

(No Model.)

S. C. MENDENHALL.

CASTER.

No. 314,961.

Patented Mar. 31, 1885.

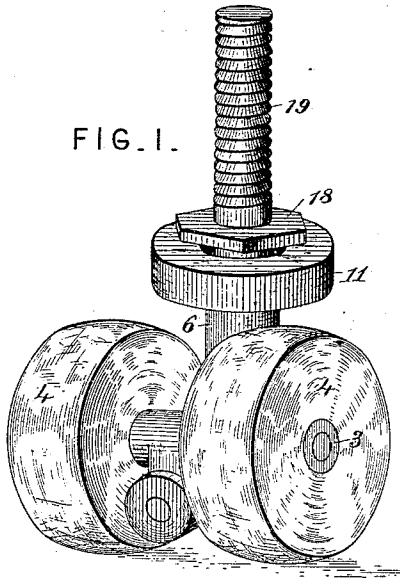


FIG. I.

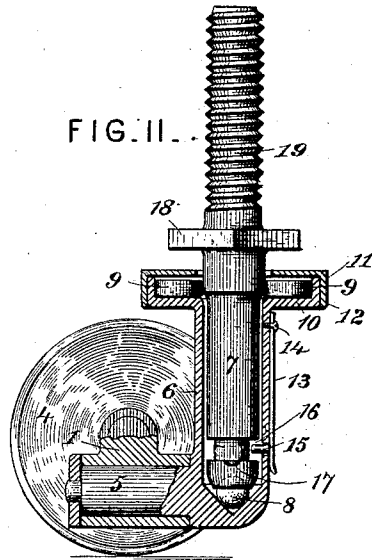


FIG. II.

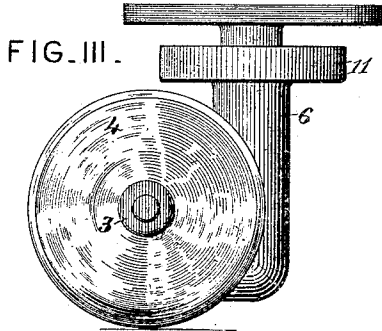


FIG. III.

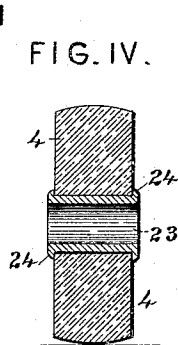


FIG. IV.

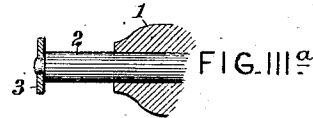


FIG. III^a

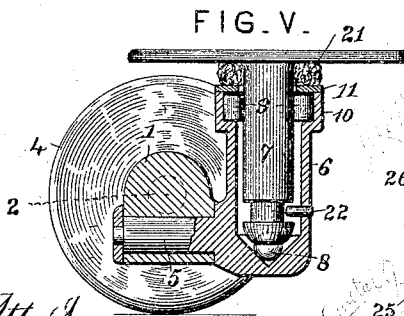


FIG. V.

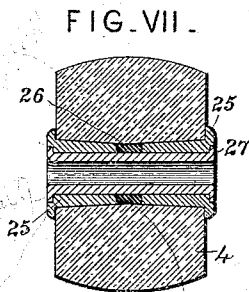


FIG. VII.

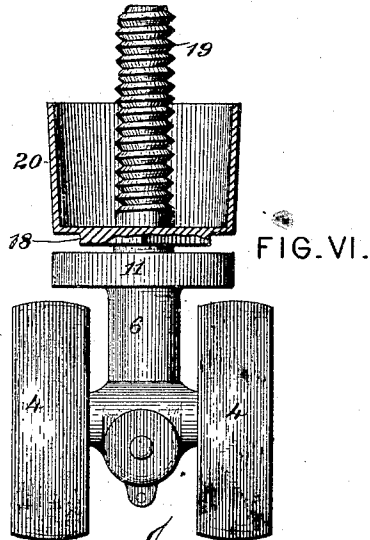


FIG. VI.

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CASTER.

SPECIFICATION forming part of Letters Patent No. 314,961, dated March 31, 1885.

Application filed October 8, 1884. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN C. MENDENHALL, a citizen of the United States, residing at Richmond, in the county of Wayne and State of Indiana, (present business address Cincinnati, Ohio,) have invented a new and useful Improvement in Casters for Furniture and other Purposes, of which the following is a specification.

This improvement relates to two floor-wheel oscillating casters in which the oscillating connection of the floor-wheel housing or axle is placed beneath said axle, so as to bring it as close as possible to the floor.

The improvement consists in providing the horizontal oscillating arm with a vertical socket supplied with anti-friction movement and containing the spindle, which is fixed to the furniture or furniture-plate.

The invention further relates to an improved method of forming the axle, which consists in casting the main body of gray iron around a cylindrical portion of malleable or wrought iron whose ends form the floor-wheel spindles.

The invention further consists in an improved method of forming bushings for glass caster wheels or rollers, in which the said bushing is made of tubular shape, so as to be turned or spun over to retain it in the roller.

The improvement further consists in an improved form of spindle arranged to act in combination with a socket, such as above described, having a cylindrical part occupying said socket, a nut cast or fixed thereon, and a screw portion at its upper end for occupying a hole in the furniture-leg or other part.

In order that my invention may be more fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure I is a perspective view of a stem-caster made in accordance with my improvement. Fig. II is a vertical sectional view of the same. Fig. III is a side elevation showing the invention applied to plate-casters. Fig. III^a is a detail sectional view of the floor-wheel axle. Fig. IV is a vertical sectional view of one form of glass roller employed. Fig. V is a vertical sectional view of a modified form of plate-caster. Fig. VI is a rear elevation,

showing a socket for surrounding the bottom of the furniture-leg, in vertical section. Fig. VII is a sectional view of the preferred form of glass roller and bushing, adapted for either one or two floor-wheel casters.

1 represents the axle or housing of my improved caster, the main body of which is made of gray iron cast about a cylindrical portion, 2, (shown in Fig. III^a;) which is made of malleable or wrought iron, so as to be capable of being riveted over the washers 3, Figs. I and III^a, when the floor-rollers 4 are placed thereon. The housing or axle 1 is formed below with a transverse bearing for the cylindrical arm 5, formed integrally with the vertical reversed socket 6, which is occupied by the cylindrical portion 7 of the spindle. Said spindle is provided at bottom with a concave bearing or conical recess, in which rests a hard ball, 8, occupying a conical seat provided in the bottom of the socket. This arrangement is such that the lower end of the spindle is kept from frictional contact with the sides of the socket, as any attempt to move it out of the axial line must be accompanied by the lifting of the piece of furniture above it. The side pressure upon the spindle at top is taken up by horizontal anti-friction rollers 9, placed loosely within an annular chamber, 10, in the upper portion of the socket. Said rollers are retained in place by a cap, 11, covering said annular chamber and having its lower edge, 12, turned over the chamfered lower edge of said chamber, as shown in Fig. II. A plate-spring, 13, fixed to the side of the socket by screw or other means, 14, is provided at its lower end with a stud, 15, engaging in a groove, 16, in the lower end of the spindle 7, so as to retain said spindle within the socket. When it is desired to withdraw the spindle, it is turned so as to bring the inclined notch 17 into engagement with the stud 15. Said inclined notch, acting as a cam, forces back the stud 15 and permits the withdrawal of the spindle.

Various modes are shown for fastening the spindle to the furniture. The preferred method for stem-casters is that shown in Figs. I, II, and VI, in which the nut 18 is cast upon the center of the spindle, and a screw, 19, cast or formed upon the upper end of the spindle for

occupying the hole provided in the furniture-leg. If desired, a rim or cup, 20, may also be provided, resting upon or cast with the nut 18, as shown in Fig. VI. When the spindle is forced up into the furniture-leg, the cup 20 will surround the said leg and prevent its splitting.

In Fig. V is shown a modified form of socket, in which the annular chamber 10 is made of such small diameter as to enable it to be placed below the top of the floor-wheels. In this case the furniture-plate may be brought down much closer to the floor, and the inconvenience resulting from high casters thus obviated. In this form the cap-plate 11, serving to retain the anti-friction rollers 9 in place, may rest loosely on top of the chamber 10 and be held down by the fibrous packing-ring 21, which will also serve to exclude dust from the interior of the socket. The spring-catch 13 14 15 may be dispensed with and a stud or screw, 22, be fixed in the socket for retaining it on the spindle, as shown in Fig. V.

The glass roller employed is made with an axial opening tapering from one side to the other, as shown in Fig. IV, or tapering from both sides toward the middle, as shown in Fig. VII. In the former case a single frusto-conical bushing, 23, may be employed, and when driven into place is fixed by spinning its ends over, as shown at 24, to engage the sides of the roller. In the preferred form, (shown in Fig. VII,) however, separate frusto-conical sleeves 25, which may be made of cast metal, are driven into the roller after a small portion of plaster-of-paris or other filling material, 26, has been placed therein, and the tubular bushing 27 is then forced in. The bushing 27 will carry with it all surplus of plaster-of-paris in the roller, while leaving sufficient therein to fill the space between the ends of the sleeves 25. When in place, the ends of the bushing 27 are turned over into the notches formed in the sleeves 25, as shown, and the whole bushing is thus held rigidly together within the roller.

The construction of glass rollers in this manner puts the glass under no initial strain whatever, and the rollers may be made with very narrow tread, so that two of them may be employed upon a caster without making it look clumsy or rendering it too heavy.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In combination with two floor-wheels, their axle and a horizontal arm bearing therein, a vertical socket fixed or formed on said arm, having anti-friction rollers at top, and a spindle occupying said socket, substantially as set forth. 55
2. In combination with a socket supported from the floor-wheel axle or housing and having a conical seat at the bottom, an anti-friction ball occupying said seat, and a spindle having concave bearing at bottom resting on said anti-friction ball, substantially as shown and described. 65
3. In combination with the floor-wheels of a caster, a wrought or malleable iron spindle bearing in said wheels, and a cast-iron axle formed about said spindle, substantially as set forth. 70
4. In combination with a spindle having cylindrical portion at bottom and screw-threaded portion at top, a nut rigid upon the center of said spindle, and having upturned cup or rim for surrounding the furniture-leg, formed in one with said nut, substantially as set forth. 75
5. A glass roller having a bushing driven therein and fixed by spinning over its ends. 80
6. In combination with a glass roller having an axial opening, sleeves driven into both ends of said opening, and a cylindrical bushing having its ends spun over outside of said sleeves, substantially as set forth. 85
7. In a caster, in combination with an inverted pod and grooved spindle occupying same, a plate-spring secured on the outside of the pod, and having a teat at the end of same, which passes through the pod and engages in the groove in the spindle, substantially as set forth. 90
8. In combination with a caster-socket and spindle occupying same, a groove and inclined notch on said spindle, and a teat or pin operated by a spring from the outside of pod, and engaging in said groove, substantially for the purpose set forth. 95

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Witnesses:

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