No. 692,970. Patented Feb. 11, 1902.

W. ZAEHRINGER.

BILLIARD CUE.

(Application filed Mar. 30, 1901.)

(No Model.)

Fig. 1.

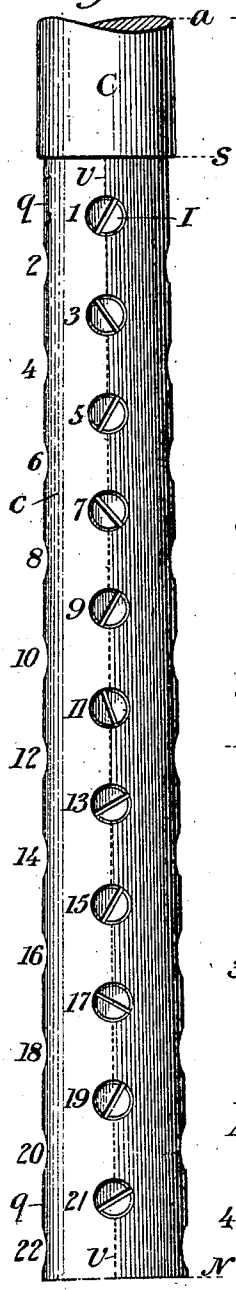


Fig. 2.

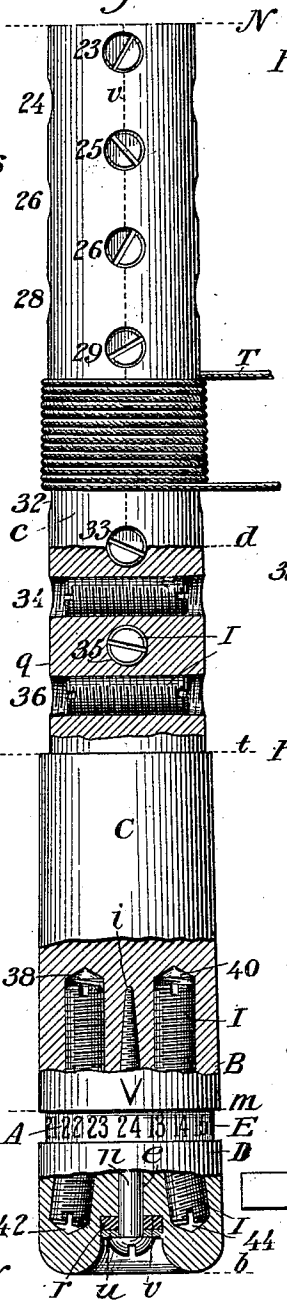


Fig. 3.



Fig. 4.



Fig. 5.

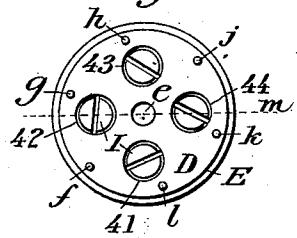


Fig. 6.

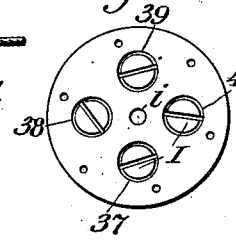


Fig. 7.

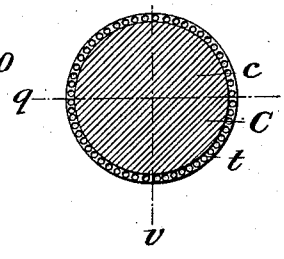


Fig. 8.



Fig. 9.

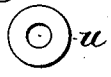


Fig. 10.

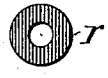
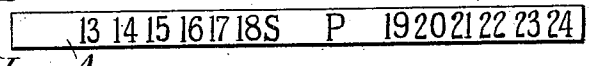


Fig. 11.



Fig. 12.



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UNITED STATES PATENT OFFICE.

WILLIAM ZAEHRINGER, OF NEW ORLEANS, LOUISIANA.

BILLIARD-CUE.

SPECIFICATION forming part of Letters Patent No. 692,970, dated February 11, 1902.

Application filed March 30, 1901. Serial No. 53,724. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ZAEHRINGER, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and useful Improvement in Billiard-Cues, of which the following is a specification.

The objects of my invention are, first, to provide a billiard-cue which can readily be loaded with adjustable weights to any given quantity of weight desired by a player, from thirteen ounces for its minimum up to twenty-four ounces for its maximum weight; second, a billiard-cue capable of being "balanced" in a multiplicity of ways with various specific amounts of weight; third, a billiard-cue adapted to contain its weight practically in a direct vertical core-line; fourth, a billiard-cue adapted to hold its weight with uncommon firmness; fifth, a billiard-cue provided with an adjustable supplementary butt-piece adapted to receive adjustable weights; sixth, a billiard-cue provided with an adjustable supplementary butt-piece adapted to display an index, and, seventh, a billiard-cue provided with an adjustable flexible corrugated covering upon its shank or handle. These features are combined in a simple and effective manner, as will be fully understood by the following specification, reference being had to the annexed drawings, which represent, in—

Figure 1, the bisected and stripped upper end of the loaded shank or handle; Fig. 2, the bisected lower end of the loaded and partly-wrapped shank or handle, the loaded butt, and the loaded adjustable supplementary butt-piece with an index; Fig. 3, an interchangeable adjustable one-fourth-ounce screw-weight; Fig. 4, an end view of Fig. 3; Fig. 5, the top end view of the loaded and adjustable supplementary butt-piece; Fig. 6, the bottom end view of the loaded butt; Fig. 7, a top view of the lower serrated annular shoulder of the shank or handle; Fig. 8, an ordinary round-head screw; Fig. 9, a metallic washer; Fig. 10, a leather washer; Fig. 11, a double-pointed dowel-pin, and Fig. 12 a printed adjustable weight-index slip.

To construct this invention, the following named materials, shapes, and dimensions of the same are preferred. An ordinary-shaped perfectly straight round-handled maple-wood cue C, Figs. 1 and 2, measuring one and three-eighths inches in diameter at its extreme base end *b*, Fig. 2, and converging in straight lines to a diameter of one inch at *a*, Fig. 1, a distance of nineteen inches from the base *b*, Fig. 2. The upper annular shoulder *s*, Fig. 1, is formed eighteen inches from the base *b*, Fig. 2. The lower annular shoulder *t*, Fig. 2, is formed four inches from the base *b*. The shank *c*, Figs. 1 and 2, is fourteen inches in length from the upper shoulder *s*, Fig. 1, to the lower shoulder *t*, Fig. 2, and recedes from the surface of the cue C to a depth of one-sixteenth of an inch in straight converging lines. Thirty-six holes numbered and partly shown in Figs. 1 and 2 are cut entirely through the shank *c* at right angles to the core-line and alternately at right angles to each other. These holes are all made nine thirty-seconds of an inch wide, so as to receive a substantial thread, and are slightly reamed at their ends. The centers of the eighteen screw-holes in one row on the vertical line *v* upon the shank *c* are three-fourths of an inch apart. The centers of the eighteen screw-holes on the transverse line *q* upon the shank *c* are the same distances apart, thus bringing the centers of each of the alternately-transverse holes three-eights of an inch apart in a direct vertical core-line of the shank *c*, as shown in section from *d* to *t* in Fig. 2.

The butt-end B, Figs. 2 and 6 of the handle, has four screw-holes, their centers being crosswisely eleven-sixteenths of an inch apart, drilled parallel to the core-line up to a depth of one inch. The central hole *i* is one-eighth of an inch wide, seven-eighths of an inch deep, and slightly tapered to suit the shape of the connecting-screw *n*. An incised V-shaped index-mark is formed with a die near its base at *m*, Fig. 2.

The supplementary butt-piece D, Figs. 2 and 5, is cut at a height of one and one-fourth inches from the base *b*. The neck E has vertical sides and is one-fourth of an inch high and one and one-fourth inches in diameter. Its upper surface is gradually depressed to a depth of one thirty-second of an inch at its center *e*, Fig. 5. The centers of the screw-holes are eleven-sixteenths of an inch apart crosswisely at the surface and are drilled slanting outwardly from the core-line, as shown in Fig. 2, to a depth of seven-eighths of an inch. The central hole *e*, Figs. 2 and 5,

for the shank of the connecting-screw *n*, Figs. 2 and 8, is three-sixteenths of an inch wide at its base and four-sixteenths of an inch wide at its upper end. The countersunk shoulder *o*, Fig. 2, in the bottom is three-eighths of an inch deep from the base *b* and has an annular wall seven-sixteenths of an inch wide, which is rounded outwardly at the base *b*. A series of double-pointed brass dowel-pins *f*, *g*, *h*, *j*, *k*, and *l* are each about one-sixteenth of an inch in diameter and one-half inch long. These pins are driven vertically and firmly into the upper surface of the butt-piece D about equidistant and near the edge of the neck E, Figs. 2 and 5.

The screw-weights have about eighteen threads to the running inch and are made out of a rod of wrought-iron five-sixteenths of an inch in diameter. The length of a finished screw-weight I, Fig. 3, is about twenty-seven thirty-seconds of an inch and the diameter about five-sixteenths of an inch. A slot is cut at each end to preserve its center of gravity and to facilitate adjustment and removal. Their ends are slightly beveled. Each one of these screw-weights weighs exactly one-fourth of an ounce.

The twine T, Fig. 2, is about one-sixteenth of an inch thick and is known as "No. 15 seine, Banner brand." The shank *c* will require a length of about twenty-four yards.

The upper shoulder *s*, Fig. 1, and the lower shoulder *t*, Fig. 2, of the shank *c* are serrated by being punctured upon their respective annular horizontal surfaces close to the side of the shank *c*, as shown in Fig. 7, with a twist-drill three sixty-fourths of an inch in diameter to a depth not exceeding the diameter of the drill.

The ordinary round-head iron connecting-screw *n*, Fig. 8, is three-sixteenths of an inch in diameter at the shank, five-sixteenths at the head, and two inches long.

The brass washer *u*, Figs. 2 and 9, is one thirty-second of an inch thick, thirteen thirty-seconds in diameter, and has a three-sixteenths-inch hole.

The leather washer *r*, Figs. 2 and 10, is about three thirty-seconds of an inch thick, thirteen thirty-seconds in diameter, and has a three-sixteenths-inch hole.

The weight-index slip A, Figs. 2 and 12, is four and three-eighths inches long and one-fourth of an inch wide. The printed matter covers a line-space of three and thirteen-sixteenths inches, leaving a blank margin on the left-hand side. The letters "S" and "P" and the numbers "13," "14," &c., up to "24" are three-sixteenths of an inch high. The numbers are to be used alternately to designate whatever the current weight of the cue may be. The initial "S" is used to designate the serial number of the cue. The initial "P" is used to designate the private-rack number of the cue. The serial and private-rack numbers are to be written, respectively, after the initials "S" and "P" with a pen or marked with a rubber stamp. The left-hand end of the slip is to be glued first upon the vertical neck E, Fig. 2, of the supplementary butt-piece D and wound around its circumference, so that the right-hand end will cover the marginal space on the left-hand end. The butt-piece D is shown to be fastened to the butt B of the handle in such a manner as to bring the number "24" on the index-slip A immediately below the point of the incised V-shaped index-mark upon the butt B, hence designating the present weight of the cue C. Obviously any number of ounces can be designated. Should it be desired to designate a weight of twenty and one-half ounces, the V-shaped mark must be made to point between the numbers "20" and "21" by loosening and revolving the butt-piece D and adjusting it into the relative position required.

The essential parts of my invention are shown in Figs. 1 and 2, embracing the countersunk perforated shank C, fully loaded with screw-weights I, the fully-loaded butt B, the fully-loaded adjustable butt-piece D, the adjustable flexible corrugated covering T, the connecting-screw *n*, the washers *u* and *r*, and the weight-index slip A. The entire length of the cue C is not shown in the drawings, but will, combined with the parts as shown and specified, weigh a total of twenty-four ounces. The shank *c* is integral, but is shown in Figs. 1 and 2 as being bisected on the horizontal dotted line N.

We will now suppose that a player desires to use this cue with a total of only thirteen ounces in weight. In such a case he must remove each one of the one-fourth-ounce screw-weights I, there being forty-four in all. To do this, he must necessarily strip the shank *c* of all the twine T to gain access to the thirty-six weights located in the shank. He must also remove the round-head screw *n* and washers *u* and *r* in the base of the supplementary butt-piece D to gain access to the four weights in the same and also to the four weights in the butt B. This will make a total of forty-four weights removed, each weighing one-fourth of an ounce and aggregating eleven ounces. The twine T must now be readjusted, also the supplementary butt-piece D, with the connecting-screw *n* and washers *u* and *r*, when the cue C, being minus all its adjustable screw-weights I, will weigh only thirteen ounces and will be ready for use. It will now be evident that any given number of the forty-four weights may be readjusted to make the total weight of the cue as may suit the requirements of the player. Should the player now desire to load it so as to weigh fourteen ounces, it will be necessary to adjust four of the one-fourth-ounce weights, thereby adding one ounce to the (now) thirteen-ounce cue. The four weights can optionally be placed close together at the front, rear, or central part of the shank *c* or grouped or strung out elsewhere along the shank or into the butt B of the handle or into the supplementary butt-

piece D, hence "balancing" the (now) fourteen-ounce cue in a multiplicity of ways. Obviously any given number of the one-fourth-ounce weights less than the whole number (forty-four) can be placed into various relative positions to materially change the balancing-point of the cue. This adaptability constitutes a feature of distinctive and decided merit.

Owing to its construction this cue can be loaded practically in a direct vertical coreline, hence yielding a more regular, solid, forceful, and effective stroke in playing. The butt B, Figs. 2 and 6, of the handle and the supplementary butt-piece D, Figs. 2 and 5, contain a total weight of two ounces. Hence from one-fourth of an ounce up to two ounces in weight can readily be removed from these parts when they are fully loaded or placed when they are entirely unloaded, thereby materially decreasing or increasing the total weight of the cue at will without being forced to undo the twine T upon the shank *c*. The upper end of the supplementary butt-piece D, Fig. 2, is made to fit rigidly against the bottom of the butt B in this manner: The pointed ends of the dowel-pins *f g h j k l* in D project one-sixteenth of an inch and are forced into the bottom surface of B, thus effectually preventing a lateral or turning motion. The upper surface of D, being slightly depressed centrally from the edge of the neck E, will prevent a rocking motion when screwed up tightly. The leather washer *r* under the head of the screw *n* will exert a constant vertical pressure upon the shoulder *o* in the base of D, forcing it always to abut firmly against B, thus producing results equal to integral parts.

To properly aline the butt-piece D with the butt B, as shown in Fig. 2, wind upon the circumference of B a piece of ordinary cardboard, (three by five,) so that the edges will project about three-fourths of an inch beyond the base of B, and tie it firmly with a piece of cord. Now place the butt-piece D in its proper relative position within the flexible wall formed by the edges of the projecting cardboard, rest the base of D upon the floor, press the cue firmly downward from its upper end, and at the same time, with a hammer, deliver one or two moderately-sharp blows upon the top of the tip, thus forcing the points of the dowel-pins in D into the bottom surface of B, after which the connecting-screw *n* and washers *u* and *r* should be adjusted.

Each one of the forty-four quarter-ounce screw-weights is made to fit tightly into any one of the forty-four threaded holes or cells, and will not in common practice become loose, as does the ordinary cue-weight, which latter is of various lengths and thicknesses, usually formed of one piece of iron, hammered into the cue at its butt-end, then wedged in with a plug from the rear, and is intended to stay there, forever immovably.

The shank *c*, Figs. 1 and 2, presents a novel appearance when its surface is entirely wrapped with the twine T. Each one of the thirty-six holes will correspondingly form a slight dent upon the surface of the flexible covering, thus producing a corrugated and commodious gripping-surface unlike the flexible coverings in vogue, which latter are not countersunk to line up approximately with the converging sides of the cue and are not adapted to be removed and readjusted an indefinite number of times.

Should it be desired to remove any given number of weights from the shank *c*, unwind the coils of the twine T at the front or rear end sufficiently to gain access to the weights which are to be removed, and thereafter wind the twine tightly, so that the last coil will become jammed between the one adjoining it and the serrated annular shoulder *s* in Fig. 1 or *t* in Fig. 2.

To prevent the twine T from unraveling, apply a little beeswax to the ends before jamming them down against their respective serrated shoulders.

Should the wrapped handle be found too thin, its thickness can readily be increased by first wrapping the shank with a few layers of Manila paper or a fabric of suitable dimensions, leaving a bare space of about one-half inch at each end of the shank to properly bring the ends of the twine down against the serrated shoulders.

The minimum weight of the cue C is thirteen ounces; but this as a standard minimum weight may be reduced or augmented, as follows: To reduce this minimum weight, drill each of the four vertical holes numbered "37," "38," "39," and "40" in the butt B, Figs. 2 and 6, to a depth of two inches instead of one inch and make the supplementary butt-piece D, Figs. 2 and 5, of a lighter wood than maple. To increase this minimum weight, load the four (now supposed to be extended) holes numbered "37," "38," "39," and "40," Figs. 2 and 6, and make the supplementary butt-piece D, Figs. 2 and 5, of a heavier wood than maple.

An ordinary unloaded maple-wood cue, perforated, countersunk, and wrapped, as the cue C, will approximately weigh thirteen ounces. When found to weigh more or less than this amount, the parts mentioned can be reduced or increased, as specified, so as to weigh exactly thirteen ounces when this weight is desired to form its minimum and twenty-four ounces its maximum standard.

For obvious reasons some players prefer a cue provided with a separable joint at or near its center. This feature can optionally be added to the cue C without interfering with the construction of its various parts.

Various modifications in the construction of my invention—such as increasing the number of holes and corresponding screw-weights or decreasing the same, using lighter or heavier screw-weights, cutting the holes in the shank farther from or nearer to the base,

and other minor changes—may be made, the whole producing, approximately, the same results. Therefore I do not confine myself to the use of the precise materials, shapes, and dimensions as herein specified.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A billiard-cue having in its shank, or handle, a series of horizontal, alternately transverse, and threaded holes, numbered from "1" to "36" inclusively, in combination with a corresponding number of uniform, double-pointed, double-slotted, and adjustable screw-weights I, wherewith the said handle may be repeatedly loaded, and unloaded to suit, substantially as, and for the purposes set forth.

2. A billiard-cue having in its integral butt B, a series of vertical threaded holes, numbered from "37" to "40" inclusively, in combination with a corresponding number of uniform, double-pointed, double-slotted, and adjustable screw-weights I, wherewith the said butt may be repeatedly loaded, and unloaded to suit, substantially as, and for the purposes set forth.

3. A billiard-cue provided with an adjustable supplementary butt-piece D, having a hole *e* through its vertical center, a centrally-depressed horizontal surface *m*, containing a series of rigid, pointed, and vertically-protruding dowel-pins *f*, *g*, *h*, *j*, *k*, and *l* near its edge, a vertical neck E at its top, a countersunk shoulder *v* at its bottom, and a series of slanting, threaded holes, numbered from "41" to "44" inclusively, in combination with a corresponding number of uniform, double-pointed, double-slotted, and adjustable screw-weights I, wherewith the said butt-piece may be repeatedly loaded, and unloaded to suit, a round head connecting-screw *n*, a metallic washer *u*, and a leather washer *r*, substantially as, and for the purposes set forth.

4. A billiard-cue having the combination of a perforated and longitudinally-countersunk shank, or handle *c*, containing an annular punctured, or serrated shoulder *s* at its upper end, and an annular punctured, or serrated shoulder *t* at its lower end, adapting the said respective shoulders to firmly grip, and securely hold the first (upper) coil, and the last (lower) coil of the twine covering T, whenever occasion demands the readjustment of the said twine to completely cover the series of perforations, and the corresponding, or an optionally less number of the adjustable screw-weights I, which may be located in the said shank, or handle *c*, substantially as, and for the purposes set forth.

5. A billiard-cue in combination with a stamped, molded, or printed weight-index slip A encircling the vertical neck E of the adjustable supplementary butt-piece D, and an incised **V**-shaped pointer, or equivalent, upon the integral butt B, for indicating the manifoldly-variable total current-weight, being dependent upon the minimum normal weight of the cue proper, and the therewith-combined adjustable screw-weights I, which may have been inserted in various quantities into the shank, or handle *c*, the integral butt B, and the adjustable butt-piece D, substantially as, and for the purposes set forth.

6. In a billiard-cue, the combination of a longitudinally-countersunk shank, or handle *c*, having a series of horizontal, alternately-transverse, and threaded holes, numbered from "1" to "36" inclusively, with a corresponding number of uniform, double-pointed, double-slotted, and adjustable screw-weights I; an integral butt B, having a series of vertical, threaded holes, numbered from "37" to "40" inclusively, with a corresponding number of uniform, double-pointed, double-slotted, and adjustable screw-weights I; an adjustable supplementary butt-piece D, having a hole *e* through its vertical center, a centrally-depressed horizontal surface *m*, containing a series of rigid, pointed, and vertically-protruding dowel-pins *f*, *g*, *h*, *j*, *k*, and *l* near its edge, a vertical neck E at its top, a countersunk shoulder *v* at its bottom, and a series of slanting threaded holes, numbered from "41" to "44" inclusively, with a corresponding number of uniform, double-pointed, double-slotted, and adjustable screw-weights I, a round-head connecting-screw *n*, a metallic washer *u*, and a leather washer *r*; a longitudinally-countersunk shank, or handle *c*, containing an annular punctured or serrated shoulder *s* at its upper end, and an annular punctured or serrated shoulder *t* at its lower end, adapting the said shoulders to firmly grip, and securely hold the first (upper) coil, and the last (lower) coil of the twine covering T, whenever occasion demands the readjustment of the said twine, to completely cover the series of perforations, and the corresponding, or an optionally less number of the adjustable screw-weights I, which may be located in the said shank, or handle *c*; a stamped, molded, or printed weight-index slip A encircling the vertical neck E of the adjustable supplementary butt-piece D, an incised **V**-shaped pointer, or equivalent, upon the integral butt B, for indicating the manifoldly-variable total current-weight, being dependent upon the minimum normal weight of the cue proper, and the therewith-combined adjustable screw-weights I, which may have been inserted in various quantities into the shank, or handle *c*, the integral butt B, and the adjustable butt-piece D, substantially as, and for the purposes set forth.

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