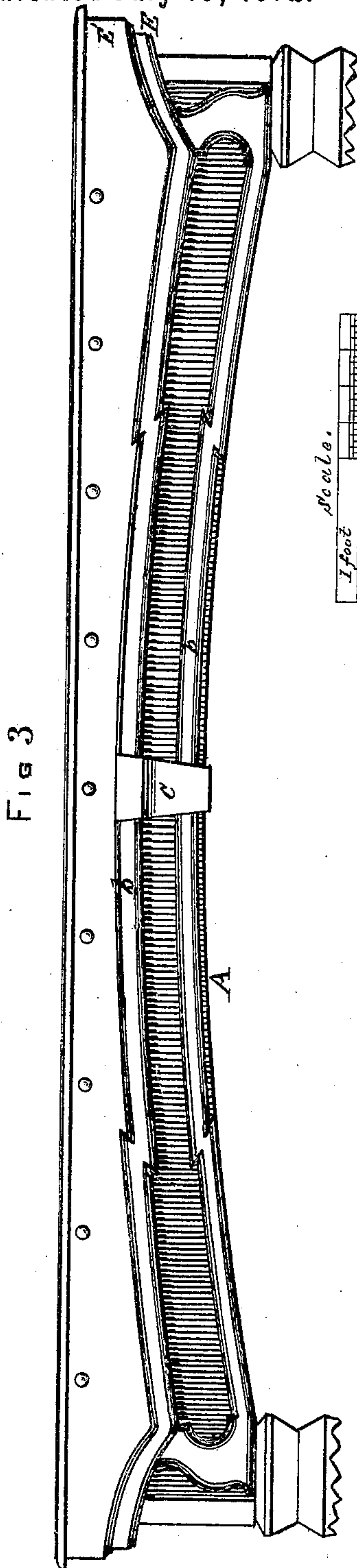
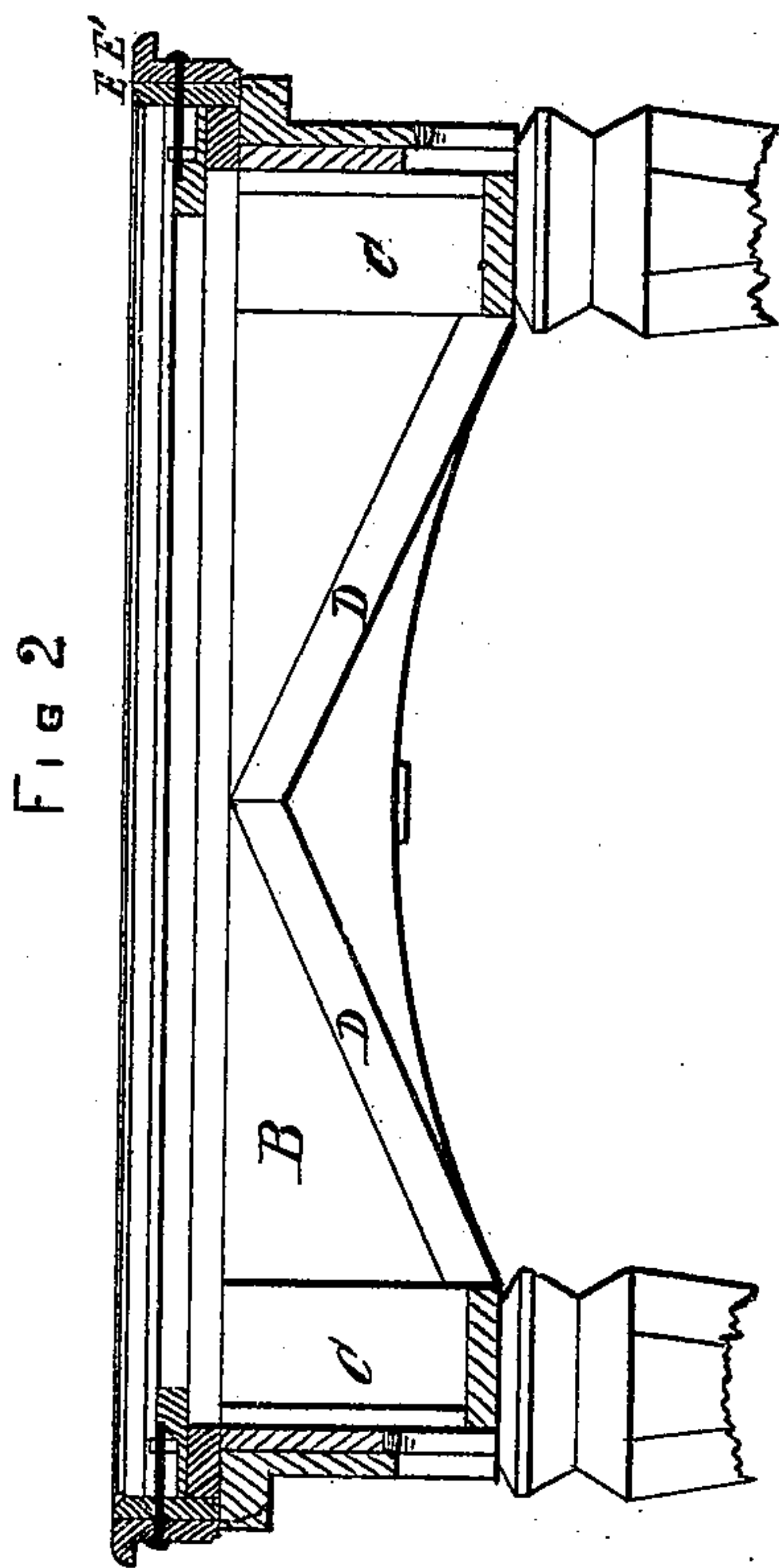
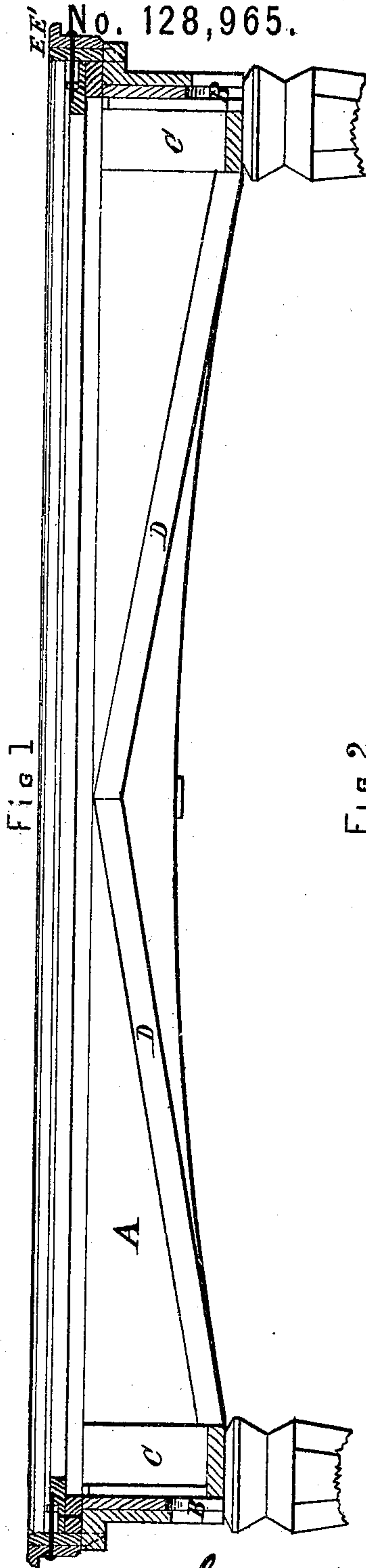


R. M. KNAUSS.  
Improvement in Billiard-Tables.

No. 128,965.

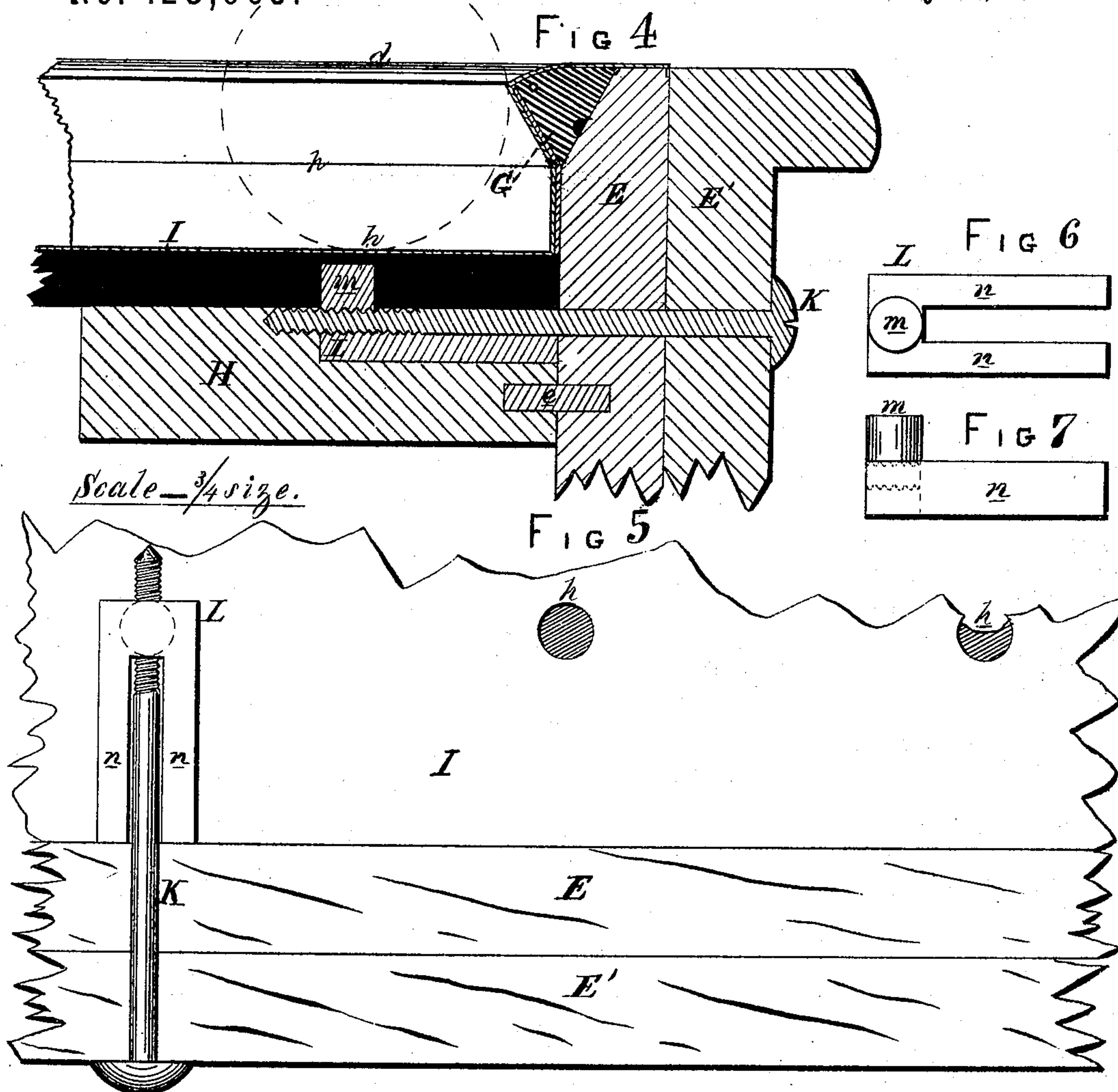
Patented July 16, 1872.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

ROBERT M. KNAUSS, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN BILLIARD-TABLES.

Specification forming part of Letters Patent No. 128,965, dated July 16, 1872.

Specification describing certain Improvements in Billiard-Tables, invented by ROBERT M. KNAUSS, of the city and county of Philadelphia and State of Pennsylvania.

The first part of my invention relates to the construction of a billiard-table in which are combined beauty of finish, economy of material, and great strength with light appearance. The second part of my invention relates to the manner of arranging the cushion so as to operate more perfectly, and to increase the surface of the table and, at the same time, reduce the size of the frame; also to overcome a difficulty experienced in removing dirt or dust liable to accumulate underneath and in the sharp angle of the cushion in tables of ordinary construction.

Figure 1 is a longitudinal section through the center of a billiard-table, showing my improvements. Fig. 2 is a transverse section of the same. Fig. 3 is a side view of the table. Fig. 4 is a section of a portion of the rim and bed of the table. Fig. 5 is a plan view (partially broken) of the under side of the slate. Figs. 6 and 7 are views (detached) of the device used for drawing and securing the rim of the table close to the slate.

The lower edges of the side or longitudinal rails A A are cut out in the form of an arch, of any suitable degree of curvature, and are embellished with moldings and key-stones, as shown at *b* and *c*, Fig. 3. The end or transverse rails B B are also similarly formed and embellished. The side and end rails A A and B B have secured on their inner sides angular braces D D, Figs. 1 and 2, which are embedded partially in the wood, with their ends resting against the edges of the upright blocks C C placed in the corners of the table. The rails thus constructed are braced and rendered exceedingly strong and light in appearance, and are prevented from warping or springing. The lower edges of the rails E and E', forming the rim of the table, are extended downward, and are cut out to represent drapery corresponding in design to the arch and embellishments of the side and end rails, as shown in Fig. 3. The upper edge of the rail E is chamfered on the inner side at an inclination of about sixty degrees, as shown in Fig. 4, against which is placed the India-rubber strip G, the back edge of which is cut or formed to suit the sloping

edge. The projecting edge of this strip, at the point where the ball impinges, is depressed about one-eighth of an inch below the top *d* of the table, the object of which is to prevent this edge of the rubber from being pressed up under the impact of the ball, which interferes, to some extent, with the proper effect of the cushion. The ball, striking the projecting edge of the rubber, formed as shown in my invention, presses it inward without raising it, producing a perfectly even and direct push on the ball.

It will be seen, on referring to Fig. 4, that the cleat usually attached to the rim of the table to support the rubber strip is entirely dispensed with, and that the inner side of the rail E below the cushion forms, with the surface of the table, a complete right angle, thus doing away with the sharp angle so noticeable in other cushions, in which dirt or dust is liable to accumulate. The removal of the cleat and the placing of the rubber strip directly on the rail E increases the surface of the table and, at the same time, permits the size of the frame to be reduced, thus saving considerable material in the construction of the table.

The horizontal frame H, on which the slate I is glued, is attached to the rail E by means of dowels, as shown at *e*, Fig. 4, the slate, in this case, being cut about one-half inch in thickness instead of one inch, as formerly, thus producing the same effect with a saving of material. The screw-bolts K for drawing the slate and rim of the table close together are each provided with a nut, L, having a circular boss, *m*, and two projecting pieces or prongs, *n n*, formed on it, and is placed in a recess made in the upper surface of the horizontal frame H. The circular boss sets in a cavity, *h*, made in the under side of the slate, and the prongs project out and bear against the inside of the rail E to prevent the nut from twisting in screwing the bolt up. In this mode of attachment the pressure is brought to bear directly on the slate, thus preventing any sound when the ball strikes the cushion. The boss *m*, resting in the circular cavity in the bottom of the slate, obviates the usual cutting and defacing the surface of the slate for the reception of the nut as now employed.

What I claim as my invention is—

1. The side and end rails A A and B B,

made in the form of an arch, in combination with braces D D, as herein shown and described.

2. The combination, in a billiard-table, of the arched side and end rails A A and B B, rubber strip or cushion G, slate I provided with cavities *h h*, frame H, screw-bolts K K

with their nuts L, provided with prongs *n n* and boss *m*, substantially in the manner and for the purpose herein shown and described.

ROBERT M. KNAUSS.

Witnesses:

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