No. 728,887. PATENTED MAY 26, 1903.

R. P. ELLIOTT.

ADJUSTABLE FURNITURE.

APPLICATION FILED MAY 31, 1901.

NO MODEL. 2 SHEETS—SHEET 1.

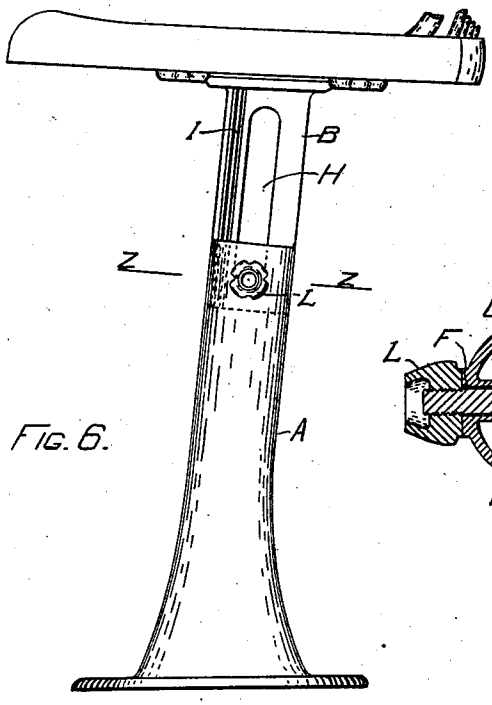


FIG. 6.

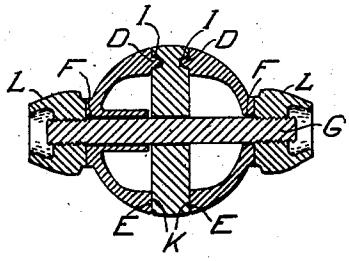


FIG. 8.

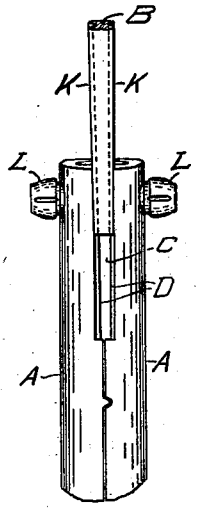


FIG. 7.

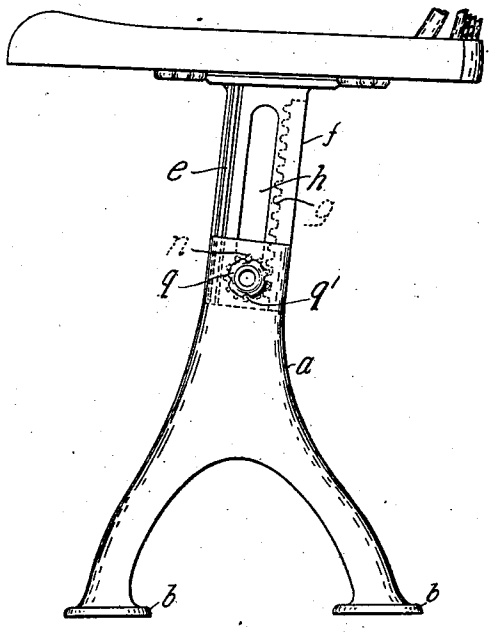


FIG. 1.

WITNESSES

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NO MODEL. 2 SHEETS—SHEET 2.

FIG. 4.

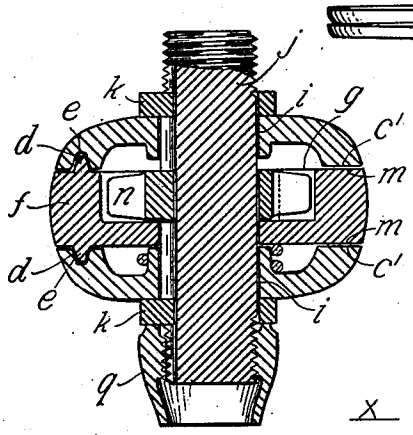


FIG. 3.

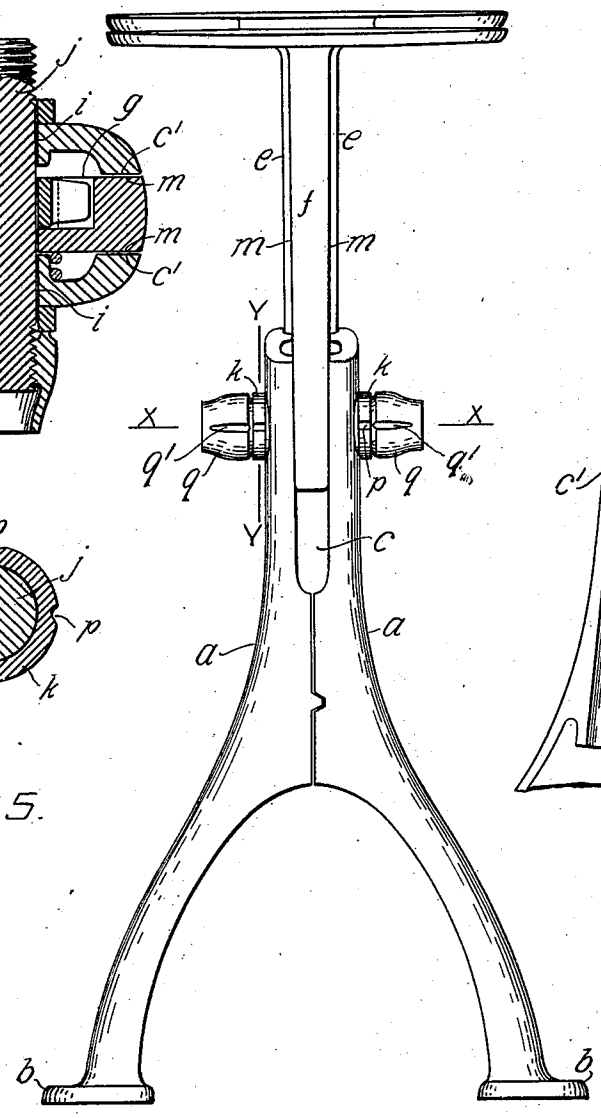
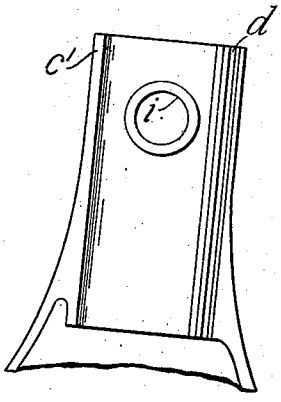


FIG. 2.



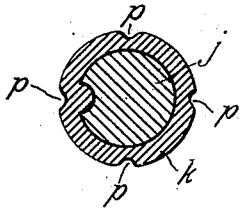


FIG. 5.

WITNESSES

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No. 728,887. Patented May 26, 1903.

UNITED STATES PATENT OFFICE.

RICHARD P. ELLIOTT, OF BOSTON, MASSACHUSETTS.

ADJUSTABLE FURNITURE.

SPECIFICATION forming part of Letters Patent No. 728,887, dated May 26, 1903.

Application filed May 31, 1901. Serial No. 62,476. (No model.)

To all whom it may concern:

Be it known that I, RICHARD P. ELLIOTT, a citizen of the United States, residing at Boston, county of Suffolk, and State of Massachusetts, have invented certain new and useful Improvements in Adjustable Furniture, as set forth in the specification and claims herein, reference being had to the accompanying drawings, attached hereto and forming a part hereof, in which—

Figure 1 is a side elevation of my new adjusting mechanism with a section of a chair attached. Fig. 2 is a section of the inside of the upper end of one member of the base portion. Fig. 3 is a rear elevation of my new adjusting mechanism. Fig. 4 is a cross-section through line X X, Fig. 3. Fig. 5 is a sectional view through line Y Y, Fig. 3. Fig. 6 is a side elevation of a modified form of my new adjusting mechanism. Fig. 7 is a sectional rear elevation of the modified form. Fig. 8 is a sectional view through line Z Z, Fig. 6.

The novel features of my invention are as follows: first, the combination of a vertical adjustment with a simultaneous horizontal adjustment. The purpose of this double adjustment is to provide for an increase in the length of arms of pupils, as well as the increase in the length of legs and body due to their growth.

The second novel feature of my invention is the means provided for supporting the slide or upper portion of the adjusting mechanism on both its sides, thereby giving the structure great rigidity and perfect alinement.

A third feature is the combination of a base portion composed of two members adapted to embrace a tapering slide or upper portion with a coöperating rack, pinion, shaft, washers, and nuts, which features combine to prevent vertical displacement of the slide, for the reason that any downward pressure on same will tend to more tightly wedge it between the upper portion of the two members of the base.

Another feature is the ability to adjust from either side of the adjusting mechanism when the articles are set up in rows. Two rows may be adjusted from one aisle.

The additional features of my invention are set forth in the description and claims which follow.

The best mode now known to me in which to embody my invention is shown in the drawings, which illustrate its principle.

In the drawings, *a a* represent the two members of the base, which are formed with the foot portions *b b b b*, adapted to be attached to supporting means. Said members *a a* of the base are provided with an aperture *c*, having inwardly-inclined walls provided with the rearwardly-inclined grooves *d d*, and bearing-surface *c' c'*, and the journals *i i*, adapted to receive the adjusting and clamping shaft. The slide *f* is provided with vertically-inclined walls *m m*, tapering inwardly from top to bottom, adapted to slide on the inclined walls *c' c'*, and the ribs *e e*, which fit the slide in the grooves *d d*. This construction serves to hold the slide *f* in alinement with the base members *a a* and to give the structure greater rigidity. The slide *f* is also provided with an elongated vertically-inclined slot *h*. The shaft *j* is journaled in the journals *i i* of the base members *a a* and has secured to it the pinion *n* in such manner as to be rotatably immovable. The shaft *j* passes through the slot *h*, its ends projecting outwardly beyond the base members *a a*, as shown in Fig. 4, and has secured to its outer ends the groove-washers *k k*. Said washers *k k* are free to move longitudinally on the shaft *j*, but are secure against rotative movement. The outer ends of the shaft *j* are screw-threaded to receive the nuts *q q*. The nuts *q q* are preferably provided with grooves, as *q' q' q' q'*, which are adapted to receive a wrench for tightening the same. The nuts *q q* and the washers *k k* are of the same diameter, and the grooves *q' q' q' q'* are spaced to coincide with the grooves *p p p p* in the washers *k k* in order that the wrench may fit on both nut and washer for the purpose of rotating the shaft *j j* through the medium of said washers *k k*. A rack *g* is secured to the slide *f* and is adapted to enmesh with the pinion *n* to raise and lower said slide *f*.

In the modified form, A A represent the two members of the pedestal or base of my new adjusting mechanism, as shown in sectional view Fig. 7. B represents a slide or upper portion having a member adapted to

receive a chair or other article to be supported. The base members A A are provided with an aperture C between their upper ends, which is provided with the inwardly and rearwardly inclined guide-grooves D D and bearing-surfaces E E and the journals F F, adapted to receive the shaft G. The slide or upper portion B is provided with an inclined elongated slot H and the inwardly-inclined ribs I I and bearing-surfaces K K, tapering inwardly from top to bottom, so that the slide B may be firmly wedged between the upper ends of the members A A of the base portion. Any downward pressure exerted upon the slide B will tend to more firmly wedge it between the upper members A A of the base, and thereby tend to prevent vertical displacement. The purpose of the rearward inclination of the guide-grooves D D and bearing-surfaces E E is to produce a horizontal adjustment of the upper portion of the slide B.

The shaft G is screw-threaded on its outer ends to receive the nuts L L, which are screw-threaded to fit said shaft G.

The operation of my improved adjusting mechanism is as follows: To adjust the mechanism vertically as well as horizontally, a wrench is placed on either of the nuts *q q* and the nut loosened slightly. If it is desired to raise the slide *f*, after loosening one of the nuts *q q* slightly turn said wrench until the grooves *q' q' q' q'* and *p p p p* are coincident. Then move the wrench inward onto the washer *k*. Then by turning the wrench the pinion *n* is revolved through the medium of the washer *k* and the shaft *j* and the slide *f* by means of the rack *g*, with which the pinion *n* enmeshes. By inclining the walls *m m* of the slide *f* inwardly from top to bottom said slide *f* may be lowered by gradually loosening one of the nuts *q q*. The slide *f* will then move downward by gravitation without the aid of the pinion *n* and the rack *g*. When the slide *f* is moved downward to the desired height, the nut *q* may be tightened, thereby producing the desired adjustment.

In the modified form shown in Figs. 6, 7, and 8 the clamping means, inclined and tapering features are identical with the preferred form; but in this modified form I do not use a rack and pinion. The operation of adjusting the slide in the modified form by gravity is the same as in the preferred form. In adjusting the slide B upward the same is raised by hand to the desired position and the nuts Q Q tightened. The form of construction herein shown enables me to produce an adjusting mechanism of less weight and one that is stronger and to support the sliding member B on both its sides, thereby insuring a greater rigidity.

The walls of the recess *c* may be vertical and the guides may also be vertical. The bearing-faces of the slide *f* may be parallel to each other and the guides on the walls of the slide *f* may be vertical without departing from the spirit of my invention.

What I claim is—

1. An adjusting mechanism for furniture, comprising a base member having a recess in its upper end, said recess having inwardly-converging and rearwardly-inclined walls and guides; a slide member provided with inwardly-converging walls and guides; a rack secured to said slide member; a shaft journaled in the base member; a pinion mounted thereon; and means for revolving said shaft and clamping said slide member in its adjusted position.

2. In an adjusting mechanism for furniture, a base member having a recess, inwardly-converging and rearwardly-inclined guides and bearings on the walls of said recess; a slide member having inwardly-converging guides and bearings; a rack secured to said slide; a shaft journaled in the base member; a pinion mounted on said shaft; washers mounted on the ends of said shaft longitudinally movable but rotatively immovable thereon, and means for clamping the slide member in its adjusted position.

3. In adjustable furniture, an adjustable shaft; means for rotating and clamping said shaft, comprising a washer on said shaft movable longitudinally but fixed against rotation; a nut on said shaft, the perimeter of said washer and nut coinciding in outline.

4. In adjustable furniture, an adjusting-shaft; a pinion on said shaft longitudinally movable but fixed against rotation; means to rotate said shaft, comprising a washer rotatable with said shaft; a clamping-nut on said shaft adjacent to the washer, the perimeters of said nut and washer coinciding in outline.

5. In adjustable furniture, an adjusting-shaft; means for rotating said shaft; said means comprising a washer non-rotatable on said shaft; a nut on said shaft, the washer and the nut being adjacent each other and formed and arranged to receive the same wrench when in certain relative positions.

6. In adjustable furniture, an adjusting-shaft; means for rotating said shaft; said means comprising a washer non-rotatable on said shaft; a nut on said shaft; the washer and the nut being adjacent each other and formed and arranged to simultaneously receive the same wrench when in certain relative positions.

7. In adjustable furniture, the combination of supporting-standards; a shaft journaled in said standards; nuts on said shaft; and washers interposed between said nuts and said standards; said washers being secured to said shaft by a spline-and-groove connection, and thereby adapted to rotate said shaft, the perimeters of the nut and the washer coinciding in outline.

8. In adjustable furniture, the combination of supporting-standards; a shaft journaled in said standards; a pinion on said shaft secured by a spline-and-groove connection; a bracket formed with a rack adapted to engage said pinion; clamping means and an adjusting-

washer non-rotatable on said shaft interposed between said clamping means and said standards; said washer coinciding in perimeter with the clamping means.

9. In adjustable furniture, an adjusting-shaft; means for adjusting said shaft from either side; said means, comprising washers on said shaft fixed against rotation; nuts on said shaft adjacent each washer, the perimeters of adjacent washers and nuts coinciding in outline.

10. In adjustable furniture, an adjusting-shaft; means for adjusting said shaft from either side, comprising washers polygonal in outline and fixed against rotation on said shaft; nuts on said shaft adjacent each washer, the perimeters of adjacent nuts and washers coinciding in outline.

11. In adjustable furniture, an adjusting-shaft; a pinion on said shaft longitudinally movable, but fixed against rotation; means to rotate said shaft from either end; said means, comprising washers rotatable with said shaft; clamping-nuts on said shaft, the perimeters of the adjacent washers and nuts coinciding in outline.

12. In adjustable furniture, an adjusting-shaft; means for rotating said shaft from either end; comprising washers non-rotatable on said shaft; nuts on said shaft adjacent each washer, adjacent washers and nuts formed to receive the same wrench when in certain relative positions.

13. In adjustable furniture, an adjusting-shaft; means for rotating said shaft from either side; comprising washers non-rotatable on said shaft; nuts on said shaft adjacent each washer, adjacent washers and nuts formed to simultaneously receive the same wrench when in certain relative positions.

14. In adjustable furniture, a standard comprising a fixed part and a movable part; a shaft journaled in one of said parts; nuts on said shaft; and washers on said shaft non-rotatable thereon, said nuts and washers coinciding in outline.

15. In adjustable furniture, a standard comprising a fixed and a movable part; an adjustable shaft mounted in one of the parts; means for rotating and clamping said shaft, comprising a washer on said shaft fixed against rotation; a nut on said shaft, the perimeters of said washer and said nut coinciding in outline.

16. In an adjustable mechanism, adjusting means; clamping means, a part adjustable transversely thereof; said adjusting and clamping means being so constructed and arranged adjacent each other as to be simultaneously operated by the same means when in certain relative positions.

17. In an adjustable mechanism, adjusting means and clamping means, a part adjustable transversely thereof, said adjusting and clamping means having similar perimeters arranged adjacent each other to simultaneously receive the same wrench.

18. In adjustable mechanism, adjusting means and clamping means, comprising a washer and a nut respectively, having similar perimeters and mounted on a shaft adjacent each other, said washer non-rotatable on said shaft, said washer and nut arranged to simultaneously receive same wrench.

19. In an adjusting and clamping mechanism, adjusting means and clamping means, a part adjustable transversely thereof, said adjusting and clamping means being adjacent each other and so formed and arranged that the mechanism may be adjusted and clamped by a single instrument from either side.

20. In an adjusting and clamping mechanism, adjusting means and clamping means, a part adjustable transversely thereof, said adjusting and clamping means being adjacent each other and so formed and arranged that the mechanism may be adjusted and clamped by a single instrument from one side.

21. In adjustable furniture, an adjustable shaft, means for rotating and clamping said shaft, comprising a washer on said shaft fixed against rotation, a nut on said shaft adjacent said washer, the perimeters of said washer and nut being similar in outline.

22. In adjustable furniture, an adjusting-shaft, means for adjusting said shaft from either side, said means comprising washers on said shaft fixed against rotation, nuts on said shaft adjacent said washers, the perimeters of adjacent washers and nuts being similar in outline.

23. In adjustable furniture, an adjusting and clamping means, comprising a rack, an adjusting-shaft, a pinion on said shaft, and means for adjusting and clamping said shaft from either end, consisting of washers, rotatable with said shaft, nuts on said shaft adjacent said washers, the perimeters of adjacent nuts and washers coinciding in outline.

RICHARD P. ELLIOTT.

Witnesses:
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