

No. 843,371.

PATENTED FEB. 5, 1907.

Q. McK. SIMPSON.  
SELF LEVELING TABLE.  
APPLICATION FILED SEPT. 13, 1906.

Fig. 1.

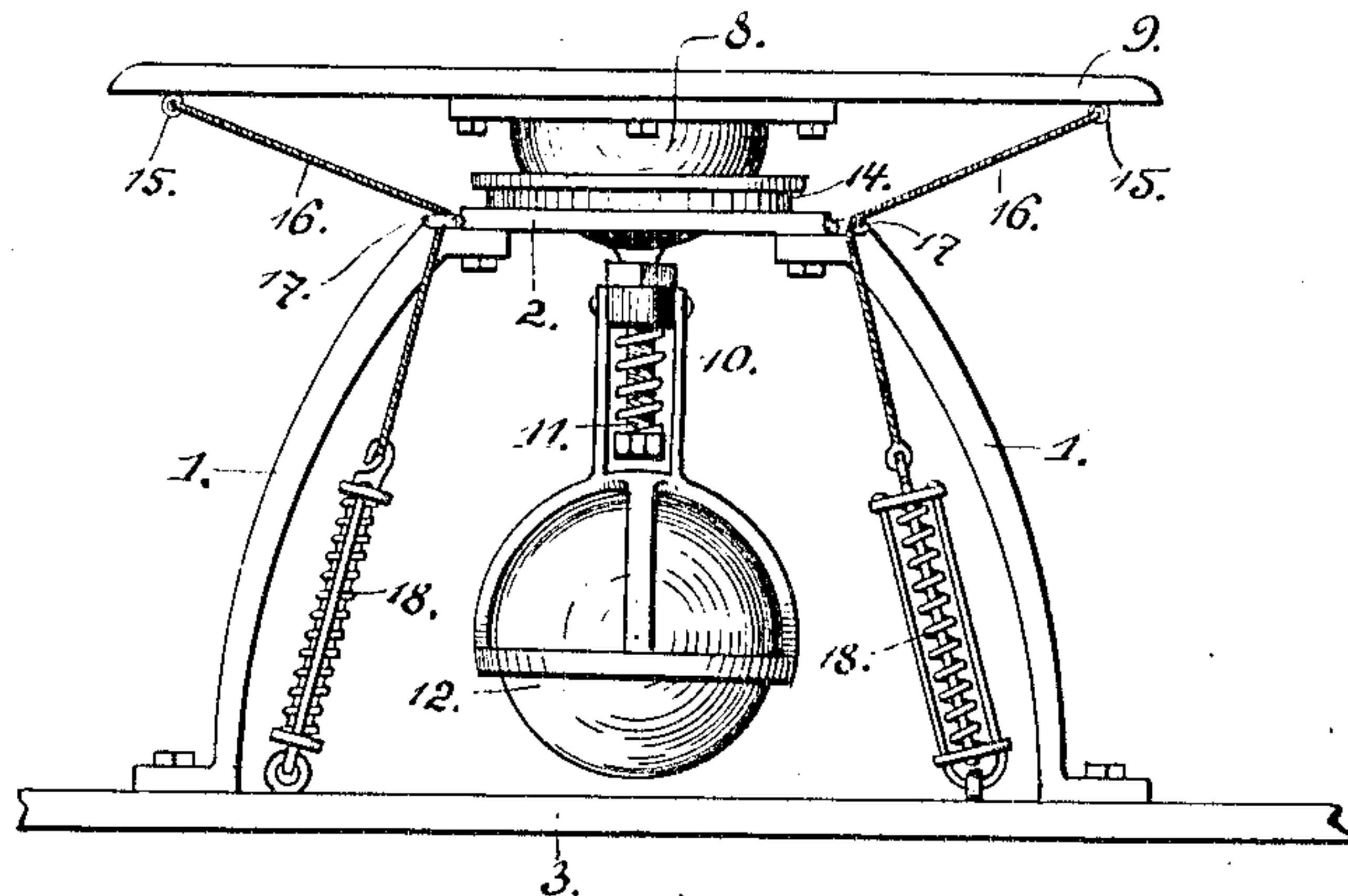


Fig. 2.

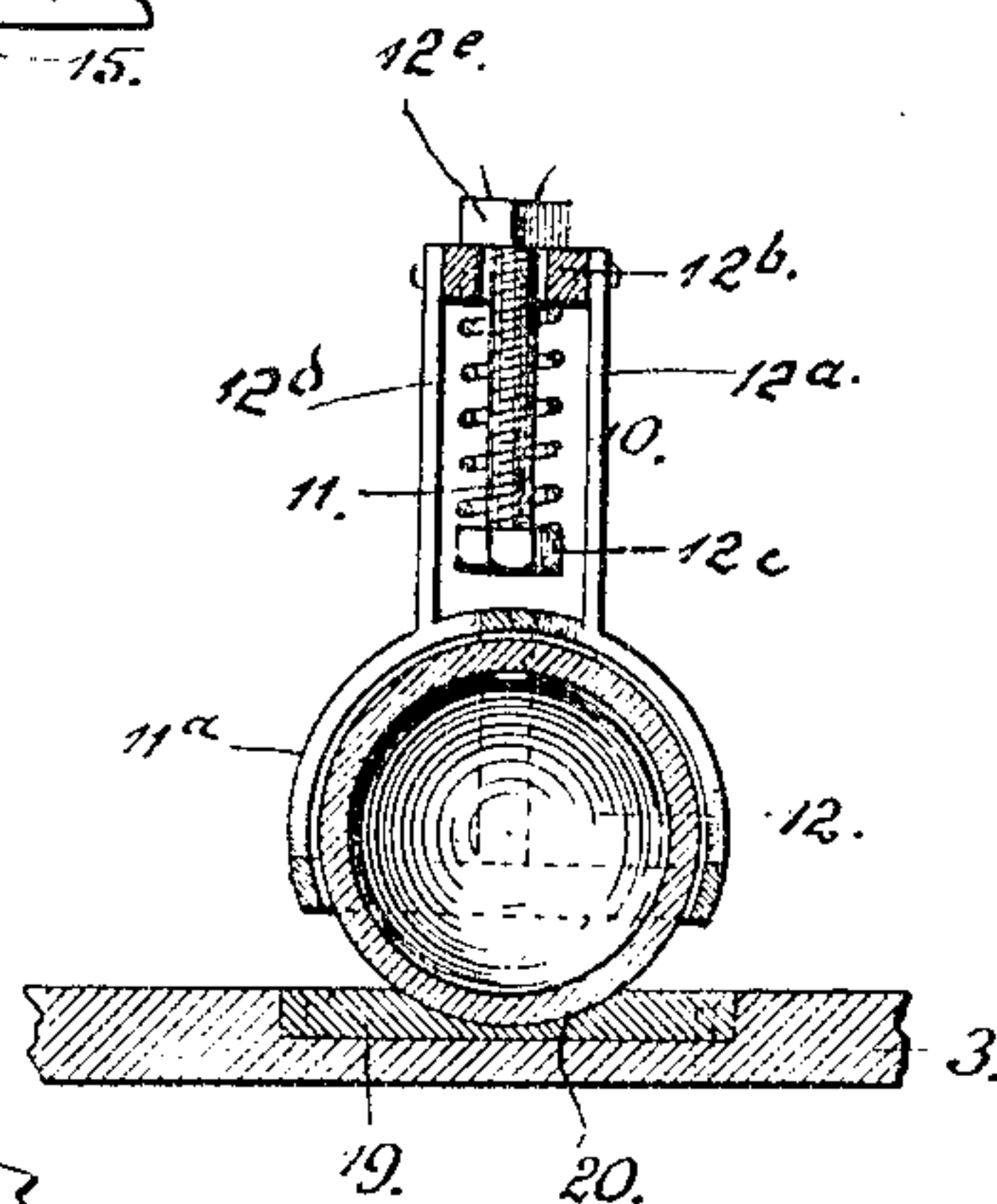
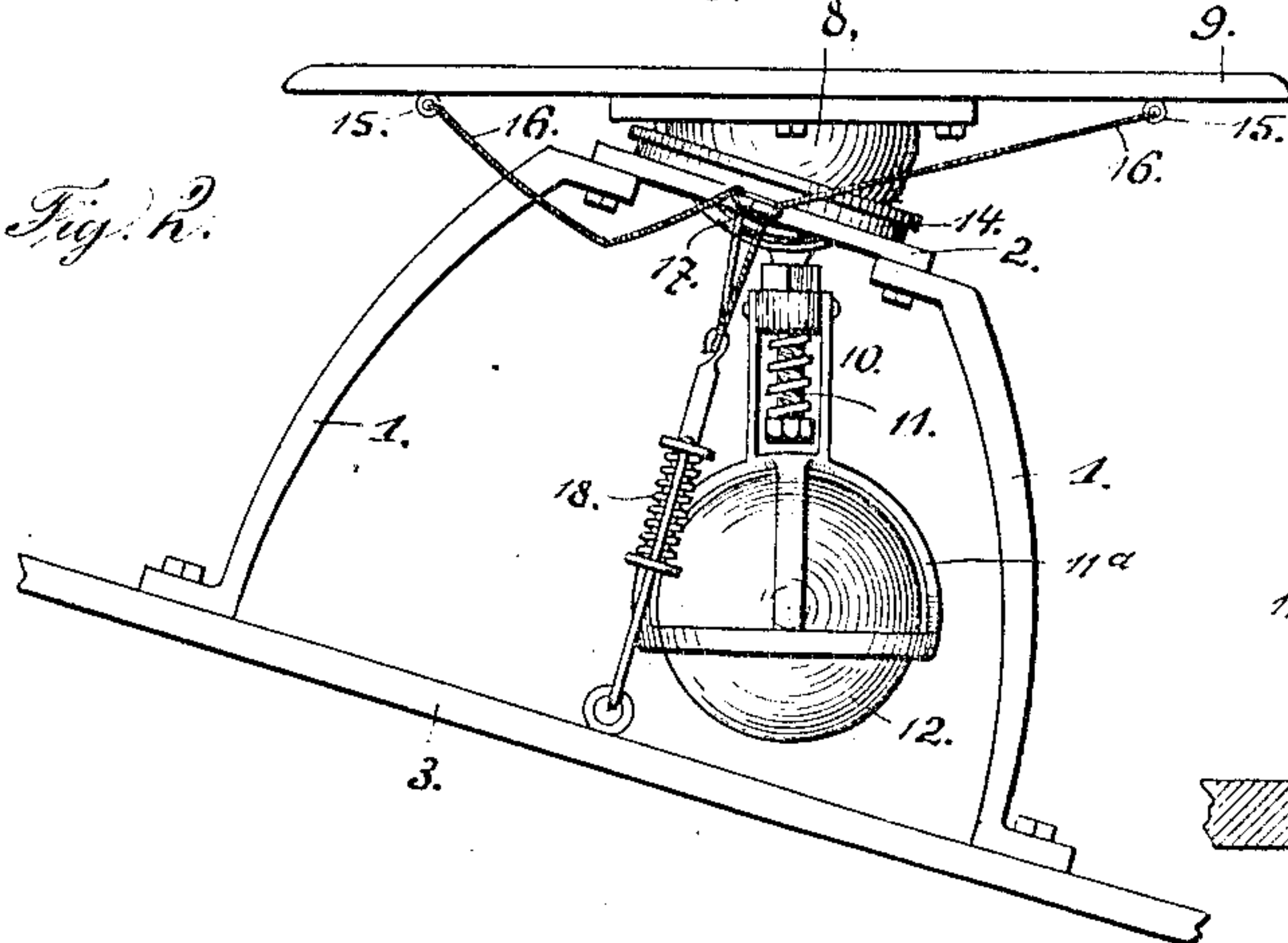


Fig. 3.

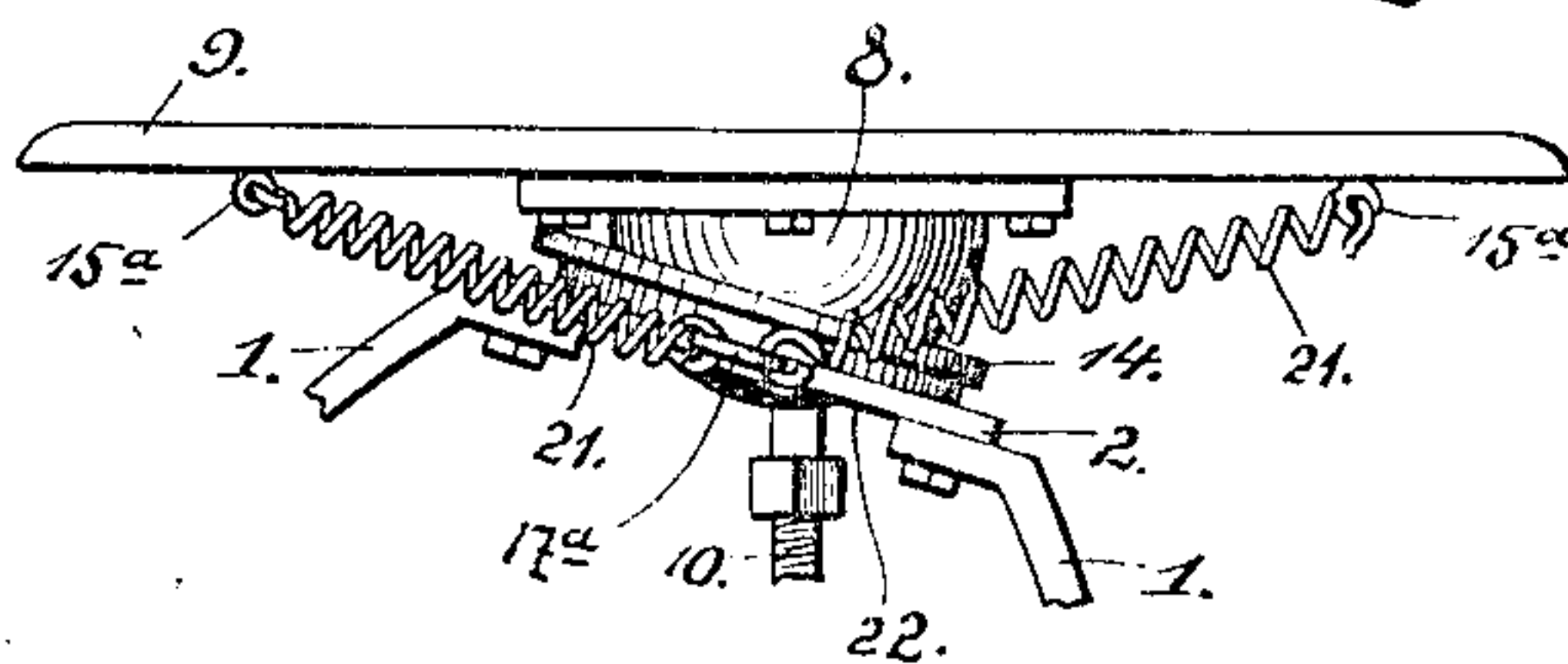
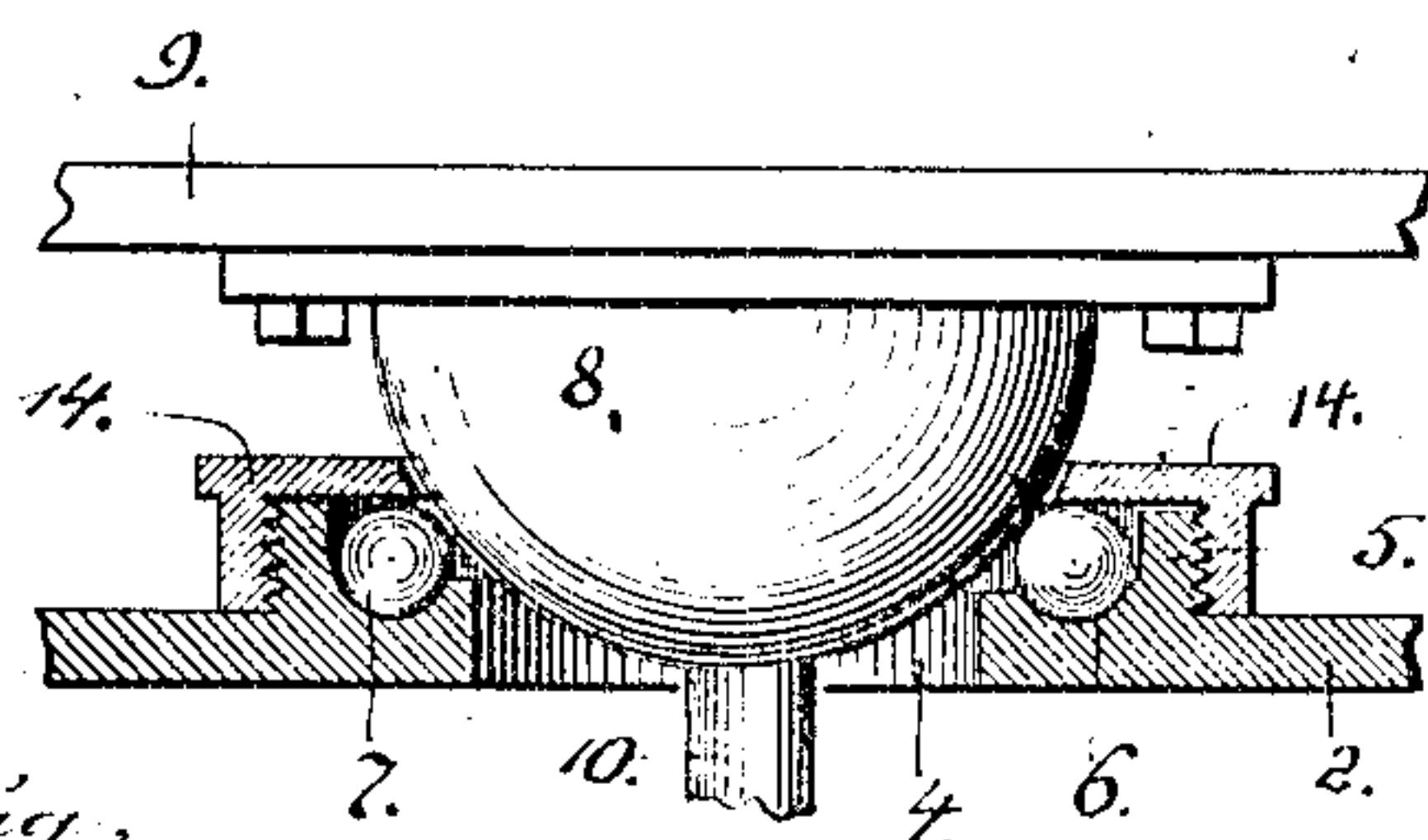


Fig. 5.

Fig. 4.



Witnesses:

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# UNITED STATES PATENT OFFICE.

QUEEN McK. SIMPSON, OF LAWRENCE, PENNSYLVANIA.

## SELF-LEVELING TABLE.

No. 843,371.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Application filed September 13, 1906. Serial No. 334,536.

*To all whom it may concern:*

Be it known that I, QUEEN McK. SIMPSON, a citizen of the United States of America, residing at Lawrence, in the county of Washington and State of Pennsylvania, have invented certain new and useful Improvements in Self-Leveling Tables, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to tables, and more particularly to that type known as "self-balancing" tables, designed for use upon vessels, trains, and moving bodies.

The primary object of my invention is to provide a table wherein positive and reliable means are employed for maintaining a table-top level irrespective of the inclination of its support or base.

Another object of this invention is to provide novel means for normally holding a table-top in a fixed position, said means being sufficiently flexible to allow the table-top to partially rotate.

A further object of my invention is to provide a table of the above-mentioned type that can be locked in a stationary position.

A still further object of my invention is to provide a simple and inexpensive balancing-table which will be strong and durable and free from injury by ordinary use.

With the above and other objects in view, which will more readily appear as the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts to be hereinafter more fully described, and specifically pointed out in the appended claims.

Referring to the drawings forming part of this specification, like numerals of reference designate corresponding parts throughout the several views, in which—

Figure 1 is a front elevation of the table in its normal position. Fig. 2 is a side elevation of the same, illustrating the support or base at an inclination to the table-top. Fig. 3 is a fragmentary elevation of the same, illustrating a slight modification. Fig. 4 is a detail sectional view of a portion of my improved table; and Fig. 5 is a detail sectional view of a portion of the table, illustrating the stationary locking means.

To put my invention into practice, I construct my improved table of legs 1, connected together by a plate 2 and supported upon a floor or base 3. The plate 2 is provided with

a central opening 4, surrounded by an annular exteriorly-screw-threaded flange 5, having a ball-race 6. In the race 6 are mounted a plurality of bearing-balls 7, which support a depending semispherical block 8, carried by a table-top 9. The block 8 is provided with a depending stem 10, having its lower end threaded, as at 11, to receive a cage 11<sup>a</sup> for a spherical body or weight 12.

The cage 11<sup>a</sup> is constructed of malleable metal, whereby it may be bent to partially surround the spherical body or weight 12 and retain the same in a revoluble position. The cage 11<sup>a</sup> consists of a vertically-disposed frame 12<sup>a</sup>, carrying a collar 12<sup>b</sup>, which surrounds the depending threaded stem 10. Upon the lower end of the stem is mounted a nut 12<sup>c</sup>, and interposed between said nut and the collar 12<sup>b</sup> is a coiled spring 12<sup>d</sup>, said spring surrounding the threaded stem 10. The spring 12<sup>d</sup> is adapted to cushion the spherical body or weight 12 upon the end of the stem.

To retain the bearing-balls 7 within the race when the plate 2 or the base 3 is tilted, I provide the annular flange 5 with a detachable gland 14, adapted to lie over the balls 7 and retain said balls in their race.

The manner of maintaining the table-top 9 upon the plate 2 permits of said top rotating, and to normally maintain said top in a fixed position I provide the table-top 9 with depending eyelets 15, to which are connected cords or cables 16, said cables passing through diametrically-disposed eyelets 17, carried by the edges of the plate 2. The ends of the cables 16 upon each side of the table are connected to compensating springs 18, attached to the floor or base 3. The springs 18 are of a conventional form adapted to normally maintain the cables 16 in a taut condition.

In order that the table-top can be held stationary with respect to the floor or base 3, I provide the floor or base centrally beneath the table with a plate 19, having a concavity 20 formed therein. The threaded stem 10 above the collar 12<sup>b</sup> is provided with a nut 12<sup>e</sup>, and when it is desired to lock the table-top stationary the nut 12<sup>e</sup> is rotated to lower the cage 11<sup>a</sup> until the spherical body or weight 12 engages in the concavity 20 of the plate 19. When the table-top is locked in a stationary position, the spring 12<sup>d</sup> is compressed, and when the table-top is released



the spring assuming its normal position elevates the spherical body or weight 12.

From the novel manner in which the table-top is supported it will be observed that the table-top is loosely supported in a level and non-revoluble position while being used, the table-top balancing itself when the floor or base 3 is moved.

A particular feature of my invention resides in the cables and springs employed for preventing the table-top from rotating, also the means for holding said top stationary.

In Fig. 3 of the drawings, I have illustrated a slight modification in the means for preventing the table-top from rotating. In lieu of the cables 16 and springs 19 I employ springs 21, which are secured to eyelets 15<sup>a</sup>, carried by the table-top, and eyelets 17<sup>a</sup>, carried by the diametrically-disposed edges 22 of the plate 2.

The operation of my improved table when carried by a moving body, such as a vessel, is obvious, and I wish it to be understood that such changes in the details of construction as are permissible by the appended claims may be resorted to without departing from the spirit and scope of the invention.

What I claim, and desire to secure by Letters Patent, is—

1. In a table, the combination with legs supported by a base, of a plate connecting said legs and having a central opening, an annular flange surrounding said opening and having a ball-race formed therein, balls mounted in said race, a gland mounted upon said flange, a semispherical block mounted upon said balls and having a depending stem, a table-top supported by said block, a weight adjustably mounted upon said stem, said base having a concavity formed therein, to receive said weight cables connected to

said table-top, and springs carried by said base and connecting with said cables, and means to temporarily hold said weight in the concavity of said base, substantially as described.

2. In a table, the combination with a base, of a plate supported above said base and having a central opening formed therein, ball-bearings surrounding said opening, a block resting upon said ball-bearings, a table-top carried by said block, a weight adjustably supported by said block, cables attached to said table-top, springs carried by said base and connecting with said cables, and means including said base for holding said table-top stationary, substantially as described.

3. In a self-leveling table, the combination with a supporting member, of table-legs attached to said supporting member, a plate connecting said legs at their upper ends and provided with a ball-race, a table-top, a semispherical bearing-block secured to the table-top and resting on said antifriction-balls, a depending threaded stem carried by said semispherical bearing-block, a cage mounted for vertical movement on the stem, a weight carried by said cage, a spring mounted on the stem and acting against the cage to normally hold the cage elevated and the weight out of engagement with the supporting member, and means for compressing said spring to lower the cage and weight to engage the latter with the supporting member.

In testimony whereof I affix my signature in the presence of two witnesses.

QUEEN McK. SIMPSON.

Witnesses:

JOHN P. MOORE,  
J. F. McNAY.