

(No Model.)

C. H. GAFFNEY.
BALL CASTER.

No. 545,789.

Patented Sept. 3, 1895.

Fig. 1.

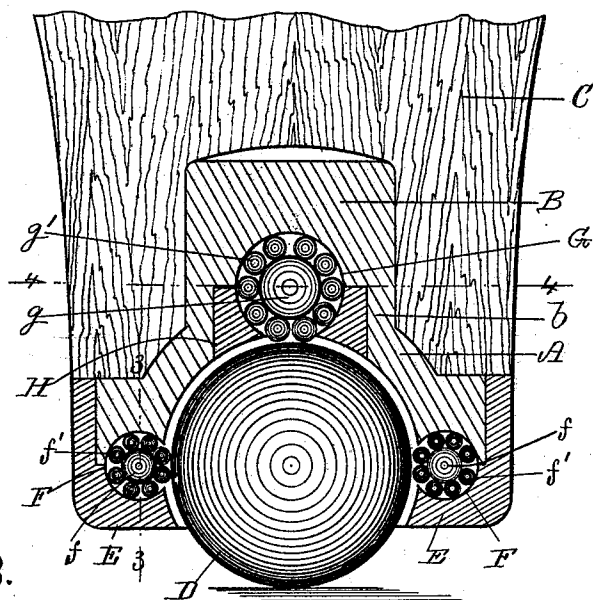


Fig. 3.

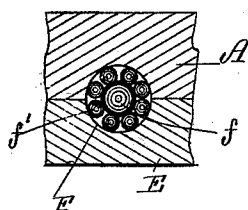


Fig. 4.

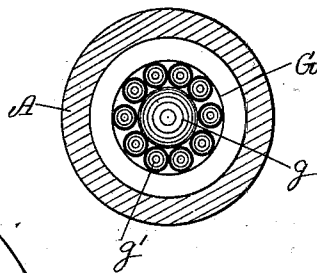
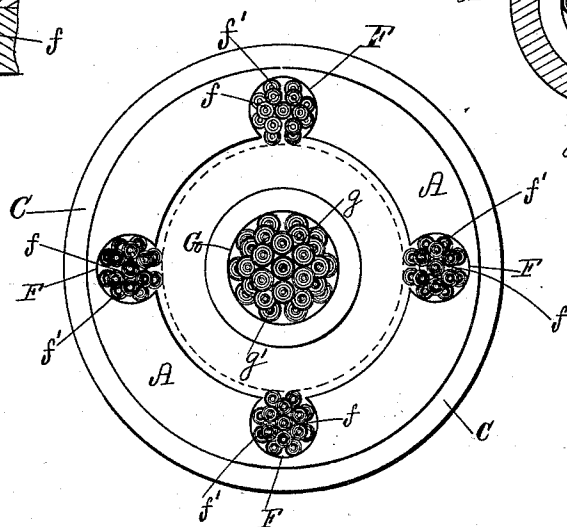


Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

CHARLES H. GAFFNEY, OF GLOUCESTER, MASSACHUSETTS.

BALL CASTER.

SPECIFICATION forming part of Letters Patent No. 545,789, dated September 3, 1895.

Application filed March 20, 1895. Serial No. 542,553. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. GAFFNEY, a citizen of the United States, and a resident of Gloucester, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Casters, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to improvements in ball-bearings for casters, and although especially useful on furniture-casters it may to equal advantage be used as an antifriction device for other purposes.

The invention is carried out as follows, reference being had to the accompanying drawings, wherein—

Figure 1 represents a central longitudinal section of the invention, showing the caster-ball in elevation. Fig. 2 represents a bottom plan view showing the ball-holding rings and caster-ball removed. Fig. 3 represents a vertical section on the line 3 3, shown in Fig. 1; and Fig. 4 represents a horizontal section on the line 4 4, shown in Fig. 1.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

In the drawings, A represents a semispherical socket having an upwardly-projecting shank B, adapted to be received and retained in the furniture leg or base C, as shown in Fig. 1.

D represents the caster-ball, which is loosely retained within the socket A by means of the detachable ball-holding annular ring E, as shown.

F F are spherical pockets located on the interior of the socket A and its ball-holding ring E, and within each such pocket is arranged a central antifriction-ball *f*, surrounded on all sides with antifriction peripheral bearing-balls *f' f'*, adapted to bear against the caster-ball C, as shown. In practice I prefer to make the central ball *f* somewhat larger in diameter than the peripheral balls *f'*, as shown in the drawings. The spherical pockets F are open toward the inside of the socket, so as to allow one or more of the peripheral antifriction-balls *f'* to be in rolling contact with the caster-ball D, as shown.

In the shank B, centrally above the caster-ball D, is made a spherical pocket G, within

which is located a central antifriction-ball *g*, surrounded on all sides with peripheral antifriction bearing-balls *g'*, which latter are preferably made somewhat smaller in diameter than the central ball *g*, as shown in Figs. 1 and 4. The spherical pocket G is open in its lower portion, so as to allow one or more of the peripheral balls *g'* to be in rolling contact with the caster-ball D, as shown in Fig. 1.

For the purpose of casting the socket A without the need of cores I prefer to make a recess *b* in the lower part of the shank B, in which is retained a ball-holding ring H for the purpose of retaining the antifriction-balls *g g'* within the spherical socket G, as shown in Fig. 1; but such ring H may, if so desired, be made in one piece with the shank B, without departing from the essence of my invention.

By the use of a central ball surrounded on all sides with peripheral antifriction bearing-balls in each of the pockets I obtain a most perfect antifriction device for the caster-ball.

The upper balls *g g'* in the spherical pocket serve as a vertical antifriction-bearing against a downward pressure on the caster-ball D, and the rotation of the latter causes the peripheral bearing-balls *g'* to rotate around and with the central or core ball *g*.

The balls *f f'* in the side pockets F serve as lateral antifriction-bearings against the side of the caster-ball D, and the rotation of the latter causes the peripheral balls *f'* to rotate around and with the central or core ball *f*, thus producing an antifriction ball-bearing of great efficiency and utility. It will be noticed that the peripheral antifriction-balls *f' g'* automatically change their relative positions within their pockets F G by rolling contact with the caster-ball, and in so doing roll with a minimum of frictional resistance within said pockets and around their respective central or core balls *f g*, by which the best result in an antifriction ball-bearing is obtained.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent and claim—

The herein described ball bearing caster, consisting of a semispherical socket A having an upper spherical pocket G containing a central or core ball and peripheral antifriction bearing balls above the caster ball D and a

series of spherical side pockets F containing
each a central or core ball and peripheral
anti-friction bearing balls adapted to roll
against said caster ball, substantially as and
5 for the purpose set forth.

In testimony whereof I have signed my
name to this specification, in the presence of

two subscribing witnesses, on this 9th day of
March, A. D. 1895.

CHARLES H. GAFFNEY.

Witnesses:

ALBAN ANDRÉN,
LAURITZ N. MÖLLER.