A. THIELE.

CASTER.

APPLICATION FILED SEPT. 16, 1920.

1,402,191. Patented Jan. 3, 1922.

Fig. 1.

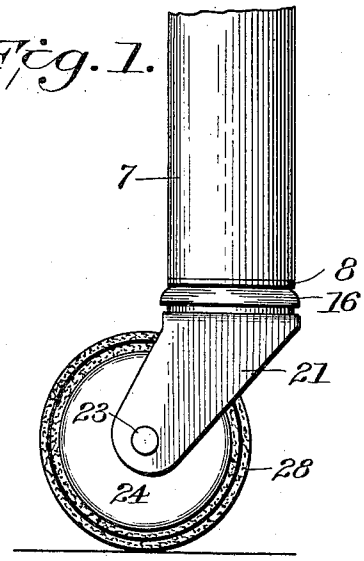


Fig. 2.

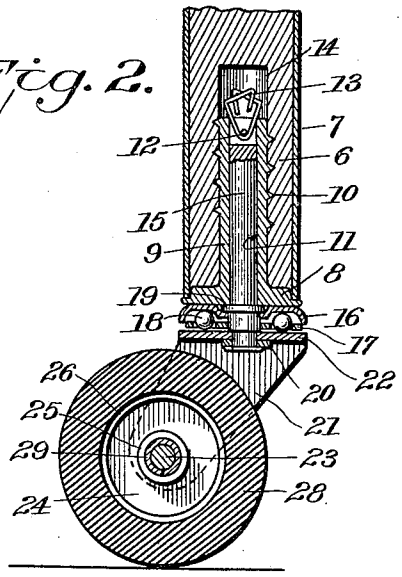


Fig. 3.

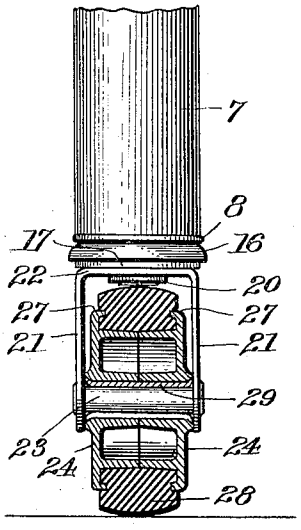


Fig. 4.

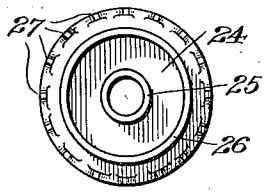
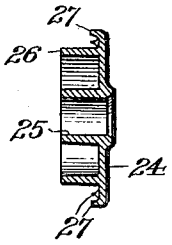


Fig. 5.



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CASTER.

1,402,191. Specification of Letters Patent. Patented Jan. 3, 1922.

Application filed September 16, 1920. Serial No. 410,679.

To all whom it may concern:.

Be it known that I, ADOLPH THIELE, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented a new and useful Caster, of which the following is a specification.

This invention relates to casters.

One object of the invention is to provide an improved caster having a roller so constructed that it will not mar or mark polished floors.

Another object is to provide improved means for holding a caster in a furniture leg so that the same will not fall out if the furniture is lifted.

A further object is to provide an improved ball bearing mounting in a caster.

Another object is to provide a caster roller having means for holding a flexible tread so that the tread will not become flattened or distorted by long standing of the furniture in one position.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing forming part of this specification, with the understanding, however, that the invention is not confined to any strict conformity with the showing in the drawing, but may be changed and modified so long as such changes and modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawing:

Figure 1 is an elevation of a caster constructed in accordance with the principles of this invention.

Fig. 2 is a vertical cross section thereof.

Fig. 3 is a vertical cross section through the roller of the caster showing the other parts in elevation.

Fig. 4 is a detail plan view of one of the plates for holding the tread of the roller.

Fig. 5 is a diametric cross section of the same.

The numeral 6 represents a wooden or similar plug which is held in the lower end of a furniture leg 7, supposed in the present construction to be a metallic leg. In case the leg is wooden, no plug will be employed, the parts 6 and 7 being in that instance one and the same part. The plug 6 has a central longitudinal bore 14 and is screw threaded to receive a bushing or thimble 9 having exterior screw threads 10. The lower end of the bushing has a head 8 shaped to close the lower end of the furniture leg and provide a cap for the same.

The bushing 9 is hollow as indicated at 11, and is adapted to receive a stem 15, which stem is rotatable within the bushing. The upper end of the stem 15 has an expansive spring 13 which, when the stem is inserted into the sleeve, extends above the top of the sleeve and prevents the stem from falling out of the sleeve or bushing. The spring 13 will contract, however, when the stem is pulled with some force so as to permit withdrawal of the stem while leaving the bushing in position.

The lower end of the stem 15 has a collar 19 which fits outside of or immediately below the head 8 and prevents the stem from being inserted into the socket provided by the bushing to more than a pretetermined extent. The extremity of the stem remote from the spring 13 has a reduced section providing a pivot for the part 22 of the roller bracket 21. The stem may be upset at said extremity to carry a washer 20 or equivalent securing means formed thereon so as to be united to the roller bracket. The thrust arising from the weight of the furniture is distributed from the leg through the bushing 9 and through the collar 19 and lower end of the stem 15, to the roller bracket and thence to the roller.

Mounted on the stem immediately below the collar 19 is a ball race member 16 having downwardly-extending flanges whereby it houses a ball cage member 17. Ball bearings 18 are held in the ball cage member which is also rotatable about the stem. The central portion of the ball race member 16 has a depression fitting about the collar 19. Some of the thrust from the furniture leg is distributed through the ball bearings, but in the present construction it is only a part of the thrust that is so borne.

The roller comprises a tread portion 28, preferably of heavy rubber, which is ring like in form. This tread portion is prevented from spreading and from contracting under the weight of the furniture by a pair of like plates 24. The description of one of these plates will suffice for both. Each plate has circumferential teeth 27 projecting laterally. These teeth are adapted to bite into the material of the tread so as to unify the plate and tread. The plate has an annular flange

26 projecting in the same direction as the teeth 27, and the two flanges 26 meet centrally of the roller to form together a support for the ring-like tread. The plate also has a flange 25 eccentric with the flange 26, the two flanges 26 and 27 being spun during the manufacture of the plate. The flanges 25 also are abutted together to provide an opening for a sleeve 29 preferably split longitudinally so as to be expansible within the opening. The sleeve 29 provides a bearing for a pin 23 which is upset at each end and is thereby secured to the arms 21 of the roller bracket. The roller turns upon the pin 23 as an axis. The ends of the sleeve 29 are slightly expanded as seen in Fig. 3, and the sleeve itself being expansible, thus holds the two plates 24 together.

What is claimed is:—

1. In a caster, a roller comprising an annular tread of flexible compressible material, a pair of duplicate substantially flat plates for supporting and holding the tread against deformation, each plate having teeth projecting from one side at the peripheral edge thereof, said teeth being adapted to grip the adjacent side face of the tread whereby the latter is united to the plates, a circular flange outstanding from the same side of each plate from which the teeth project, the two flanges extending to contact with each other only at their edges centrally of the roller, the tread being seated on the peripheries of the two abutted flanges and supported partly by the flanges and in part by the teeth.

2. In a caster, a roller comprising an annular tread member of flexible compressible material, a pair of plates for supporting and holding the tread against deformation, each plate being circular and having teeth projecting at the peripheral edge thereof, a circular flange outstanding from that side of each plate on which the teeth extend, said circular flange having a diameter substantially equal to the smaller diameter of the annular tread member, a second circular flange concentric with the plate and with the first-mentioned flange, both flanges having the same width, the two flanges of each plate contacting with each other along their circular edges, the diameter of the second flange being less than that of the first flange, said tread member being seated upon the peripheries of the two abutted larger flanges and gripped on both sides by the teeth of the two plates, said teeth being spaced from the periphery of the tread whereby the latter is supported against deformation, the two lined circular flanges of smaller diameter receiving the pivotal element of the roller and together providing a hub for the roller.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature.

ADOLPH THIELE.