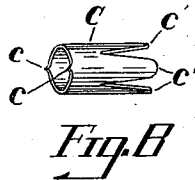
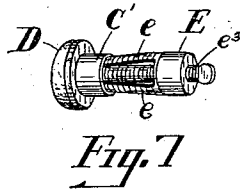
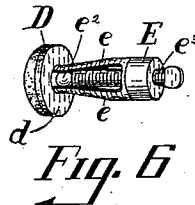
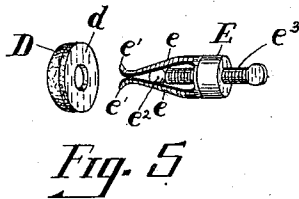
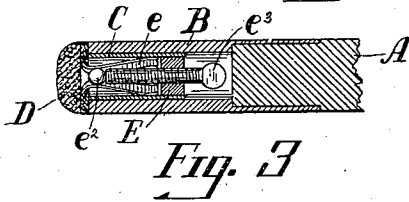
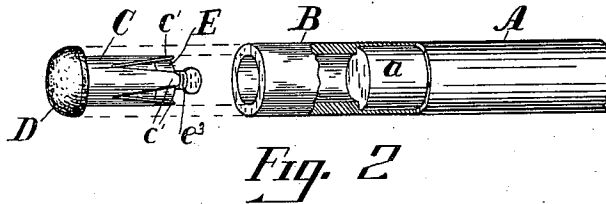


(No Model.)

W. WOEHLE.
BILLIARD CUE TIP FASTENER.

No. 563,537.

Patented July 7, 1896.



WITNESSES

Sherwood R. Paylor
Emma Lyford

INVENTOR

William Woehle
By Geo. J. Murray
Atty

UNITED STATES PATENT OFFICE.

WILLIAM WOEHLER, OF CINCINNATI, OHIO, ASSIGNOR OF ONE-HALF TO
JOHN P. AHRENS, OF SAME PLACE.

BILLIARD-CUE-TIP FASTENER.

SPECIFICATION forming part of Letters Patent No. 563,537, dated July 7, 1896.

Application filed May 7, 1896. Serial No. 590,634. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM WOEHLER, a citizen of the United States, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Billiard-Cue-Tip Fasteners, of which the following is a specification.

My invention relates to billiard-cues. Its object is to provide a simple convenient means for readily securing the tip to the end of the cue, securely holding it, and readily removing it when worn out, to be replaced by a new one.

In the accompanying drawings, in which like parts are indicated by similar reference-letters wherever they occur throughout the various views, Figure 1 is a side elevation of the point or end of a billiard-cue with the tip secured for use. Fig. 2 is a perspective view, partly in side elevation and partly in section, showing the fastener detached, but ready to be applied to the end of the tip. Fig. 3 is a longitudinal diametrical section of the cue end with the tip secured in place. Fig. 4 is an end view of the cue and fastener in position, but with the tip removed. Fig. 5 is a detail view in perspective of the tip and tip-fastener detached, the fastener being in position to be inserted in the base of the tip. Fig. 6 is a view of the parts shown in Fig. 5, but with the tip secured to the fastener. Fig. 7 is a modified form of the fastener shown in Figs. 2 and 3. Fig. 8 is a detail view in perspective of the housing for the fastener.

Referring to the parts by reference-letter, A represents the end of the ordinary billiard-cue, except that it has a reduced neck *a* to enter the counterbored end of the cylinder or ferrule B, which is preferably made of aluminium or some light non-corrodible metal. The bore in the opposite end of the cylinder B is of a size to snugly receive a housing C (shown in Figs. 2, 3, and 8) or the shorter ring or housing C'. (Shown in Fig. 7.)

The tip D is of ordinary construction, consisting of an outer cushioned part, which is cemented to a hard leather or rubber washer or base *d*. The fastener consists of a central tube or screw-threaded plug E, which is made to snugly fit the housing C. This plug has

extending from it spring-fingers *e*, of which there are preferably three, and the fingers have their ends turned outwardly, forming hooks *e'*, which when the fingers are in their normal condition readily enter the central perforation in the base or washer *d* of the tip. Within the fingers *e* is arranged a metal ball *e²*, which, when the fingers are placed within the perforation in the tip, is forced toward the tip by a screw *e³*, which spreads the fingers apart and forces their hooks *e'* into the walls or the washer or base or over the inner face of the base and between it and the cushion, thus securely holding the tip on the ends of the spring-fingers. When this is accomplished, the fastener is inserted in the housing C, which has prongs or points *c*, projecting from its edge, which are driven into the washer or base *d* to prevent the tip from being turned. The opposite end of this housing is slotted, and when the fastener E is forced into it, as seen in Fig. 3, the fingers slightly spread the ends or tongues *c'*, so that they will require to be slightly pressed before being started into the ferrule or cylinder B. The purpose of this arrangement is to prevent the housing from turning in the cylinder B, as it requires some little force to either press the housed fastener into the end of the tube B or retract it therefrom.

In the form shown in Fig. 7 the ring C' is placed over the ends of the fingers before the hooked ends are inserted into the base of the tip, after which the ball *e²* is forced toward the ends of the fingers by the screw *e³*, holding the tip very securely upon the hooks *e'* and against the end of the ring C'. The ring C' and plug E in this case are both made to snugly fit within the end of the tube B.

Now it will be seen that the tip is readily applied to the fastener and the fastener readily inserted in the end of the tube B, and when the tip is worn out a new one can be replaced by simply withdrawing the housing and fastener from the tube B. Then by retracting the screw *e³* and removing the housing a new tip may be quickly applied, and the housing replaced and reinserted in the end of the ferrule or tube B.

It is obvious that the housing C or ring C' may be omitted; but in this case it would be

necessary to make the plug E fit the bore in the tube B, and also make it somewhat longer than shown, in order to prevent the tip moving to one side or the other when the cue is
 5 in use. The tip when secured in place is as rigid as it would be possible to make it by cementing it to the end of the cue.

It is also obvious that the ball e^2 may be omitted, as the rounded end of the screw e^3
 10 would force the fingers apart sufficient to clamp the tip securely to them. I have, however, shown the best form of embodying my invention, but do not desire to be limited to the specific details shown.

15 What I claim is—

1. In a billiard-cue-tip fastener the combination of the cue, the ferrule fitted on the end thereof, the tip having a central perforation, a plug to fit the bore in said ferrule having
 20 spring-fingers with outturned ends to enter the central bore in the tip, and a screw passing through said plug to spread the fingers apart and clamp the tip to the fastener, substantially as shown and described.

25 2. In a fastening for billiard-cue tips the combination of the cue, the tube or ferrule secured to the end thereof, the tip-fastener

consisting of the plug centrally bored, a tube, spring-fingers having outturned ends projecting from one end of said plug to enter a
 30 perforation in the tip, the tip, a ball within the fingers, a screw passing through the plug to force the ball and spread the fingers after their insertion in the tip, and the housing to pass over the spring-fingers and fit the bore
 35 in the end of the ferrule or tube, substantially as shown and described.

3. The combination of the tip, a plug having spring-fingers with outturned ends to enter the bore in the base of the tip, the
 40 screw passing through said plug to spread the fingers and clamp the tip thereto, a housing for said spring-fingers having points on its end to enter the base of the tip and prevent it from turning on the fingers, the cue,
 45 the ferrule or tube secured on the end thereof and adapted to receive the housing carrying the tip and tip-fasteners, substantially as shown and described.

WILLIAM WOEHLE.

Witnesses:

SHERWOOD R. TAYLOR,
 GEO. J. MURRAY.