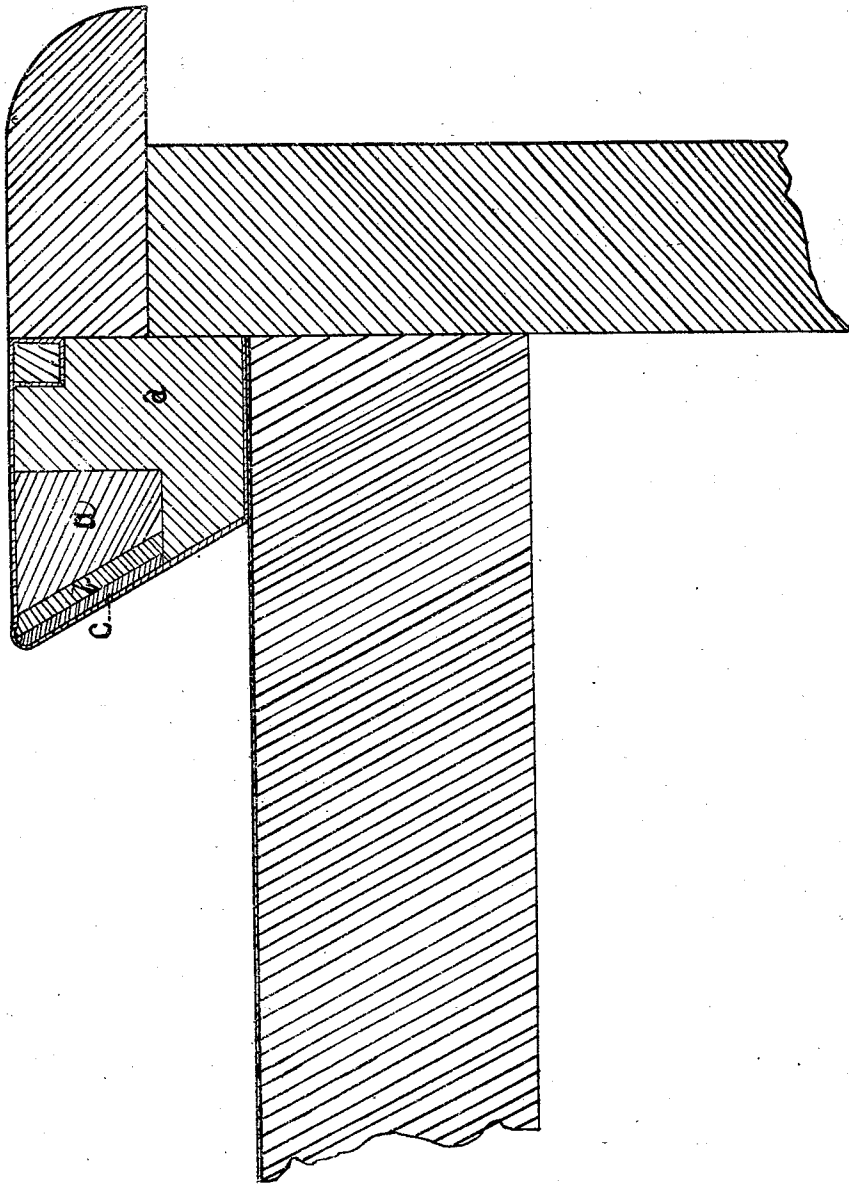


H. W. Collender
Billiard Table Cushion.

No 30,177

Patented Sep. 25. 1860.



WITNESSES. .

Wm. H. Harny
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INVENTOR.

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UNITED STATES PATENT OFFICE.

H. W. COLLENDER, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND MICHAEL PHELAN,
OF SAME PLACE.

CUSHION FOR BILLIARD-TABLES.

Specification forming part of Letters Patent No. 30,177, dated September 25, 1860; Reissued
March 19, 1867, No. 2,512.

To all whom it may concern:

Be it known that I, HUGH W. COLLENDER, of the city, county, and State of New York, have invented a certain new and useful Improvement in Combination Cushions for Billiard-Tables; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, making part of this specification, and which represents a cross vertical section of the said improved cushion as applied to a billiard-table.

Cushions for billiard tables have heretofore been made with the back of what is known as the soft compound of vulcanized india-rubber or allied gum, and with a facing of the same gum, or gums, also vulcanized, but rendered harder either by mixing fibrous or equivalent substances with the gum while in the green or plastic state, and then vulcanizing it, or by mixing with the gum a larger proportion of sulfur to make what is known as the hard compound of vulcanized india-rubber, or an approximation thereto, and whether made in the one or in the other of the above modes, the facing of the more dense substance has been united with the more elastic back while the two compounds are in the green or plastic state, and then, so united, submitted to the process of vulcanization or they have been vulcanized separately, and then united by cement or otherwise. The object of so composing cushions is to overcome a known defect in cushions made wholly of the soft compound of vulcanized india-rubber. The soft compound from its great elasticity makes the ball rebound with great activity, but as this substance is very compressible, it follows that the ball in striking buries a considerable portion of its circumference into the cushion, and although the ball rebounds accurately after striking the cushion at right angles with its face, such is not the result when the ball approaches the cushion diagonally. The great difference between the angle of reflection and the angle of incidence which was observed in the use of such cushions, led to the invention and introduction of what is known as "Phelan's Combination Cushion" which has contributed so much to the practical accuracy of billiard tables for playing the carom game. The two modes of construction above indi-

cated, which are improvements of Michael Phelan's combination cushion, avoid the defects of the single cushion made of the soft compound of vulcanized india-rubber, for they present a face for the ball to strike against, which yields to the blow with a steel like spring, viz., by bending instead of permitting the ball to bury a considerable portion of its circumference in the cushion; and as the back is made of the soft compound it gives great activity to the rebound, for at every blow a much greater length of cushion is brought into action by the bending of the hard face than if the whole cushion was made of the soft compound. I have found however that notwithstanding all the good qualities of cushions so constructed they are still objectionable because of the disagreeable banging sound produced when struck by the ball, and because of the rapid wearing away of the cloth along the upper edge which wearing is due to the hard facing which extends up and forms the upper edge of the cushion immediately under the cloth. The desideratum was to avoid the defects, and retain all the advantages of the above modes of construction; and to this end my said invention consists in forming billiard table cushions of three thicknesses of vulcanized india-rubber, or allied gum, the back or body of the soft compound, then a layer or thickness of the harder compound prepared according to either of the modes above described, or by any equivalent preparation, and a thin facing of the soft compound united in the green or plastic state, and then vulcanized, or vulcanized separately and then united.

I take a block or strip (*a*) of the usual soft compound of vulcanizable gum, to form the elastic and compressible back. I then prepare a strip (*b*) of much less thickness, either by increasing the proportional quantity of sulfur, to make what is known as the hard compound, or an approximation thereto, or by mixing fibrous or equivalent substances with the soft compound; and while in the green or plastic state I cause the two by pressure to adhere and I then apply to the outer face of the layer (*b*) a thin strip (*c*) of the soft compound and cause that also to adhere while in the green or plastic state, and then vulcanize the whole, and apply it to the table in the usual man-

ner of applying india rubber springs or in any other suitable manner. Cushions so constructed will be found superior to all other known kinds, for the face immediately
5 next to the cloth, being of the soft compound will not produce the disagreeable sound or "bang" experienced in the use of cushions with a comparatively hard face. And as this
10 facing is thin, and the comparatively hard layer or thickness is immediately behind, the ball in striking will not be buried in the cushion as it would be if the whole cushion was made of the soft compound, but in
15 yielding to the blow it will bend along a considerable portion of its length as in the case of the usual combination cushion, and as this is backed with the soft compound, forming the body of the cushion it will
20 have all the activity of reaction due to the best known construction of combination cushion. In this way I am enabled to retain all the advantages known to be possessed by the combination cushion while I
25 avoid the defects above pointed out. Although I prefer to make such cushions by uniting the three thicknesses while in the

green or plastic state and then vulcanizing the whole, such being the best mode, nevertheless I do not wish to confine myself to such mode of uniting them as they may be
30 vulcanized separately and then united by means of india rubber cement or other suitable means.

What I claim as my invention, and decide to secure by Letters Patent, is— 35

Making cushions for billiard-tables, of two thicknesses of what is known as the soft compound of vulcanized india-rubber, or allied gum, with an interposed thickness of what is known as the hard compound of
40 vulcanized india-rubber, or allied gum, or as the equivalent thereof, with an interposed thickness of the soft compound of vulcanized india-rubber, or allied gum, rendered
45 hard by the admixture of fibrous or equivalent substance, substantially as and for the purpose specified.

H. W. COLLENDER.

Witnesses:

WM. H. BISHOP,
H. A. HARVEY.