Dec. 14, 1926. **1,610,620**

A. H. SEARLE

CUSHION FOR GAME TABLES

Filed May 9, 1925

Fig. 1.

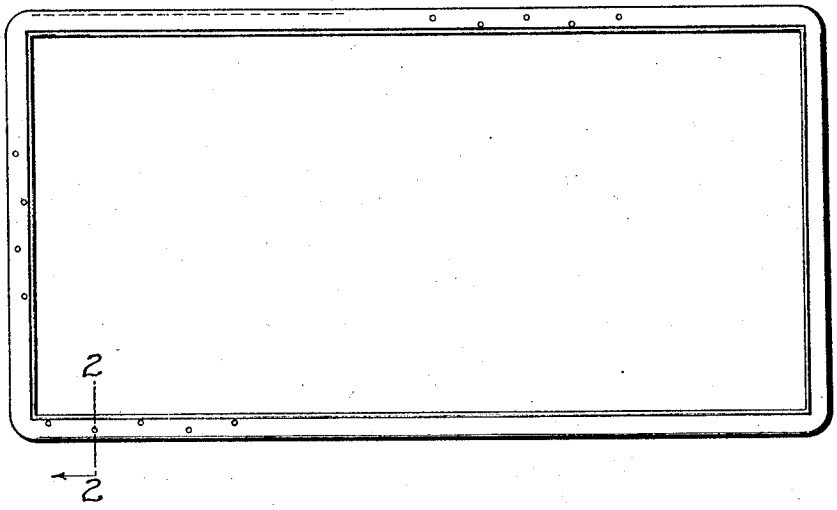


Fig. 2.

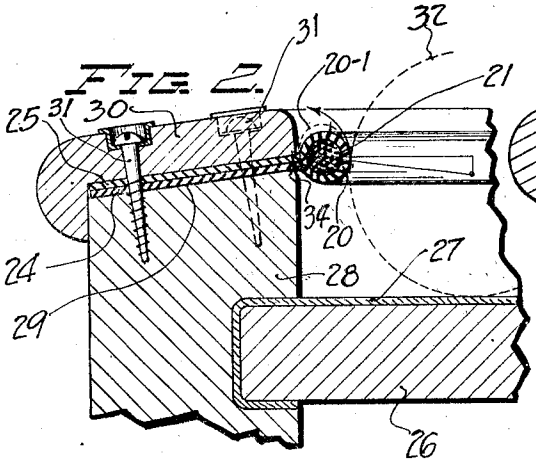


Fig. 3.

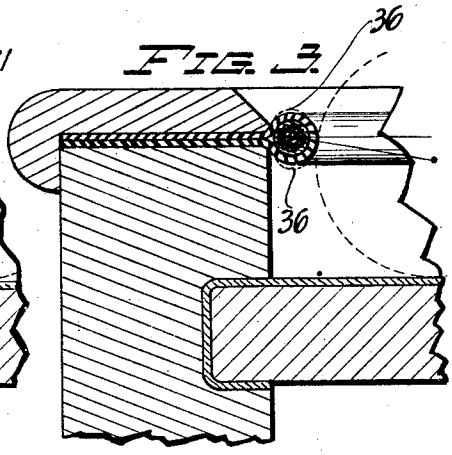


Fig. 4.

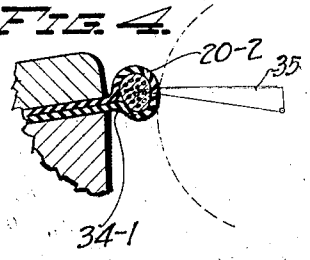


Fig. 6.

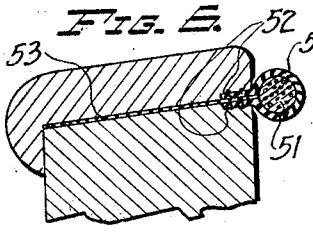
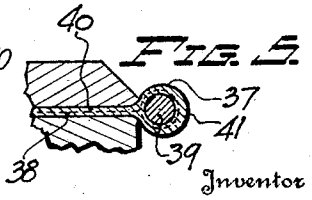


Fig. 5.



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UNITED STATES PATENT OFFICE.

ALLEN H. SEARLE, OF SALT LAKE CITY, UTAH.

CUSHION FOR GAME TABLES.

Application filed May 9, 1925. Serial No. 29,117.

This invention relates to a cushion for game tables such as the one shown, but not claimed, in my application for U. S. patent filed April 3, 1923, Serial Number 629,614, though it may also be used for ordinary billiards and pool, or other games in which balls and cues are used.

The principal objects of this invention are to provide a cushion which shall:

First. Be extremely resilient and therefore sensitive and responsive.

Second. Be simple and durable in construction.

Third. Be easily applied.

Fourth. Be comparatively low in cost.

In attaining these objects my improved cushion is preferably made of elastic or flexible material, such as a strip of rubber, this strip being folded over and around a core preferably made of fibrous or flexible material, such as cotton rope, the fold and core extending longitudinally of the strip. The core with its covering of rubber, may thus form a head or bead of substantially circular cross-section, supported on a stem formed of the two folded over portions of the strip brought together.

In applying the cushion to a table, the stem of the cushion may rest on a coping extending around the table, the stem being clamped to the coping by means of a flat strip of suitable material, which may be held down firmly by ordinary wood screws.

If desired, my improved cushion may consist of a molded head portion, in which is imbedded a core of any suitable material, the head being provided with an integral stem, serving the same purpose as the stem of the previously described construction.

In using this cushion, the resiliency is obtained in three different ways, which operate to augment each other. In the first place, the cushion is mounted at an elevation somewhat above a plane passing through the center of the balls used on the table, the said plane being parallel to the plane of the table. Thus, a ball in striking the cushion, tends to deflect the latter upwardly, causing a storage of energy in the cushion along a line forming one component of a triangle of forces. This component is effective to cause the rebound of the ball parallel to the plane of the table. Secondly, the resilient cushion is subject to compression by the force of the striking ball, this energy being restored to the ball when the cushion springs back to its normal form. Thirdly, there will be a slight compression of the rubber between the ball and the core, when the former strikes the cushions, causing a further storage of energy. The collective energies from these three storages is returned to the ball at substantially the same moment.

The features of this invention, for which the protection of Letters Patent is desired, are collectively grouped in the claims by which this specification is concluded.

In the drawing, which illustrates one embodiment of my invention,

Fig. 1 represents a plan of a game table equipped with my improved cushion;

Fig. 2, a section on line 2—2, considerably enlarged, and showing the cushion in cross-section;

Fig. 3, a section similar to Fig. 2, illustrating certain modifications;

Fig. 4, a fragmentary portion of Fig. 2, illustrating approximately the distortion taking place in the cushion a moment after being struck by the ball;

Fig. 5, a fragmentary section showing a modified construction of the bead; and

Fig. 6, a section showing a further construction.

Referring to the drawing, the cushion comprises the head portion 20, in which is enclosed the core 21, the head being supported by the stem portions 24 and 25. The material of which the portions 20, 24 and 25 are shaped, as shown in Fig. 2, is a flat strip of rubber or the like, which may be unwound from a reel, or be cut from a sheet, the strip being folded around the core 21 as shown.

The game table may comprise an ordinary top 26 covered with a sheet of felt or other material 27, as usual. A coping 28 extends around the table, and the upper face of the coping may be inclined or beveled, as shown at 29. The stem of the cushion may be clamped down on the face 29 by the strip 30, the latter being secured by the wood screws 31. Thus a very broad bearing is obtained for the stem, which insures a secure fastening for the same.

The broken line 32 represents a portion of a ball resting on the table, the ball being just in the act of hitting the cushion. The first effect of the ball, after contacting the cushion, is to slightly compress the layer of resilient material between it and the core

21; then as the ball is forced farther forward, by virtue of its stored energy, the tendency is to raise the head 21, and to move the same slightly around an axis lying in proximity to and extending longitudinally with the neck 34, until a position indicated approximately by the dotted line 20—1 is reached. Simultaneously with this action, the normal form of the head will be distorted somewhat after the manner shown at 20—2 in Fig. 4. When the propelling energy of the ball is spent, this energy will, in large measure, have been stored in the cushion. The cushion, in returning to its normal form by virtue of the resiliency of its component members, will restore this energy to the ball, causing its rebound from the cushion.

The three ways, just touched upon, in which the energy is stored in the cushion, may be clearly visualized from Figs. 2 and 4. The compression of the layer of rubber and the resilient core, as well as the return thereof to its normal form, with the consequent restoration of energy to the ball, may be readily seen. It will also be clear that when the head 20 is lifted around the flexile neck 34 as a pivot, the neck will be bent to approximately the form shown at 34—1 in Fig. 4. Subsequently, the neck in returning to its normal form, will exert upon the ball, the horizontal component of a certain force, somewhat after the manner indicated in the triangle of forces 35, in Fig. 4.

The neck 34, it will be noticed in Figs. 2 and 4, is exposed, that is, it stands out free from the faces of the coping 28 and from the strip 31, so that the bending action just described, may be unobstructed. The inclination of the face 29 has a tendency to facilitate this bending action of the neck 34, by placing the parts in a favorable position for the action just described.

The general behavior of this cushion, as illustrated in Fig. 4, is entirely new so far as I am aware. It will be observed that the upper layer of rubber at the neck, or in other words, the upper half of the stem, is compressed, while the lower layer of rubber at the neck, or lower half of the stem, is tensioned or stretched, when the cushion is hit by a ball, thus resulting in the force represented by the horizontal component of the triangle of forces previously mentioned.

Fig. 3 shows the stem of the cushion substantially parallel to the plane of the table, and the neck of the cushion held in check above and below. In some cases this construction may be desirable, but flexing of the neck is thereby prevented, with a consequent reduction in the amount of energy restored to the ball. The compression of the cushion in this construction, causes the distortion of the cushion in the directions of the dotted lines 36, Fig. 3.

In some cases it may be desirable to mold the cushion head 37 and the stem 38, integrally with each other, as shown in Fig. 5, the head having imbedded therein, a core 39 of any suitable material, such as cotton rope, while the head and stem are reinforced by a strip of textile fabric, such as light canvas, as indicated at 40. In the molded form, the shell of the head 37 may be made heavier at or near the point where it is struck by the balls, as shown at 41.

In another modified form the cushion may be made of a narrow strip of sheet rubber 50, Fig. 6, placed around the core 51, while the short longitudinally extending stem projections 52 are stitched or otherwise fastened to a main stem 53 made of a strip of heavy canvas or other suitable material.

While a specific embodiment of this invention is herein shown and described, it is to be clearly understood that all the detailed parts thereof, may, or may not, be shown in the preferred forms, and further, that the preferred forms may be varied from time to time, as the development of this invention and the arts to which it appertains, progress. Therefore, that which forms an essential and characteristic part of this invention will be readily discernible from the claims in which its spirit is generalized.

Having fully described my invention, what I claim is:

1. A cushion, composed of a head of elastic material, a core of resilient material encased in the head, longitudinally therewith, a stem projecting longitudinally from said head, and a flexile neck where the said stem joins the said head.

2. A resilent cushion comprising a core, an elastic covering for said core, a stem projecting outwardly from said elastic covering and a flexile neck at the junction of the said stem with the said covering.

3. A cushion composed of a strip of flexible material and a resilient core encased in said strip, thereby forming a head, said core extending longitudinally substantially along the median line of the said strip, and the two longitudinal edges of the strips being brought together to form a stem for supporting the said head.

4. A resilient cushion having a head of substantially cylindrical cross-section, with a contracted neck portion, adjacent thereto, and means for fastening said cushion longitudinally along the table surface, the fastening being so arranged that the neck will be exposed between the head and the fastening.

5. A cushion comprising a head formed of a strip of elastic material, the strip being folded around said core, and its ends brought together to form a stem, a coping for supporting said stem, and means for fastening the stem to the coping in a man-

ner which will leave exposed a neck portion between the said head and the face of the said coping.

6. A cushion comprising a head formed of a strip of flexible material folded around a core, the edges of said strip being brought together to form a stem, a table surface spaced apart vertically from the said cushion, a coping arranged along the table surface and a bearing portion on said coping for supporting the said stem, the bearing portion being inclined to the plane of the table surface.

7. A cushion for game tables having a coping, said cushion comprising a head, a neck adjacent thereto, a stem extending outwardly from said neck, and means for fastening the stem to the coping.

8. A game table cushion comprising a head formed of a strip of rubber or the like, a core around which the said strip is placed longitudinally therewith a flexile neck adjacent said head, a stem extending from said neck and means for holding said cushion in a manner to allow said flexile neck to function.

In testimony whereof, I sign my name hereto.

ALLEN H. SEARLE.