INVENTOR.
ROY E. BAKER, JR.
BY
McMorris, German & Davidson
ATTORNEYS
This invention relates to novel automatic bowling pin setting mechanisms, and more particularly to a novel curtain retaining bracket for such mechanisms.

In the cases of certain bowling pinsetter mechanisms employing shock-absorbing curtains, the shocks of bowled balls striking the curtain supports causes the curtains to be displaced from their mountings, so that they becomes necessary for attendants to replace the curtains into their mountings, either at the risk of injury to themselves or to the mechanism from bowled balls, or at the trouble and inconvenience to themselves and bowlers of interrupting the bowling long enough to replace the curtains.

The primary object of the present invention is the provision of a simple and efficient retaining bracket, the installation of which on pin setting mechanisms eliminates the above outlined difficulties and inconveniences, by serving to retain the curtains in their mountings.

Another object of the invention is the provision of a curtain retaining bracket indicated above, which is easily and quickly installed, and which, when installed, does not prevent or interfere with raising of the curtain by an attendant, for the purpose of reaching onto a bowling alley to clear pins out of the gutters or to manually correct the positions of inaccurately placed pins.

Other important objects and advantageous features of the invention will be apparent from the following description and the accompanying drawings, wherein, for purposes of illustration only, a specific form of the invention is set forth in detail.

In the drawings:

FIGURE 1 is a fragmentary and horizontally contrasted front perspective view of a bowling pinsetter mechanism, showing a curtain retaining bracket of the present invention installed thereon;

FIGURE 2 is an enlarged vertical transverse section taken on the line 2-2 of FIGURE 1, showing the curtain cross bar in normal position in full lines and in displaced positions in phantom lines; and,

FIGURE 3 is an exploded rear perspective view of the retaining bracket and the associated curtain bar mounting bracket.

Referring in detail to the drawings, wherein like numerals designate like parts throughout the several views, the numeral 10 generally designates a bowling pinsetter mechanism curtain supporting frame, having laterally spaced first and second vertical side members 12 and 14, which, at their lower ends, are fixed, as indicated at 16 and 18, to related ends of a horizontal shock-absorbing bumper bar 20. As viewed from the rear, the first side member 12 is the left-hand member, and the second side member 14 is the right-hand member.

Fixed to and extending laterally inwardly from the right-hand frame member 14 is an inwardly opening horizontal mounting socket 22. Fixed to the left-hand frame member 12 and extending inwardly therefrom, in line with the socket 22, is a mounting bracket 24. The mounting bracket 24 is a vertically elongated oblong of strap metal, which is open at its laterally inward side, and which comprises a vertical front wall 26, arcuate top and bottom symmetrical with the vertical front wall 26, arcuate top and bottom walls 28 and 30, respectively, and an arcuate vertical back wall 32. The back wall 32 reaches upwardly only part way to the arcuate top wall 26 and has a full upper edge 34 which is spaced downwardly from the lower rear edge 36 of the top wall, at a distance sufficient to pass the related end of a curtain cross bar, when it is desired to temporarily raise the associated curtain, for the purpose of removing bowling pins from an alley (not shown) or for respotting pins on the alley.

A curtain generally designated 38, comprises a pendant flexible sheet 40, supported in suitable manner on the frame 10, above the bumper bar 20, and formed with an open-ended sleeve 42 on its lower end, through which a cylindrical curtain cross bar 44 is engaged. The cross bar, at related ends, can have enlarged diameter caps 46 and 48 thereon, which are adapted to engage in the socket 22 and the mounting bracket, and normally to rest upon the arcuate bottom wall 36 of the latter, as shown in FIGURE 1.

Ordinarily, when bowling balls (not shown) strike the bumper bar 20 with substantial force, the frame 10 is jarred to an extent and in a manner that the curtain cross bar 44 is caused to move rearwardly and upwardly, so that the end thereof engaged in the mounting bracket 24, is thrown rearwardly through the back wall opening 46 of the bracket 24, so that the cross bar then requires to be manually replaced in the mounting bracket to restore the protective function of the curtain 38.

Prevention of such escape of the curtain cross bar 44 from the mounting bracket 24, and automatic return of the cross bar to normal position in the mounting bracket 24, when partially displaced from the mounting bracket are provided for by installing a retaining bracket 48 of the present invention.

The retaining bracket 48 preferably comprises a single length of strap stock, the length of which is of vertically elongated rectangular form. The bracket 48 has a straight lower end portion 50, of the same height as the mounting bracket's abbreviated back wall 32, which terminates at the lower end in a downwardly and forwardly curved terminal 52. The bracket 48 further comprises a straight upwardly and rearwardly angled intermediate portion 54 which merges, at its upper end, in a straight perpendicular upper end portion 56 having a free upper end 58.

As shown in FIGURES 1 and 2, the retaining bracket 48 is taller than the mounting bracket 24, with its lower end portion 50 coextensively engaged with the rear side of the abbreviated back wall 32, by means of vertically spaced screws 60, threaded through the portion 50 and into the abbreviated back wall 32, with the terminal 52 engaged with the underside of the bracket bottom wall 30. The bracket 48 being thus installed on the mounting bracket 24, its intermediate portion 54 faces the rear wall opening 46 and is angled upwardly and rearwardly therefrom, with its lower or forward end flush with the upper end 34 of the abbreviated back wall 32, and the upper end portion 56 is paralleled spaced from and reaches above the opening 46 and above the bracket 24.

In operation, should the curtain cross bar 44 be jarred upwardly and rearwardly through the back wall opening 46 of the mounting bracket 24, the cross bar rides upwardly upon the angled intermediate portion 54 of the retaining bracket 48, as indicated in phantom lines in FIGURE 2, and, in so doing, loses some of its momentum, and then falls downwardly along the intermediate portion 54 and is returned or replaced into the mounting bracket 24 through the opening 46. Should the cross bar 44 be more violently driven out of the opening 46, against the retaining bracket 48, the cross bar strikes, and may ride up along the upper end portion 56 of the retaining bracket 48, but is held against escape from the bracket 48, so as to lose momentum and be gravitationally replaced into the mounting bracket 24.

It will be seen from the foregoing that the curtain 40 and its cross bar 44 are immediately and automatically replaced and returned to effective protective position, whenever displaced therefrom, without an attendant having to manipulate the curtain or its cross bar.

Although there have been shown and described herein
preferred forms of the invention, it is to be understood that the invention is not necessarily confined thereto, and that any change or changes in the structure of and in the relative arrangements of components thereof are contemplated as being within the scope of the invention as defined by the claims appended hereto.

What is claimed is:

1. In combination, a bowling pinsetter having a curtain supporting frame composed of laterally spaced first and second vertical side members, a curtain cross bar socket on and extending inwardly from said second side member, a curtain cross bar release mounting bracket on and extending inwardly from said first side member in line with said socket, a horizontal bumper extending between and fixed to the frame side members beneath the socket and the mounting bracket, a flexible curtain sheet suspended on said frame and having a lower end spaced above the bumper bar, a curtain cross bar secured to and extending along the lower end of the curtain sheet and having ends severally engaged in the socket and the mounting bracket, said mounting bracket having a back wall formed with an opening through which the related end of the cross bar can be displaced, and a retaining bracket fixedly installed behind said back wall and rising across said opening.

2. In combination, a bowling pinsetter having a curtain supporting frame composed of laterally spaced first and second vertical side members, a curtain cross bar socket on and extending inwardly from said first side member in line with said socket, a horizontal bumper extending between and fixed to the frame side members beneath the socket and the mounting bracket, a flexible curtain sheet suspended on said frame and having a lower end spaced above the bumper bar, a curtain cross bar secured to and extending along the lower end of the curtain sheet and having ends severally engaged in the socket and the mounting bracket, said mounting bracket having a back wall formed with an opening through which the related end of the cross bar can be displaced, and a retaining bracket fixedly installed behind said back wall and rising across said opening, said retaining bracket having an upwardly and rearwardly angled intermediate portion facing said opening, and an upper end portion rising above said intermediate portion and above said opening and spaced rearwardly from the mounting bracket.

3. In combination, a bowling pinsetter having a curtain supporting frame composed of laterally spaced first and second vertical side members, a curtain cross bar socket on and extending inwardly from said first side member in line with said socket, a horizontal bumper extending between and fixed to the frame side members beneath the socket and the mounting bracket, a flexible curtain sheet suspended on said frame and having a lower end spaced above the bumper bar, a curtain cross bar secured to and extending along the lower end of the curtain sheet and having ends severally engaged in the socket and the mounting bracket, said mounting bracket having a back wall formed with an opening through which the related end of the cross bar can be displaced, and a retaining bracket fixedly installed behind said back wall and rising across said opening, said retaining bracket having an upwardly and rearwardly angled intermediate portion facing said opening, and an upper end portion rising above said intermediate portion and above said opening and spaced rearwardly from the mounting bracket.

4. In combination, a bowling pinsetter having a curtain supporting frame composed of laterally spaced first and second vertical side members, a curtain cross bar socket on and extending inwardly from said first side member in line with said socket, a horizontal bumper extending between and fixed to the frame side members beneath the socket and the mounting bracket, a flexible curtain sheet suspended on said frame and having a lower end spaced above the bumper bar, a curtain cross bar secured to and extending along the lower end of the curtain sheet and having ends severally engaged in the socket and the mounting bracket, said mounting bracket having a back wall formed with an opening through which the related end of the cross bar can be displaced, and a retaining bracket fixedly installed behind said back wall and rising across said opening, said retaining bracket having an upwardly and rearwardly angled intermediate portion facing said opening, and an upper end portion rising above said intermediate portion and above said opening and spaced rearwardly from the mounting bracket.

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