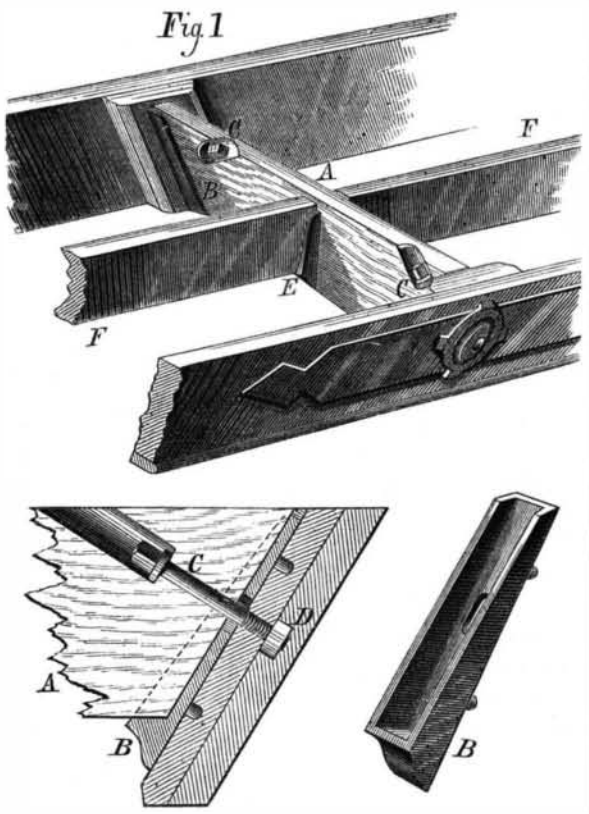
COLLENDER'S IMPROVED BILLIARD TABLE.

In the accompanying engravings, we illustrate two important improvements in the construction of billiard tables, which have recently been devised by Mr. H. W. Collender, the well known billiard table manufacturer of this city. The first, which is represented in Fig. 1, relates to the construction of the bed-supporting frame, and aims to render the same stronger while cheapening its manufacture. In putting together the body and framework of the table, the usual practice is to cut away the stock of the cross beam and longitudinal beam, and halve them together. Longitudinal grooves are also formed on the inner surface of the side and

Fig. 1



"broad rails," to accommodate tenons on the ends of the cross beams; and the latter are secured in place by bolts fastening their ends to the broad rails. Mr. Collender claims that, by this mode of construction, not only are the cross beams weakened by being halved together, but the broad rails are also weakened by the cutting away of this stock near the middle to effect the framing into them of the ends of the cross beams.

From Fig. 1, it will be seen that the cross beam, A, is combined with the side broad rails in the following manner: Upon the inner face of each broad rail is secured a cast iron

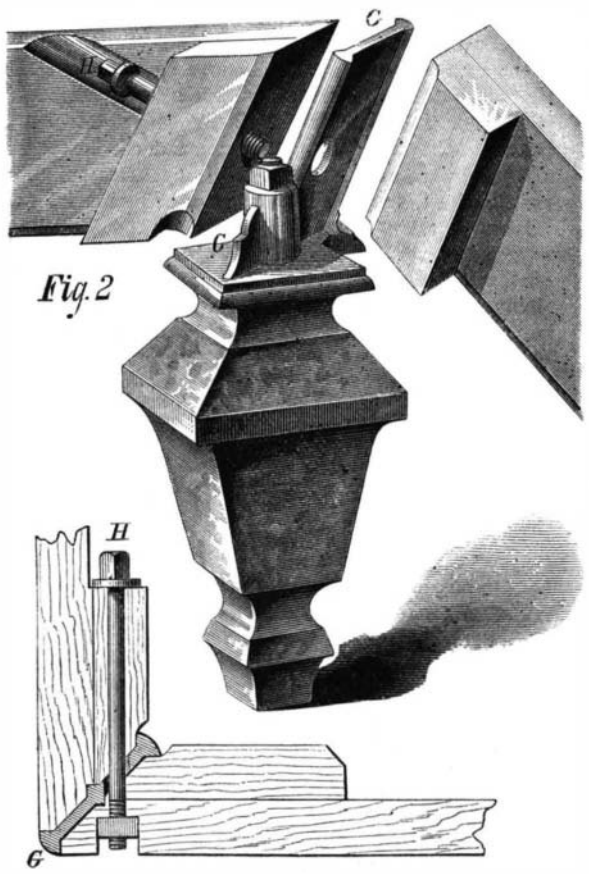


Fig. 2

socket piece, B, into which fits one end of the cross beam, A. From said beam the bolt, C, passes through the shoe, B, and is secured by a nut, D, let into the stock of the broad rail. The shoe, B, has lugs which enter the broad rail; and the aperture in it, through which the bolt passes, is made oblong to admit of the drawing of the parts together after the insertion of the bolt. Upon the sides of the cross beam near the middle, and directly opposite each other, are two shoes, E; these have no bolt holes. In them are placed the adjacent ends of the longitudinal beams, F, the other extremities of which are seated in shoes on the broad rails. The shoes, E, have their lugs of such a length, compared with the thickness of cross beam, A, that when put in place on said beam said lugs will come together. The advantage of this is that, should the beam, A, shrink in width, the shoes on each side of it will still maintain their proper relation to form immovable abutments for the ends of pieces, F. This construction allows of shorter stuff being used in the manufacture, and renders the framework stronger.

In Fig. 2 is illustrated a new method of forming the corners of the table. Hitherto it has been customary to use corner blocks, of various sizes according to the dimensions of the table, located one at each corner. Into these the broad rails were framed and secured. To this arrangement Mr. Collender adduces a long category of objections, based on the possibility of the weight of the bed being thrown on these blocks in case of shrinkage of the frame, on the fact that the corner of the table bed must necessarily be left without any support where it extends over the upper end of the corner block, and also that in a bevel table, in which the area of the top of the corner block is unavoidably much greater than that of the top of the corner block of a vertical-sided table, a large portion of the table bed will be left without any support.

The new device consists of a cast iron union plate, G, which is bolted to the leg as shown. The broad rails and casting are securely fastened by the bolt, H. It will be seen that this bolt, passing through the end of one broad rail, and into a nut let into the other rail, will securely draw and hold together the ends of said rails and the interposed metal plate clamped between them, and that as the plain ends of the wooden rails just fit (widthwise) between the projecting heads on the edges of said interposed plate, the latter will form a sort of housing for the ends of the rails. And it will be understood that in this construction not only does the bead on the outer edge of the plate overlap the edges of the rails and form a neat and durable corner finish to the body, but the broad rails being bolted together in the direction of the grain of the wood with only an interposed metal plate, there will be no tendency to a loosening of the union of the parts of the frame. The main importance of this invention rests in the idea of dispensing with the usual corner blocks, and thus permitting the top edges of the broad rails, on which the bed rests, to practically come together and afford a perfect support to the bed clear out to the corners of the latter; at the same time the whole structure is rendered stronger and more durable with less weight of material.

These inventions are the subject of separate patents, that of the first being dated April 4, 1876, and of the second, November 16, 1875. For further information, address the manufacturer and patentee, Mr. H. W. Collender, 738 Broadway, New York city.

Coating Engraved Copper Plates with Steel.

In order to render copper plates which are used in printing more durable, they can be covered with an electrolytic deposit of iron which possesses an unusual degree of hardness almost superior to steel. The salt usually employed has been the double sulphate of iron and ammonia. Professor Böttger, who first invented this process, has recently devised an improvement in the bath employed. He dissolves 10 parts of ferrocyanide of potassium (yellow prussiate of potash) and 20 parts of the double tartrate of soda and potash (Rochelle salts) in 200 parts of water, and to this he adds 3 parts of persulphate of iron dissolved in 50 parts of water. A large precipitate of Prussian blue is formed. To the whole is added, drop by drop, with constant stirring, a solution of caustic soda until the blue precipitate entirely disappears, leaving a perfectly clear, light yellow liquid, which is now ready for use.

Professor Böttger also claims that this solution can be employed with advantage for dyeing cotton yarn and fabrics a beautiful blue, without the use of a mordant. For this purpose the goods are put into the bath, that has previously been slightly warmed, until they are saturated through and through, and then dried in the air, after which they are immersed in extremely dilute sulphuric acid (1 to 50), which neutralizes the alkali, and after washing and drying again they are permanently dyed a fine blue color.

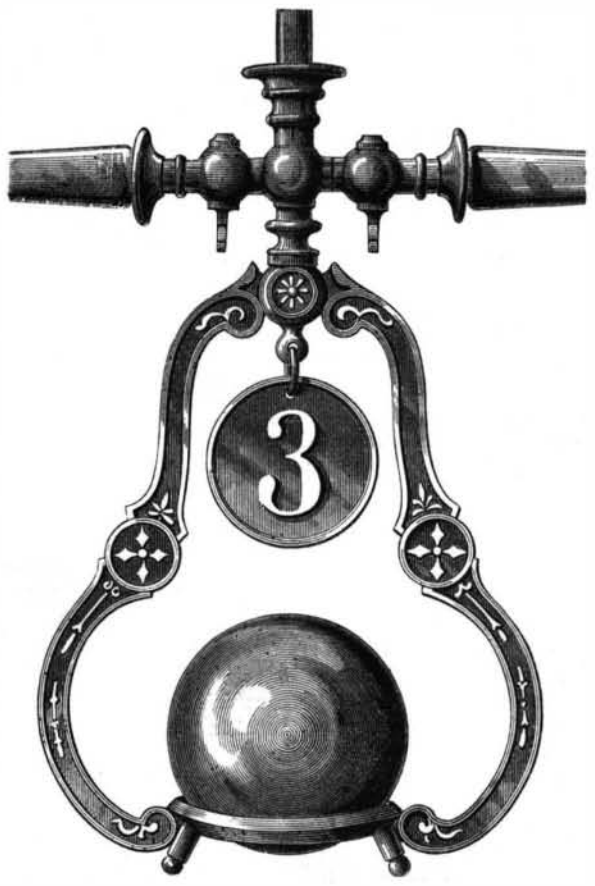
Test for Sulphur in Organic Compounds.

H. Vohl recommends the following as the best method of detecting sulphur in organic compounds: The substance to be tested is heated in a solution of caustic lime and oxide of lead in glycerin. The latter is prepared as follows: One volume of distilled water is mixed with 2 volumes of pure glycerin and heated to boiling; freshly prepared slaked lime is added, little by little, until it is saturated. Freshly precipitated hydrated oxide of lead, or moist litharge, is added in excess, and the liquid allowed to boil gently for a few minutes, then tightly corked and left to cool, after which the clear liquid is decanted from the sediment into a glass vessel that can be tightly corked.

If into this solution be introduced and heated any organic which contains sulphur, like hair, feathers, horn, albumen, and the like, it will at once turn black from the formation of sulphide of lead. The great delicacy of this test is evident from the fact that, when pure wheat bread is boiled with this reagent, it turns yellow at first and then dark gray in consequence of the presence of sulphur in the gluten of the bread.

IMPROVED BILLIARD BALL HOLDER.

The usual receptacle for the fourth ball, when only three balls are used in the game of billiards, is placed at the side of the table. As this is both inconvenient and unsightly, a neat device, clearly shown in the annexed illustration, has



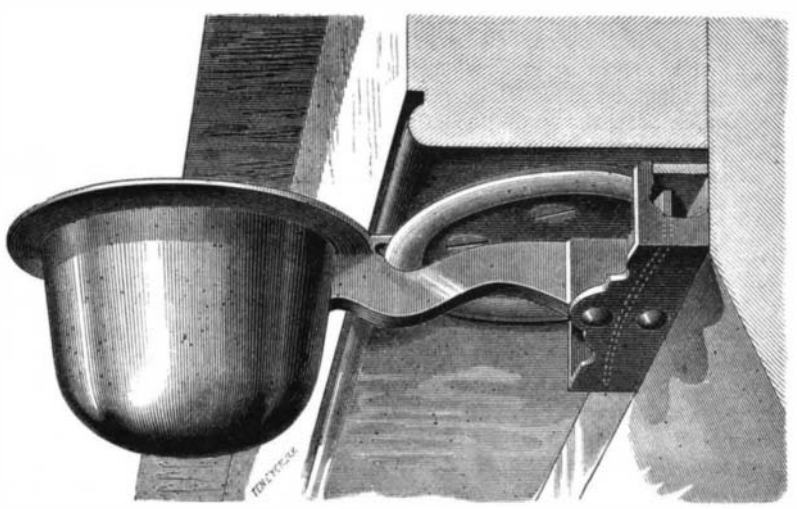
been invented, which is intended to be attached to a gas fixture over the table. A plate or sign is also added on which the number of a table—in case several tables are employed, as in a billiard saloon—may be inscribed. The form and design of the arrangement may of course be varied in many ways.

Patented May 2, 1876. For further particulars, address the manufacturer, Mr. H. W. Collender, 738 Broadway, New York city.

THE MONITOR CHALK CUP.

The annexed engraving represents an improved chalk cup or holder for billiard tables, which is so constructed that it will not become loose, sag down, mar the table, or jar when the ball strikes the cushion. It may be adjusted to remain in any desired position.

The shank is pivoted in a metallic frame which is secured



THE MONITOR CHALK CUP.

to the table. The rear end of the shank works against a spring. On the upper portion of the shank is a projection which embraces a horizontal flange to sustain the box against being forced downward. The arrangement is very similar to the ordinary window catch. The player has only to start the box from its position under the table, when the spring carries it out at right angles to the rail. A touch is sufficient to cause the spring to carry the box back to its former position. The device is very simple, and its advantages will be evident to all billiard players cognizant of the defects of the ordinary cup.

Patented May 1, 1877. For further particulars, address the manufacturer and patentee, Mr. H. W. Collender, 738 Broadway, New York city.