E. P. ROTHER.

FURNITURE CASTER.

APPLICATION FILED NOV 2, 1907.

900,424. Patented Oct. 6, 1908.

3 SHEETS—SHEET 1.

Fig. 6.

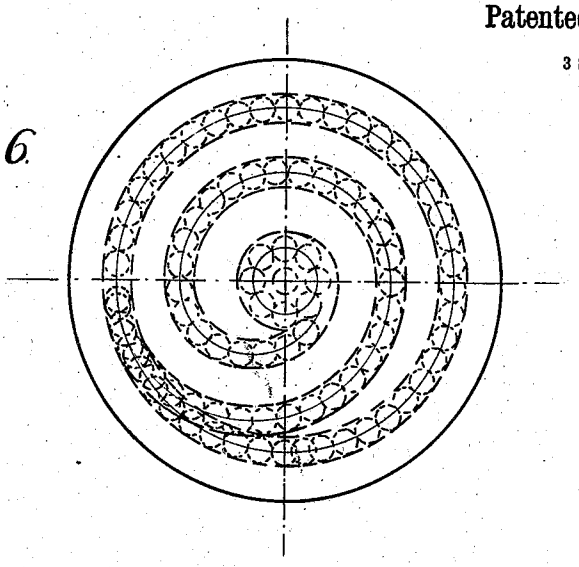
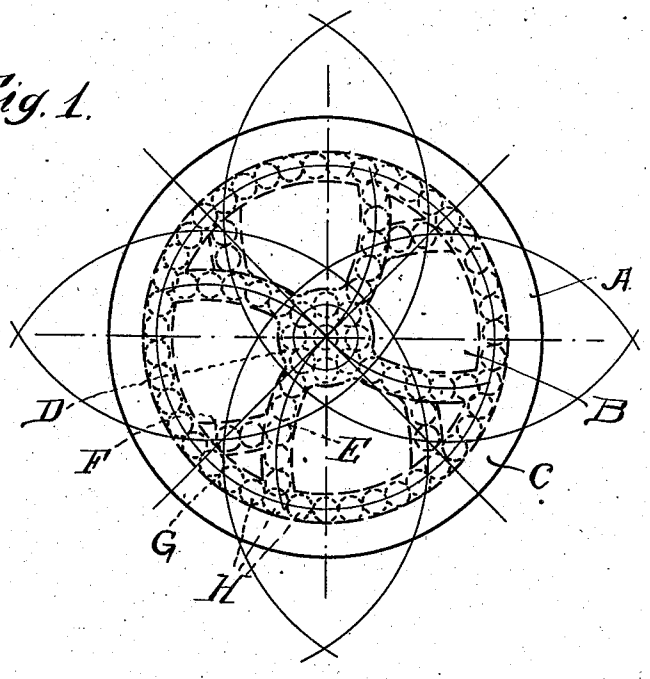


Fig. 1.



WITNESSES.

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3 SHEETS—SHEET 2.

Fig. 2.

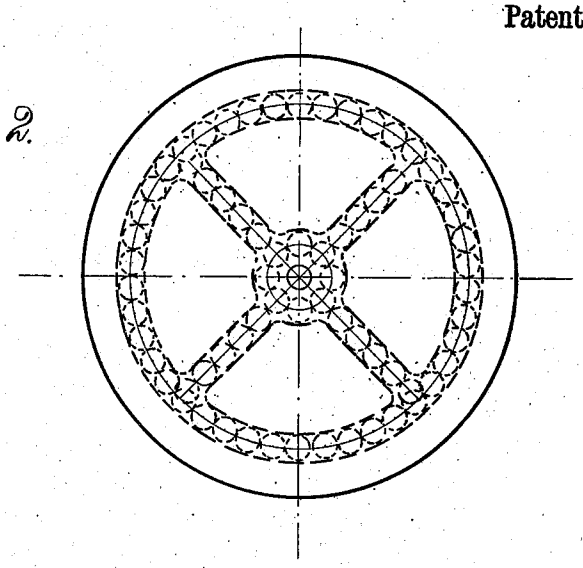
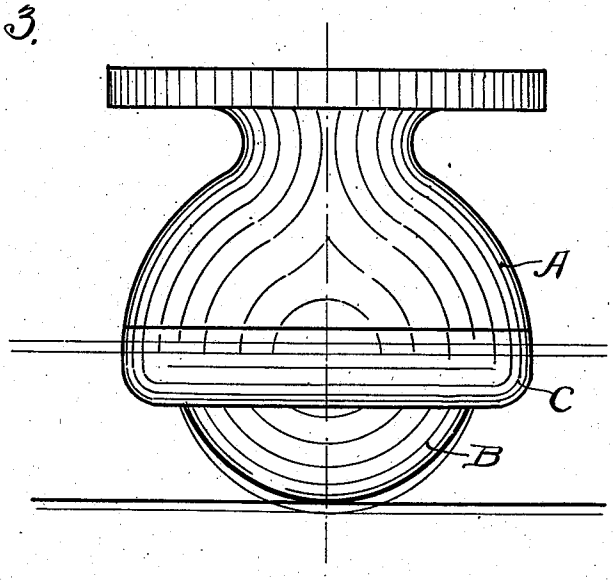


Fig. 3.



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3 SHEETS—SHEET 3.

Fig. 4.

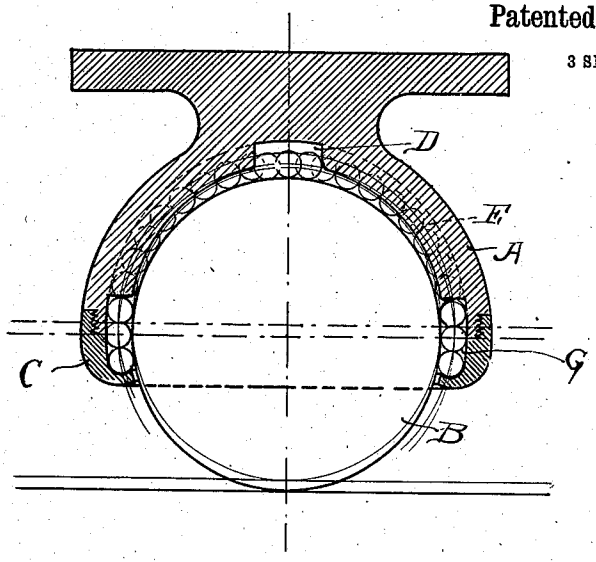
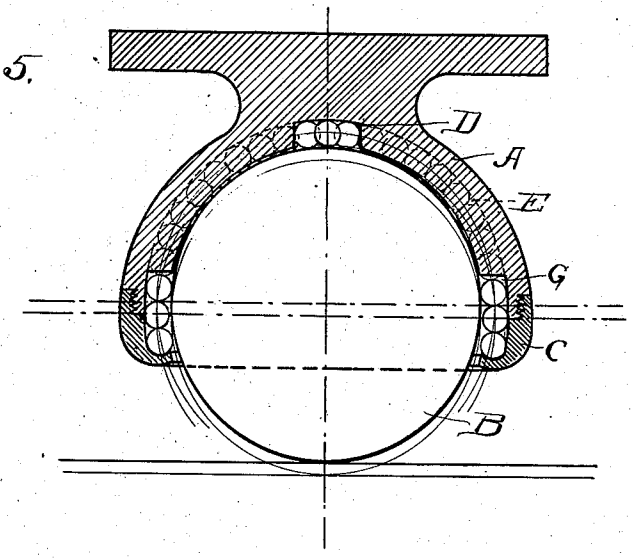


Fig. 5.



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UNITED STATES PATENT OFFICE.

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FURNITURE-CASTER.

No. 900,424. Specification of Letters Patent. Patented Oct. 6, 1908.

Application filed November 2, 1907. Serial No. 400,378.

To all whom it may concern:

Be it known that I, EUGENE PAUL ROTHER, 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 a novel construction in a furniture caster, the object being to provide a device of this character which will permit a piece of furniture equipped therewith to be started in any direction without the resistance usually offered by the casters usually employed by reason of the primary accommodation of the forks thereof to the direction of movement of furniture and which, further, may be readily deflected laterally with relation to any given direction of travel without appreciable resistance, and consists in the features of construction and combinations of parts hereinafter fully described and claimed.

In the accompanying drawings illustrating this invention: Figure —1— is a diagrammatic bottom plan view of the cup of a caster constructed in accordance with my invention showing the disposition of runways for antifriction balls. Fig. —2— is a similar view of a modified form of construction. Fig. —3— is a side elevation of the said modified form of construction. Figs. —4— and —5— are vertical sections of the said modified form of construction. Fig. —6— is a view similar to Figs. —1— and —2— of a further modified form of construction.

The main object of my present invention is to provide a caster in which the supporting member consists of a sphere which is universally revoluble in a cup equipped with means for reducing frictional resistance to the rotation of the sphere, the invention consisting essentially in the friction reducing means.

The cup A in which the sphere B is revoluble is of larger diameter than the latter and with its removable lip portion C covers more than a semi-sphere. The inner face of the cup B and its lip C are equipped with runways D, E, F and G for small spheres H which protrude from said runways and lie in contact with the sphere B, said spheres being so disposed as to prevent escape of the sphere B from the cup in a well-known manner.

The runway G in the lip is annular and normally horizontally disposed and the central runway D in the cup is likewise annular and horizontally disposed while the runways E and F serve to establish communication between said runways D and G, the runways E extending from the runway G to said runway D, the runways F extending from the runway G to the runways F between the ends of the latter. The said runways E are preferably four in number and are also preferably curved, the object of the curvature thereof being mainly to prevent more than a minimum length of any runway being at any time disposed transversely to the direction of travel of the caster and thereby to prevent more than a minimum number of said spheres from being inert or, in other words, held against exertion of their functions to prevent or reduce friction. The spherical roller is loosely disposed in the cup so that when the latter is raised from the ground it will drop slightly, thereby relieving the balls in the lateral runways of pressure. The balls in the lateral runways are principally relied upon to reduce friction and in order to perform this function it is obviously necessary that said balls should travel in said runways. The latter communicate with the annular runway and, hence, the balls can travel in the lateral runways only provided that they can leave and reënter the same. If the balls in the annular runway are maintained in contact with the roller while the latter travels on the floor they could not act to reduce friction since they could not travel in the direction of the roller. Accordingly, these balls are maintained relatively free so that balls in the lateral runways actuated by the roller may readily displace the balls in the annular runway and enter the same, such balls being replaced in the lateral runways from the annular. In this manner the travel of all balls is permitted and consequently, friction in the caster is very largely obviated. The construction shown in Figs. —2—to—5—inclusive while serving substantially the same purpose permits of greater possibility of inertia of a greater number of said smaller spheres.

In Fig—6—another modified arrangement is shown to which, however, I attach no particular value.

I claim as my invention:

1. A furniture caster comprising a cup having a substantially semi-spherical recess, a removable flange secured to the mouth portion of said cup and serving to increase the depth thereof, an annular runway for balls in the mouth portion and flange of said cup, a central runway in the bottom thereof, lateral runways connecting said central and annular runways, balls disposed in said runways, a spherical roller disposed in said cup and resting on said balls, said roller being capable of limited outward movement relatively to said cup and the outer most balls in said annular runway being adapted to limit said outward movement, and being normally out of engagament with said roller when the latter is at the inner limit of its movement.

2. A furniture caster comprising a cup having a substantially semi-spherical recess, a removable flange secured to the mouth portion of said cup and serving to increase the depth thereof, an annular runway for balls in the mouth portion and flange of said cup, a central runway in the bottom thereof, lateral runways connecting said central and annular runways, balls disposed in said runways, a spherical roller disposed in said cup and resting on said balls, said roller being capable of limited outward movement relatively to said cup and the outer most balls in said annular runway being adapted to limit said outward movement, and being normally out of engagement with said roller when the latter is at the inner limit of its movement, said lateral runways being deflected out of diametric planes of said cup.

3. In a furniture caster, the combination with the spherical roller and a cup containing the same, of runways for anti-friction devices disposed in the inner face of said cup, said runways consisting of a central annular and a concentric runway disposed in the mouth portion of the cup, and laterally disposed runways connecting said central and concentric runways, said lateral runways being curved, and anti-friction balls traveling in said runways and having surface contact with said spherical roller.

4. In a furniture caster, the combination with the spherical roller and a cup containing the same, of runways for anti-friction devices disposed in the inner face of said cup, said runways consisting of a central annular and a concentric runway disposed in the mouth portion of the cup, and laterally disposed runways connecting said central and concentric runways, said lateral runways being curved, there being additional runways connecting said lateral runways between their ends with said annular runway, and anti-friction balls traveling in said runways and having surface contact with said spherical roller.

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

EUGENE PAUL ROTHER.

Witnesses:

RUDOLPH WM. LOTZ,

T. WALLISER.