D. B. DISS.

TOP BEARING CASTER.

APPLICATION FILED APR. 20, 1921.

1,395,484.

Patented Nov. 1, 1921.

Fig. 1,

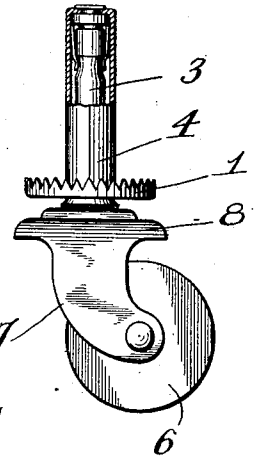


Fig. 2,

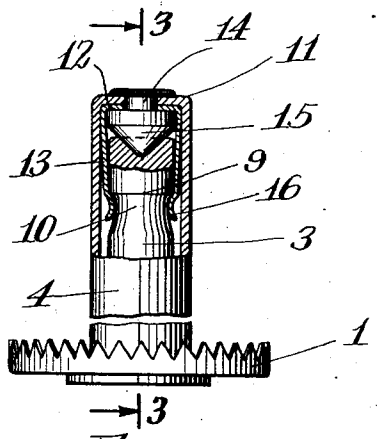


Fig. 3,

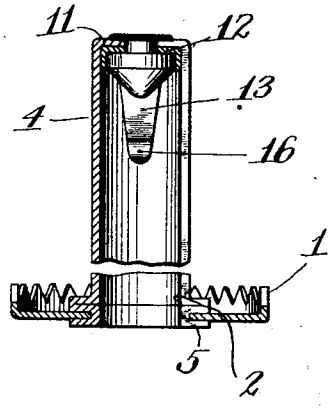


Fig. 4,

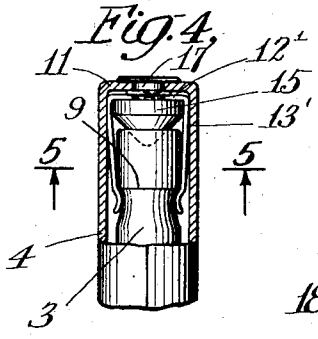


Fig. 5,

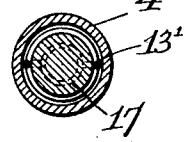
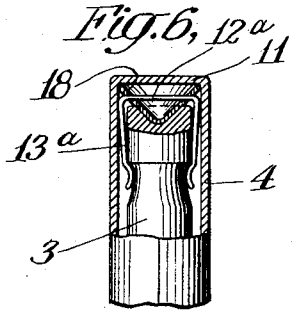


Fig. 6,



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By his Attorney

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UNITED STATES PATENT OFFICE.

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TOP-BEARING CASTER.

1,395,484. Specification of Letters Patent. Patented Nov. 1, 1921.

Application filed April 20, 1921. Serial No. 462,903.

To all whom it may concern:

Be it known that I, DANIEL B. DISS, a citizen of the United States, and resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Top-Bearing Casters, of which the following is a specification.

My invention relates to casters and particularly casters of the top bearing type. The chief object of my invention is the provision of improved means for detachably securing the pintle of a caster in position when the pintle has been inserted within a sleeve or socket which is secured to the leg mount or supporting plate. Other objects of my invention relate to the improved details of construction and combinations of parts more fully set forth hereinafter in the accompanying specification and particularly pointed out in the appended claims.

In the improved construction a spring member is used, comprising arms which extend downwardly within the sleeve and a top cross portion which is held in place beneath the top of the sleeve by means which serves additionally as a top pintle bearing. With such a construction the top of the pintle in pressing against its top bearing will also exert pressure upon the cross portion of the spring member which will tend to press the downwardly extending spring arms inwardly, into such position that the engaging portions thereof will tend to engage beneath a shoulder on the pintle. This is, of course, an improvement in comparison with the forms of spring latches for the pintle in which there is no force tending to press the spring member inwardly, other than the resiliency of the spring arms themselves, since in such a case the resilient pressure of the spring arms against the pintle tends to become weak after continued use.

In order that my invention may be more clearly understood, attention is hereby directed to the accompanying drawings forming part of this application and illustrating certain embodiments of my invention.

In the drawings Figure 1 represents a side elevation of a caster embodying my invention, certain parts being shown in section; Fig. 2 is an enlarged side elevation of the leg supporting plate and sleeve secured thereto, the latter being broken away and partly indicated in section, to show the interior construction, partly in side elevation and partly in section; Fig. 3 is a vertical section taken on line 3—3 of Fig. 2, the pintle not being shown; Fig. 4 is a view partly in side elevation and partly in section of the sleeve and parts contained therein, illustrating a modified form of the invention; Fig. 5 is a horizontal section taken on line 5—5 of Fig. 4 and Fig. 6 is a view similar to that shown in Fig. 4 illustrating a further modification of my invention.

Referring to the drawing, the leg supporting plate 1 has a central opening 2 therethrough through which the pintle 3 is adapted to be inserted. The sleeve 4 extends upwardly from the central opening in plate 1, the lower end of the sleeve being secured to the leg supporting plate in any suitable manner as by crimping the same about the edge of the opening as shown at 5.

The caster wheel 6 is journaled within the horn 7, to the upper transverse portion 8, of which the pintle is secured in the usual manner. A shoulder 9 is provided on the pintle in any suitable manner as by necking or forming a slight groove around the pintle as shown at 10, the upper edge of this neck forming the slight shoulder or abutment 9 referred to. The sleeve 4 is provided with a transverse flange at its upper end, this flange preferably extending entirely across the top of the sleeve to close the same as indicated at 11.

The spring means for removably securing the pintle within the sleeve may take the form of a spring strip of inverted U-shape as shown in Figs. 1, 2 and 3. As there shown, the spring strip may comprise a cross portion 12 and downwardly extending portions 13, within sleeve 4 on opposite sides thereof. The cross portion 12 of the spring strip is secured in position against the under surface of the closed top 11 of the sleeve, preferably by means which will additionally serve as a top bearing for the pintle.

This spring holding means may conveniently take the form of a rivet 14 which is extended through the top of the sleeve, the cross portion of the spring member being securely held between the top or cross member 11 of the sleeve and the head, 15, of the rivet. With this arrangement the bottom surface of the rivet head serves as a bearing

against which the top surface of the pintle will abut, the rivet head preferably being conical or rounded and the top surface of the pintle provided with a corresponding recess.

The downwardly extending arms 13 of the spring strip are provided with inwardly extending portions, such as the inwardly bent lower end portions 16 thereof which are adapted to resiliently engage beneath the shoulder 9 on the pintle. With this construction, when the pintle is inserted within the sleeve, the head or top portion of the pintle will be pushed between the inwardly bent ends 16 of the spring forcing the same apart, the sleeve being of sufficient diameter in comparison to that of the pintle to permit this movement. When the pintle has reached its operative position in which its top surface bears against the bottom of rivet head 15, the inwardly bent portions 16 of the spring strip will snap back into position against the neck 10 of the pintle, beneath shoulder 9.

A slightly modified construction is shown in Figs. 4 and 5 in which the spring member takes the form of a wire of resilient metal, in place of the spring strip previously described. The cross portion 12^1 of this spring member extends between the top portion 11 of the sleeve and the head 15 of the rivet between which it is suitably held. The spring wire may, for example, be suitably held in position by winding the same around the neck of the rivet as is indicated at 17. The spring member is provided with downwardly extending side portions 13^1 having inwardly bent ends which are adapted to engage beneath the shoulder 9 on the pintle.

A further modification of the device is shown in Fig. 6. As there shown the spring member 13^a may take the form of an inverted U-shaped member of resilient metal in the form of a strip or a wire. In this case the spring member is held in position by the provision of a disk 18, having openings therethrough at points in opposite sides of the center thereof. The spring member is inserted through these openings so that its transverse portion 12^a will extend through the openings with the side portions 13^a of the spring member extending downwardly on each side. The disk 18 carrying the spring member is then pushed into the sleeve 4 until its edges engage against the junction between the top portion 11 of the sleeve and the cylindrical portion thereof. The disk 18 is slightly larger in diameter than the interior of the sleeve and accordingly when it has arrived at its position within the top portion of the sleeve, it may be sprung into a firm binding engagement with the sleeve. When so mounted, it will hold the spring member in its proper position and the under-surface of the disk 18 will serve as a top bearing for the upper end of the pintle.

It will be noted that the various constructions described provide an arrangement in which the upward pressure of the pintle against the top bearing therefor exerts some tendency to press the cross portion of the spring member upwardly. The result of this is, of course, to tend to move the side portions such as 13 of the spring member inwardly. Accordingly the spring member will always resiliently engage the pintle to hold the same in position. So far as I am aware, no previous construction has been proposed in which the weight of the furniture carried by the caster has been utilized in any way to hold the spring member, or to tend to hold the spring member in its engaging position.

I have illustrated the invention as applied to that type of caster construction in which no spring frame is used, the sleeve or socket 4 being pressed into position within an opening in a furniture leg or the like in which it closely fits. It is of course, however, obvious that the invention is not limited in this regard. It will be understood that the invention is not limited to the details of construction particularly described, but is as broad as is indicated by the accompanying claims.

What I claim is:

1. In a caster the combination of a leg supporting plate having a central opening therethrough, a sleeve secured to said plate about said opening and extending upwardly therefrom, said sleeve having means at the top thereof to form a top pintle bearing and spring means extending downwardly within said sleeve from the top thereof having lower end portions bent inwardly to yieldably engage beneath a shoulder on the pintle when the latter is pressed upwardly past the same, within said sleeve, all parts of said spring means being entirely within the interior surface of said sleeve at all times.

2. In a caster the combination of a sleeve, open at the bottom and closed at the top, adapted to act as a pintle socket, a rivet extending downwardly through the top of said sleeve to act as a top pintle bearing, and a spring member having a cross portion held between said rivet and sleeve top and downwardly extending portions on opposite sides, within said sleeve, having lower end portions bent inwardly to yieldably engage beneath a shoulder on the pintle when the latter is pressed upwardly past the same within said sleeve.

3. In a caster, the combination of a leg supporting plate having a central opening therethrough, a sleeve secured to said plate about said opening, extending upwardly therefrom and having a lateral flange at the

top, a spring member having a cross portion beneath said flange and downwardly-extending portions on opposite sides entirely within said sleeve, bent inwardly at alined points, a member adapted to secure said cross spring portion beneath said flange, the lower surface of said member being curved downwardly and serving as a top pintle bearing, and a pintle having a concavity in its top surface and a shoulder below said surface, said pintle being adapted to be pressed upwardly within said sleeve to engage the concavity in its top surface with said bearing, said inwardly extending spring portions yieldably engaging beneath said shoulder when said pintle is thus positioned.

4. In a caster, the combination of a leg supporting plate having a central opening therethrough, a sleeve secured to said plate about said opening, extending upwardly therefrom and closed at the top, a spring member having a cross portion beneath said flange, and downwardly extending portions on opposite sides within said sleeve, bent inwardly at alined points, a member extending downwardly through the top of said sleeve, having means for holding said spring member cross portion in position and a lower surface adapted to serve as a top pintle bearing, and a pintle having a shoulder thereon, adapted to be pressed upwardly into operative position within said sleeve, said inwardly extending spring portions yieldably engaging beneath said shoulder when said pintle is thus positioned.

5. In a caster the combination of a sleeve, open at the bottom adapted to act as a pintle socket, said sleeve having a lateral inwardly directed flange at the top, a member bearing against said flange, having a portion serving as a spring holding means beneath said flange, adapted additionally to serve as a top pintle bearing, and spring means secured in place by said spring holding means and extending downwardly within said sleeve on opposite sides thereof, having portions bent inwardly to yieldably engage beneath a shoulder on the pintle when the latter is pressed upwardly past the same within said sleeve.

Signed at Newark, in the county of Essex and State of New Jersey, this 19th day of April, A. D. 1921.

DANIEL B. DISS.