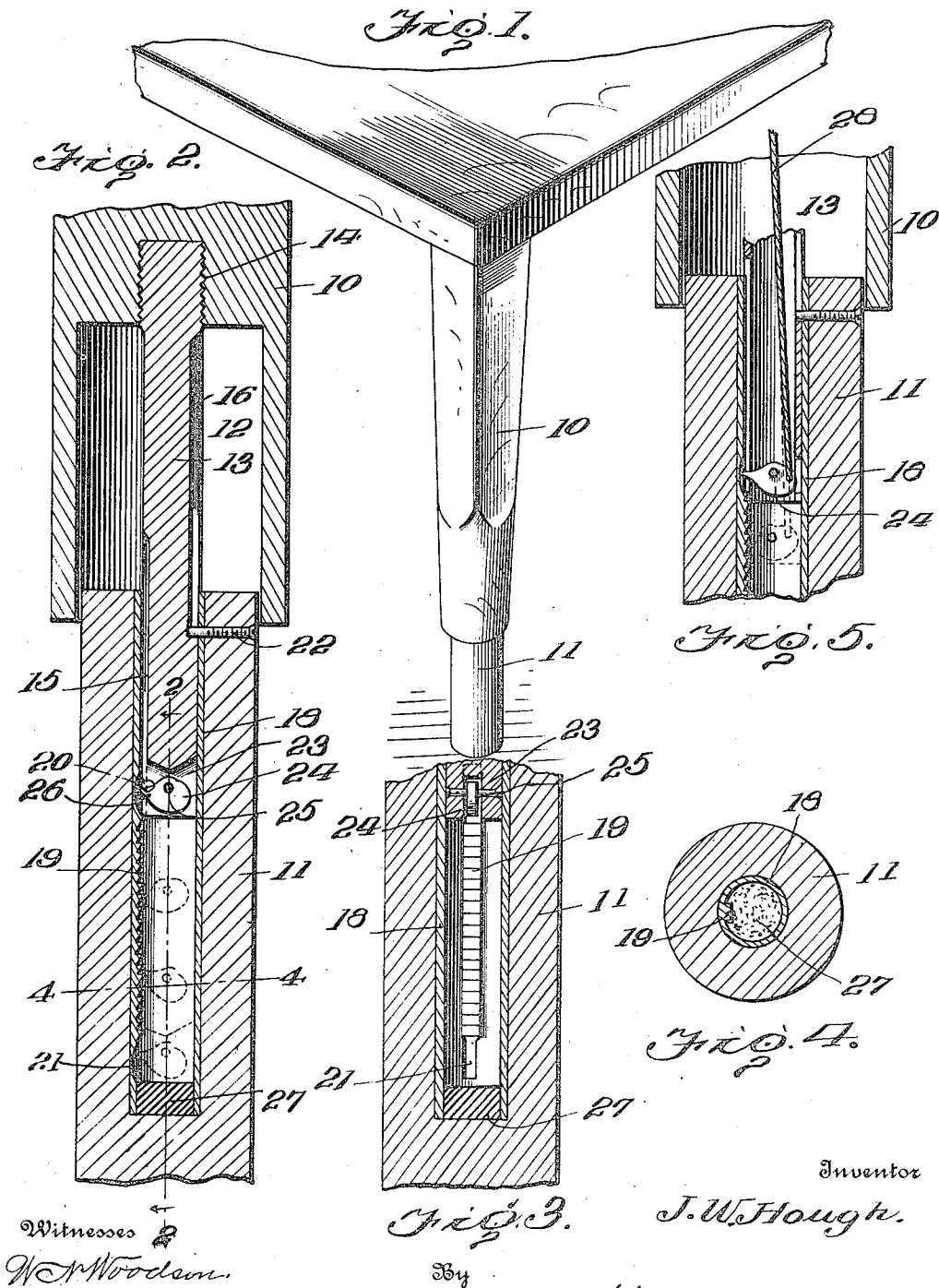


J. W. HOUGH,
ADJUSTABLE FURNITURE LEG.
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1,184,455.

Patented May 23, 1916.



Witnesses
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Fig. 3.
By

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ADJUSTABLE FURNITURE-LEG.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN W. HOUGH, a citizen of the United States, residing at Washington, in the county of Warren and State of New Jersey, have invented certain new and useful Improvements in Adjustable Furniture-Legs, of which the following is a specification.

This invention contemplates an improved adjustable furniture leg which, while being adapted for general application, is more particularly designed for use in connection with piano stools or benches.

The invention has as its primary object to provide a construction wherein the length of the leg may be varied at will to thus adjust the height of the bench and to also provide a mechanism for accomplishing this purpose which will be entirely automatic in its operation.

The invention has as a further object to provide a construction wherein the working parts thereof will not be visible and which will thus, in use, present a neat and attractive appearance.

A still further object of the invention is to provide an arrangement wherein all of the legs of a bench may be simultaneously adjusted to vary the height of the bench and wherein the adjusting mechanism of all of the legs will cooperate to simultaneously move into active position for holding the legs of the bench at adjustment. And the invention has as a still further object to provide a mechanism which will be simple in construction and which may thus be embodied in a manufactured article of furniture without materially increasing the cost thereof.

Other and incidental objects will appear as the description proceeds and in the drawings wherein I have illustrated the preferred embodiment of the invention and wherein similar reference characters designate corresponding parts throughout the several views, Figure 1 is a fragmentary perspective view showing one leg of a piano bench embodying my invention, Fig. 2 is a vertical sectional view more particularly showing the construction of the mechanism employed, Fig. 3 is a fragmentary sectional view taken on the line 2—2 of Fig. 2 and particularly showing the mounting of the pawl for holding the sections of the legs at adjustment, Fig. 4 is a transverse sectional view taken

on the line 4—4 of Fig. 2 and more particularly illustrating the arrangement of the rack adapted to cooperate with the pawl referred to, Fig. 5 is a fragmentary sectional view showing a slight modification of the invention.

In the preferred embodiment of my invention as illustrated in the drawings, the furniture leg is formed in sections 10 and 11. The section 10 at its outer end, is centrally bored longitudinally to form a substantially cylindrical socket 12, which is adapted to telescopically receive the section 11. As more particularly shown in Fig. 1 of the drawings, the section 11 of the leg is preferably of cylindrical form although, in carrying out the invention, the exact cross-sectional contour of the leg will be found immaterial, it being merely necessary that the socket 12 be formed to freely receive the section 11 of the leg.

Detachably mounted within the socket 12 to extend axially thereof is a rod or stem 13, the said stem being of a length to extend, at one end, laterally beyond the outer end of the said socket and being provided adjacent the opposite end thereof with screw threads as shown at 14, adapted to detachably engage within a suitable bore formed in the section 10 of the leg. The stem 13 upon one side, is provided with a longitudinally extending groove 15 while upon the opposite side thereof, it is provided with a diametrically arranged and longitudinally extending groove 16 similar to the groove 15. The adjacent terminal of the section 11 of the leg is formed with a longitudinally extending bore in which is fitted an axially arranged casing 18 adapted to freely receive the free extremity of the stem 13 in the manner shown in Fig. 2 of the drawings. The casing 18 is preferably of cylindrical form and may be constructed of sheet metal or any other suitable material. Formed upon one side of the casing adjacent one end thereof, is a longitudinally extending rack 19 while the wall of the casing at the extremities of the said rack, is cut away to provide arcuate recesses 20 and 21 respectively, the said recesses being arranged in alinement with the rack and each merging at one end by its bottom wall into the adjacent teeth of the rack as more particularly shown in Figs. 2 and 3 of the drawings.

It will now be noted that the groove 15

is open at its outer end and is adapted to freely receive the rack 19 so that the stem 13 may slide freely longitudinally within the casing 18. However, it will be observed
 5 that the rack, being arranged to project radially toward the center of the casing as shown in Fig. 4 of the drawings, will engage within the groove 15 to prevent the
 10 section 11 from turning about its longitudinal axis upon the section 10.

Detachably connecting the section 11 with the section 10 is a set screw or pin 22 arranged to engage within the radial opening or bore formed in the section 11 adjacent
 15 the inner end thereof as more particularly shown in Fig. 2 of the drawings, to extend, at its inner end, through a suitable opening formed in the adjacent upper end of the casing 18 with the inner terminal of the
 20 said pin projecting into the groove 16 and engaging freely therein. The pin 22 is thus adapted to engage opposite end walls of the groove 16 for limiting the section 11 in its telescopic movement upon the section
 25 10 and is adapted to engage within the said groove to coact with the rack 19 in preventing the section 11 from turning about its longitudinal axis upon the section 10.

The stem 13, at its outer end, is bifurcated
 30 to form spaced arms 23 between which is freely mounted a pawl or dog 24, the said dog being freely mounted upon a suitable pivot pin 25. The pawl 24 at one end, is provided with a tooth 26 arranged to nor-
 35 mally project laterally upon one side of the stem 13 and adapted to engage the rack 19 while the opposite end of the pawl is enlarged and is thus weighted to counter-
 40 balance the tooth so that the said pawl will normally swing or gravitate upon the pivot pin 25 to assume a substantially horizontal position as shown in Fig. 2 of the draw-
 ings.

It will be noted upon reference to Fig.
 45 2 of the drawings, that when the section 11 is shifted upon the section 10 to the limit of its outward movement thereon, the inner end of the section 11 will engage within the adjacent outer end of the socket 12 while
 50 the pin 22 will be disposed immediately upon one side of the outer end of the section 10 where access may be readily had thereto. It will further be observed that the pawl 24 will be moved to a position op-
 55 posite the recess 20 with the tooth 26 of the pawl freely received within the said recess. When the section 11 is then telescoped upon the section 10, the rack 19 will engage the tooth 20 of the pawl to con-
 60 sequently swing that pawl upwardly when the said tooth will ride over the rack as shown in dotted lines in Fig. 2, to permit the section 11 to be shifted to the limit of its inward telescopic movement upon the
 65 section 10.

Assuming the section 11 to be disposed at the limit of its inward movement upon the section 10, the pawl 24 will be disposed opposite the recess 21 as shown in dotted lines in Fig. 2 with the tooth 26 of the pawl
 70 freely disposed within the said recess. When the section 11 is then shifted outwardly upon the section 10, the rack 19 will engage the free end of the pawl with the tooth of the said pawl presented down-
 75 wardly and adapted to engage the tooth of the rack, as also shown in dotted lines in Fig. 2. It will thus be seen that the pawl in such position, will normally gravitate to engage the rack 19 and will adjustably sup-
 80 port the section 10 upon the section 11, the weight of the bench or article of furniture upon the section 10 of the leg then tending to move the pawl into engagement with the said rack 19 for holding the sections of the
 85 leg at adjustment. When the pawl is thus in operative engagement with the rack 19, it will merely be necessary in order to accomplish the lowering of the bench, or in other words, to effect the inward telescopic
 90 movement of the section 11 upon the section 10, to shift the said sections relative to each other to such position that the pawl 24 will be again brought opposite the recess
 95 26 when it will then automatically gravitate or swing upon its pivot, to assume its normal horizontal position. As will be clear, the section 11 may then, in the manner previously described, be shifted to the
 100 limit of its inward telescopic movement upon the section 10.

Mounted within the inner extremity of the casing 18 is a yieldable disk 27 against which the inner end of the stem 13 is adapted to abut when the section 11 is shifted
 105 to the limit of its inward telescopic movement upon the section 10. The disk 27 is preferably formed of rubber although any other suitable material may be employed and provides a yieldable abutment for the
 110 stem.

It will therefore be seen that the construction which I provide is entirely automatic in its operation and that in use, the height
 115 of the article of furniture from a floor surface may be readily regulated or adjusted by merely lifting upwardly upon the said article of furniture. In this connection, it is desired to direct particular attention to the fact that when the invention is applied
 120 to an article of furniture having several legs, such for instance as a piano bench, the mechanism within the several legs of the bench will coöperate, so that the height of the bench from a floor surface may be easily
 125 regulated or adjusted by simply lifting upwardly upon the bench, the mechanism of the several legs being adapted to operate automatically and simultaneously.

In Fig. 5 of the drawings, I have dis- 130

closed a slight modification of the invention wherein the stem 13 is of tubular form and is thus adapted to freely receive a wire or other suitable flexible element 28 terminally connected, at one extremity, to the pawl 24 adjacent the extremity thereof opposite the tooth 26, while the opposite end or terminal of the said flexible element is connected to a suitable button or operating lever arranged in convenient location upon the article of furniture to which the invention is applied so as to be readily and easily operable to actuate the pawl 24 through the medium of the said flexible element. Assuming the pawl 24 to be in operative engagement with the rack 19 in a manner previously described, it will be seen that by pulling upwardly upon the flexible element 28, the tooth 26 of the pawl may be moved out of engagement with the rack so that the section 11 may be telescoped upon the section 10 to consequently lower the height of the article of furniture from the floor surface without the necessity of first shifting the section 11 to the limit of its outward telescopic movement upon the section 10 as in the preferred form of the invention. Since the specific type and arrangement of the button referred to forms no part of the present invention and since any conventional type of button may be employed, such button has not been illustrated. The modified form of the invention is, in other respects, identical in construction with the preferred form and a further description thereof will, therefore, not be given.

It will be seen that the mechanism which I provide is very simple in construction, may be readily embodied in the manufactured article without material increase in the cost thereof, and, in use, will be neat and attractive in appearance, the working parts of the invention being entirely concealed.

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

1. A device of the character described including coacting sections one formed to slidably receive the other, a stem projecting axially of said first mentioned section, a casing carried by said second mentioned section and slidably receiving the free extremity of said stem, a rack projecting into the casing, and a pawl freely mounted upon the stem and arranged to coact with the rack.

2. A device of the character described including coacting sections one formed to slidably receive the other, a solid stem projecting axially of said first mentioned section and provided with longitudinally extending grooves, a casing carried by said second

mentioned section and slidably receiving the free extremity of said stem, the casing being provided with a rack adapted to engage in one of said grooves for holding the said second mentioned section against turning movement about the stem, a stop pin carried by the said second mentioned section and engaging in the other of said grooves to coact with the rack, and a pawl mounted upon the stem to coöperate with the rack and automatically shiftable to operative and inoperative positions relative thereto.

3. A device of the character described including coacting sections one formed to slidably receive the other, a stem projecting axially of said first mentioned section and slidably received by said second mentioned section, a rack carried by said second mentioned section, and a pawl normally gravitating to balanced position upon the stem to coöperate with the rack and movable with the stem to be automatically shifted by the rack to operative and inoperative positions relative thereto.

4. A device of the character described including coacting sections one formed to slidably receive the other, a stem projecting axially of said first mentioned section and freely received by said second mentioned section, a stop pin carried by said second mentioned section and engaging the stem for slidably connecting the said sections, the pin being adapted to engage the stem for limiting the said second mentioned section in its outward movement upon the first mentioned section, a rack carried by said second mentioned section, a pawl mounted upon the stem to automatically coöperate with the rack, and a cushioning element fixed at the lower extremity of the rack and adapted for engagement by the stem for limiting said second mentioned section in its inward movement upon the said first mentioned section.

5. The combination with a furniture leg, of an extension mounted to slide within the leg, a rack carried by the extension, a stem carried by the leg, and a pawl freely mounted upon the stem and normally gravitating toward a balanced position in engagement with the rack for holding the extension at adjustment upon the rack, the extension being shiftable for moving the rack to position to shift the pawl into inactive position relative thereto.

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

JOHN W. HOUGH. [L. s.]

Witnesses:

RAYMOND SHUSTER,
RAYMOND VAN DUNK.