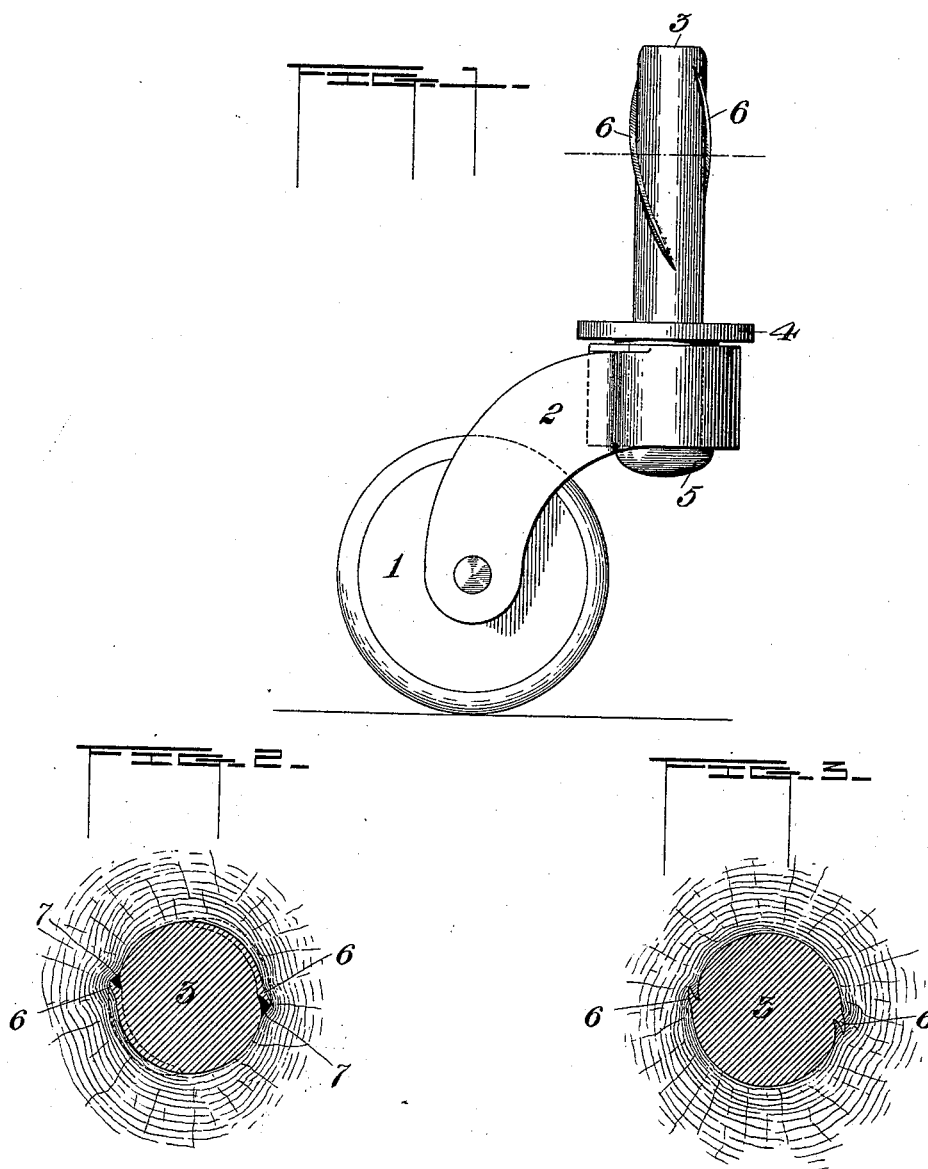


(No Model.)

E. B. THAYER.
CASTER.

No. 419,297.

Patented Jan. 14, 1890.



WITNESSES:

L. A. Connor, Jr.
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UNITED STATES PATENT OFFICE.

EUGENE B. THAYER, OF PALMYRA, NEW YORK.

CASTER.

SPECIFICATION forming part of Letters Patent No. 419,297, dated January 14, 1890.

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To all whom it may concern:

Be it known that I, EUGENE B. THAYER, a citizen of the United States, residing at Palmyra, in the county of Wayne and State of New York, have invented certain new and useful Improvements in Casters; and I 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.

The object of the invention is to provide means for securing a caster-pin in its socket—as, for example, in the leg of a table or other article of furniture—so that it will not be liable to be unscrewed or otherwise loosened, which means shall admit of the easy insertion of the pin, and also admit of its removal when desired. It is customary to form a hole or socket in the legs or feet of the article to which casters are to be applied, of about the size of the caster-pin, to receive the same. These pins have been provided with various devices for facilitating their insertion and securing their retention in such sockets. Screw-thread connections have been employed, and also cutting-edges, by means of which the pins could be inserted in a socket in the leg or elsewhere by a boring operation. Such constructions are defective, for the reason that by continued use the pin is liable to be unscrewed or loosened. I have conceived a remedy for this very common evil existing in this class of devices, which consists in a caster-pin provided with a superficial cut that is neither a screw-thread nor a boring or gimlet edge, and that is not liable under ordinary usage to be unscrewed by the frequent revolutions of the caster in a horizontal plane, which improvement will be more particularly hereinafter described and pointed out.

In the accompanying drawings, Figure 1 represents a perspective view; Fig. 2, a cross-section, on an enlarged scale, of the socket and pin, taken on the dotted line, Fig. 1, when the pin has been driven home to its seat; and Fig. 3 is a like section representing the same parts when the pin has been revolved one-eighth of an inch or more by an attempt to withdraw the same from its socket.

The figure of reference 1 denotes the caster-

wheel, and 2 the swiveled bracket, in which the wheel is journaled and freely revolves. The bracket has a bearing for one end of the pin 3, and swivels upon it. A collar 4 is provided on the pin to bear upon the top of said bracket, a washer being preferably interposed. The lower end of the pin is upset or provided with a head 5 to hold the bracket upon the pin. These parts are well known, and may be of any approved pattern.

By my improvement the caster-pin 3 is provided with one or more superficial cuts spirally curved, as indicated at 6. These are formed in the superficies of the pin, of substantially the shape illustrated, by raising an edge of metal slightly above the cylindrical surface of the pin. This can be effected by a suitable tool cutting the metal in the direction of the curve or spiral in such a manner as to "plow" through it and leave on one side of the cut a furrow of suitable elevation and inclination. The elevation is preferably quite small. It may be scarcely more than a line, or in some cases it may have a height of a sixteenth of an inch, or even more.

The caster is applied for use by forcing the pin having the downwardly-inclined furrows or edges into the sockets prepared in the wood or like material of which the article to be supported may be made. Although the socket-openings have a diameter only equal to that of the body of a pin, the raised edge or furrow will not prevent its insertion, as the elasticity of a material like wood will permit a compression of the fibers so that they will be forced slightly outward to permit the ridges or furrows to pass, as indicated at 7 in the drawings.

It would be possible to screw my improved pin into the socket, and by such an operation the spiral edge would cut a path for itself, though without removing or materially displacing the fibers of the wood, as in the gimlet-pins above referred to. If inserted in this manner, it would be less likely to be unscrewed than in the ordinary construction, for the reason that the disturbed fiber would be crowded into the cut under the raised edge and by its pressure would prevent accidental movement tending to release the pin. I prefer, however, to drive or force the shank into its socket, as

above described. It might, however, be screwed partly in and then driven or forced home to its seat. When thus inserted, whether wholly or partly by driving or forcing in the direction of the axis of the shank and without rotation, the fibers of the wood are compressed, as above stated, to allow the spiral edge to pass, and the pin cannot be removed without rotating, unscrewing, or forcibly withdrawing it in such manner as to cut or tear a path for the edge, and the resistance of the wood to this cutting action is sufficient to prevent any accidental loosening such as happens in use either when a screw-thread corresponding to a thread on the shank-pin is provided in the socket or when the material of the wood is cut away by a boring operation.

In Fig. 3 is indicated the action of the spiral furrow as it would appear on withdrawing it about one-eighth of an inch or more. In the case of a spiral such movement would be accompanied by a slight rotation of the pin. These furrows may vary in number, in length, in obliquity of curve, and in the degree of the inclination of the edge without departing from my invention.

It will be readily understood that the downwardly-inclined edge can be made to pass in a direction opposite to the inclination of the edge that is up in the socket, by reason of a temporary displacement of the elastic fibers, as before said; but that a return movement will at once cause the edge to sharply engage the fibers, as indicated. This latter action is characteristic of my improvement.

The cutting-edge need not prevent the removal of the pin, when desired, by the application of a sufficient force to cut or tear the inner wall of the socket, but it will effectually obviate its working loose under ordinary usage.

In practice the furrows described will be formed by machinery, and they will constitute a fastening device as cheap as it is simple and effective.

As before stated, screw-threaded pins are not new; but the ordinary screw, within certain limits, moves with equal facility in either direction, owing to the fact that the trans-

verse axis of its thread is at right angles to the axis of the screw, and when such screw-threaded pins are inserted in wood the threads lie in grooves or paths already formed, and the pins can be removed by simply unscrewing them, and this is liable to be effected by ordinary use and when not desired.

My furrow differs from a screw-thread in that it is raised slightly above the general surface of the pin, which is in the main a plain cylinder, and more particularly in that its transverse axis, or the line drawn from the center of its base to its top, (or cutting-edge,) is inclined to the axis of the pin, whereby said cutting-edge, though slightly raised above the general surface of the pin, can be driven into a socket, the fibers of the wood yielding slightly to allow it to pass, but cannot be withdrawn without cutting the wood.

My pin when inserted does not bore a path, as does the gimlet-pin before referred to, nor does it break permanent channels, as do the pins with prongs sometimes employed, nor does it form and maintain a fixed path ready for the retreat of the furrow, as is the case with a screw; but its construction is such that the slightly-raised edge presenting its inclined side in the direction in which the pin is to be driven can be forced in without breaking the fibers of the wood, but cannot afterward be removed without cutting them. It is therefore not liable to work loose in use, though it can be removed when desired.

Having thus described my invention, what I desire to claim, and secure by Letters Patent, is—

The caster-pin provided with a spirally-arranged furrow raised slightly above the main surface of the pin and having a cutting-edge, the transverse axis of the furrow forming an angle with the axis of the pin and presenting the raised cutting-edge toward the base of the pin, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

EUGENE B. THAYER.

Witnesses:

JAS. BOURNE, Jr.,
C. B. WHITMAN.