

April 13, 1965

E. V. BERGSTROM

3,177,518

SLIDE CASTER

Filed Feb. 26, 1962

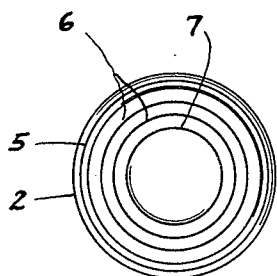


FIG. 1

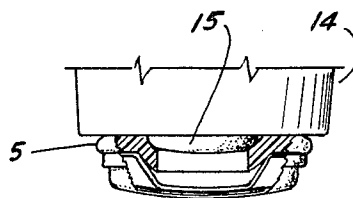


FIG. 5

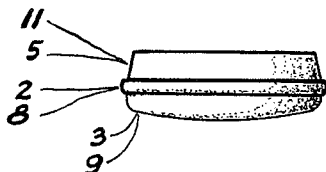


FIG. 2

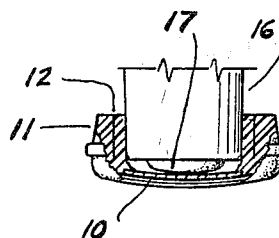


FIG. 6

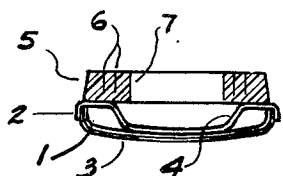


FIG. 3

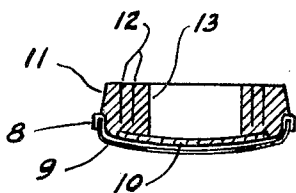


FIG. 4

INVENTOR.

ERIC V. BERGSTROM

1

3,177,518 SLIDE CASTER

Eric Victor Bergstrom, Byram Shore Road, Byram, Conn.
Filed Feb. 26, 1962, Ser. No. 176,494
1 Claim. (Cl. 16—42)

This invention pertains to new methods and details of construction of the easy slide casters described in my applications Serial 70,079, filed November 17, 1960, now abandoned and Serial 120,751, filed June 29, 1961. It has the further objectives of manufacture of such casters at low cost, improvement in reliability of such casters, and the broadening of the use of such casters to a wider variety of furniture legs. Additionally, it pertains to a new method of affixing any type of slide caster to furniture legs of varying dimensions.

Referring to the drawings, FIGURE 1 is a top view of my caster, FIGURE 2 is a side view, and FIGURES 3 and 4 are cross sections on a center line of two types of constructions. FIGURES 5 and 6 show the caster in place under different types of furniture legs.

My caster is designed for punch press stamping and assembly. For example, one assembly of the metal parts in FIGURE 3 is produced at each stroke of the punch press. The tooling to accomplish this is not a part of this application.

In the FIGURE 3 design part 1 is the bottom half of a non-ferrous metal such as sheet aluminum about 0.032" thick coated on the bottom side with a bonded film 3 of fluorinated hydrocarbon about 0.003" thick. The fluorinated hydrocarbon is designated herein also by the trade name of Teflon. The top half, part 2, is also of stamped aluminum sheet metal, cupped downward at the rim, and provided with a frusto-conical cup 4 at the center. The combined purpose of this cup is that of a structure to transmit furniture leg load to the bottom of part 1, and to accommodate better the bottom shape of furniture leg bases as shown in FIGURE 5. By cementing a Teflon strip to a strip of aluminum and feeding the laminate into a die, parts 1 and 2 are formed, punched out of the strip, and dropped to a zone in the die where they are pressed together.

In FIGURE 3 part 5 is a sponge rubber pad, as disclosed in Serial 120,751 cemented to the top surface of part 2. Part 5 typically is $\frac{1}{4}$ " to $\frac{1}{2}$ " thick and about $1\frac{1}{2}$ " in diameter, and is provided with a center hole 7 about $\frac{3}{4}$ " in diameter. Furniture legs $\frac{5}{8}$ " to $\frac{7}{8}$ " in diameter will pass through this hole in the sponge rubber, and rest in cavity 4 to effectively cup the bottom of the furniture leg. Additionally, pad 5 is slit concentrically at locations 6 with a fly cutter, said slits penetrating to within $\frac{1}{16}$ " of the bottom of pad 5. The sponge rubber rings inside of these slits can be torn out readily to provide holes in the pad $1\frac{5}{16}$ " and $1\frac{1}{8}$ " in diameter. When this is done furniture legs $\frac{7}{8}$ " to $1\frac{1}{4}$ " in diameter can be cupped by the sponge rubber pad. The foregoing dimensions can be varied. For example, the center hole 7 can be $\frac{5}{8}$ " to $\frac{7}{8}$ " in diameter and slits 6 can be proportionately smaller or larger in diameter.

Another class of furniture legs, those $1\frac{1}{2}$ " and larger, can be provided with these casters. These are the heavier items of furniture which compress the sponge rubber pad 5, as shown in FIGURE 5, creating a high frictional resistance in combination with indentation of the metal button 15 on furniture leg 14 into pad 5. This frictional

2

resistance is far greater than the resistance to sliding of the Teflon caster bottom on carpet. Consequently, if the furniture is slid and not lifted while sliding, the sponge rubber pad effectively secures the caster to the furniture leg.

An alternate caster construction omits the top metal part 2 in FIGURE 3 and is arranged as in FIGURE 4. In FIGURE 4 part 8 is the non-ferrous metal base coated with Teflon 9. Part 8 is crimped downward at the rim to provide a bead for strength. Part 11 is a sponge rubber pad filling the cavity of part 8 and extending $\frac{1}{8}$ " to $\frac{1}{2}$ " above the top edge of part 8. At 12, slits in the sponge rubber and a hole 13 correspond to 6 and 7 in FIGURE 3.

The FIGURE 4 design provides bearing of legs $\frac{5}{8}$ to $1\frac{1}{4}$ " in diameter directly on the bottom of the caster, as illustrated in FIGURE 6, where the sliding force is applied to the caster laterally. This minimizes the overturning moment on the caster and prevents displacement. Consequently, the FIGURE 4 design is superior to the FIGURE 3 design in this respect. In FIGURE 4 the use of a thicker steel disc 10 at the area of application of the furniture leg load enables use of thinner non-ferrous metal for part 8. In FIGURE 6 part 16 is a furniture leg and part 17 is the metal button usually attached thereto.

It can be readily understood that the FIGURE 3 and FIGURE 4 methods of affixing my casters to furniture legs provides flexibility of adjustment to varying sizes of furniture legs by a combination of the use of the resiliency of sponge rubber, and a means for easily enlarging the center holes 7 or 13 in FIGURE 3 and FIGURE 4. It is obvious that types of casters other than mine can be fitted with these sponge rubber pads to accomplish the same purpose.

I claim:

A caster adapted to engage the floor comprising a base member, said base member having an upper and a lower side, a coating applied to the floor engaging portion of the lower side of said base member, said coating being a fluorinated hydrocarbon resin, a pad of sponge rubber attached to the upper side of said base member, the center portion of said pad defining a hole, said pad also having a plurality of slits on the side of the pad removed from the portion of the pad which attaches the pad to the upper side of the base member, said slits extending through the pad to within a short distance of the upper side of said base member, said slits further defining a series of rings nested within each other and located concentric with the hole in the center portion of said pad, said rings being integrally connected by that portion of the pad which is attached to the upper side of said base member, and each ring being readily detached from said pad by tearing it from the said portion of the pad which attaches the pad to the upper side of the base member.

References Cited in the file of this patent

UNITED STATES PATENTS

1,069,141	Jones	Aug. 5, 1913
1,604,293	Lehmann	Jan. 4, 1926
2,317,080	Phillips	Apr. 20, 1943
3,097,891	Brideau	July 16, 1963

OTHER REFERENCES

Product Engineering Bulletin, Du Pont publication on "Teflon" (first 4 pages).