repeated impacts of the bowling balls, and of the pins against each other, and not infrequently, pieces or slivers will be chipped out of the pins, particularly near their base. The area of the bottom face of a bowling pin is much less than the cross-sectional area of the belly section of the pin, so when the fractures or chips occur at the bottom corners, the stability of the pins is materially affected, and at times, so much so that the pins cannot be set up. The chipping and splintering otherwise affects the normal action of the pins under actual bowling conditions, so that they soon lose their usefulness.

It has been the practice of bowling alley proprietors to save their best pins for so-called league or match games, and after a short period of use, to replace the same with new pins and relegate the old pins to service for so-called practice games and games of the transient or general public patrons. This custom is more or less unfair to the latter class of bowlers because the scores made through the use of impaired pins do not truly reflect the skill of the bowler. However, this state of affairs has been of long duration, with the result that many bowling establishments have lost patrons through the inability of the proprietors to stand the expense of the frequent replacing of the used pins with new pins, as the only practical solution of the problem heretofore available.

Through the practice of my invention as embodied herein, it is now possible and entirely practical to restore or recondition impaired pins for further use. Moreover, my invention affords an economical and effective treatment whereby the pins may be maintained in first class condition and the life of the pins prolonged far beyond their usual normal period of service.

My invention further contemplates a novel filler for filling the indentations or parts of the bowling pins which have been worn or chipped away, said filler having the characteristics of a cement and being preferably composed of sodium silicate and powdered asbestos or equivalent fibrous material.

A still further object of the invention is to provide a practical, efficient and inexpensive apparatus for facilitating the application of the filler or cement employed in reconditioning or repairing the pins. More specifically, the apparatus includes a suitable pin-holding device, preferably embodying a clamping means for releasably clamping a casing or mold in proper position respecting the part of the pin which is to be repaired, and further embodying suitable means, preferably in the form of a paper liner for preventing the cement or filler from sticking to the casing or mold, and for protecting the cement from injury during removal of the pin from the holding device.

The invention also contemplates the application of a coating of sodium silicate to the outer surface of the cement filling, and this same coating, or an equivalent coating, is also preferably employed to prime the impaired or injured surface before the application of the cement filler.

Other and further objects and advantages of the invention will be hereinafter described, and the novel features thereof defined by the appended claims.

In the drawing:

Figure 1 is a top plan view of one preferred form of pin-holding apparatus which may be employed to facilitate the practice of the method of my invention;

Figure 2 is a sectional view taken approximately on the line 2—2 of Figure 1, and further illustrating the pin, partly in section and partly in elevation, in position preparatory to treating the same for repairing or reconditioning the impaired portions thereof;

Figure 3 is an enlarged fragmentary sectional view of the pin holding or supporting apparatus, and illustrating the condition of the pin after the application of the filler material to the impaired portions thereof;

Figure 4 is a detail perspective view of the form and liner means which forms a part of the apparatus employed in repairing or reconditioning the pins; and

Figure 5 is an enlarged fragmentary sectional view illustrating the pin in a final reconditioned form wherein a coating of sodium silicate or the like has been applied to the pin and over the impaired portions which have been filled with cement.

Like reference characters designate corresponding parts in the several figures of the drawing, wherein 1 designates a support such as the top of a table or workbench having an opening 2

extending therethrough. Mounted upon the support 1 is a plate 3 also having an opening 4 therethrough, the plate being further provided with a sleeve-like member 5 depending therefrom and adapted to extend through the opening 2 in support 1. Slidably mounted upon the plate 3 is a pair of clamping jaws 6 adapted to be movable towards and away from each other by suitable jaw-actuating means such as screws 7, 7, there being preferably one screw for each jaw. Each screw 7 is provided with an operating crank 8 at its outer extremity, and is further provided with a head 9 at its inner extremity adapted to fit snugly in a slot or recess 10 in the adjacent jaw 6 whereby to interlock the screw 7 with the jaw to enable the jaw to be moved in opposite directions incident to rotation of the screw. As illustrated, the recess or slot 10 is formed in a separate insert 11 which is snugly received in a suitable socket provided therefor in the outer face of the jaw, and removably secured therein, as by screws 12. The screw 7 is journaled in a bearing 13, preferably detachably mounted on the plate 3, as by bolts or screws 14, the bearing being correspondingly threaded to mate with the threads of the screw 7 so as to feed the screw in one direction when the crank 8 is turned in one direction, and feed the screw in the opposite direction when the crank is turned in the opposite direction. Guide rails 15, 15 are preferably provided on the plate 3 to guide the sliding movements of the jaws 6, and these guide rails preferably are dovetailed in shape for being received in correspondingly shaped grooves formed in the lower faces of the jaws. By reason of this construction, the jaws 6 are restrained against vertical movement respecting the plate 3, while they are free to slide towards and away from each other longitudinally of the plate, as will be obvious. It is to be understood that I do not wish to be limited to the precise structural details just described, as the same may be varied without departing from the spirit of the invention. However, such an arrangement is relatively inexpensive in construction and may be easily assembled and operated.

Disposed below the plate 3 and support 1 at a suitable distance to receive the head of a bowling pin, is a cup-shaped member 16, having an internal diameter approximately equal to the diameter of the head of the pin so that the pin head will snugly seat therein when the pin is inserted through the opening 4 of the plate 3 in an inverted position. The member 16 is preferably located just far enough below plate 3 and support 1 so as to position the bottom face 17 of the bowling pin 18 substantially flush with the top faces of the clamping jaws 6 when the head of the pin is seated in the member 16. Any suitable means for supporting this member 16 may be availed of, and for this purpose, I have shown a pair of straps or bars 19, 19 having their upper ends secured, as by welding or riveting the same, to the outer face of the sleeve-like member 5, and their lower ends similarly secured to the outer face of the member 16.

The opposed faces of the clamping jaw 6 are shaped so as to embrace the inverted base of the pin 18, but instead of having the jaws directly contacting with the pin, I prefer to employ a form or mold 20, such as a hollow metal collar or ring having its interior shaped to conform to the normal pin surface contour of the base portion of the pin. After the form 20 has been applied onto the base end of the pin, the jaws 6 may then be clamped tightly against the form through

suitable manipulation of the cranks 8, and the pin 18 will thus be securely held in an inverted position for the convenient treatment of the impaired base of the pin. The sleeve-like member 5 preliminarily centers the pin in the apparatus, 5 and is preferably of such size as to snugly fit around the pin at the point of its greatest diameter, namely, the belly of the pin. It is to be understood, however, that this fit is preferably loose enough to readily permit the insertion of 10 the pin into the supporting device, and removal therefrom.

It will be understood from the foregoing that the apparatus just described is primarily adapted for facilitating repair or reconditioning of the 15 base portions of bowling pins. It is the impairment of the base portions of the pins which causes the greatest trouble inasmuch as such impairments materially effect the stability of the pins. The reference character 21 designates typ- 20 ical impairments, which have been illustrated in the form of recesses or indentations resulting from the chipping off or fracturing of the wood of the pin. The fragments most frequently chip out at the corners of the base of the pin, although sometimes the fractures will extend about the pin spotting or centering bore 22, as indicated in Figures 1 and 3.

Let it be assumed that it is desired to repair or recondition a pin which is impaired to the extent as illustrated in the drawing. I first preferably remove all dirt, grease, or any other foreign matter, from the impaired portions so as to provide a clean surface to which my filler material or cement will readily adhere. Although it is not absolutely essential, I preferably apply a priming coating of sodium silicate, commonly known as water-glass, to the impaired portions. I next apply the form or mold 20 onto the pin, after first prelining the form with some suitable 40 material which will resist the adherence of the cement or filler material to the form. I have found that a paper liner 23 is well suited for this purpose, the paper being preferably an oiled or waxed paper. The pin is now ready for introduction into the pin supporting or holding apparatus, which may be accomplished by opening the jaws 6 through manipulation of the cranks 8 to move the jaws apart widely enough to enable the pin to be inserted therebetween and 50 downwardly through the opening 4 until the head of the pin seats in the cup-like member 16. Thereupon, the jaws are screwed up tightly against the form 20 so as to firmly clamp the pin in position for the application of my cement or 55 filler material now to be described, to the impaired portions thereof.

The cement is composed of a mixture of sodium silicate and a comminuted fibrous material such as powdered asbestos, these ingredients being 60 mixed together in suitable proportions to form a paste-like mixture which may be applied and spread like putty by means of a suitable instrument such as a putty knife.

The cement is forced in between the lined form 65 20 and the pin so as to fill all the fractures or indentations in the pin, as best illustrated in Figure 3. Before applying the cement, I preferably plug up the bore 22 by any suitable plug, as for example, an ordinary corkstopper 24. This is to 70 prevent any of the cement from accidentally dropping into the bore in the bottom of the pin, and to enable the fractures or indentations in the bottom face 17 of the pin to be filled up without blocking or distorting the bore 22. After the 75

application of the cement to the impaired portions has been completed, the cement is allowed to dry until it is sufficiently hardened, so that the pin can be removed from the holding apparatus without damage to the cement. In removing the pin from the apparatus, the jaws 6 are opened up by manipulating the cranks 8 in the direction serving to slide the jaws away from each other. Thereupon, the pin 18 may be lifted out of its supporting socket, and the form 20 may be removed. If the paper liner 23 is used, the liner serves to protect the cement from injury during removal of the form 20.

When the cement has thoroughly dried and hardened, it becomes so tenaciously bonded with the wood of the pin that it will not chip out. In fact, I have found that the bond formed between the cement and the wood is even stronger than the wood fibers themselves, and the cement surface is considerably harder than the wood of the pin, thereby providing an exceptionally durable surface which is virtually fractureproof in ordinary bowling service.

When the cement or filler material has finally dried and hardened, I preferably apply an outer coating 25 of sodium silicate or the equivalent thereto. If the surface of the cement is rough, it is preferably smoothed off in any convenient manner before applying the outer coating of sodium silicate. However, no smoothing of the cement is ordinarily required, inasmuch as the use of the form 20 virtually insures the restoration of the normal pin surface contour with a smooth outer surface.

In applying the outer coating of sodium silicate, I preferably coat the entire surface of the pin, rather than just the exposed surface of the cement, inasmuch as the sodium silicate coating further enhances the durability of the pin surface, and resists the collection of dirt, soil, and the like, such as normally tends to collect on an ordinary pin during use. Moreover, the sodium silicate being somewhat soluble in water, facilitates cleaning of the pins, as by washing the surface of the pins with a damp cloth to remove only a minute portion or thin film of the coating, and thereby results in the removal of practically all soil and marks. With my sodium silicate coating, the care and expense usually necessary to keep the pins clean is greatly lessened.

It is to be understood that the practice of my new process disclosed herein is not confined to impaired base portions of the bowling pins, as the same is equally applicable to any other part of the pin where fractures are likely to and do occur. Moreover, it is not essential to the invention that the fractures or indentations should be allowed to occur before the invention becomes useful. For example, it may be desirable to treat new pins with my cement at those portions where the indentations and fractures most frequently occur in ordinary service, as at the belly and base portions of the pins. To facilitate the application of the cement or filler material to the new pin, portions of the pin may be cut away and the normal contour then restored by the application of the cement or filler material to the places where the wood of the pin has been cut

out, thereby providing the pin with a more durable surface and one which is considerably less likely to become impaired in service.

In cases where the impairments of old pins are unusually severe, it may be desirable to cut away or turn down the pin at the impaired places before the filler material or cement is applied.

While the specific details have been herein shown and described, the invention is not confined thereto, as changes and alterations may be made without departing from the spirit thereof as defined by the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is—

1. The method of repairing impaired bowling pins and the like, which comprises applying to the impaired portions of the pin a plastic cement composed of a mixture of sodium silicate and comminuted fibrous material, said cement being adapted to harden when dried and become intimately bonded with the pin so as to produce a substantially fractureproof and durable surface.

2. The method of repairing impaired bowling pins and the like, which comprises applying to the impaired portions of the pin a plastic cement composed of a mixture of sodium silicate and comminuted asbestos, said cement being adapted to harden when dried and become intimately bonded with the pin so as to produce a substantially fractureproof and durable surface.

3. The method of repairing impaired bowling pins and the like, which comprises applying a plastic cement to the impaired portions of the pin, said cement comprising a plastic mixture of sodium silicate and comminuted fibrous material, drying the cement, and finally coating the exposed surface of the cement with a coating of sodium silicate.

4. The method of repairing impaired bowling pins and the like, which comprises applying a form about the impaired portion of the pin, forcing a plastic filler comprising a mixture of sodium silicate and comminuted fibrous material within the form to fill the depressions or cavities in the pin, said filler material having the characteristic of becoming hardened when dried to present a substantially fractureproof and durable surface, removing the form when the filler material has hardened, smoothing the exposed surface of the hardened filler material, and applying to the pin a coating of sodium silicate.

5. A bowling pin having at least a portion of the surface thereof formed of a cementitious material composed of a mixture of sodium silicate and comminuted asbestos whereby to provide a durable surface resistant to denting and fracturing in bowling service.

6. A bowling pin having at least a portion of the surface thereof formed of a cementitious material composed of a mixture of sodium silicate and comminuted fibrous material, whereby to provide a durable surface resistant to denting and fracturing in bowling service, and having an outer coating of sodium silicate affording a smooth, hard, durable, soil resistant surface.

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