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2,469,425

SELF-ALIGNING FURNITURE FOOT

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Fig. 1.

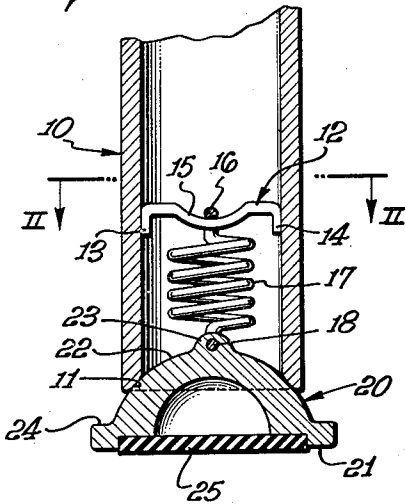


Fig. 2.

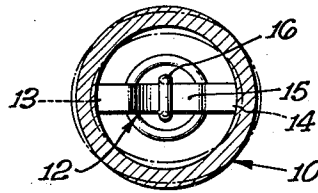


Fig. 3.

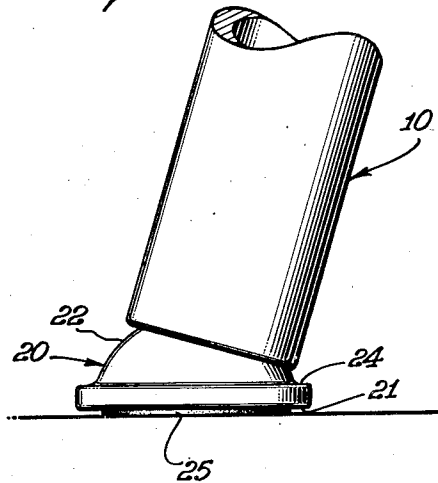
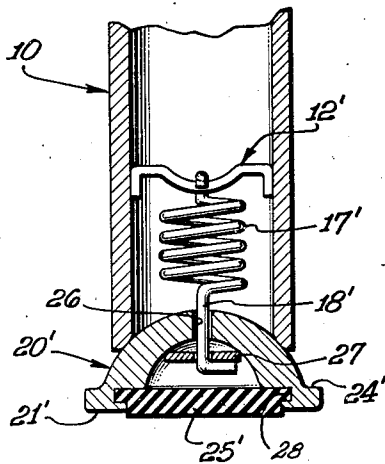


Fig. 4.



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SELF-ALIGNING FURNITURE FOOT

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7 Claims. (Cl. 45-137)

This invention pertains to an improved self-adjusting or self-aligning furniture foot construction.

Various articles of furniture have been made in the past from tubular elements and difficulty has been experienced in providing feet for such elements. Many tables, chairs and other articles of furniture made of tubular sections have been previously provided with feet made of rubber or rubber composition, these elements being slipped upon the lower ends of the legs so as to prevent such lower ends from scarring, indenting, cutting or otherwise damaging the floor, rug, linoleum or other surface upon which the article of furniture is positioned. The difficulty with such removable feet is that they readily fall off and become lost. In other instances the lower end of the tubular leg has been provided with a permanent metal cap but such caps are unsightly and when a chair is tilted, the edge of such cap causes a material indentation in the supporting surface and in many instances causes the chair to slip.

The present invention is particularly directed to a furniture foot construction which accommodates itself to irregularities in the supporting surface and maintains a firm hold upon such supporting surface even though the chair or other article of furniture is tilted.

It is to be remembered that many articles of tubular furniture are used on patios and other enclosures surfaced with tile, and because of the inherent irregularity of tile floors, normal tubular furniture is not stable thereon. The improved construction of the present invention obviates this difficulty, renders the articles stable even though in a tilted position, and may embody a resilient or noise-absorbing pad which eliminates the undesired clatter of metallic furniture upon stone or tile flooring.

The present invention also relates to a novel method of construction and assembly so that the resulting foot is smooth, attractive and virtually irremovable accidentally.

Generally stated, therefore, the invention relates to a self-adjusting furniture foot construction including a tubular leg portion, an anchor member within such tubular portion and spaced from the lower end thereof, and a foot member provided with a virtually hemispherical upper surface yieldably pressed against the lower end of the tubular leg, the foot member including a base adapted to rest against the floor while the leg portion may assume a variety of angular positions with respect to such base.

An object of the present invention, therefore, is to disclose and provide an improved self-adjusting furniture foot.

A further object of the invention is to disclose and provide a simple and efficient method of assembling a self-adjusting furniture foot.

A still further object of the invention is to disclose a self-aligning foot construction wherein a foot member is angularly movable in a variety of directions with respect to the axis of a leg, such foot member being yieldably retained in contact with the leg in all positions.

Again, an object of the invention is to disclose and provide a method of construction wherein the various elements may be combined for cooperative relation in a simple and efficient manner.

These and other objects, advantages and adaptations of the invention will become apparent to those skilled in the art from the following description of certain illustrative forms embodying the invention.

In the description, reference will be had to the appended drawings, in which:

Fig. 1 is a longitudinal section through a foot constructed in accordance with the present invention.

Fig. 2 is a transverse section taken along the plane II—II of Fig. 1.

Fig. 3 is a side elevation showing a position which may be assumed by the foot when the article of furniture of which the foot is a part, is tilted.

Fig. 4 is a transverse section through a modified form of construction.

The lower portion of a tubular leg of an article of furniture is indicated at 10. The lower end of such tubular leg portion is provided with a seat and the seat is preferably virtually conical, as indicated at 11. It will be noted that such seat faces inwardly toward the longitudinal axis of the tubular portion 10. It may be conical or it may be concave and the edges of the seat may be rounded so as to impart a smooth surface and properly blend with the inner and outer surfaces of the tubular portion 10. It is to be remembered, moreover, that the tubular portion 10 may be continuous with the entire leg of the chair or other article of furniture, or such portion 10 may be a short tubular member capable of being attached to the lower end of any article of furniture whether the upper portions or main portion of the leg is tubular or solid. In other words, the construction of the present invention is adapted for use on legs made completely from

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tubular materials and to legs made of solid materials such as wood.

An anchor member, generally indicated at 12, is positioned within the tubular portion 10 and spaced from the lower end thereof. The anchor member 12 may consist of a strip of metal having bent end portions 13 and 14 and some means for locating and holding a spring centrally within the tubular portion 10. In Fig. 1 such means comprise an indentation or arcuate central portion 15 formed in the metal strap or anchor 12.

In the event the anchor member 12 is made from a separate strip of material, various methods of positioning and holding the strap within the tubular portion 10 may be employed. One method which has been found to be extremely effective comprises springing or deflecting the metallic tubular member 10 into the position indicated in dotted lines in Fig. 2, slidably inserting the preformed anchor member 12 into the tube until it assumes a desired position spaced from the end of the tube, and then releasing the deflecting pressure so as to cause the tube 10 to assume its normal circular form, whereupon the anchor is compressed and held within the tube.

When this method of operation is employed the end portions 13 and 14 or the ends of the anchor 12 are spaced a distance substantially identical to the internal diameter of the tube 10. The end portions 13 and 14 may be dispensed with if desired. After being positioned within the tubular portion 10 in the manner stated, the anchor may be flash or spot welded to the walls of the tube.

The anchor 12 may be made of resilient metal so that it may be slightly deformed prior to and during insertion within the tubular member 10, and then allowed to expand within the tubular member 10, whereupon it may be held in position by the expansive resiliency of the anchor member within the tube, the desired resiliency being attained by the curved portion 15.

It also has been found desirable to attach the end 16 of spring 17 to the anchor member 12 prior to the introduction of such anchor into the tubular portion 10.

A foot member, generally indicated at 20, also is provided, such foot member including a substantially flat base 21 and a virtually hemispherical upper surface 22. The foot member 20 may be hollow in order to reduce weight. In its preferred form, the radius of the hemisphere 22 is greater than one-half the outer diameter of the tubular portion 10, so that when such foot member is applied to the end of the tubular portion, the seat 11 will contact with the surface of the hemisphere and the base 21 may assume various angles with respect to the longitudinal axis of the tube 10.

The lower end of the spring 17, indicated at 18, is adapted to cooperate with an object attached to the foot 20. The foot 20 may be provided with a lug 23 provided with a port or opening through which the end 18 of the spring 17 may extend. In actual practice, however, the tube, anchor member and spring have been assembled; the spring 17 is extended, attached to the foot 20, and then allowed to pull the foot 20 into contact with the seat 11 on the lower end of the tubular portion 10.

In the preferred embodiment illustrated, the foot 20 is also provided with stop means limiting the movement of the tubular end portion over the hemispherical surface 22. Such stop means may take the form of a circumferential protuberance 24 carried by the foot, such protuberance

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being capable of engaging the lower marginal edge of the tubular portion 10 when the axis of the tube is at an appreciable angle with the plane of the base 21. The base 21 may be raised so as to receive a disc or pad 25 of pressed fibre, rubber composition, gasketing material, or other suitable substance capable of distributing the load and at the same time deadening or dampening the contact between the foot and a supporting structure.

Fig. 3 is a side elevation showing a position assumed by the parts when a chair, for example, provided with the improved foot construction, has been tilted. It will be noted that the base of the foot member is in flat contact with the ground or supporting surface even though the tubular portion 10 (which is a continuation of the leg) is at a material angle to the floor. Cutting of the floor, linoleum, or other surfacing is thus prevented and slippage is eliminated.

Fig. 4 illustrates a somewhat modified construction, the foot member in this instance being provided with an axial port 26 through which the lower end or stem 18' of the spring 17' may extend. The end 18' may be a virtually straight piece of wire which is inserted through the port 26, pulled outwardly so as to place the spring 17' under tension, and then bent over a washer 27 previously slipped upon such wire so as to anchor the end of the spring within the foot member 20'. It also will be noted that in this modified form of construction the interior of the foot member has been provided with an outwardly directed locking recess 28 adapted to receive and positively hold the base pad 25'.

It is to be understood that the washer 27 may either bear against the inner surface of the foot member or such washer may be larger and bear against the edges of the recess in which pad 25' is held. In a still further modification, the pad 25' may be provided with an eye through which the lower end 18' of the spring may extend.

Although the foot members 20 and 20' illustrated are hollow, it is to be understood that solid foot members may be employed and the bases of such solid foot members may be provided with pads suitably cemented or otherwise attached thereto, or the lower surface or base of such pads may be knurled or otherwise roughened to prevent slippage.

Various changes and modifications may be made from the specific illustrative forms described hereinabove. All such changes and modifications as come within the scope of the appended claims are embraced thereby.

I claim:

1. A self-adjusting furniture foot construction comprising: a tubular leg portion, the lower end thereof being provided with an inwardly facing virtually conical seat; an anchor member extending transversely across the interior of the tubular portion and spaced from said lower end; a foot member provided with a base and a virtually hemispherical upper surface adapted to slidably contact the seat on the lower end of the tubular portion; and spring means connected to the anchor and foot member for yieldably urging the foot member against the end of the tubular portion.

2. A self-adjusting furniture foot construction comprising: a tubular leg portion, the lower end thereof being provided with an inwardly facing virtually conical seat; an anchor member extending transversely across the interior of the tubular portion and spaced from said lower end, said

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anchor being provided with means for locking and holding a spring centrally within the tubular portion; a foot member provided with a base and a virtually hemispherical upper surface adapted to slidably contact the seat on the lower end of the tubular portion; and spring means connected to the anchor and foot member for yieldably urging the foot member against the end of the tubular portion.

3. A self-adjusting furniture foot construction comprising: a tubular leg portion, the lower end thereof being provided with an inwardly facing virtually conical seat; an anchor member extending transversely across the interior of the tubular portion and spaced from said lower end; a foot member provided with a base and a virtually hemispherical upper surface adapted to slidably contact the seat on the lower end of the tubular portion; and spring means connected to the anchor and foot member for yieldably urging the foot member against the end of the tubular portion, said foot member including stop means limiting movement of the tubular end portion over the hemispherical surface.

4. A self-adjusting furniture foot construction comprising: a tubular leg portion, the lower end thereof being provided with an inwardly facing virtually conical seat; an anchor member extending transversely across the interior of the tubular portion and spaced from said lower end; a foot member provided with a base and a virtually hemispherical upper surface adapted to slidably contact the seat on the lower end of the tubular portion, the radius of the hemisphere being greater than one-half the outer diameter of the tubular portion; and spring means connected to the anchor and foot member for yieldably urging the foot member against the end of the tubular portion.

5. A self-adjusting furniture foot construction comprising: a tubular leg portion, the lower end thereof being provided with an inwardly facing virtually conical seat; an anchor member extending transversely across the interior of the tubular portion and spaced from said lower end;

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a foot member provided with a base and a virtually hemispherical upper surface adapted to slidably contact the seat on the lower end of the tubular portion, the radius of the hemisphere being greater than one-half the outer diameter of the tubular portion; and spring means connected to the anchor and foot member for yieldably urging the foot member against the end of the tubular portion, said foot member including stop means limiting movement of the tubular end portion over the hemispherical surface.

6. A self-adjusting furniture foot construction comprising: a tubular leg portion, the lower end thereof being provided with a seat; an anchor member within the tubular portion and spaced from said lower end; a foot member including a virtually hemispherical upper surface; and spring means positioned within the tubular portion and between the anchor and foot member for yieldably urging the foot member against the end of the tubular portion.

7. A self-adjusting furniture foot construction comprising: a tubular leg portion, the lower end thereof being provided with a seat; an anchor member within the tubular portion and spaced from said lower end; a foot member including a virtually hemispherical upper surface; and spring means positioned within the tubular portion and between the anchor and foot member for yieldably urging the foot member against the end of the tubular portion, said anchor member being held within the tubular portion by the resiliency of the walls of the tubular portion.

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