Aug. 21, 1962 H. K. BLOUGH 3,050,306

PIN SETTER TABLE

Filed Oct. 24, 1960

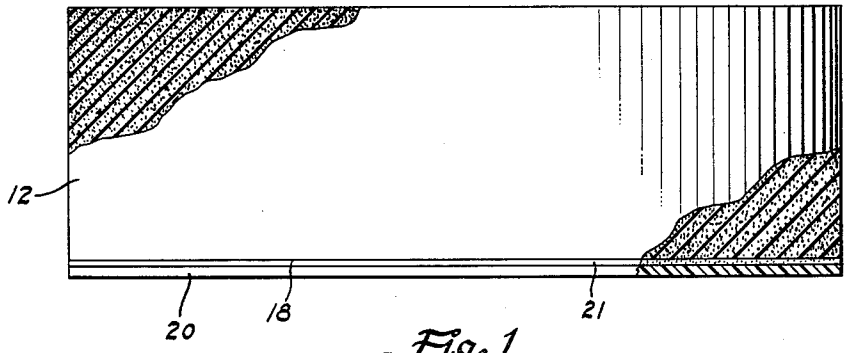


Fig. 1

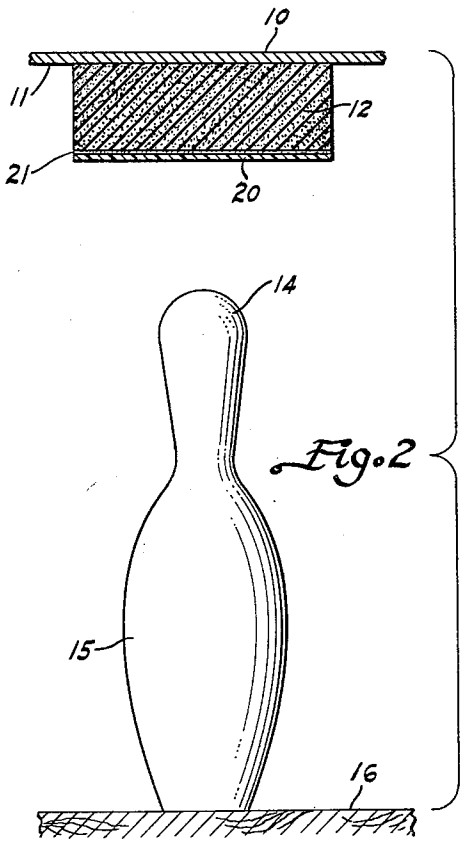


Fig. 2

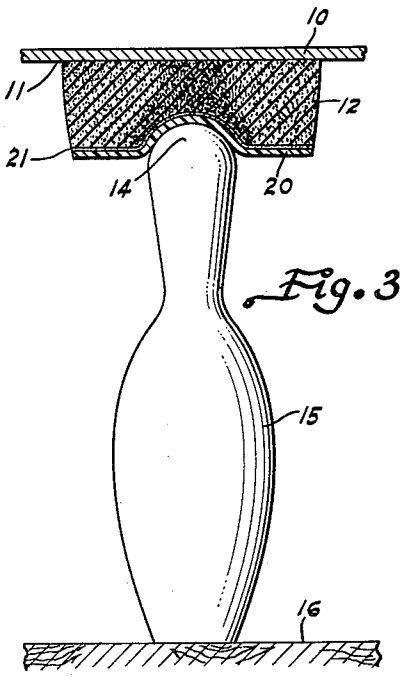


Fig. 3

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PIN SETTER TABLE

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This invention relates generally to bowling and more particularly to automatic pin setters. Still more specifically, the invention relates to improved pin engageable pads on a pin setter.

A conventional automatic pin setter has a table which is lowered after a ball has been thrown. Any pins left standing are clamped between the table and the alley bed and then engaged by gripper arms. The table elevates, carrying the standing pins with it. A sweep arm clears the alley of downed pins, after which the setter table again lowers to re-set the pins on the alley.

Tightly clamping the standing pins between the table and the alley bed is important because frequently a pin moves off-spot, but fails to fall, after a ball has been thrown. Even when off-spot, the gripper arms must grasp and lift standing pins. Because the standing pins are clamped tightly, mechanism associated with the gripper arms can shift the arms responsive to pin engagement so that they will properly lift a given pin and re-set it on the exact spot from which it was lifted.

To prevent any lateral movement of standing pins relative to the setter table when engaged by the table, pads are provided on the underside of the table to engage the upper ends of the pins. Such pads are shown, for example, in U.S. Pat. No. 2,646,984. A resilient material, such as sponge rubber, is commonly employed.

In the operation of a pin setter, the pads thereon are subjected to rugged treatment. The tight clamping action on a standing pin between the setter table and the alley floor, produces a squeezing and distortion of each pin engaging pad. The regular compression and expansion of each pad tends to break down the structure of the pad and make it wear out. To keep repair and replacement down, it is the practice to provide pads of high quality and resulting high cost. Usually each pad costs well over one dollar and there are ten on each pin setter. The frequency of replacement depends upon the extent to which the setter is used. However, most setters on alleys having regular use require that the pads be replaced several times a year.

One object of this invention is to provide a cover, associated with a pin setter pad of the character described, which will greatly increase the operative life of the pad whereby replacement of the pad will be less frequent.

Another object of this invention is to provide, in combination with a pin setter pad of the character described, a cover which protects the pad from wear by absorbing the wear normally directed to the pad.

Another object of this invention is to provide a pad cover which costs only a few cents and will save a pad costing many times that amount from wearing out.

A further object of this invention is to provide a pad cover of the character described which is so connected to the pad that it can be removed therefrom when worn without damage to the pad so that a new cover may be applied in its place.

Other objects of this invention will be apparent hereinafter from the specification and from the recited appended claims.

In the drawings:

FIG. 1 is a part side elevation, part section of a pin setter pad having a protective cover connected thereto according to this invention; and

FIGS. 2 and 3 are generally diagrammatic side views showing the operation of the pad and cover.

Referring now to the drawings by numerals of reference, **10** denotes the table of any conventional commercially available pin setter. The table is vertically movable from the elevated position shown in FIG. 2 to the lowered position shown in FIG. 3. Connected to the underside **11** of table **10** is a disc shaped resilient pad **12** of sponge rubber material. Pad **12** is registrable with the upper end **14** of a pin **15** left standing on alley **16** after a ball has been thrown. It will be understood that table **10** has ten pads **12** each engageable with one of the pins on alley **16**.

When engaged by pad **12** as shown in FIG. 3, pin **15** is clamped tightly between table **10** and the alley **16**. Thus, the pin is held against lateral movement. When so clamped, the pin is adapted to be grasped by gripper arms, not shown, so that the pin may be elevated with table **10** whereby the pin will be lifted from alley **16**. When elevated, the alley can be swept clean of downed pins, after which pin **15** can be respotted. The gripper arms and the mechanism for raising and lowering table **10** may be similar to that shown in U.S. Pat. No. 2,646,984 previously mentioned.

Table **10** extends in a horizontal plane and pad **12** has a flat bottom face **18** parallel to the table. Since pad **12** is made of sponge rubber, face **18** has a relatively high friction. If face **18** engaged the head **14** of pin **15** directly, little sliding or slippage would result between face **18** and the pin as pad **12** becomes distorted when the pin is engaged. This would cause a rapid and substantial wear of the pad, particularly in the center area thereof.

To greatly reduce pad wear, a fabric, disc-shaped cover **20** is detachably bonded to face **18** by a suitable adhesive **21**. Cover **20** may be of any suitable, flexible low friction material such as nylon. A heavy nylon cover piece has much better wearing qualities than the sponge rubber. But more important, it will slide relative to pin head **14** when brought into engagement therewith, FIG. 3. Such sliding greatly reduces wear and makes each cover last for a long period. When worn through, cover **20** can be pulled off of face **18** of the pad. A new layer of adhesive may then be applied so that a new cover can be put in place.

The nylon, silk-like cover **20** costs only a few cents. Nevertheless, it increases the usual life of pad **12** many times over. Further, several covers cost only a fraction of the cost of one sponge rubber pad. Although nylon is referred to as the material from which cover **20** is made, other low friction materials could be used. Also, instead of providing a separate cover, a low friction plastic coating could be periodically sprayed or brushed onto face **18** of the pad.

While this invention has been described in connection with a particular embodiment thereof, it will be understood that it is capable of further modification and this application is intended to cover any adaptations, variations or uses of the invention as come within known or customary practice in the art to which the invention pertains and as fall within the scope of the invention and the limits of the appended claims.

Having thus described my invention what I claim is:

1. In an automatic pin setter, the combination of a horizontal table movable from an elevated position over an alley to a lowered position wherein a pin left standing after a ball has been thrown is clamped between the table and the alley, a resilient sponge rubber-like pad fastened to an underside of said table for operative engagement with said pin when the table is in said lowered position and distortable responsive to such engagement, said pad having a relatively high friction generally flat bottom face which upon engagement with the head of a pin

would be relatively non-slidable relative thereto, and a flexible covering on said bottom face having a smooth pin engageable surface having substantially less friction than said high friction of said pad bottom face and said surface being readily slidable relative to an engaged pin upon distortion of said pad.

2. An automatic pin setter as recited in claim 1 wherein said covering comprises a fabric cover of silk-like material.

3. An automatic pin setter as recited in claim 2 wherein means is provided for detachably bonding said fabric cover to said pad bottom face.

References Cited in the file of this patent

UNITED STATES PATENTS

1,945,038	Hand	Jan. 30, 1934
2,821,395	Dumas	Jan. 28, 1958