June 2, 1936. W. F. HEROLD 2,042,525

COMPENSATING CASTER

Filed Feb. 1, 1935

Fig. 1.

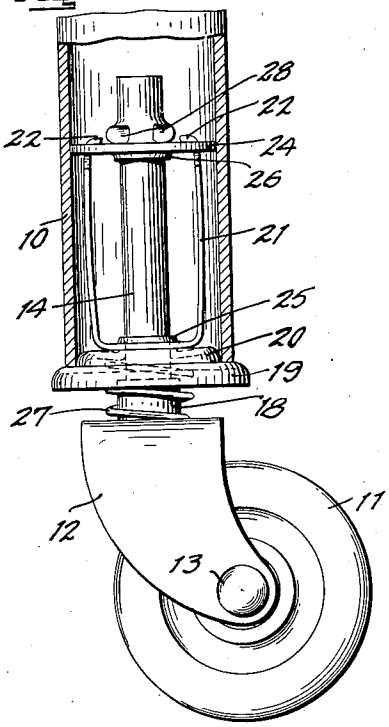


Fig. 2.

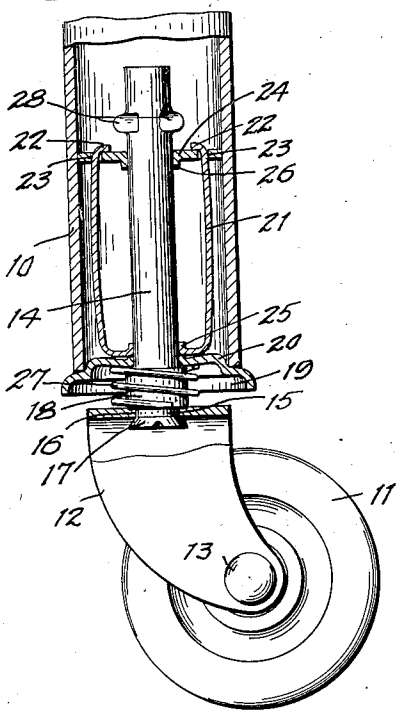


Fig. 3.

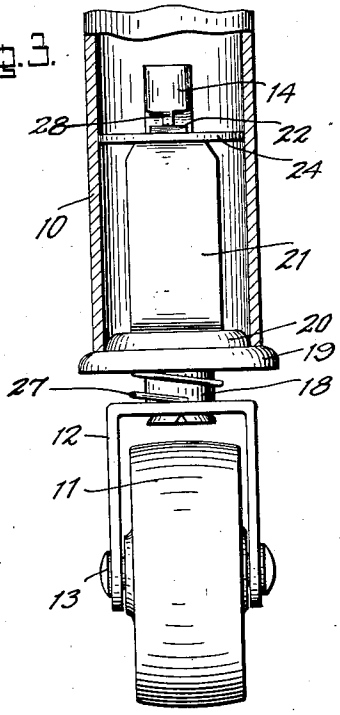
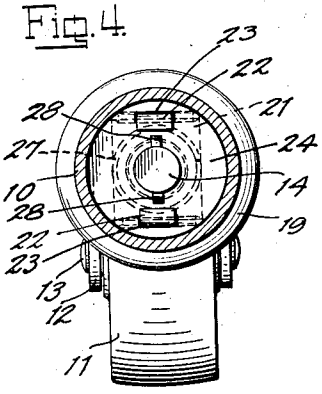


Fig. 4.



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COMPENSATING CASTER

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4 Claims. (Cl. 16—44)

The present invention relates to an improved compensating caster, particularly of the type adapted to compensate for unevenness or irregularities in the floor, or in the furniture, so that all of the legs of the furniture are at all times firmly engaged with the floor. In the support of washing machines, or other devices having vibration, and which very often are placed upon cellar floors, which are apt to be uneven, the firm support of all of the legs is an extremely desirable feature. Such devices are also moved about a great deal and during such movement the casters are very often banged against obstructions, so that it is desirable that the engagement of the caster in the leg be such that impacts which exert great side or pulling strain upon the caster will not mutilate, displace, or otherwise impair the caster, and it is an object of the invention to provide a caster which will be so engaged with the leg and so designed that such strains will not displace or impair the caster. To this end it is proposed, in the exemplary illustrated embodiment of the invention, to provide a pair of spaced pintle supporting leg engaging means upon the caster which will firmly engage it respectively at a point substantially spaced from the base of the leg, and at the base of the leg, both of such means being held against lateral displacement. It is also proposed to provide one of said leg engaging means in the form of a supporting plate disposed firmly within the leg and which is rigidly connected to the spring member for retaining the caster in the leg, both said plate and said spring member being engaged with the pintle for axial sliding movement of the pintle, but firmly held against displacement in any other direction. Another object is to provide a caster in which the base plate will at all times be firmly retained against displacement. Another object is to provide a caster in which the assembly of the parts will be greatly simplified.

With the above and other objects in view an embodiment of the invention is shown in the accompanying drawing, and this embodiment will be hereinafter more fully described with reference thereto, and the invention will be finally pointed out in the claims.

In the drawing:

Fig. 1 is a side elevation of the caster, according to the exemplary illustrated embodiment of the invention, the leg being shown in section.

Fig. 2 is a vertical sectional view thereof.

Fig. 3 is a front elevation, the leg being shown in section; and

Fig. 4 is a horizontal sectional plan view, taken along the line 4—4 of Fig. 3.

Similar reference characters indicate corresponding parts throughout the several figures of the drawing.

Referring to the drawing, the caster, according to the exemplary illustrated embodiment of the invention, is adapted to be inserted in a tubular leg 10 and comprises a caster wheel 11 rotatably supported in the usual horn 12 upon an axle shaft 13, a pintle 14 being secured to the horn top by inserting the reduced shouldered end portion 15 of the pintle in a hole 16 in the horn top and swedging over the end of the pintle, as at 17. The pintle is provided adjacent the horn top with an enlarged diameter portion 18, the shoulder at the upper end of which is adapted to form a limit stop for the resilient action of the caster, as will presently more fully appear.

Upon the pintle above the portion 18 there is slidably engaged a centrally apertured base washer 19 adapted to fit beneath the lower end of the leg and having an upwardly embossed dome portion 20 adapted to fit snugly within the leg to thereby be positioned in centralized relation against lateral displacement.

Upon the pintle above the base washer 19 there is slidably engaged the apertured base portion of a substantially U-shaped caster retaining spring member 21, the sides of which are slightly bowed outwardly, and which is provided at the upper ends of said sides with upstanding lugs 22—22, which are engaged upwardly through slots 23—23 in a centrally apertured upper washer member 24, and substantially rigidly secured thereto by bending over said lugs upon the upper side of said washer, the washer being slidably engaged upon the pintle. The base of the spring 21 and the washer 24 have their pintle engaging apertures flanged, as at 25 and 26, to provide smoothly sliding bearing engagement with the pintle.

Between the base washer 19 and the horn top a helical spring 27 is provided about the pintle, and at the upper end of the pintle above the upper washer 24 the pintle is provided with outwardly pinched lugs 28—28 which have the double function of retaining the parts of the casters in assembled relation and of limiting the projecting movement of the pintle under the action of the spring 27.

In operation the caster is inserted in the leg with the dome portion 20 of the base washer 19 and the upper washer 24 snugly fitting therein, the edges of the spring member 21 which normally

project slightly beyond the periphery of the upper washer 24 engaging the interior of the leg under pressure to retain the caster. The base of the spring 21 being rigidly centered in the tube by the contact of the four edges of the side legs with the tube, and the upper washer being also rigidly centered, the pintle is effectually centered and retained against lateral displacement. The weight of the furniture will normally compress the spring 27 so that the shoulder of the pintle portion 18 engages and has swiveling bearing with the base washer 19, as shown in Fig. 2. Should there be any unevenness or irregularity in the floor, or the furniture, the caster or casters that would not normally engage the floor are pressed into engagement by expansion of the spring 27. Any tendency for the caster to become displaced or canted through blows thereon is prevented through the rigid lateral support provided for the pintle by the base washer 19, the base of the spring member 21, and upper washer 24, nor is there any tendency for the spring member 21 to be displaced, as it is secured at its upper ends to the upper washer 24. As the spring 27 always exerts upward pressure on the base washer 19 it will at all times be retained in the leg in centralized position irrespective of side or pulling strains on the caster. If when installing the caster it is not fully inserted the spring 21 will act as a guide for directing the base washer into centralized engagement with the leg as soon as load is applied to the leg.

While I have shown a caster having a floor engaging wheel, it will be understood that instead of the horn and wheel a floor engaging slide, shoe or the like may be employed, and the invention therefore contemplates floor engaging means of any suitable type.

I have illustrated and described a preferred and satisfactory embodiment of the invention, but it will be obvious that changes may be made therein, within the spirit and scope thereof, as defined in the appended claims.

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

1. In a caster, a floor engaging element, a vertically extending pintle carried thereby, leg engaging securing means adapted for insertion in a tubular furniture leg comprising a centrally apertured base washer slidably engaged upon said pintle and adapted to engage beneath the leg and having means adapted to engage the leg to be centralized and held thereby against lateral displacement, a centrally apertured upper washer adapted to engage within the leg to be centralized and held thereby against lateral displacement and slidably engaged on said pintle, said upper washer adapted to engage at its edges with the interior of the leg to constitute a side thrust taking span and a spring member for yieldingly engaging the interior of the leg disposed between said base washer and upper washer and secured to said upper washer.

2. In a caster, a floor engaging element, a vertically extending pintle carried thereby, leg engaging securing means adapted for insertion in a tubular furniture leg comprising a centrally apertured base washer slidably engaged upon said pintle and adapted to engage beneath the leg, a centrally apertured upper washer adapted to engage within the leg and slidably engaged on said pintle, said upper washer adapted to engage at its edges with the interior of the leg to constitute a side thrust taking span and a U-shaped spring member for yieldingly engaging the interior of the leg disposed between said base washer and upper washer the base of said spring being apertured and slidably engaged with said pintle and the side legs of said spring being secured at their upper ends to said upper washer, pressure on said floor engaging element and upward pressure on said base washer.

3. In a caster, a floor engaging element, a vertically extending pintle carried thereby, leg engaging securing means adapted for insertion in a tubular furniture leg comprising a centrally apertured base washer slidably engaged upon said pintle and adapted to engage beneath the leg and having means adapted to engage the leg to be centralized and held thereby against lateral displacement, a centrally apertured upper washer adapted to engage within the leg and slidably engaged on said pintle, said upper washer adapted to engage at its edges with the interior of the leg to constitute a side thrust taking span and a U-shaped spring member for yieldingly engaging the interior of the leg disposed between said base washer and upper washer, the base of said spring being apertured and slidably engaged with said pintle and engaging said base washer and the side legs of said spring being secured at their upper ends to said upper washer.

4. In a caster, a floor engaging element, a vertically extending pintle carried thereby, leg engaging securing means adapted for insertion in a tubular furniture leg comprising a centrally apertured base washer slidably engaged upon said pintle and adapted to engage beneath the leg, a centrally apertured upper washer adapted to engage within the leg and slidably engaged on said pintle, said upper washer adapted to engage at its edges with the interior of the leg to constitute a side thrust taking span and a U-shaped spring member for yieldingly engaging the interior of the leg disposed between said base washer and upper washer, the base of said spring being apertured and slidably engaged with said pintle and engaging said base washer and the side legs of said spring being rigidly secured at their upper ends to said upper washer.

WALTER F. HEROLD.