(No Model.)

H. A. DALRYMPLE.

BALL CASTER.

No. 424,467. Patented Apr. 1, 1890.

Fig. 1.

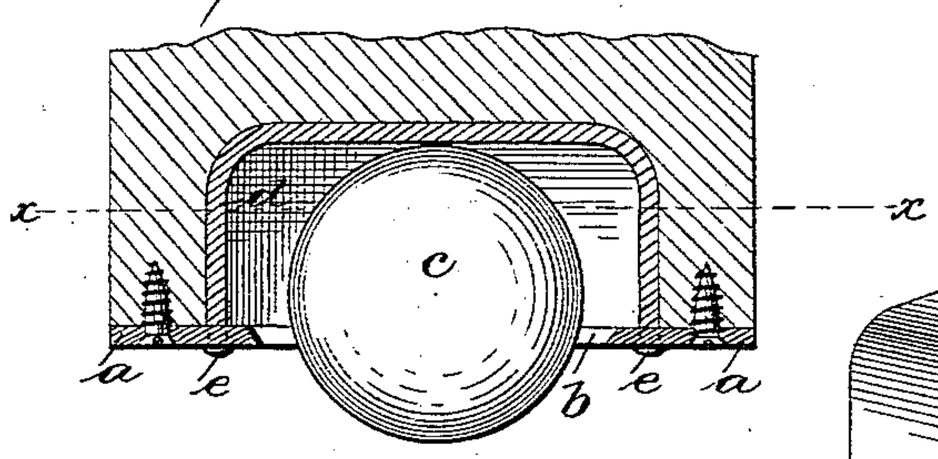


Fig. 2.

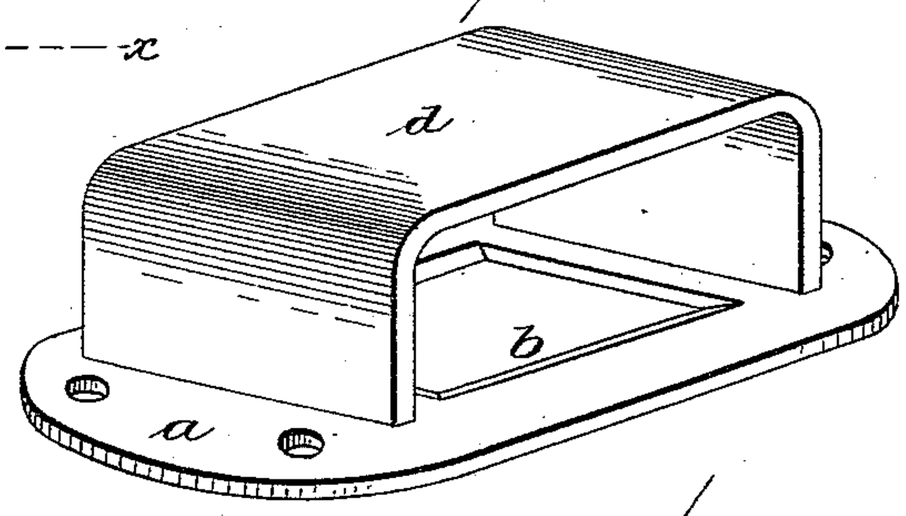


Fig. 3.

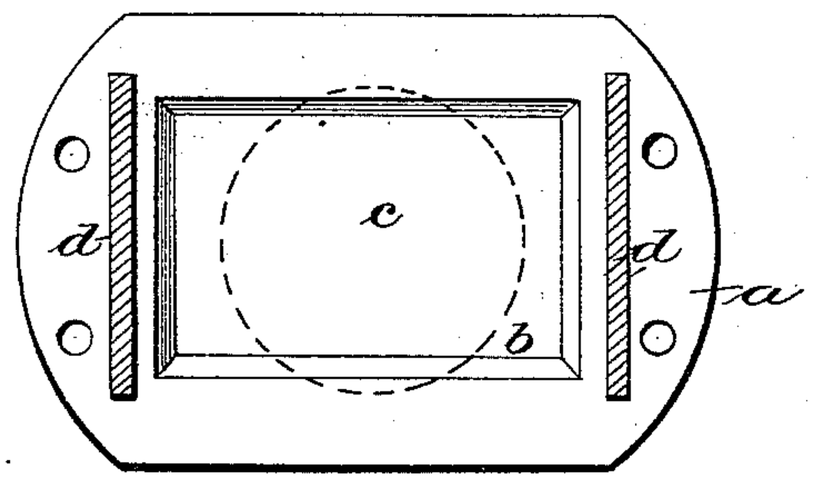


Fig. 4.

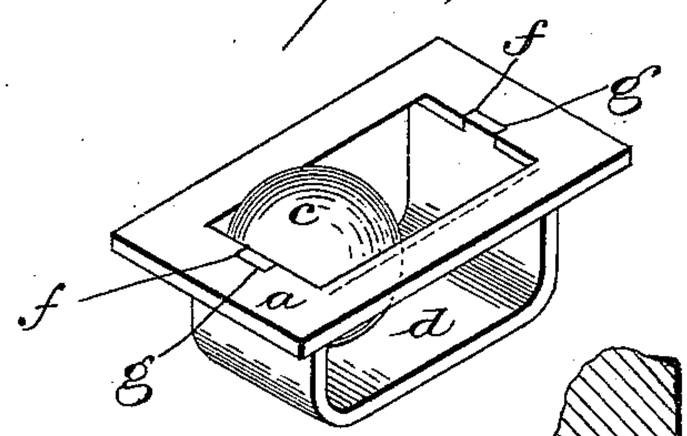


Fig. 5.

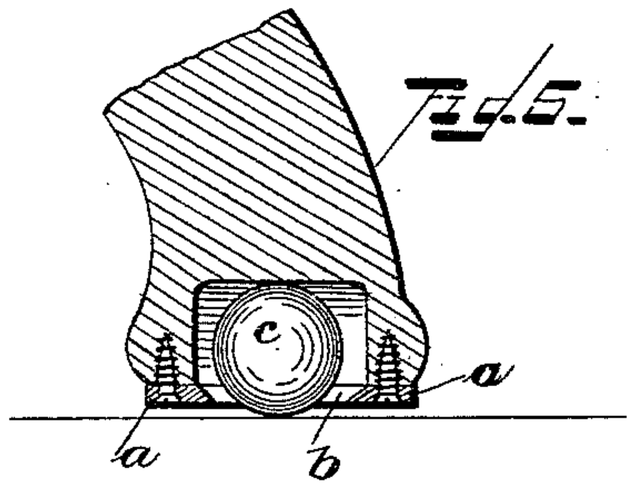


Fig. 6.

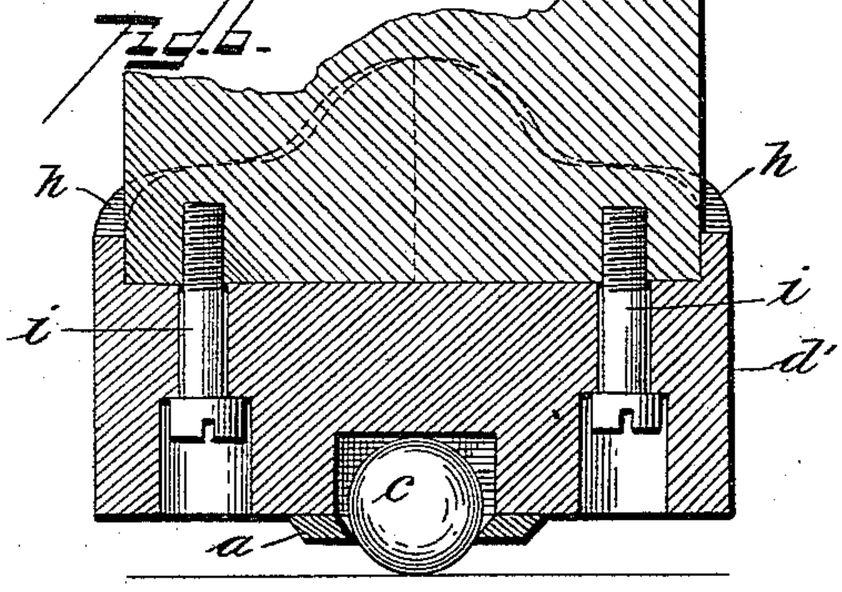
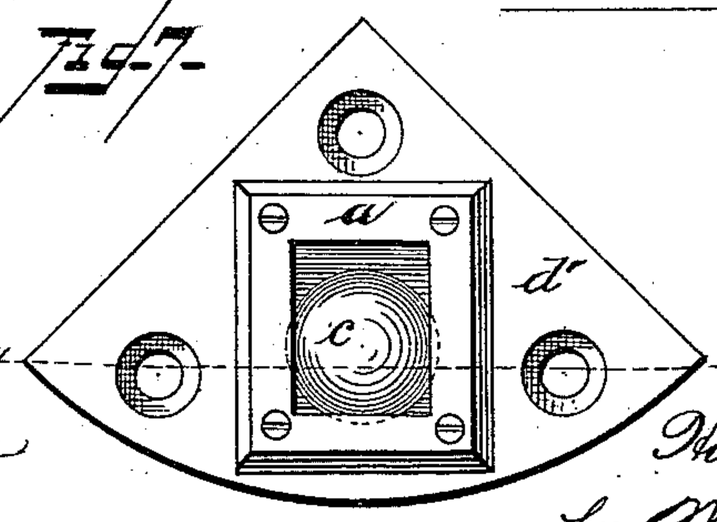


Fig. 7.



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UNITED STATES PATENT OFFICE.

HARTWELL A. DALRYMPLE, OF RUTLAND, VERMONT.

BALL-CASTER.

SPECIFICATION forming part of Letters Patent No. 424,467, dated April 1, 1890.

Application filed December 2, 1889. Serial No. 332,223. (No model.)

To all whom it may concern:

Be it known that I, HARTWELL A. DALRYMPLE, a citizen of the United States, residing at Rutland, in the county of Rutland and State of Vermont, have invented a certain new and useful Improvement in Casters, of which the following is a full, clear, and exact description.

This invention relates to that class of casters in which a ball is used instead of a wheel or roller.

The object of the invention is to facilitate the production and reduce the cost of such casters. Another object is to reduce the friction incident to ball-casters, and thus render them more durable and more easily operable.

The invention consists of a ball-caster, in which the sphere is placed in an open frame or socket, constructed substantially as hereinafter described and claimed, so that the sphere bears upon the frame or socket only at points of contact instead of having any appreciable extent of its surface bearing thereupon, such as those balls have which are surrounded by a socket of similar shape to the ball.

In the accompanying drawings, illustrating my invention, in the several figures of which like parts are similarly designated, Figure 1 is a vertical sectional elevation, on a rather large scale, showing one form of application of the invention. Fig. 2 is a perspective view of the frame or socket detached. Fig. 3 is a horizontal section taken in the plane of line *x x*, Fig. 1. Fig. 4 is a perspective view of a modification, and Figs. 5 and 6 sectional details showing the caster applied, respectively, to a sewing-machine-table leg and an iron safe. Fig. 7 is a bottom view of the safe-caster, the section of Fig. 6 being taken in the plane of line *y y* of this Fig. 7.

The frame or socket is composed of a face-plate *a*, in which a rectangular opening *b* is made, and the edges of this opening are beveled, substantially as shown, so as to remove sharp edges from contact with the sphere *c*, which sphere works within the said opening in the said face-plate without contact with its sides when in use, but having an endwise and also a slight lateral play in the said opening. When the caster is for use on wooden furniture and other articles, a cap-plate *d* is arranged upon the face-plate and is arched over the back of the face-plate and over the length of the opening *b* in the said face-plate, so as to confine the sphere and serve as a wear-plate and bearing for the sphere. This cap-plate preferably is a flat strip of metal bent substantially to the shape shown. It may be united to the face-plate in any suitable manner—as, for example, by means of lugs or projections made on the cap-plate and extended through openings in the face-plate and riveted on the outside of the face-plate, substantially as indicated at *e e* in Fig. 1, or it may be separate from the face-plate; or it may have lugs *f*, fitted in notches *g* in the face-plate, as shown in Fig. 4. Moreover, the cap-plate may be dispensed with where, as in the case of sewing-machine-table legs, safes, and other metallic articles, a socket can be cast or drilled in the metallic article or an attachment to it to take the place of the cap-plate; hence in the use of the terms "cap-plate" or "thrust-piece" I mean to include all these forms.

In Figs. 6 and 7 the plate *d'*, which takes the place of the cap-plate, may have the flanges *h* along its angular edges to lap upon the corner of a safe. The plate *d'* may be secured to the safe by bolts *i*, countersunk in the plate. The socket in the plate *d'* is elongated and the ball *c* is held therein by the face-plate *a*.

Some of the advantages of my invention are as follows: The parts of the socket or frame may be struck up very readily from sheet metal in dies, or may be equally as readily cast. The ball or sphere in motion can hit but one end of the elongated opening in the face-plate at any one time, and then only at a single point of contact instead of a surface contact, as would be the case if the opening in the face-plate were of the same shape and substantially the same diameter as the ball. Again, the cap-plate, being flat at top and its ends upright, provides only points of contact for the ball instead of surfaces, which latter would be the mode of contact were the cap-plate of substantially the shape of the ball; and, still further, the ball being left free to move lengthwise of the opening—that is to say, to roll in its frame or socket—the points of contact are changed and the liability of the ball wearing away unevenly is overcome.

Moreover, by reason of the fact that the ball has simply points of contact with its socket or frame, and, further, by reason of the fact that it has a rolling instead of simply a rotary motion in its socket or frame, the friction of the ball in action is very largely reduced, and hence the caster is one that will operate very freely.

Very obviously my caster is applicable to furniture, trunks, and all other classes of manufactures requiring or to which may be applied casters.

What I claim is—

1. A caster for furniture and other articles, consisting of a ball, and a face-plate provided with an elongated opening in which the ball may roll, combined with a thrust-piece for receiving the thrust or impact of the ball, the ball coming in contact therewith at points only as distinguished from surface contact, substantially as described.

2. A caster for furniture and other articles, consisting of a ball, a face-plate provided with an elongated opening in which the ball may roll, and a cap-plate constructed of flat metal bent substantially into an inverted-U shape and applied to the face-plate for receiving the thrust of the ball, the ball having simply points of contact with the cap-plate and with the face-plate whenever it comes in contact with the latter, substantially as described.

In testimony whereof I have hereunto set my hand this 25th day of November, A. D. 1889.

HARTWELL A. DALRYMPLE.

Witnesses:

WILLIAM H. DAVIS,

FRED M. BUTLER.