H. SHAW.

ADJUSTABLE STOOL OR CHAIR.

APPLICATION FILED DEC. 13, 1919.

1,344,092. **Patented June 22, 1920.**

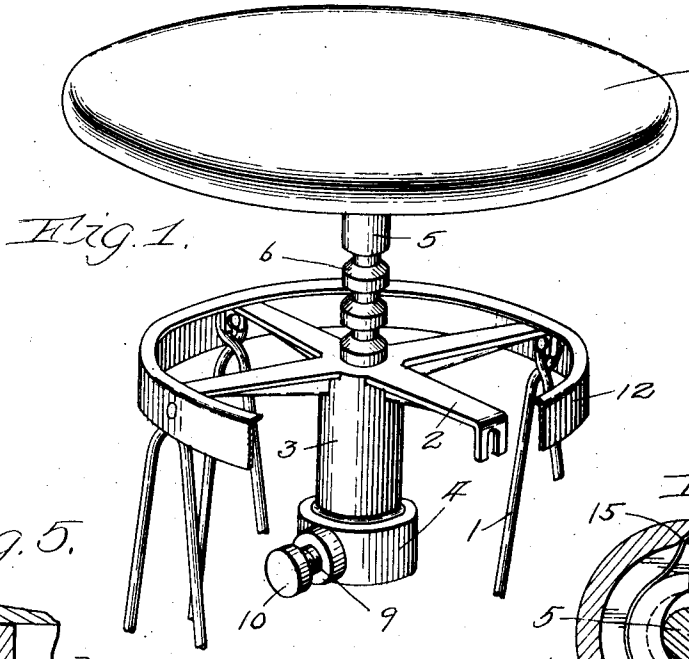


Fig. 1.

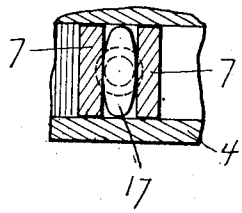


Fig. 5.

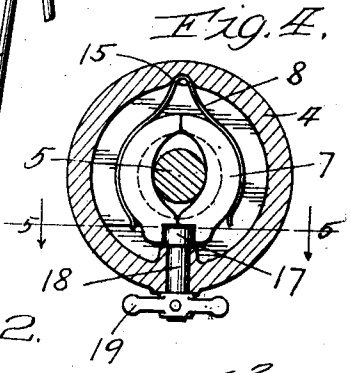


Fig. 4.

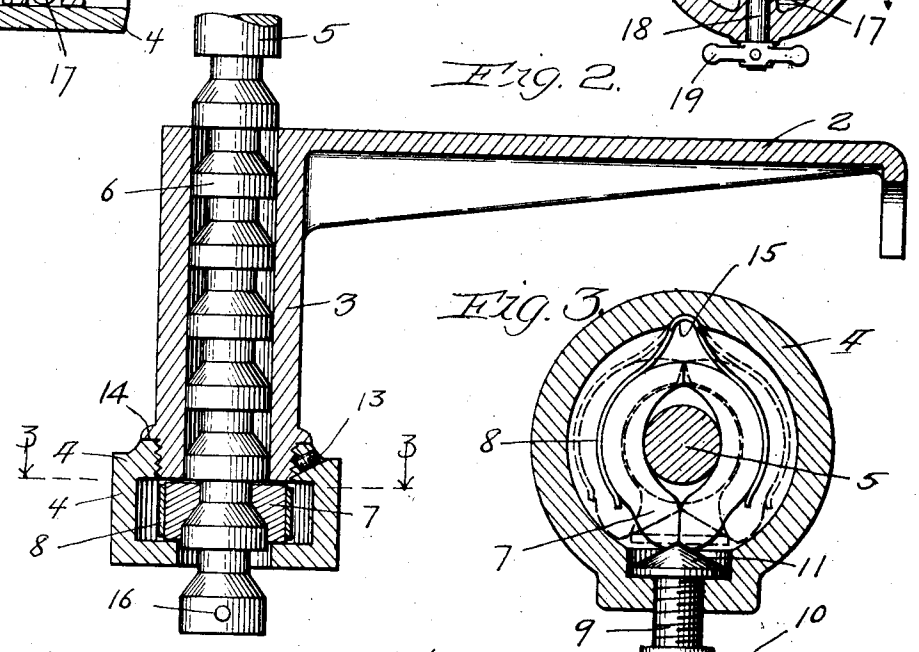


Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE.

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ADJUSTABLE STOOL OR CHAIR.

1,344,092. Specification of Letters Patent. Patented June 22, 1920.

Application filed December 13, 1919. Serial No. 344,534.

To all whom it may concern:

Be it known that I, HARRY SHAW, citizen of the United States, residing at Chicago, Illinois, have invented certain new and useful Improvements in Adjustable Stools or Chairs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to stools or chairs, its general objects being that of providing novel means for quickly and effectively adjusting the height of the seat, and preferably for doing so without interfering with the swiveling feature in case the stool or chair is of a revolving type. More particularly, my invention relates to swiveling chairs or stools and aims to provide a strong and inexpensive construction which will permit the seat to be supported at any one of a number of predetermined heights, and which will allow the seat to be freely rotated without altering its height, but which also can easily and quickly be adjusted to other heights. Furthermore, my invention aims to provide a height-adjusting feature for chairs or stools which will be particularly suitable for use with metal chair constructions. Still other and more detailed objects will appear from the following specification and from the accompanying drawings, in which drawings—

Figure 1 is a fragmentary perspective view showing the upper part of a revolving stool equipped with the height-adjusting feature of my invention.

Fig. 2 is an enlarged elevation of the lower portion of the seat-supporting stem of the same stool, together with a fragmentary central section of the parts of the base or stem associated therewith.

Fig. 3 is a still more enlarged section taken through Fig. 2 along the correspondingly numbered line.

Fig. 4 is a section similar to Fig. 3, but showing another embodiment in which a rotatable shaft carrying a spreader wing is substituted for the screw of Fig. 3.

Fig. 5 is a fragmentary vertical section through Fig. 4 showing the disposition of the spreading wings.

In the embodiment of Fig. 1, the stool of my invention includes legs 1 supporting a ring 12 which in turn supports a spider 2, and this spider carries a downwardly extending sleeve 3. Fast upon the lower end of the sleeve 3 and forming an extension thereof is a casing 4 having a considerably larger bore than the sleeve 3 and having its bottom perforated to correspond to the bore of the sleeve, so that the larger bored portion of the casing 4 coöperates with the sleeve 3 in forming a sleeve member having an enlarged bore portion near its lower end.

Extending slidably through the bore of the sleeve 3 and projecting downwardly through the bottom of the casing 4 is the vertical stem 5 which carries the seat 6 of the stool. This stem has a number of grooves turned in it so as to afford a series of collars 6, each of which collars desirably has a flat lower face and an upwardly converging frusto-conical upper face. Disposed within the enlarged bore of the casing 4 is a split collar comprising two parts 7 having bore portions formed substantially as counterparts to the grooves between the collar. These split collar parts 7 rest loosely upon the annular bottom of the casing 4, so as to be slidable with respect to the latter, but are normally forced toward each other by suitable spring means, such as a substantially U-shaped spring 8, so as to cause the upper surfaces of the split collar portions to underhang the lower face of one of the collars 6, substantially as shown in Fig. 2. Consequently, the split collar will normally support the seat-carrying stem of the stool and will hold the latter at a height varying according to the particular collar 6 which is in engagement with the split collar. To raise the seat, it is merely necessary to grasp the latter and to lift it, as the sloping upper faces of the collars coöperate with correspondingly tapered bore portions of the split collar part 7 to act as cams in spreading the split collar to an open position in which it permits the collars 6 to slide entirely through the same. Consequently, the seat of the stool can instantly be raised without requiring other manipulation than the lifting of the seat, as the spring 8 will readily return the split collar portions to the latching position in which the split collar underhangs one of the solid collars 6.

To allow for a lowering of the seat, I desirably provide manually operable means for opening the split collar to a corresponding unlatching position, as for example by threading into the casing 4 a pointed screw 9 which can be rotated by a hand

wheel 10 and which has its point adapted to wedge between the two split collar portions 7 as shown in Fig. 3. To prevent these split collar portions from rotating and thereby bringing the gap between them out of alinement with the screw 9, I provide suitable means, as by making the head 11 of the screw 9 of such a length (as shown in Fig. 3) that its tip will still be interposed between both of the split collar parts 7 when the screw is fully retracted. I likewise desirably provide suitable means for preventing the spring 8 from moving out of its proper operative position. As for example by providing this spring with a bight 15 entering a recess or enlargement in the bore of the casing 4, so that the walls of this recess will prevent the spring from being rotated about the axis of the casing 4.

For convenience in manufacture, the casing part which affords the enlarged bottom bore portion of the sleeve member and which houses the split collar parts is desirably threaded upon the lower end of the sleeve proper, and is kept from unscrewing by suitable means, such as a set screw 13. Likewise I desirably equip the sleeve 3 with a shoulder 14 engaging the top of the casing 4, so as to prevent the latter from being screwed up on the stem to a point at which it might clamp the split collar between the bottom of the casing and the lower end of the stem.

With the parts thus arranged, it will readily be seen that the split collar acts as a latch or detent for holding the seat-carrying stem 5 at any one of a number of heights, depending on the particular collar 6 which is in engagement with the split collar, and that this height can readily be increased by simply lifting the seat, since the split collar portions and the spring cooperate in forming spring-ratchet pawls. Then by turning the hand wheel 10 until the screw 9 opens the split collar, I can readily lower the seat-carrying stem either to its extreme bottom position, or to any one of the intermediate positions determined by the locations of the collars 6, which collars are desirably equivalent in size and spaced at equal distances along the stem. As soon as the seat has been lowered, a backward rotation of the hand wheel 9 permits the spring 8 to return the split collar to its latching position, the screw 9 being preferably staked over near this inner end (after a manner too well known to require illustrating here) so as to prevent it from being unscrewed too far.

To prevent the seat-carrying stem from being lifted entirely out of the sleeve member, I desirably provide a latching pin 16 near the lower end of the stem. However, while I have illustrated and described a certain type of stool and certain shapes and arrangements of the spring and casing, I do not wish to be limited to these or other details of the construction and arrangement here disclosed. Obviously, many modifications might be made without departing from the spirit of the appended claims, in which I aim to cover the subject matter of my invention as broadly distinguished from the prior art.

For example, instead of employing the conical tip of a screw for spreading the split collar open, I may use a flat wing 17 on a shaft 18 adapted to be rotated for a quarter turn by a handle 19, as shown in Fig. 4. In that case, the wing 17 is normally interposed flatwise between the adjacent parts of the split collar as shown more clearly in Fig. 5.

I claim as my invention:

1. In an adjustable stool or chair, a base including a vertical stem having a series of equivalent collars thereon, a seat-supporting sleeve slidable on the stem over the said collars and having the lower portion of its bore enlarged, a split collar disposed in the enlarged bore portion of the sleeve and having parts thereof coöperating to engage one of the collars on the stem, spring means for normally forcing the split collar parts into their said engagement, and manually operable means for spreading the split collar parts out of their said engagement.

2. In an adjustable stool or chair, a base including a vertical stem having a series of equivalent collars thereon, a seat-supporting sleeve slidable on the stem over the said collars and having the lower portion of its bore enlarged, a split collar disposed in the enlarged bore portion of the sleeve and having parts thereof coöperating to engage one of the collars on the stem, spring means for normally forcing the split collar parts into their said engagement, and retractible means carried by the sleeve and operable to spread the split collar parts out of their said engagement.

3. An adjustable stool or chair as per claim 2, in combination with coöperating means carried by the casing and the split collar to prevent the latter from rotating bodily within the sleeve.

4. An adjustable stool or chair as per claim 2, in which the spring and the sleeve have coöperating formations for retaining the spring in its operative position.

5. An adjustable stool or chair as per claim 2, including a bight on the spring and shoulder formations on the sleeve engaging the said bight to keep the spring from rotating within the sleeve.

Signed at Chicago, December 3rd, 1919.

HARRY SHAW.