June 7, 1955 J. A. VOLZ 2,709,827

SELF LOCKING CASTER

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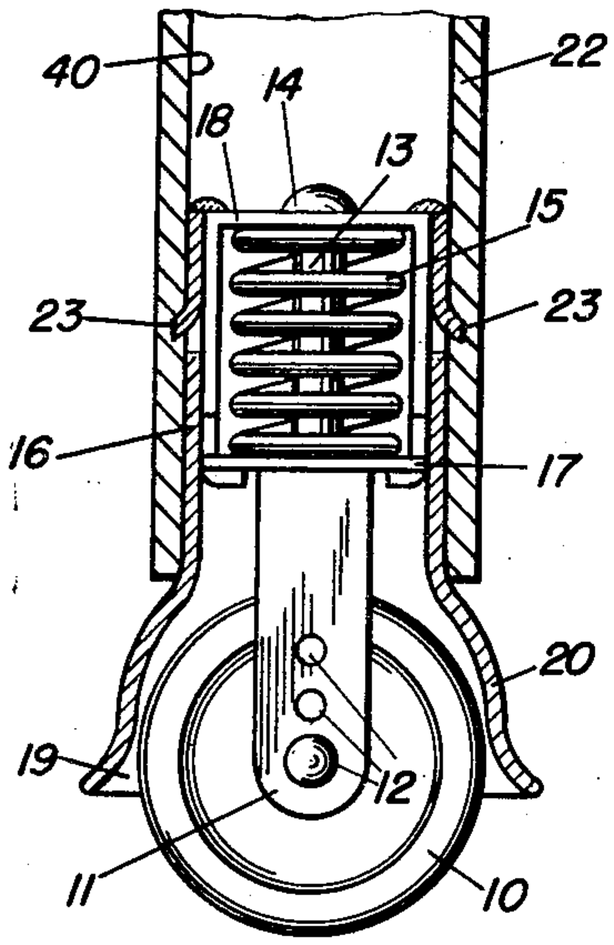

FIG. 2.

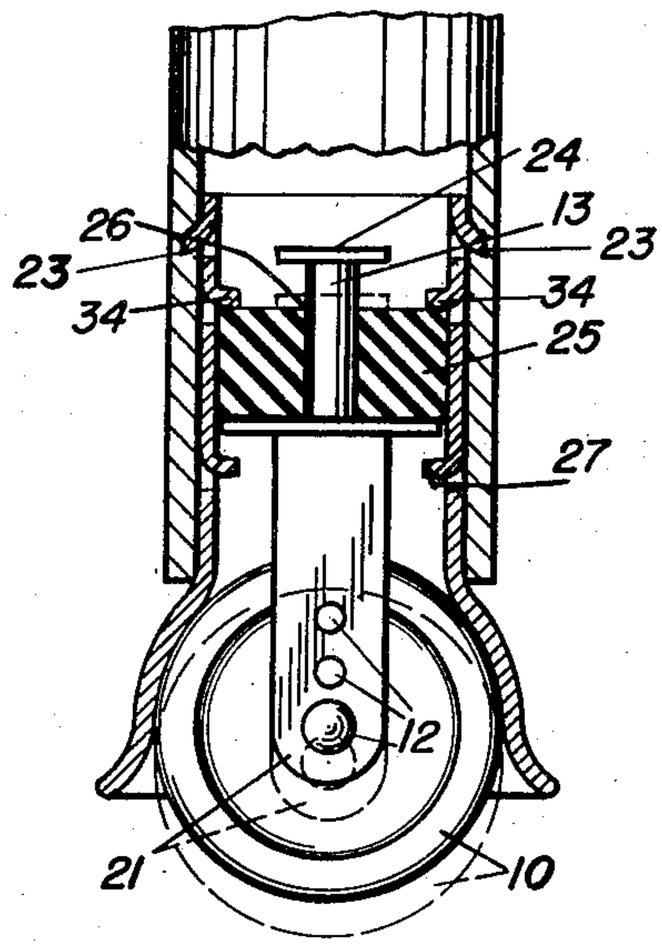

FIG. 3.

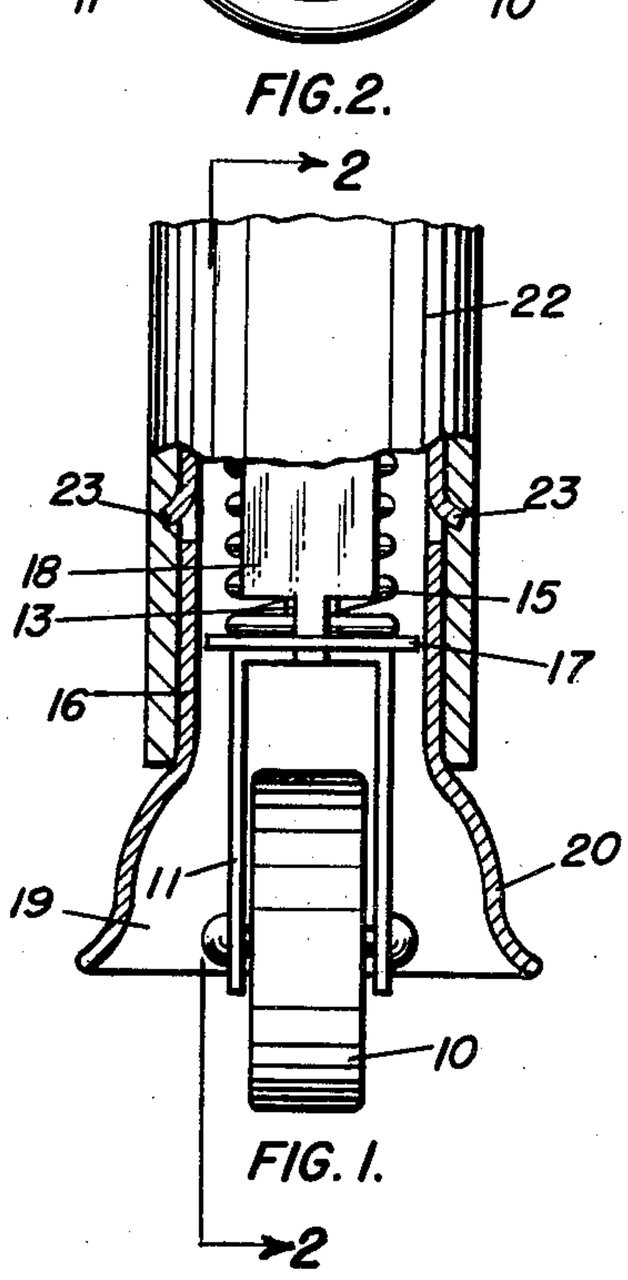

FIG. 1.

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SELF-LOCKING CASTER

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3 Claims. (Cl. 16—33)

This invention relates to furniture and more particularly to casters for legs of tables, chairs, ladders and other similar articles intended to be shifted around on a floor or other horizontal surface.

The conventional caster used on chairs is a device attachable to the leg of a chair by insertion in an orifice provided therein. It simply reduces the friction arising between the bottom of the legs and the floor. It takes very little effort to move the article. This last feature is objectionable at times when the chair, ladder, table or other article is to be used stationarily. Thus assuming the user desires to stand on a chair to place something on a shelf, the effort of doing so, can move the chair and cause him to fall over and hurt himself. Provision in a particular case has been made heretofore to provide temporary friction sufficient to prevent the movement, particularly when the article is occupied by an individual whether sitting or standing. It consists in adding a brake independent of the main construction and pushable downwardly on the caster wheel, when a weight or person is placed on the brake itself, and this braking effect is usually enough. This and similar mechanisms are objectionable because they include complicated and special mechanism that make the device cumbersome and expensive. In this invention a caster is employed that has a specially designed housing capable of holding the wheel used therewith, in such a manner as to permit the housing to become depressed on the periphery of the wheel and contact it hard enough to brake it when a load is put on the article to which the caster is attached, thus preventing the article from slipping from its position at the moment, but when the load is removed to function in a frictionless and rolling manner.

It is therefore an object of this invention to provide a new and improved caster for furniture that will avoid one or more of the disadvantages and limitations of the prior art.

Another object of this invention is to provide a new and improved caster for furniture that will have a braking action to prevent the rotation of its caster wheel when a load is placed on the article to which the caster is attached.

A further object of the invention is to provide a new and improved caster for furniture that can enable articles on which it is used, to be freely propelled about under normal conditions, but which may be set to prevent movement of the articles when desired and at predetermined intervals.

Other objects will become apparent as the invention is more fully described.

For a better understanding of the invention reference is made to the accompanying drawings wherein a particular form of the invention is indicated. These drawings in conjunction with the following description outline the details, explain the principles and operation thereof. The claims emphasize the scope of the invention.

In the drawings:

Figure 1 is an elevation partly in section, of a caster embodying this invention;

Figure 2 is a sectional view taken on line 2—2 of Figure 1, and

Figure 3 is a modified form of the invention shown in section.

Similar reference characters refer to the same parts throughout the drawings.

In the drawings, a caster is indicated having the general appearance of a conventional device of this class. However, its construction differs in that it has a roller, or wheel **10**, within a housing **20**. The roller **10** is supported or journalled in a bifurcated bracket **11**, having a series of holes **12** to permit the adjustment of the position of the roller thereon. The bracket **11** has a stem **13** extended from it. The stem **13** is preferably cylindrical so that it can rotate freely on its vertical axis. The stem is surmounted by a swaged cap **14** which is intended to restrict the movement of the stem in the resilient member or spring **15** particularly in preventing it from falling out of the frame **16**. The bottom piece **17** of the frame is loosely mounted on stem **13** and forms a seat for the spring **15** and serves with the top piece **18** to keep the spring under tension tending to force the bracket **11** out from the frame. The frame is fitted into a housing **20** having an enlarged bell end **19**. This bell **19** is internally contoured to conform with the periphery of the roller so that when pressure is exerted to bring the roller and bell in contact with each other, there will be sufficient resistance to prevent the rotation of the roller. The housing **20** is fitted into an orifice **40** in the leg of the chair, table, ladder or article **22** in which it is placed, and is held therein by the prongs **23** struck out from the housing and extending laterally from it.

In Figure 3 is shown a modified form wherein a rubber cushion **25**, supported on an adjustable bifurcated bracket **21** having a cap **24** to prevent its slipping out of the cushion through the hole or passage **26**. The bracket **21** prevents it slipping through the other way. The housing in the modification is the same as in the original form except that clips **34** are used to retain the rubber **25** in place therein. The bells are preferably formed with a small inward bend **27** to keep the cushion in place and increase the braking area on the roller. The resiliency of the springs may be varied to suit the various loads encountered.

In the operation of the device, the user sits or stands on the article, such as a ladder **22** to which the caster is attached and his weight increases the pressure on the spring **15** or cushion **25** so the inner surface of the bell of the housing is brought down on the periphery of the roller and holds it rigid against rotation. This braking effect enables the user to climb the ladder in safety. His weight holds it steady and stationary.

The assembly of the parts of the modified structure is relatively simply because the resiliency of the cushion **25** enables them to be forced in place and then locked therein. The stem is forced through and holds the bracket in a similar manner.

The device is simple, works effectively, is adjustable, and has an attractive appearance. Its housing can be readily adapted to any type of furniture leg on which it is to be used. Its cost of production can be made very reasonable, and there is practically no mechanism to get out of operation until the parts are completely worn out.

While but two general forms of the invention are shown in the drawings and described in the specification, it is not desired to limit this application for patent to these particular forms as it is appreciated that other forms could be made that would use the same principles and come within the scope of the appended claims.

Having thus described the invention, what is claimed is:

1. A caster comprising a hollow tubular housing adapted to fit within a piece of furniture, means integral

with the upper portion of the housing for securing the latter to the piece of furniture, said housing having a lower depending bell-shaped portion, a roller positioned partially within the bell-shaped portion of the housing and extending outwardly therefrom, said roller having its axis at right angles to and intersecting the axis of the housing, a bifurcated bracket within the housing straddling the roller, means for supporting the roller in said bracket, a stem extending upwardly from the bracket, resilient means surrounding said stem and having a movable abutment at the upper end of the stem and an opposite abutment at the lower end of the stem, connecting means between the housing and the movable abutment, the aforesaid bell-shaped portion having inner walls with a curvature corresponding to the peripheral curvature of the roller, said inner walls resting on the periphery of the roller to immobilize it when sufficient pressure is applied through the housing to the movable abutment against the resistance of the resilient means, and said resilient means automatically forcing the housing and its bell-shaped portion away from the roller when the pressure is released, to restore the roller's freedom of action.

2. A caster as set forth in claim 1, wherein the resilient means comprise a frame having opposite end pieces, and a spring mounted about the stem and supported by said end pieces.

3. A caster as set forth in claim 1, wherein the resilient means comprise a rubber cushion having an axial opening straddling the stem.

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