No. 672,566. Patented Apr. 23, 1901.

G. E. NEUBERTH & H. ILL.

CASTER.

(Application filed Oct. 31, 1900.)

(No Model.)

FIG. 1

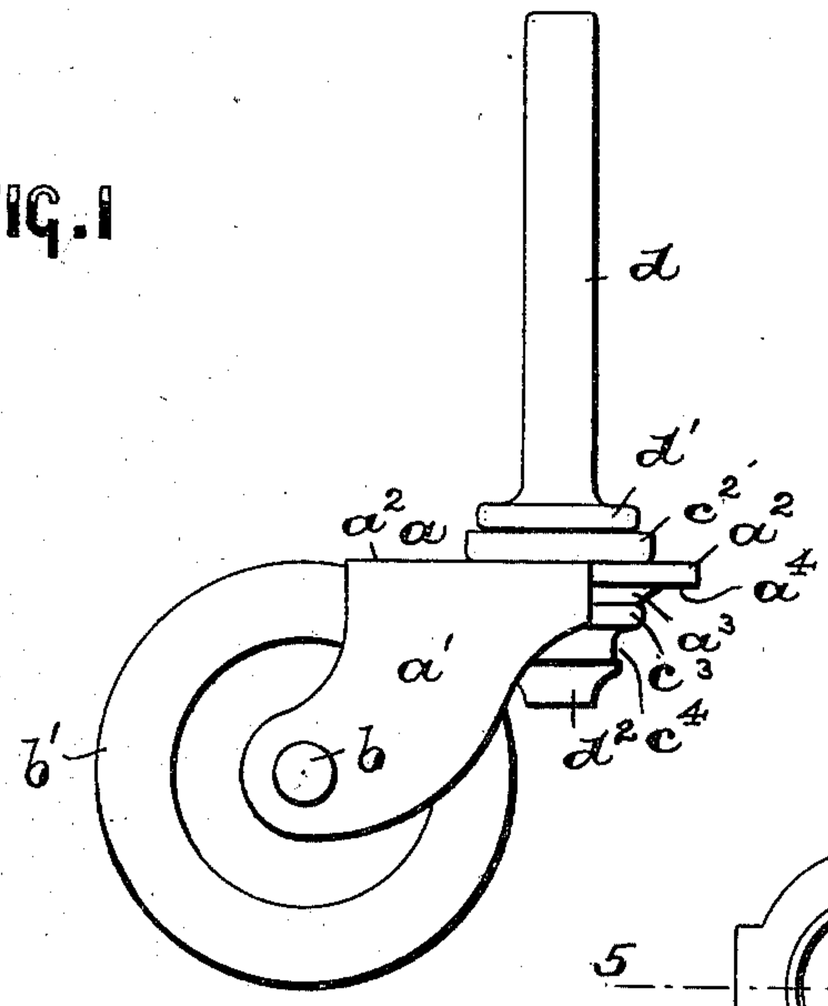


FIG. 2

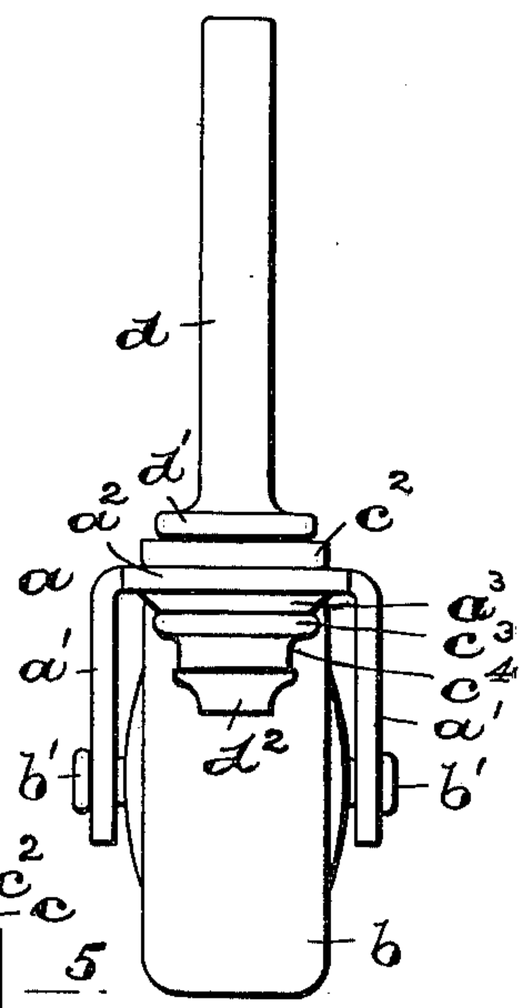


FIG. 3

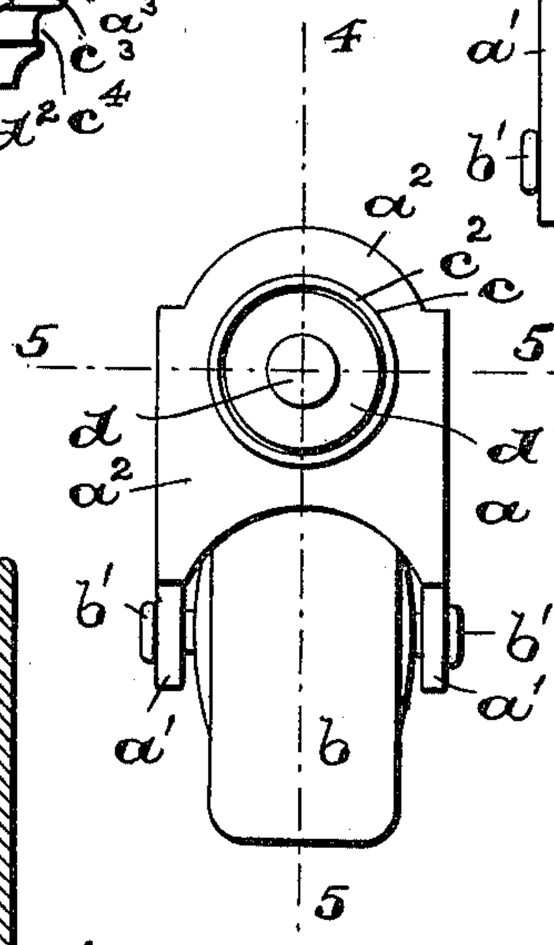


FIG. 4

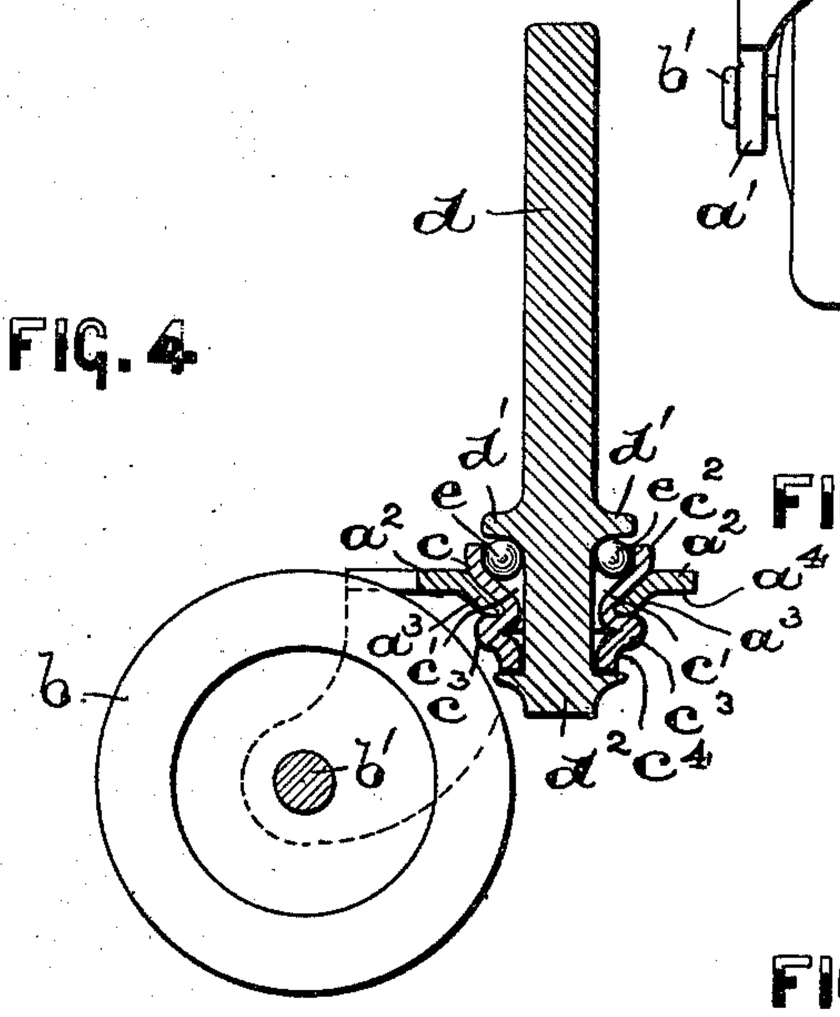
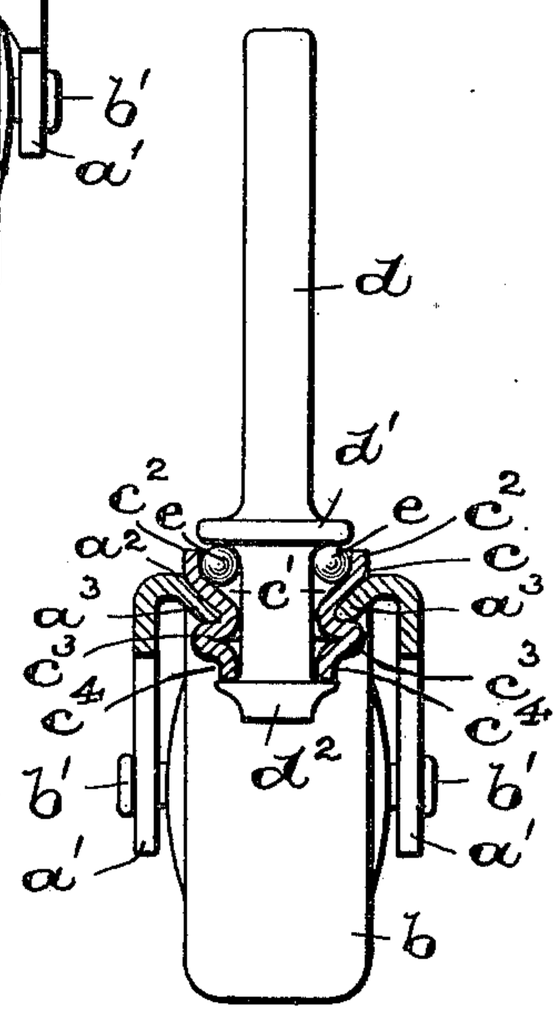


FIG. 5



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CASTER.

SPECIFICATION forming part of Letters Patent No. 672,566, dated April 23, 1901.

Application filed October 31, 1900. Serial No. 35,000. (No model.)

To all whom it may concern:

Be it known that we, GEORGE E. NEUBERTH and HENRY ILL, citizens of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Casters; and we 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in ball-bearing casters for furniture and other analogous articles; and the invention has for its principal object to provide a novel construction of caster, combining a novel construction of long bearing for the stem or spindle of the caster, with a ball-race or ball-cup forming a portion thereof, all of which is securely connected with the horn of the caster in such a manner that the long bearing for the end of the spindle will be located at a point below the top plate of the horn instead of above the same, as heretofore.

Other objects of this invention not here specifically mentioned will be set forth more in detail in the accompanying specification.

The present invention therefore consists in the novel construction of caster hereinafter more fully described and the novel construction of bearing therefor, as well as in the several arrangements and combinations of the various parts of the caster, all of which will be described in detail in the following specification and then finally embodied in the clauses of the claim, which forms a part of this specification.

The invention is clearly illustrated in the accompanying drawings, in which—

Figure 1 is a side view of the caster embodying the principles of this invention. Fig. 2 is a rear view of the same, and Fig. 3 is a top view of the caster. Fig. 4 is a vertical section of the caster, taken on line 4 4 in said Fig. 3, the caster-wheel being represented in side elevation; and Fig. 5 is a cross-section of the caster, said section being taken on line 5 5 in Fig. 3, but the spindle or caster-stem being represented in elevation.

Similar letters of reference are employed in all of the said above-described views to indicate corresponding parts.

In the said drawings, a indicates the usual construction of caster-frame, which is provided with a pair of downwardly-extending brackets or horns a', perforated at or near their lower ends for the reception of a pin b, on which is rotatively arranged any form of wheel or roller b'. The said horns a' are connected by the top plate a^2, which is provided with a suitable opening, preferably surrounded by the downwardly-extending and inwardly-flaring annular shoulder a^3, substantially as illustrated in Figs. 4 and 5 of the drawings. In this manner the said top plate a^2 of the caster-frame is provided with a funnel or cone shaped opening, which extends considerably below the under surface a^4 of the said top plate a^2, and thereby provides a sufficient and extensive bearing-surface of a ball race or cup c, which is secured in the said opening in the manner to be presently described. This ball race or cup c is provided with an annular cone-shaped or funnel-shaped portion c', which is fitted directly in the said funnel or cone shaped opening of the top plate a^2 of the caster and is provided at the top with an upwardly-projecting annular rim c^2, the said rim extending slightly above the said upper surface of the top plate a^2. The lower portion of the said cone or funnel shaped portion c' is provided with a cylindrical neck c^4 and an annular bead-like projection c^3, which is forced up in the upper portion of the said neck c^4 by means of a suitable die or other suitable tool during the process of manufacture and is caused to tightly hug the marginal edge of the said downwardly-extending and inwardly-flaring shoulder a^3, formed on the under side of the top plate a^2. In this manner the said ball race or cup c is securely fastened in the said funnel or cone shaped opening in the top plate a^2 of the caster-frame and produces an increased bearing for the lower end portion of the spindle or stem d and that, furthermore, at a point considerably below the upper surface of the said

top plate a^2, whereby the distance between the annular supporting-flange d' of the stem or spindle d and the upper surface of the top plate a^2 is greatly reduced and the stem or spindle d can be driven farther into the leg of a piece of furniture, while at the same time the legs of the said piece of furniture are brought lower down and are closer to the floor, which is greatly desired, since thereby the seat of a chair will not be raised too far above the floor. The said stem or spindle d is rotatively held in the cup c by means of the said supporting-flange d', which rests upon balls or rollers e within the cup c, as shown in Figs. 4 and 5, and by means of a suitable head or enlargement d^2 at the lower end of the spindle or stem, which head is formed on said spindle during the process of assembling and securing the parts together. Of course it will be evident that the said head or enlargement d^2 may be made independent from the said lower end of the stem or spindle d and may be screwed thereon in the manner of a nut, if desired.

From the above description of the novel form of caster embodying the features of this invention it will be seen that we have devised a simple construction of increased bearing for casters, the main portions of the bearing for the lower end of the caster stem or spindle being placed considerably below the top plate a^2 of the caster-frame, thereby bringing the point of support nearer to the central axis of the wheel-spindle b, which is of great advantage in that the under surface of the leg of the piece of furniture is brought closer to the upper surface of the top plate a^2, and, furthermore, a more rigid construction of the several parts of the caster will be the result.

We are fully aware that changes may be made in the various arrangements and combinations of the several parts, as well as in the details of the construction thereof, without departing from the scope of this invention. Hence we do not limit our invention to the exact arrangements and combinations of the parts as herein shown and as illustrated in the accompanying drawings, nor do we confine our invention to the exact details of the construction of any of the said parts.

Having thus described our invention, what we claim is—

1. In a caster, the combination, with the caster-frame having a top plate provided with an opening, a sleeve or bearing in said opening, provided with an annular bead-like projection arranged beneath the said top plate and surrounding the opening in said plate, a ball-race connected with said sleeve or bearing, balls or rollers in said ball-race, and a stem or spindle rotatively arranged in said sleeve or bearing, and means on said stem or spindle in rolling engagement with said balls or rollers, substantially as and for the purposes set forth.

2. In a caster, the combination, with a caster-frame having a top plate provided with a funnel or cone shaped opening, and a downwardly-projecting and inwardly-flaring shoulder on the under surface of said top plate, a sleeve or bearing in said funnel or cone shaped opening, provided with an annular bead-like projection in holding engagement with the marginal edge of said downwardly-projecting and inwardly-flaring shoulder for retaining said sleeve in position, a ball-race connected with said sleeve or bearing, balls or rollers in said ball-race, and a stem or spindle, an annular supporting-shoulder d', rotatively arranged on said balls or rollers, and a head or enlargement at the lower end of said stem or spindle, all arranged, substantially as and for the purposes set forth.

3. The herein-described caster, consisting, essentially, of the caster-frame a, the horns thereof, and a roller arranged on a pin secured to said horns, a top plate a^2 forming a part of said frame, said top plate being provided with a funnel or cone shaped opening, a downwardly-projecting and inwardly-flaring shoulder a^3 on the under side of said top-plate and surrounding the opening in said plate, a funnel or cone shaped sleeve or bearing in said opening, an upwardly-projecting annular rim c^2 on said sleeve or bearing, an annular bead c^3 on said sleeve and in holding engagement with the marginal rim of said shoulder a^3, and a neck c^4 on said sleeve, in combination, with a stem or spindle d, having an annular supporting shoulder or projection d' and a head d^2 for rotatively retaining said stem or spindle in said sleeve or bearing, substantially as and for the purposes set forth.

In testimony that we claim the invention set forth above we have hereunto set our hands this 30th day of October, 1900.

GEORGE E. NEUBERTH.
HENRY ILL.

Witnesses:
FREDK. C. FRAENTZEL,
GEO. D. RICHARDS.