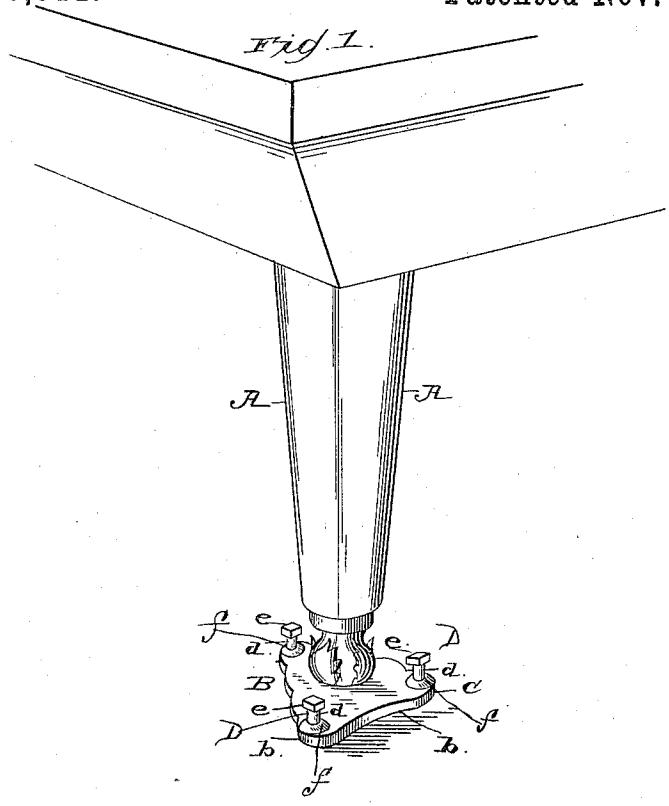
(No Model.)

G. LIVINGSTON.

BILLIARD TABLE LEVELER.

No. 330,911. Patented Nov. 24, 1885.

Fig. 1.



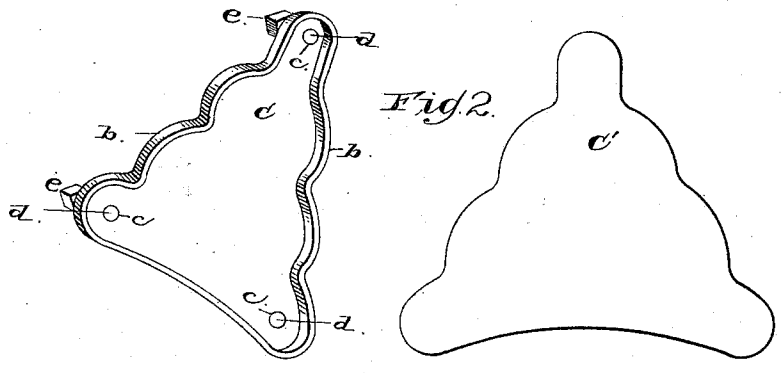
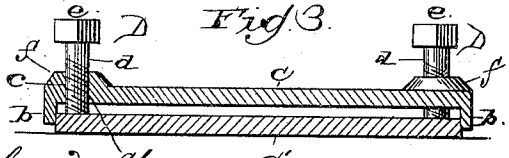


Fig. 2.

Fig. 3.



WITNESSES

M. E. Fowler

E. G. Siggers

INVENTOR

G. Livingston

by C. A. Snow & Co

his Attorneys

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

GEORGE LIVINGSTON, OF OSKALOOSA, IOWA.

BILLIARD-TABLE LEVELER.

SPECIFICATION forming part of Letters Patent No. 330,911, dated November 24, 1885.

Application filed April 7, 1885. Serial No. 161,474. (No model.)

To all whom it may concern:

Be it known that I, GEORGE LIVINGSTON, a citizen of the United States, residing at Oskaloosa, in the county of Mahaska and State of Iowa, have invented a new and useful Improvement in Billiard-Table Levelers, of which the following is a specification, reference being had to the accompanying drawings.

My invention has relation to improvements in devices for leveling billiard and pool tables, pianos, and other heavy objects; and the novelty consists in the peculiar construction and in the combination, arrangement, and adaptation of the several parts for service, substantially as hereinafter fully set forth, and particularly pointed out in the claims.

Heretofore in this art it has been common to provide a table-leveler with a centrally-arranged screw fitted in and carried by the leg of the table, said screw working in a threaded nut, also secured to the table-leg, within a recess therein, said screw or bolt projecting through a cap and bearing in a recessed or socketed plate resting on the floor. The screw-bolt is operated by revolving the cap by means of a rod fitting in one of a series of apertures therein, and when said screw-bolt is turned it works in the nut and elevates the table-leg up or down, according to the direction in which it revolves. This construction is shown in the patent to Sabin, No. 239,556, dated March 29, 1881, and is objectionable for the following reasons: To provide for sufficient adjustment of the table, a screw of sufficient length must be employed to suit the demands of the highest point of elevation, and when it is extended to its full length it serves to mount the table, so that it has the appearance of being fitted on a stilt-like device. In its elevated position it provides a very insecure bearing or support for the table-leg, and is liable to become broken or misplaced, owing to the weight of the players when resting thereon, combined with the weight of the table, and when subjected to shocks caused by a person kicking or an object falling against the leg it frequently happens that the screw-bolt is misplaced. Another objection to the screw-bolt is that when the floor is being washed, as is frequently necessary in billiard-halls, &c., water is liable to get into the threads of the bolt and rust the same, thus rendering the device difficult to operate or wholly inoperative.

I am also aware of the device covered by Patent No. 123,791, of February 20, 1872, to Paxton and Hull, which comprises two hollow cylindrical shells or boxes, the upper one of which has a series of teeth adapted to engage the under surface of the table-leg, to prevent displacement thereof, and having an interiorly-screw-threaded bush, in which works the lower shell, which is exteriorly threaded and has projecting teeth to secure the device to the floor. This device is open to many and serious objections, among which may be mentioned the great difficulty experienced in adjusting or rotating one of the sleeves to elevate or depress the table-leg, owing to the teeth thereof engaging the floor and table-leg and the liability of the threads to become rusted when washing the floor.

The object of my invention is to provide a device of the character hereinbefore mentioned, which can be readily and expeditiously adjusted in proper position beneath a table-leg; which shall be independent of such leg and readily removed from engagement therewith; which shall not be open to the objection of becoming rusted, and thus rendering the device inoperative; which shall combine great simplicity of construction with strength and durability; which shall not be liable to become easily broken or misplaced from its proper position beneath the table-leg; which can be easily and expeditiously adjusted vertically to elevate or depress the table-leg, and consequently that end of the table to which the leg is secured; which shall be cheap and easy of manufacture, and which will not deface or mar the surface of the floor.

I have shown an embodiment of my invention in the annexed drawings, in which Figure 1 is a perspective view of my invention in position beneath the leg of a table. Fig. 2 is a perspective view of the upper and lower adjusting-plates, and Fig. 3 a sectional elevation of the two plates in position together.

Like letters of reference indicate corresponding parts in the several figures of the accompanying drawings, referring to which—

A designates the leg of a billiard or other

table, piano, or other heavy object, and B designates one of my improved table-levelers in its proper position beneath the same, one of the devices being placed beneath each leg of the table, if necessary.

I have shown but one leg and its adjusting device herein, as I have not deemed it of sufficient importance to illustrate a series of legs, the invention being readily understood from this description, taken in connection with the drawings.

The leveling device B comprises two plates, C C′, arranged one above the other and beneath the table-leg, as is obvious and shown. The plates are of the same shape, or have the same contour, and are of a size to enable the lower surface of the leg to nearly cover the same.

The leg of a billiard-table as ordinarily constructed at present is in the shape of a lion's head, and of metal, cast and suitably secured thereon.

In practice I make the upper plate of a size a little larger than the base or under surface of the table-leg and triangular in shape, so that the corners or angles thereof project beyond the vertical faces of said table-foot, which rests at or near the middle thereof. Both of these plates are made triangular in form, and have corrugated or scalloped edges, or of any other preferred ornamental design or finish to give an ornamental and tasteful appearance thereto. The upper plate is made a little larger than the lower plate, and is provided at its edges with a continuous flange, *b*, which conforms to the shape of the said ornamental edges of the plate, and is adapted to fit over or inclose the edges of the lower plate.

I attach especial importance to the triangular shape of the plates, and to the depending flange or rim *b*.

By the first-mentioned construction a perfect adjustment of the upper plate is secured, which it is difficult to obtain by any other shape, for the reason that when one of the series of adjusting-screws is elevated or depressed the table-leg is forced upwardly to a slight degree, which may be sufficient to secure the desired level, while the other remaining screws serve as pivots for the plate and support the strain and weight.

By means of the depending flange of the upper adjustable plate the said plates are kept in alignment with each other, and the flange serves as a guide to maintain the plates in their proper relative positions.

When the table-leg is struck by an object, or the leg or device B is kicked by a person, the flange will prevent the plates from becoming separated or displaced, and the leg or the base thereof, having a firm broad bearing thereon, is not liable to become displaced when struck or subjected to shocks.

At each corner or angle of the upper plate, C, is provided raised bosses or bearings *f*, and through these bearings are formed screw-threaded apertures *f′*, in which are adapted to work or bear the shanks *e*, which are provided with a series of fine strong threads of an adjusting-bolt, D, having a squared head, *e*, for the reception of a wrench or other suitable implement for turning the bolt. The lower ends of the bolts D bear on the upper surface of the lower plate, C′, which rests on the floor of the hall or room, and, as before stated, is fitted within the flanges *b* of the adjusting-plate.

It will be observed that each of the adjusting-screws D can be adjusted independently of the other, and I attach importance to the number employed—namely, three, one arranged at each corner of the triangular plate—as by such arrangement they are caused to project beyond the sides of the table-foot, and can be readily adjusted.

I have found by experiment that a plate with four or a higher number of adjusting-screws does not give as satisfactory results as the number which I employ, because it is important that the weight of the table and the pivot of the adjusting-plate be thrown on but two of the adjusting-screws. The number employed in my device has been found by practical experience to be ample to support the plate and weight of the table, and does not consume unnecessary time in adjusting the device.

It has been found by experience that when the plate is minus the enlarged boss or bearing *f*, the threads in the apertures *f′* are liable to become worn and ineffectual in a short period of time, and to overcome this objection and give proper strength and durability to the device I provide the bearings *f*, as before described. By reason of the depending flange *b* fitting the lower plate snugly and closely, water is prevented from touching the screws when washing the floors, thus obviating the danger of the screw-bolts D becoming rusted and inoperative, or exceedingly difficult of operation. The lower plate resting on the floor independent of any fastening devices and having a broad bearing-surface, the floor is not liable to become marred or defaced, and the plate can be readily and quickly removed and provides a firm, strong, and durable bearing for the adjusting-screws. The pitch of the screws is made very fine, to secure an accurate adjustment of the plate to enable the horizontality of the table to be easily and quickly determined, which is aided by the multiplicity of adjusting-screws, and in the fact that such screws are adjustable independently of each other.

The operation of my invention is as follows: One of the leveling devices B is placed under each leg of the table, and should the table be uneven at one corner the proper adjusting-screws are turned independently of each other until the table is level, the horizontality of the table being determined by the use of a spirit or other level.

It will be obvious that in some cases the

lower plate might be dispensed with and the upper plate only employed, and that my improved leveling device can be used with equal advantages and facility in leveling pianos, ranges, stoves, or other heavy objects that may require to be leveled by means of adjusting-screws.

I am aware of the device shown in patent to Gurley, No. 286,606, dated October 16, 1883, for leveling-instruments, and hence do not claim the device therein shown. The construction shown in this patent is inapplicable to devices for accomplishing the purpose for which my invention is designed, for reasons which will readily suggest themselves.

The plates may be made of any suitable metal, and cast so that the necessary requisites of strength and durability are complied with.

The device is very simple, strong, and durable in construction, can be manufactured and supplied to the trade at a slight cost, fulfills a long-felt want in this art, is simple and easy in adjustment and operation, and will quickly and accurately adjust a table to the proper required level.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a table-leveler, the combination, with a table-leg, of the triangular flat plate resting on the floor, a vertically-adjustable plate interposed between the floor-plate and table-leg, which merely rests thereon, and a series of adjusting-bolts working in bearings in said upper plate and resting on the lower plate, and adapted to be adjusted independently of each other, substantially as described.

2. In a table-leveler, the combination, with the table-leg, of a triangular flat plate resting on the floor, a similarly-shaped vertically-adjustable plate arranged between said floor-plate and the table-leg, which has a broad bearing and merely rests thereon, said upper plate having a continuous depending flange, *b*, adapted to embrace the outer periphery of the lower plate, and adjusting screw-bolts D, working in enlarged bearings at each angle of the adjustable plate and adapted to bear on the lower plate, all arranged and combined as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

GEORGE LIVINGSTON.

Witnesses:
JAMES A. RICE,
BYRON V. SEEVERS.