

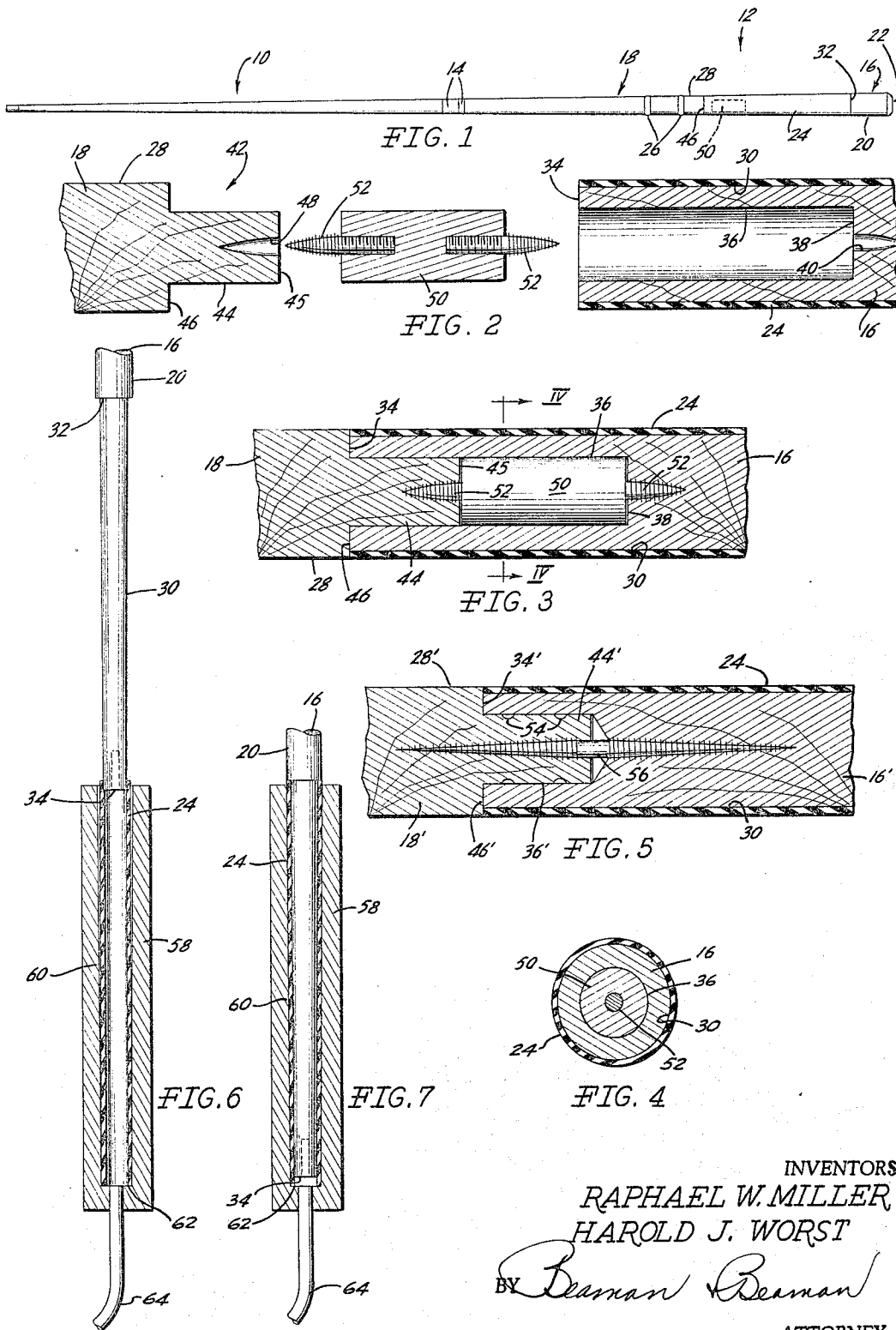
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SECTIONAL BILLIARD CUE WITH WEIGHTED HANDLE

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3,269,730 SECTIONAL BILLIARD CUE WITH WEIGHTED HANDLE

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The invention pertains to billiard cues wherein improved balance, appearance, and constructional characteristics are provided.

An object of the invention is to provide a billiard cue construction enabling a balance weight to be located within the handle portion of the cue remote from the cue butt end, whereby superior cue balance is obtained.

Another object of the invention is to provide a billiard cue having a handle portion formed of two components and including a balance weight wherein the balance weight aids in producing and maintaining the assembly of the handle portion components.

A further object of the invention is to provide a billiard cue having a handle portion containing two components wherein interconnection means are provided for the components which produce an accurate and high strength joint between the handle portion components.

These and other objects of the invention arising from the details and relationships of components of embodiments thereof will be apparent from the following description and accompanying drawings wherein:

FIG. 1 is an elevational view of a two-piece billiard cue employing the inventive concepts,

FIG. 2 is a detail, elevational, sectional, exploded view of the abutting ends of the handle portion components and illustrating the use of a balance weight,

FIG. 3 is a detail, elevational, sectional view of the components of FIG. 2 as assembled,

FIG. 4 is an elevational, sectional view taken along section IV-IV of FIG. 3,

FIG. 5 is a detail, elevational, sectional view of the assembly of another embodiment of the invention, wherein a balance weight is not employed,

FIG. 6 is an elevational, sectional view of the rear handle portion and apparatus employed to assemble the handgrip to the handle portion, illustrating the initial phase of the assembly operation, and

FIG. 7 is an elevational, sectional view of the handgrip and handle portion assembly apparatus upon completion of the assembling operation.

The concepts of the invention may be employed with either one- or two-piece billiard cues. For purposes of description, a two-piece billiard cue is shown in FIG. 1. The illustrated billiard cue includes a tip portion 10 and a handle portion 12. The tip and handle portions are interconnected by a conventional screw coupling means employed in conjunction with the typical collars 14 at the joined ends of the tip and handle portions. The cue is employed in the normal manner, whereby the tip and handle portions are interconnected, as shown in FIG. 1, when the cue is to be used, and the portions 10 and 12 are uncoupled by unthreading the screw coupling when the cue is to be transported or stored.

The handle portion 12 consists of a rear or butt portion 16 and a forward portion 18. In the case of the two-piece billiard cue, the forward portion 18 includes the screw coupling at its free end for connection to the tip portion 10. In a one-piece billiard cue construction, the component, hereafter referred to as the forward handle portion, would terminate at its smallest end at the cue tip.

With reference to FIG. 1, the rear handle portion 16 includes an exterior surface 20 immediately adjacent the

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end 22 of the handle portion. A tubular handgrip 24 encompasses the handle portion throughout a portion of its axial length, and ornamental ribbing 26 may be formed on the outer surface 28 of the forward handle portion 18. In accordance with typical billiard cue construction, the cue is of a conical configuration throughout its length, converging from the end 22 toward the tip.

The rear handle portion 16 includes a conical handgrip-receiving surface 30, as best shown in FIG. 6. The handgrip-receiving surface 30 intersects a radially extending shoulder 32 which, in turn, intersects the exterior, rear handle portion surface 20. The small diameter end 34 of the rear handle portion 16 is perpendicular to the longitudinal axis of the rear handle portion, and a cylindrical socket 36 is concentrically defined within the rear handle portion intersecting end 34. The axial depth of the socket 36 is dependent on whether the billiard cue is to employ the balance weight shown in the embodiments of FIGS. 2, 3, and 4, or the screw dowel shown in the embodiment of FIG. 5. The socket 36 terminates in a bottom wall 38, and a screw-starting opening 40 is preferably formed in the bottom wall.

The end 42 of the forward handle portion 18, which is to be joined to the rear handle portion, includes a reduced diameter to define a projection 44, having a terminating end surface 45, which intersects the radial shoulder 46 extending to the exterior surface 28. The projection 44 is of a cylindrical configuration and of a diameter to be closely received within the socket 36. A screw-starting hole 48 is preferably defined in the end 42 of the forward handle portion 18.

The tubular handgrip 24 is mounted on the handgrip-receiving surface 30 of the rear handle portion. The handgrip 24 is preferably formed of a tube of elastic, synthetic material which is of an attractive appearance, durable, and has the frictional and "feel" characteristics desirable with a handgrip of this type. An end of the handgrip 24 abuts the shoulder 32 and the radial dimension of the shoulder 32 substantially equals the wall thickness of the handgrip tube. Thus, the exterior surface of the handgrip adjacent the shoulder 32 corresponds to the diameter of the exterior, rear handle portion surface 20, resulting in a flush surface between the exterior of the handgrip portion 16 and the handgrip exterior surface. In a like manner, the diameter of the forward handle portion surface 28 at the shoulder 46 is of a dimension greater than the diameter of the handgrip-receiving surface 30 immediately adjacent the end 34 which will produce a flush and coinciding joint between the other handgrip end exterior surface and the surface 28 at the shoulder 46, as will be apparent in FIGS. 3 and 5.

The embodiment of FIGS. 1 through 4 employs a weight 50 of a cylindrical construction adapted to be received within the socket 36 and add mass to the cue. Screws 52 are located on the weight 50 and extend from the ends thereof, having wood screw threads formed thereon. After the handgrip 24 has been assembled on the receiving surface 30 and trimmed flush with the end 34, glue or other bonding material is preferably applied to the projection 44 and the weight 50. Thereupon, the weight 50 may be inserted in the socket 36 and the end of the projection 44 is likewise inserted in the socket. Relative rotation of the rear and forward handle portions 16 and 18, respectively, will thread the associated screw 52 into the hole 40 of the rear handle portion, while simultaneously threading the associated screw 52 into the hole 48 of the forward handle portion. Relative rotation of the handle portions is continued until the end 34 of the rear handle portion abuttingly engages the shoulder 46 of the forward handle portion in the manner shown in FIG. 3.

The above interconnection thereby locates the weight 50 in the rear handle portion 16 adjacent the forward

handle portion 18 to produce a most effective weight distribution and balance. At the same time the screws 52 produce a tension between the rear and forward portions in the axial direction maintaining a firm abutment of the ends 34 and 46, thereby insuring the axial alignment of the rear and forward handle portions.

The fact that the projection 44 extends into the socket 36 and is closely associated therewith and cemented thereto, likewise significantly contributes to the interconnection of the rear and forward handle portions. Due to the interrelationship of the weight 50 with the socket 36 and the rear and forward handle portions, there is no likelihood that the weight will be able to shift or move relative to the rear end portion within the socket.

FIG. 5 discloses the inventive concept employed in lightweight cues and components similar to those previously described are indicated by primes. In lightweight billiard cues it is not desirable that a weight be employed, and in such instances the socket 36' is formed as shown in FIG. 5. Thus, the socket 36' is of an axial depth only sufficient to receive the projection 44' formed on the forward handle portion 18'. As shown in FIG. 5, annular glue-receiving grooves 54 may be defined on the exterior of the projection 44' to facilitate the application and retention of the bonding means on the exterior of the projection. A screw dowel pin 56 having wood threads formed on each end thereof is concentrically located within the handle portions and interconnects the forward and rear handle portions by providing a tension force interposed therebetween, maintaining firm engagement of the end 34' and the shoulder 46'. It will be appreciated that the embodiment of FIG. 5 also permits the handle portion 12 to be formed of both the rear and forward portions wherein the handgrip 24 may be assembled to the rear portion in the manner later described.

In the previously described construction, it will be appreciated that the two-part construction of the handle portion 12 will not be apparent to the observer. The joint line between the rear and forward handle portions is that defined by the abutment of the smaller end of the handgrip with the shoulder 46. Thus, the described construction camouflages the two-part construction of the cue handle portion 12. As the exterior surface of the handgrip is flush with the associated surfaces of the handle portion, a smooth and pleasing appearance and "feel" is provided.

The handgrip 24 is assembled to the rear handle portion 16 in the following manner described with regard to FIGS. 6 and 7. A tubular casing 58 of a rigid wall construction is formed with a bore 60 of a conical configuration which is only slightly larger in diametrical dimension than, and similar in configuration to, the exterior surface of the handgrip 24, after the handgrip is assembled on handgrip-receiving surface 30. The lower end of the bore 60 is provided with an abutment surface 62, and the upper end of the bore is open. A compressed air conduit 64 communicates with the bore 60 at the abutment surface 62. It will be appreciated that the smallest diameter of the bore 60 is adjacent the abutment surface 62.

To assemble the handgrip on the handgrip-receiving surface 30 of the rear handle portion 16, the smaller diameter end 34 of the rear handle portion is "started" into an end of the handgrip tube 24. The normal configuration of the handgrip tube is that of a cylinder having an internal diameter which is slightly less than the external diameter of the handgrip-receiving surface 30 adjacent the end 34. Thus, the minimum diameter end of the handgrip-receiving surface 30 must be forced, to a slight extent, into the end of the handgrip tube 24 to assume the relationship shown in FIG. 6.

With the handgrip tube 24 received within the casing bore 60 in such a manner that the lower end thereof engages the abutment surface 62, and with the rear handle portion 16 inserted in the upper end of the tube 24, as in FIG. 6, compressed air is introduced into the bore 60

through the conduit 64. The introduction of the compressed air into the tube causes the resilient handgrip tube 24 to be inflated and radially expand a limited degree. Simultaneously with the expansion of the handgrip tube, the compressed air will escape from the interior of the handgrip tube between the inner surface of the tube and the handgrip-receiving surface 30 inserted within the tube. The escaping air functions as a lubricant and antifriction film which, in combination with the inflation of the tube, permits the rear handle portion 16 to be inserted in a downward direction into the handgrip tube, as shown in FIG. 7. The close conformity of the tube 24 and bore 60 prevents axial and radial buckling of the tube as the handle portion 16 is inserted therein. Engagement of the shoulder 32 with the upper end of the handgrip tube limits further insertion of the handgrip-receiving surface into the tube. The axial length of the handgrip tube 24 is greater than that of the handgrip-receiving surface 30, as will be apparent from FIG. 7, and upon removal of the assembled rear handle portion and handgrip tube, the handgrip tube is trimmed flush with the end 34. After the handgrip tube has been assembled to the rear handle portion, the rear and forward handle portions 16 and 18 may be assembled in the manner described above.

It will be appreciated that as the normal internal diameter of the handgrip tube 24 is less than the minimum diameter of the handgrip-receiving surface 30, the handgrip tube will intimately contact the handgrip-receiving surface, conforming to the configuration thereof throughout its length. The resilient nature of the handgrip tube will produce a tight "grip" on the handgrip-receiving surface and prevent rotation of the handgrip relative to the rear handle portion 16.

The improved balance of the embodiment of FIGS. 1 through 4 arises from the fact that weight 50 is located at that point in the cue length grasped by the user's hand which thrusts the cue, or slightly ahead of the point of grasping, whereby the weight produces no uneven forces on the cue when held. Cue weights are usually located adjacent the butt end and, thus, tend to raise the tip which produces an "unbalanced" feel.

It is appreciated that various modifications of the invention may be apparent to those skilled in the art without departing from the spirit and scope thereof, and it is intended that the invention be defined only by the scope of the following claims.

We claim:

1. A billiard cue comprising, in combination, a rear butt portion comprising a handle and a forward shaft portion having a cue tip at its free end, ends defined on said portions abuttingly engaging, an axially extending socket defined in said rear butt portion intersecting the end thereof and having a bottom surface, an axially extending projection defined on said abuttingly engaging end of said forward shaft portion of a configuration corresponding to and closely received within said socket, a terminating surface defined on said projection, the axial length of said socket being greater than the axial length of said projection, a weight within said socket interposed between said bottom and terminating surfaces, said weight having a transverse cross section such that it is closely received in said socket, oppositely disposed ends defined on said weight, said socket bottom surface and said projection terminating surface substantially abutting the adjacent end of said weight, a threaded fastener mounted upon and projecting from each end of said weight, one of said fasteners threading into said rear butt portion through said bottom surface and the other of said fasteners threading into said projection, said weight and fasteners together defining a tension member maintaining said rear butt and forward shaft portion ends in abutting engagement.

2. A billiard cue comprising, in combination, a rear butt portion comprising a handle and a forward shaft portion having a cue tip at its free end, ends defined on

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said portions abuttingly engaging, an axially extending cylindrical socket defined in said rear butt portion adjacent to and intersecting said end defined on said rear butt portion, an axially extending projection defined on said end of said forward shaft portion closely received within said socket, the axial length of said socket being greater than that of said projection, a cylindrical bodied weight within said socket, said weight body having a diameter substantially equal to the diameter of said socket and projection, said weight being of an elongated configuration having ends, a screw permanently affixed to and projecting from each end of said weight, the body of said weight being of substantially greater diameter than the maximum diameter of said screws, one of said screws being threaded into said rear butt portion and the other screw being threaded into said forward shaft portion, said weight and screws forming an integral fastening member maintaining said ends of said rear and forward portions in abutting engagement.

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