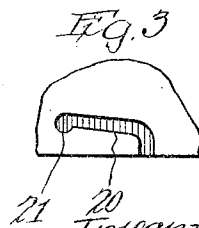
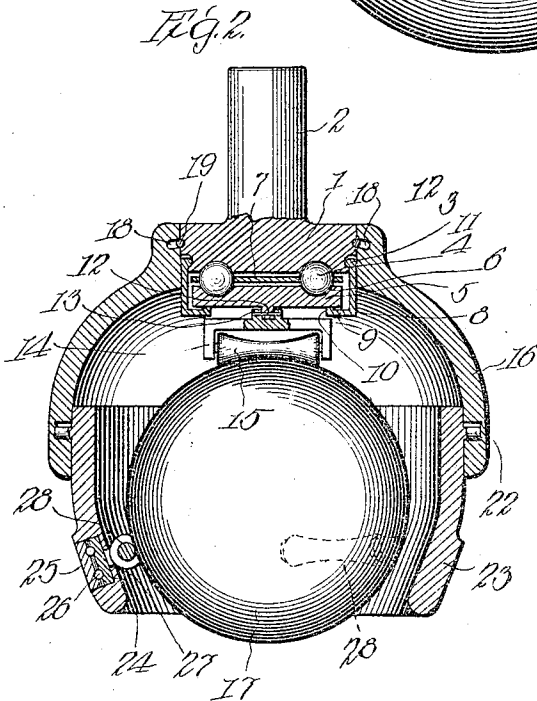
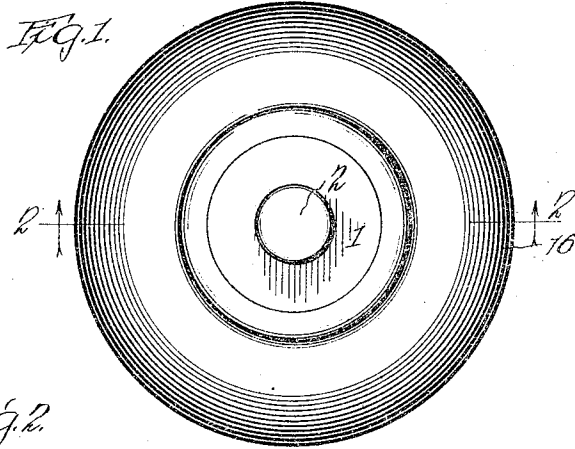


E. FRANZEN.
FURNITURE CASTER.
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UNITED STATES PATENT OFFICE.

ERNST FRANZEN, OF CHICAGO, ILLINOIS.

FURNITURE-CASTER.

1,224,294.

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To all whom it may concern:

Be it known that I, ERNST FRANZEN, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Furniture-Casters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in furniture casters which may also be employed for other purposes, if desired, and has for its particular object to provide a caster which will permit of the load supported thereby to be moved from any point in any desired direction without resistance, and in which the revoluble element resting on the floor is universally rotatable in all directions, and is, furthermore, associated with antifriction elements whereby it is permitted to rotate freely in any direction starting from a given point.

Further objects of the invention are, to provide a caster of the character defined which is capable of being easily and quickly assembled and taken apart, and which, furthermore, may be suitably lubricated without danger of the lubricant employed being spread upon the floor as the caster is moved over the same.

The invention consists more particularly in that type of furniture casters in which the supporting element consists of a sphere.

In the accompanying drawings illustrating a suitable embodiment of my invention:

Figure —1— is a top plan view of a furniture caster constructed in accordance with my invention.

Fig. —2— is a central vertical section of the same on the line 2—2 of Fig. —1—.

Fig. —3— is a fragmentary detail view in elevation of a portion of the housing for the supporting sphere of the caster.

Many attempts have heretofore been made to provide a furniture caster in which the supporting element consists of a sphere and in which antifriction devices were employed for the purpose of rendering said sphere freely and easily rotatable in its housing to the end that the load supported on the caster might be moved freely and easily from any point in any direction thus permitting articles of furniture to be easily disposed in any

desired position and into niches and corners without danger of striking surrounding walls and other objects due to the resistance offered to a change in the direction of travel of said article of furniture in moving the same into such position.

My present invention is designed to use devices which are in and of themselves so mounted as to be freely rotatable universally, thus enabling them to adjust themselves in position for rotation in such direction as would result normally from the direction of travel of the supported load and the sphere supporting the same.

In the accompanying drawings I have illustrated merely a suitable embodiment of the invention which, however, is capable of being changed and varied to decrease cost of manufacture and to secure the best results without departing from the invention. In the embodiment shown in Fig. —1—, the caster comprises what I will term a main member 1 consisting of a cylindrical block of metal having a shank 2 adapted to engage in the piece of furniture or other device adapted to be supported on the caster. The lower face of said block 1 is provided with a runway 3 for the balls 4, said runway being circular and concentric with the shank 2. Opposed to the lower face of the block 1 is a disk 5 having a companion runway 6 for the said balls 4 and interposed between said parts is a perforated washer 7 for maintaining the balls 4 properly spaced apart in the usual and well-known manner. Secured to the circumferential portion of the block 1 is a ferrule 8 having an inwardly projecting flange 9 and an upwardly projecting flange 10 at the inner edge of the flange 9. The central opening bordered by the flange 10 is of smaller diameter than the said plate 5 and serves to support the latter in position relatively to the member 1. The said ferrule 8 is preferably removably secured to the said member 1 in any suitable manner, as for example, by means of spring tongues 11 engaged in an annular groove in the member 1.

The said plate 5 has a central downwardly projecting shank 12 which is adapted to enter the central flange 13 of the yoke 14 in which a roller 15 is rotatably mounted on a horizontal axis. The said shank 12 and flange 13 are preferably detachably coupled in any suitable manner, as for example, by

a key pin extending laterally through the flange 13 and projecting into a recess in one side of the shank 12.

Secured to the said member 1 externally of the ferrule 8 is the upper portion 16 of the housing for the main sphere 17 on which the load is adapted to be supported. The said member 16 of the housing comprises an inverted cup having a central opening bordered by the flange 18 in which the said member 1 is received, the latter being secured by means of a spring washer 19 lying in a groove in said flange 18 and which is adapted to spring into a companion groove in said member 1, and is adapted to be forcibly sprung out of the same when desired. The lower portion of the companion groove in the member 1 preferably has an inclined face which will effect expansion of the washer 19 as the cup is forcibly drawn down. Adjacent its rim said cup is provided internally with a plurality of equally spaced inverted L-shaped recesses 20, the upper channels of which are slightly inclined in the manner of a screw thread. The inner end of each of said channels 20 is slightly enlarged, as at 21, Fig. —3—, so that as the projections 22 of the lower member 23 of the sphere-housing are engaged in said grooves they will spring into said enlarged portions 21, thereby locking said members 16 and 23 against relative rotation. The lower end of the member 23 is contracted and is provided preferably at three equi-distantly spaced points with turn tables 24, each comprising a plate 25 suitably rigidly mounted in the circumferential wall of the member 23 and having a run-way for the balls 26. The recesses or openings containing the members 25 are bordered by annular flanges 27 for retaining the said turn-tables 24 therein. Each of said turn tables 24 carries a yoke, similar to the yoke 14, equipped with a roller 28. The said rollers 28 engage the surface of the sphere 17 below the horizontal plane of the center thereof and thus support the same within the housing in the event that the caster is lifted from the floor. The said rollers 28 also take the thrust of said sphere as the latter rotates during the movement of the piece of furniture to which it is attached, it being obvious that said rollers 15 and 28

are enabled by means of their turn-tables to rotate on the axes of the sphere 17 intersecting the turn-table centers, and also on their own axes, and will thus turn on the axes of the turn-tables to assume that position in which they are best adapted to rotate freely on their own axes when motion is imparted thereto by the rotation of the sphere 17.

It will be obvious from the foregoing description that my said caster is readily assembled and taken apart when desired. The flange 9 of the ferrule 8 also constitutes a receptacle for grease applied to the ball-bearing between the members 1 and 5, thus preventing such grease coming in contact with the sphere 17. The said turn-tables 24—25 are also adapted to be lubricated, it being obvious that the position thereof would of itself prevent such lubricant from escaping readily and finding its way to the sphere 17.

The rollers 15 and 28 may be mounted in their yokes to rotate freely therein in any suitable manner.

I claim as my invention:

A furniture caster comprising an inverted substantially semi-spherical cup equipped with a turn-table rotatable on the vertical axis of said cup, a roller rotatable on a transverse axis carried by said turn-table, a sphere disposed within the cup upon which said roller is adapted to rest, an extension member for the mouth of the cup adapted to be detachably secured to the latter and through which the contained sphere is adapted to project, a plurality of turn-tables mounted in said extension member rotatable on axes substantially radial of said sphere, and a roller carried by each turn-table rotatable on an axis transverse to the axis of its turn-table and bearing upon the sphere, all of the last-named rollers coacting to maintain said sphere centered with relation to the first-named turn-table.

In testimony whereof I have signed my name in presence of two subscribing witnesses.

ERNST FRANZEN.

Witnesses:

M. M. BOYLE,
G. M. WALKER, Jr.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."