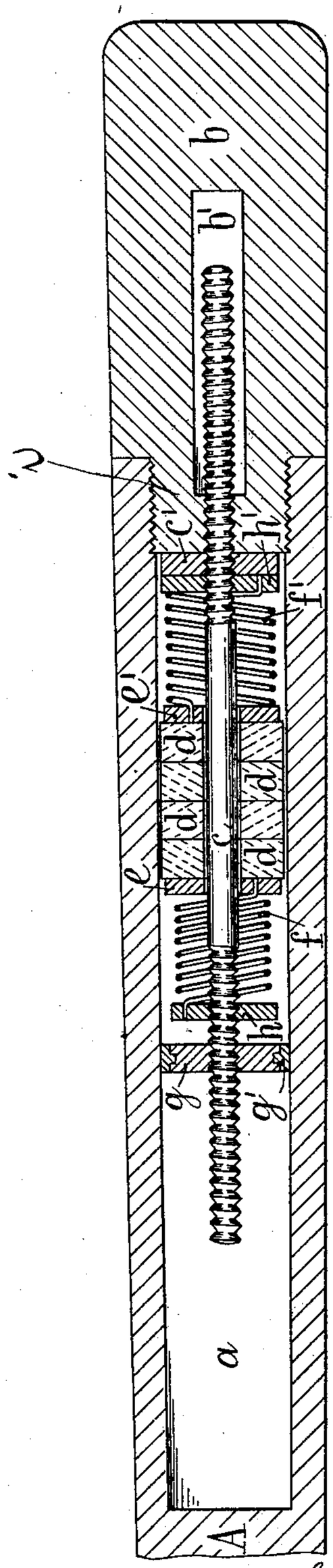
No. 608,457. Patented Aug. 2, 1898.

B. HUTZEL.

BILLIARD CUE.

(Application filed Sept. 11, 1897.)

(No Model.)



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UNITED STATES PATENT OFFICE.

BENEDICT HUTZEL, OF NEW YORK, N. Y.

BILLIARD-CUE.

SPECIFICATION forming part of Letters Patent No. 608,457, dated August 2, 1898.

Application filed September 11, 1897. Serial No. 651,361. (No model.)

To all whom it may concern.

Be it known that I, BENEDICT HUTZEL, a citizen of the United States, and a resident of New York, (Brooklyn,) county of Kings, and State of New York, have invented certain new and useful Improvements in Billiard-Cues, of which the following is a full, clear, and exact specification, reference being had to the accompanying drawing, showing a sectional view of the butt-end of my improved billiard-cue to which my invention is applied.

My invention relates to utensils for playing billiards; and it consists of a billiard-cue provided with an adjustable ballast-weight applied to it in such manner that the quantity and also the position of the weight can be changed and that the strike of the cue is rendered "springy" or elastic.

It is usual to provide billiard-cues with a ballast-weight, mostly filled in in the butt-end thereof. There is, however, a diversity of opinion as to where this weight should be located and what its quantity should be. For this reason every billiard-table is equipped with a large number of cues varying in these respects.

The object of my invention is to obviate the necessity of providing so many cues and is attained in the following manner, illustrated in the accompanying drawing, showing a longitudinal view of the butt-end of a billiard-cue constructed in accordance with my invention.

The lower end of the stem A of my improved cue is provided with a bore *a*, slightly tapered toward its end and screw-threaded at its mouth, the screw-thread matching that provided on the shouldered end *i* of the butt *b*. Butt *b* is also provided with a bore *b'*, which is narrower at its mouth and screw-threaded, the screw-thread extending for about an inch into the bore and corresponding with that of the rod *c*. Beyond the screw-threaded part the bore *b'* is slightly wider to permit the end of the rod *c* to pass in freely.

Rod *c* is screwed into the bore of the butt *b* and is secured in its position by lock-nut *c'*. Its other end is screwed into the stopper-nut *g*, snugly fitted into the bore *a*, and preferably packed with a rubber band *g'*, holding it firmly within the bore *a* and preventing also its turning when the rod *c* is screwed into it.

The screw-thread in the nut *g* and on the end of the rod *c* (passing through this screw-nut) is of the same pitch as the screw-thread in the mouth of the bore *a* and upon the shoulder *i* of the butt to facilitate the screwing in of the butt. Nut *g* is stuck firmly in the bore *a* when the butt-end of the cue is inserted, whereas rod *c* is fixed by the nut *h'* and turns with the butt when its shoulder *i* is screwed into the end of the cue.

To avoid displacement of the nut *g* or twisting of the rod *c*, it must be screwed through the nut *g* at the same rate as the shouldered end *i* of the butt into the end of the cue.

Springs *f* and *f'* are preferably fastened with one end to washers *e* and *e'* and with the other to set-nuts *h* and *h'*, respectively, to keep them free from contact with the rod *c* or with the stem of the cue. Weights *d* are held on the rods *c* between washers *e* and *e'* by springs *f* and *f'*. They are preferably made of lead in the shape of collars fitted upon the rod *c*, of uniform weight, and their number varies according to how heavy the cue is to be made.

The force of momentum depends largely on the quantity of the mass moved, and consequently the larger the number of weights set on the rod *c* the greater the force produced by the stroke of the cue. If the ballast be immovable, the stroke would be hard. In my improved cue the momentum imparted to the weight by the motion of the cue in the act of striking a ball and tending to shift it in the direction of the motion of the cue is made to act upon the recoil-spring *f* pressing against it. The force compresses the spring more or less, according to the force of the stroke, and when the momentum has spent itself this spring reacts against the weight and returns it automatically to its normal position.

Springs *f* and *f'* must be adjusted (more or less compressed) according to the quantity of weights inserted between them, and their power of resistance the more increased the harder a stroke required. The tension of the

springs is adjusted by increasing or reducing the spaces between the washers *e* and *e'* and set-nuts *h* and *h'*. In connection therewith the length of rod *c* is regulated as the number of the weights *d* is varied.

The position of the weights *d* can be changed for about one-half of the length of the rod *c*. This will be found sufficient for all ordinary purposes.

I claim as my invention and desire to secure by Letters Patent—

1. A billiard-cue comprising a stem provided with an open bore screw-threaded on its lower end, a butt, having a screw-threaded shoulder screwed into the bore of the stem, and a bore concentrical with the bore of the stem and screw-threaded at its mouth, a screw-threaded rod screwed in the bore of the butt and projecting into the bore of the stem, a lock-nut screwed on the rod adjoining the shouldered end of the butt and securing the rod in its position, a screw-threaded stop-nut fitted into the bore of the stem and provided with frictional packing, set-nuts and washers set on the rod between the nuts, recoil-springs set between the washers and the set-nuts and tending to press the washers together, and perforated weights slid on the rod between the washers and held together and also in adjusted position by the pressure of the springs.

2. The combination with a billiard-cue composed of two or more parts, one having a bore provided with a screw-thread in its lower end and the other a screw-threaded shoulder adapted to be screwed into the bore of the preceding part, of a screw-threaded rod secured in the shouldered part concentrically with the bore, a nut fixed in the bore and screwed on the opposite end of the rod, recoil-springs set between the nut and the base of the screw, washers slid on the rod between the springs, and weights set between the washers and held in position by the springs.

In witness that I claim the improvements described in the foregoing specification I have signed my name in the presence of two subscribing witnesses.

BENEDICT HUTZEL.

Witnesses:

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