April 14, 1964 A. C. TOOTH 3,128,495

SOCKET FOR CASTORS

Filed June 26, 1961 2 Sheets-Sheet 1

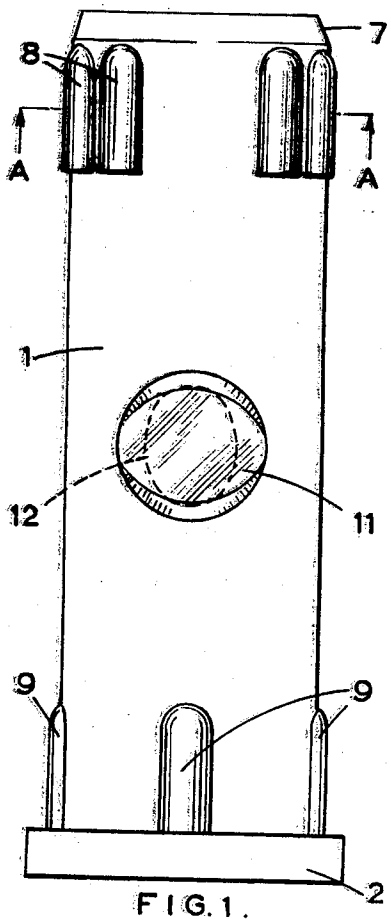



FIG. 1.

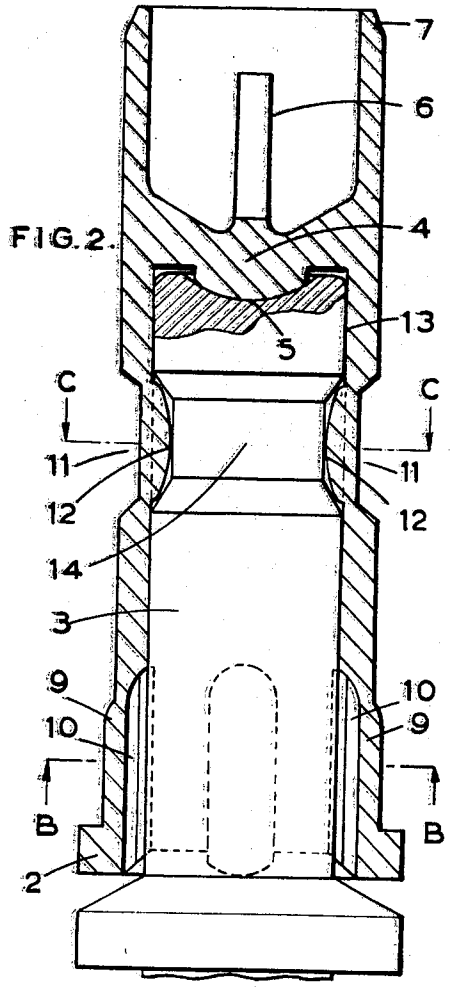
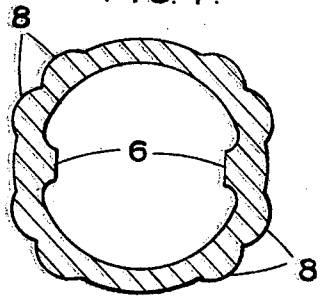



FIG. 2.

FIG. 4.



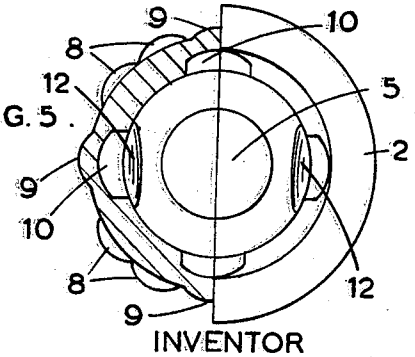




FIG. 5.

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SOCKET FOR CASTORS

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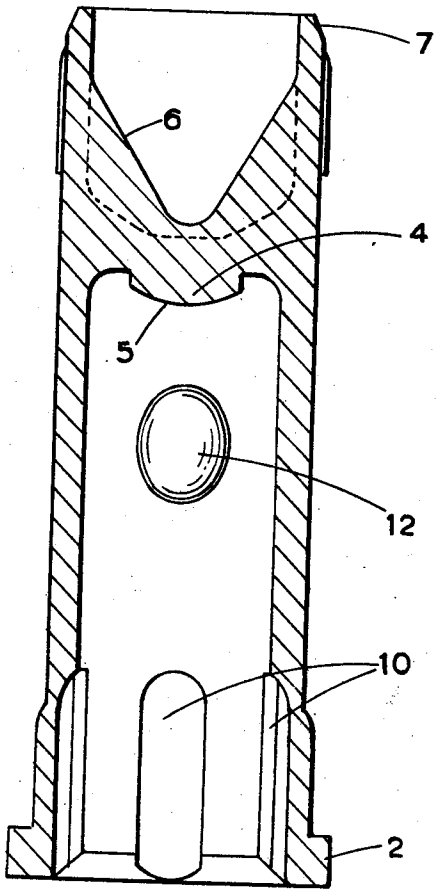



FIG. 3.

FIG. 6.

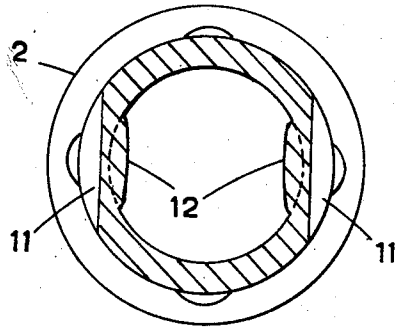
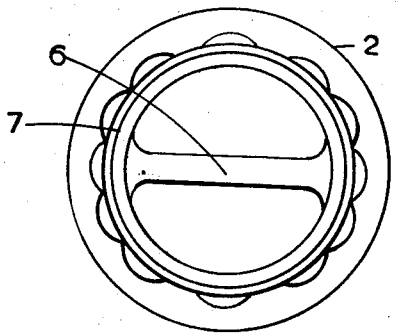



FIG. 7.




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# SOCKETS FOR CASTORS

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2 Claims. (Cl. 16—43)

This invention relates to sockets intended to receive the upstanding stems of castors, such sockets as at present manufactured being composed of metal and in some cases being driven into the hole or recess provided for their reception in the article of furniture or other structure with which the castor is to be associated.

The socket forming the subject of the present invention has been designed to fit into a cylindrical hole or recess of a certain nominal diameter in a variety of materials including solid-drawn and welded tubing, and hard and soft woods in both end and cross grain.

It has been found in practice that such holes or recess vary in diameter from the nominal up to nearly 1/32 inch oversize and in some cases are oval instead of being circular. Furthermore such holes or recesses sometimes taper in their longitudinal direction.

The chief object of the invention is to evolve a construction of socket which can be fitted successfully, into such holes or recesses despite such variations in size or form and without pinching the castor stem which would naturally interfere with the free castoring movement of the wheeled castor.

A further object of the invention is to evolve a socket providing an adequate bearing surface for the stem and having self-lubricating properties.

A socket in accordance with the present invention is moulded from a suitable thermo-plastic material such as for example, nylon, the socket including near its upper end a bearing surface for the upper end of the castor stem and having means for holding the stem in position within the socket once the stem has been pressed upwardly into the socket, but at the same time permitting of free rotational movement of the stem within the socket, the socket being so shaped that it will be frictionally held in position within the hole or recess in which it is inserted without appreciable reduction in internal diameter of that part of the socket containing the stem.

Referring to the accompanying drawings:

FIGURE 1 is a side elevation of the socket;

FIGURES 2 and 3 are longitudinal sections of the socket in planes lying at right angles;

FIGURES 4, 5 and 6 are transverse sections on the lines A—A, B—B and C—C respectively; and

FIGURE 7 is a plan view.

The socket illustrated is moulded from nylon or other suitable thermo-plastic material, the socket being generally indicated by reference numeral **1** and being of parallel cylindrical shape having a peripheral flange **2** at its lower end, the socket when driven into a cylindrical hole in the article with which the castor is to be associated, being adapted to receive the stem **3** of the castor as shown in FIGURE 2.

The socket is formed with an internal diaphragm-like part **4** near its upper end having a domed under surface **5** which is intended to form a bearing surface against which the upper end of the castor stem **3** is adapted to abut, the stem being formed with the usual part spherical recess at its upper end. The part **4** is stiffened by an internally arranged web **6**.

The socket is tapered at **7** at its upper end to facilitate its entry into the receiving hole or recess.

The stem **3** of the castor has only sufficient clearance in the socket to permit it to rotate freely therein and consequently it is very desirable that there shall be no contraction of the walls of that part of the socket enclosing the stem when the socket is driven into position but that the socket shall be firmly held in position within the hole or recess despite any variation in size or shape within reasonable limits.



It is proposed therefore to provide the socket at its upper end with longitudinally arranged solid and virtually incompressible splines **8** of part circular cross-sectional shape, which as shown in FIGURE 4 project slightly from the periphery of the cylindrical socket to ensure a very firm frictional engagement with the walls of the boring. The socket at its lower end is provided with similar splines **9** but in this case as the splines surround the stem they are recessed at the back as at **10** and as clearly shown in FIGURES 2, 3 and 5 they are hollow so that they are resilient in nature. Consequently any small contraction in the splines will not produce a reduction in diameter of the boring in the socket with consequent binding of the socket walls on the stem of the castor.

To hold the stem in position within the socket, the walls of the socket at two diametrally opposite points are recessed as at **11** to form inwardly directed projections **12**, the projections **12** due to the increased resiliency of the walls immediately surrounding the projections **12** overriding a shoulder formed by the upper end **13** of the stem when the stem is pushed upwardly into the socket, the projections interengaging a waist portion **14** of the stem to maintain the stem in position within the socket but at the same time permitting free rotation of the stem within the socket. The projections may be domed or otherwise shaped to form a lead to facilitate introduction of the stem. To render the walls of the socket in the vicinity of the projections **12** more resilient the walls may be split at suitable points.

In use the castor socket is pressed firmly into the hole or recess, for example a recess in the leg of an article of furniture or into a tubular metal leg and is automatically maintained in position therein.

The stem of the castor is then inserted and pressed upwardly into position within the socket.

It will be appreciated that the only part of the socket whose internal diameter is likely to be reduced is the upper part into which the stem does not enter and consequently there will be no risk of the socket pinching the stem and restricting its free rotational movement whilst the socket will at the same time easily accommodate itself to holes or recesses of varying diameter and form.

The socket being composed of nylon or other thermoplastic material having self-lubricating properties will not require lubrication during use and may be produced by an injection moulding process.

Although it is preferred to use a thermo-plastic mouldable material such as for example nylon, it is thought possible to use one or other of the thermo-setting materials such as for example polypropylene or a high impact polystyrene provided the material is sufficiently resilient to permit of outward displacement of the projections **12** and ensure their return movement to maintain the castor stem in position. As a further alternative it may be possible to construct the socket in metal and in the form for example of a die casting.

I claim:

1. A socket for receiving a castor stem therein having a shoulder adjacent its upper end comprising a cylindrical elongated plastic resilient sleeve with an internal and external surface, said sleeve having an upper end and an open lower end for inserting a castor stem therein, said sleeve having solid axial splines circumferentially disposed and projecting radially outwardly of said external surface adjacent said upper end for frictionally gripping the walls of a bore of an article in which said sleeve is disposed, a plurality of projections disposed on the in-

ternal surface of said sleeve and projecting radially inwardly, said projections being disposed axially in spaced relationship below said solid axial splines and adapted to be positioned below the shoulder of a castor stem inserted into the sleeve to detachably connect a castor stem to the sleeve, hollowed out axial ribs circumferentially disposed around the lower end of said sleeve in spaced relationship below said projections, an outwardly extending peripheral flange disposed adjacent the lower edge of said open end of the sleeve for forming a bearing surface for a shoulder on a castor detachably connected to said sleeve, and a disc shaped bearing member in said sleeve adjacent the lower end of said axial splines and spaced above said projections whereby a resilient socket member is provided for maintaining its bore diameter when compressed to allow a castor stem disposed therein to swivel freely.



2. The socket of claim 1, wherein said sleeve is nylon, and the disc shaped bearing member is horizontal and closes off the upper end of said sleeve, and reinforcement ribs are joined to said disc bearing member and the internal surface of said sleeve.

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