A. F. HJORT.

BILLIARD TABLE.

APPLICATION FILED AUG. 31, 1914.

1,157,940.

Patented Oct. 26, 1915.

3 SHEETS—SHEET 1.

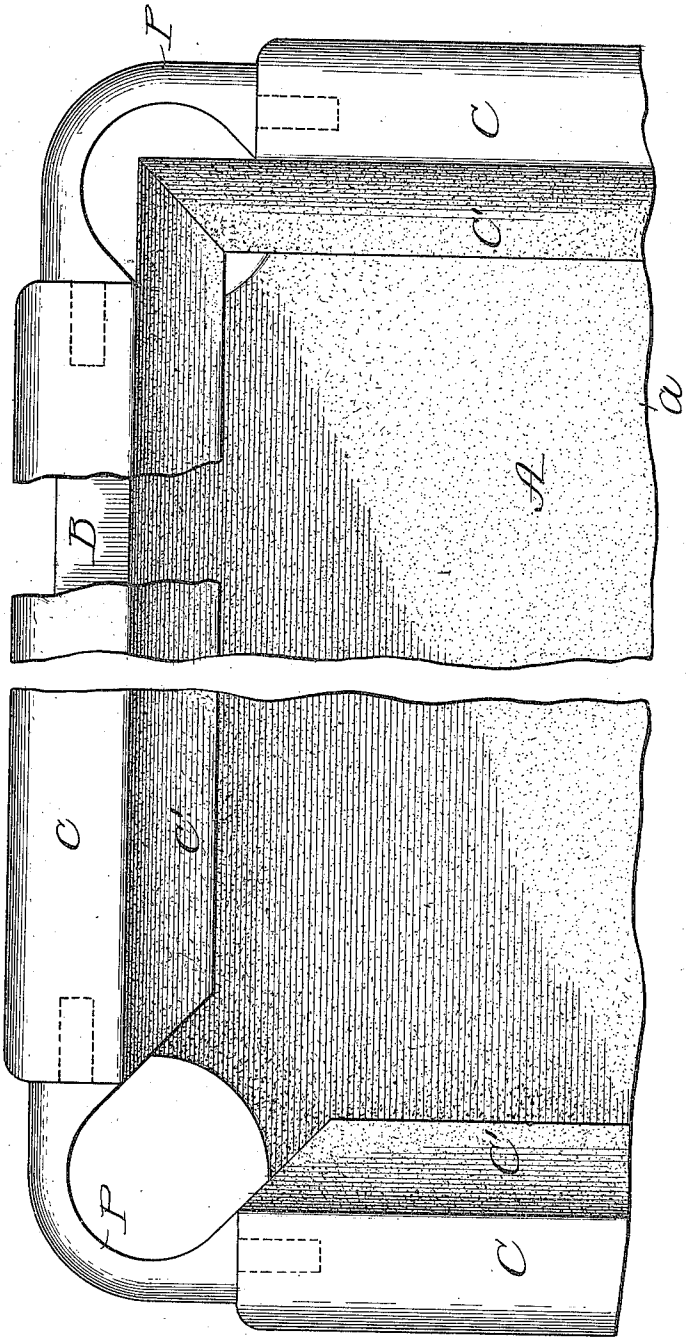


Fig. 1

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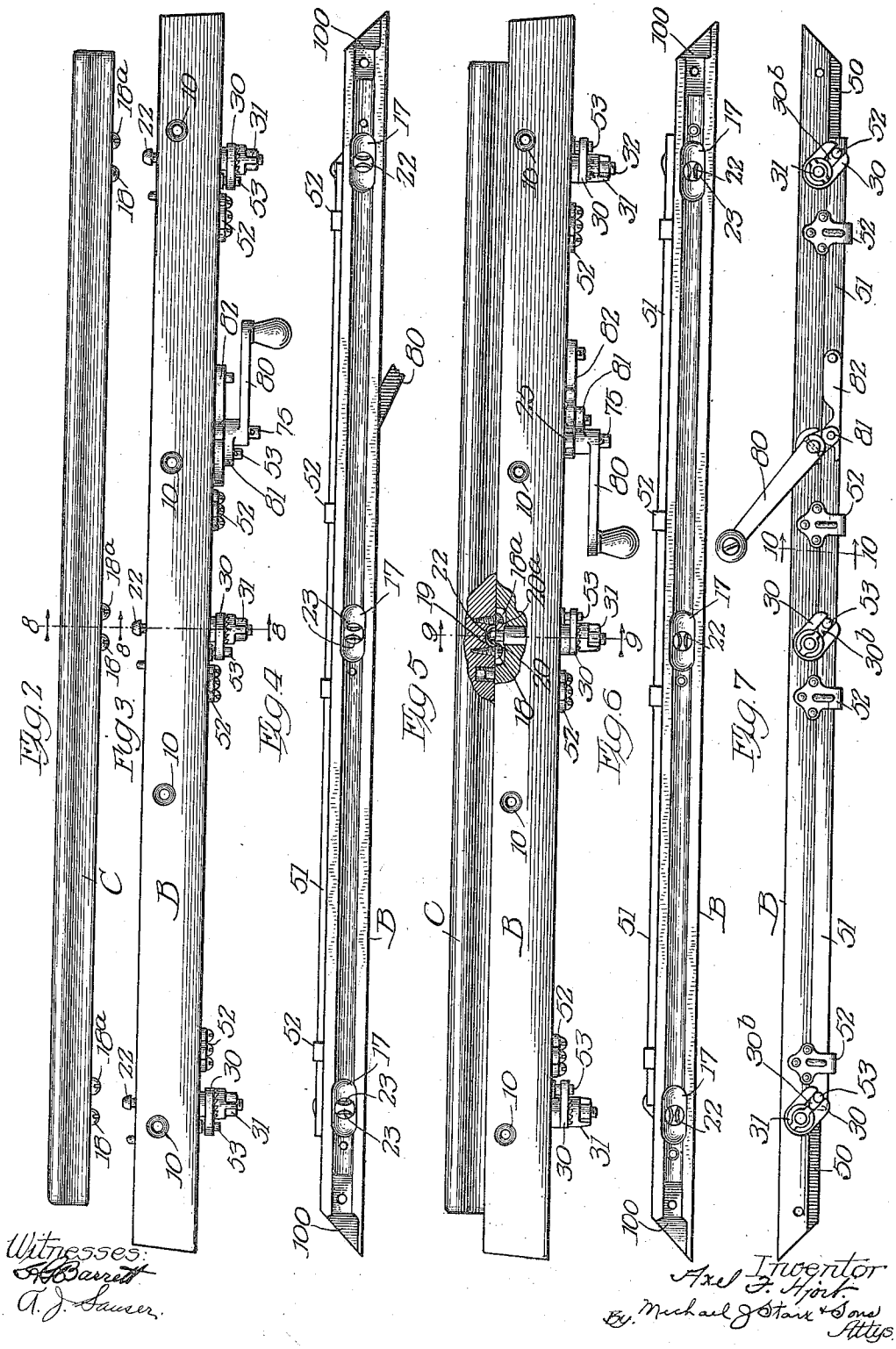
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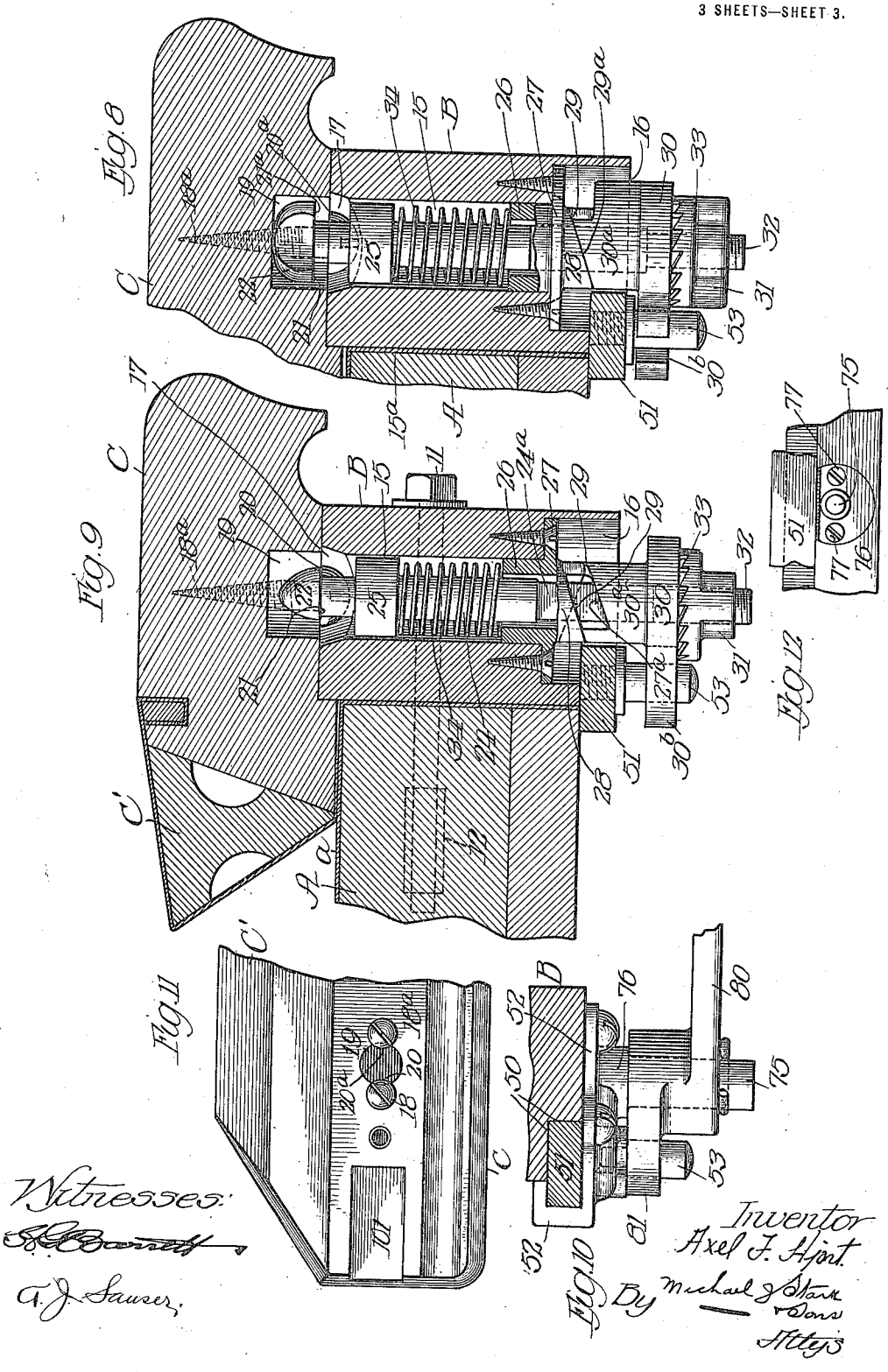
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3 SHEETS—SHEET 3.



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BILLIARD-TABLE.

1,157,940. Specification of Letters Patent. Patented Oct. 26, 1915.

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To all whom it may concern:

Be it known that I, AXEL F. HJORT, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Billiard-Tables; and I do hereby declare that the following description of my said invention, taken in connection with the accompanying sheets of drawings, forms a full, clear, and exact specification, which will enable others skilled in the art to which it appertains to make and use the same.

This invention has general reference to billiard tables; and its object is the construction of such a table in a manner whereby a pocket billiard table, so called, may be readily and conveniently converted into what is generally known as a carom table. In order to accomplish this object, there are used two sets of cushion rails, the sets for the pocket table comprising two end rails and two side rails, the latter rails each consisting of two sections spaced to afford the gap in the rails for the side pocket, while for the carom table there are employed two end rails and two side rails, the latter rails being the full length of the billiard table. These two sets of cushion rails are interchangeably secured to the bed rails of a billiard table, so that one set may be removed and replaced by the other set, and my present invention is especially directed to the means whereby the interchange of rails may be rapidly effected and whereby those rails may be securely fastened to the bed rails. These cushion rails are required to be perfectly (or as near perfectly as mechanically possible) level and straight when placed upon the table and, therefore, each individual rail section is provided with a multiplicity or series of fastening means, each series being, however, so constructed that by the proper manipulation of a single hand lever, all the fastening means in a single rail member are acted upon simultaneously.

My invention, therefore, consists in the novel and peculiar combination of parts, and details of construction, as hereinafter first fully set forth and described and then pointed out in the appended claims.

In the drawings already mentioned, which serve to illustrate my said invention more fully, Figure 1 is a partial plan of a pocket-carom convertible billiard table, showing one of the corners as equipped with cushions, strips, and cushion rails for a carom table, while at the opposite corner the cushions etc. are positioned for a pocket table. Fig. 2 is a front or outside elevation of the cushion rail proper, by which designation I mean the outside face of said rail. Fig. 3 is a similar elevation of one of the bed rails of a table of this class, which rail is adapted to be bolted to the edges of the slate bed incorporated in such tables. Fig. 4 is a plan view of said bed rail shown in Fig. 3. Fig. 5 is a front or outside elevation of the cushion rail and bed rail as united by the mechanism disclosed in the portion shown in section. Fig. 6 is a plan of the bed rail with certain elements withdrawn. Fig. 7 is a bottom plan of said bed rail. Fig. 8 is a vertical cross section on an enlarged scale in line 8—8 of Figs. 2 and 3, showing the bed rail and cushion rail in close contact. Fig. 9 is a like section in line 9—9 of Fig. 5 indicating the cushion rail and bed rail in close contact, and, in addition clamped tightly together by mechanism hereinafter described. Fig. 10 is a vertical cross section of a fragment in line 10—10 of Fig. 7. Fig. 11 is a bottom plan of a fragment of the cushion rail at one end thereof. Fig. 12 is a bottom plan of a detail of construction to be further described.

Like parts are indicated by corresponding symbols or characters of reference in all the figures of the drawings.

Attention is now directed to the fact that each pocket table is provided with two end and four side bed rails, which while removable from the table are fixed thereto with the end of permanency in view. To these bed rails the pocket irons P are attached and it is now to be understood that all of these bed rails will carry the same reference letter B and that when the singular is used all are included. The same remarks are also intended to apply to all the cushion rails, which will be denoted as C; C′ indicating the cushion proper fixed thereon, while A is the rectangular slate table bed and *a*, the billiard cloth thereon.

In the face of bed rails B are provided a plurality of equally spaced holes 10, wherethrough are passed headed bolts 11, Fig. 9, which are screwed into nuts 12 in the slate table bed A, whereby said bed rails are fixedly maintained in their proper positions around the edges of the slate table bed.

Drilled perpendicularly through the bed rail B, preferably equally spaced from each other throughout the length of said bed, there are circular openings 15. In the lower face of said bed rail these openings are formed with considerably enlarged flat bottomed counterbores 16, the purpose of which will be shortly explained. On the upper face of the bed rail B, however, the openings 15 terminate in oblong depressions 17 adapted for the reception of heads of screws 18 and 18ª, depending from the bottom face of the cushion rail C. In the said bottom face of the said cushion rail are produced a plurality of flat bottomed circular depressions 19, of equal spacing apart and alinement as are the vertical openings 15 in the bed rail B, and as a matter of fact, when the bed rail and cushion rail are in close contact the depressions 19 may be termed continuations of the openings 15. The series of screws 18 and 18ª are disposed about each of the depressions 19 as disclosed in Fig. 11, on directly opposite sides thereof, so as to form lips 20 and 20ª intended to engage the outer edges 21 and 21ª of a button shaped head 22, which head has a portion of its opposite sides cut away in a semi-circle as at 23 to permit said heads to pass between the screws 18 and 18ª when the former are in one prearranged position only.

The head 22 forms the upper portion of an oscillatable and reciprocatable shaft 24, the diameter of which, directly below the aforesaid head 22, is but very slightly less than the clear distance between the lips 20 and 20ª, Fig. 11, and its length but little greater than the height of the heads of the screws 18 and 18ª as clearly seen in Fig. 9, whereafter said shaft is enlarged as at 25 to form a free rotatable fit in opening 15, as indicated in Fig. 8, and is of sufficient length only to form a bearing along the wall of the said opening, so as to guide said shaft 24 in said opening 15 at its upper end.

Fastened to the bottoms of the counterbores 16 of the openings 15, and possessed of axially punctured hubs 26 extending upwardly therein, are disk-like members 27; said disk-like members are likewise possessed of axially punctured downwardly pending hubs 28, the lower edges of which hubs are formed into helical cam faces 29, as clearly seen in Fig. 9.

The shaft 24 already referred to is reduced in diameter below the enlargement 25, and said lower portion passes freely through the disk-like member 27, and through a slotted crank arm 30 and a nut 31 located therebelow. That portion of the shaft 24 extending or projecting through the slotted crank arm 30 is square in cross section 24ª and the axial opening through said arm is likewise squared but sufficiently larger to permit of vertical movement of shaft 24 in crank 30 without the use of keys or keyseats. The lower end of said shaft is threaded as at 32, whereby vertical adjustment of the nut 31 is provided for. The top face of this nut is furnished with radial serrations 33 to produce a tight, firm grip against arm 30, when the same is screwed in place.

The slotted crank arm 30 has an upwardly extending axial hub 30ª, the upper face of which is possessed of helical cam faces 29ª adapted to co-act with similar faces 29 on the hub 28, and, embracing shaft 24, between the enlargement 25 and hub 28, there is located a helical spring 34, constantly in compression, to tend to force the entire shaft 24 and its appurtenances upwardly in an evident manner.

Along the lower, inner edges of bed rail B there is formed throughout its length thereof a rabbet 50, Figs. 7 and 10, for the reception therein of an actuating bar 51, which bar is maintained in proper and slidable position and condition by clip members 52 shown in detail in Fig. 10, or similar devices. Perpendicularly fixed in this actuating bar, by being screwed therein, and depending therefrom are studs 53, the longitudinal spacing and the alinement of which is the equality of that of the openings 15 in bed rail B, and it is now to be understood that these studs 53 engage the slotted portions 30ᵇ of the slotted crank arms 30, so that a longitudinal movement of bar 51 will create a like and simultaneous rotating motion of the slotted crank arms 30 and the shafts 24 with their heads 22.

Conveniently located on the bottom face of the bed rail B there is an outstanding stud 75 Figs. 3 and 5, fastened in place by a disk 76 Figs. 10 and 12 and screws 77, adjacent one of the edges of the actuating bar 51. Over said outstanding stud 75 is pivotally mounted a handled crank 80 having a short lever arm 81 connected to a link 82, which, in turn, is pivotally fixed to actuating bar 51. It will thus be observed that if the handled crank 80 be oscillated the actuating bar may be reciprocated in either direction, and the slotted crank arms 30 of the entire series oscillated forwardly or reversely as the case may be.

In a convertible table constructed according to this invention, the ends of the pocket irons P are partially set into depressions 100 in the top face of the bed rails, and there secured, while in the bottom face of the cushion rails, are formed depressions 101, Fig. 11, freely embracing the ends of said

pocket irons, so that in removing the cushion and cushion rails from a table to convert the same into a pocket or a carom table or vice-versa, the pocket irons are in nowise interfered with.

The operation of my quick acting cushion rail fastening device may now be described as follows, it being understood that the bed rails B have been properly secured to the slate bed A as hereinbefore described: The heads 22 of the shafts 24 are first rotated through the intermedium of the handle 80, actuating bar 51, and the slotted crank arms 30, until the said heads are positioned transversely of the bed rail B, as seen in Figs. 2, 4, and 8, and the correlated mechanisms have been so adjusted that the bottom edges of said heads are the same distance above the top face of the bed rail. The cushion rail C is now placed on top of the bed rail so that the heads 22 may enter into the openings 19. A slight turn of the handled crank 80 will engage said heads with the lips 20 and 20^a, Fig. 11, whereupon further rotation of the shafts 24 will cause a down movement of said shafts due to the co-action of the cam faces 29 and 29^a, the result of which will be that the cushion rail is tightly maintained in contact with the bed rail, the parts being indicated in such position in Fig. 9. When it is desired to release the cushion rails, the crank handle 80 and its actuated parts are rotated in the reverse direction to the position of parts as shown in Fig. 8, in which position the cushion rail may easily be removed.

I have already referred to the nuts 31 on the lower, screw-threaded, ends of shaft 24. By means of these nuts I am enabled to so adjust the length, as it were, of these shafts 24 that they will equally "draw" irrespective of any variation in the thickness of the bed rails or in the assembling of the associated parts, when the hand lever 80 is being manipulated to fasten the cushion rails to the bed rails. This construction is an important feature of my present invention, inasmuch as I attain thereby the required result of causing the cushion rail to lie perfectly level and rectilinear upon the bed rail.

While herein I have disclosed the preferred mode of practising my invention, I wish it understood that I may make such changes and alterations therein as might suggest themselves to the skilled mechanic or as might be permitted under the doctrine of mechanical equivalents.

Having thus fully described my invention I claim as new and desire to secure to myself by Letters Patent of the United States:—

1. A convertible carom and pocket table including a suitable slate bed and bed rails secured thereto, cushion rails having receiving means thereunder, members projecting perpendicularly through said bed rails, means on said members constructed to engage said receiving means, means constructed to oscillate said members, and means constructed to impart longitudinal movement to said members.

2. A convertible carom and pocket table including a suitable slate bed and bed rails secured thereto, cushion rails having receiving means thereunder, members projecting perpendicularly through said bed rails, means on said members constructed to engage said receiving means, and means for simultaneously oscillating and reciprocating said members.

3. A convertible carom and pocket table including a suitable slate bed and bed rails secured thereto, cushion rails having receiving means thereunder, members projecting perpendicularly through said bed rails, means on said members constructed to engage said receiving means, means for imparting oscillating and reciprocating movement to said members, and means for varying the operative length of said members.

4. A convertible carom and pocket table including a suitable slate bed and bed rails secured thereto, cushion rails having receiving means thereunder, members projecting perpendicularly through said bed rails, means on said members constructed to engage said receiving means, means for simultaneously oscillating and reciprocating said members, and means for varying the operative length of said members.

5. A convertible carom and pocket table including a suitable slate bed and bed rails secured thereto, cushion rails having receiving means thereunder, members projecting perpendicularly through said bed rails, means on said members constructed to engage said receiving means, means for oscillating and reciprocating said members, and means on said members for varying the operative length thereof independently of the means for reciprocating said members.

6. A convertible carom and pocket billiard table, including, in combination, a bed, bed rails secured to said bed, cushion rails removably located on said bed rails, each of said cushion rails having a multiplicity of receiving means on its under side, members in said bed rails in coöperative relation to said receiving means, means on said members constructed to engage said receiving means, means constructed to impart a combined rotative and reciprocative movement to said members, and means at the terminals of said members constructed to vary the operative length of said members.

7. In a convertible pocket and carom billiard table, the combination, of a bed, bed rails on said bed, cushion rails removably located on said bed rails, vertically disposed shafts in said bed rail, said shafts having engaging means at their upper extremities,

means on said bed rails constructed to reciprocate and oscillate said shafts, and means on said cushion rails constructed to receive the engaging means on said shafts.

8. In a billiard table, the combination, of a bed, bed rails secured to said bed, cushion rails located on said bed rails, members on said bed rails constructed to engage said cushion rails to lock them to the said bed rails, said members being constructed to engage said cushion rails by a combined oscillating and reciprocating movement of said members, and means for imparting this combined movement to said members.

9. In a billiard table, the combination, of a bed, a bed rail thereon, a cushion rail located on said bed rail, and means for removably securing said rails to each other, said means including a series of fastening devices, said fastening devices being constructed to engage said cushion rail by a combined oscillating and reciprocating movement, and means constructed to impart this combined movement to all of said fastening devices simultaneously.

10. In a billiard table, the combination, of a bed plate, a bed rail thereon, a cushion rail located on said bed rail, and means for removably securing said cushion rail to said bed rail, said means including a series of engaging members located on the under side of said cushion rail, a like series of vertically disposed shafts located in said bed rail in register with the engaging means on said cushion rail, each of said shafts having at its upper extremity a shouldered head, said head being notched at diametrically opposed points, a cam slidably located on said shaft a correlated cam fixedly secured to said bed rail, and means constructed to oscillate said cam, whereby a combined oscillatory and reciprocative movement is imparted to said shaft.

11. In a billiard table, the combination of a bed plate, a bed rail on said bed plate, a cushion rail located on said bed rail, and a series of means on said bed rail constructed to removably secure said cushion rail to said bed rail, each of said means including a vertically disposed passage through said bed rail, a shaft located in said passage, said shaft having at its upper end a shouldered projection, said shaft being squared near its lower extremity, a cam fixedly located in, and near the lower extremity of, said passage, a further cam surrounding said shaft at its squared portion, an abutment member at the lower end of said shaft, and means constructed to oscillate said cam on said shaft, whereby, by oscillating the latter cam in one direction a rotative and a downward longitudinal movement is imparted to said shaft, while by rotating said cam in the opposite direction, a contrary rotating and a vertical longitudinal movement is imparted to said shaft, and means on the cushion rail constructed to receive the shouldered projection at the upper end of said shaft.

12. In a billiard table, the combination, of a bed plate, a bed rail on said bed plate, a cushion rail located on said bed rail, a series of fastening devices located in said bed rail constructed to removably secure the cushion rail to said bed rail, said fastening devices including rotatable members, and means for simultaneously rotating the entire series of rotatable members.

13. In a billiard table, the combination, of a bed plate, a bed rail on said bed plate, a cushion rail located on said bed rail, a series of fastening devices located in said bed rail constructed to removably secure the cushion rail to said bed rail, said fastening devices including rotatable members, and means for simultaneously rotating the entire series of rotatable members, the said latter means including an arm on each rotatable member, a bar, a series of studs on each bar constructed to engage said arms, and a crank pivotally connected to the bed rail and operatively connected to said bar.

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In the presence of—
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."