W. C. PETERS.

LOCK NUT.

APPLICATION FILED FEB. 27, 1911.

996,133. Patented June 27, 1911.

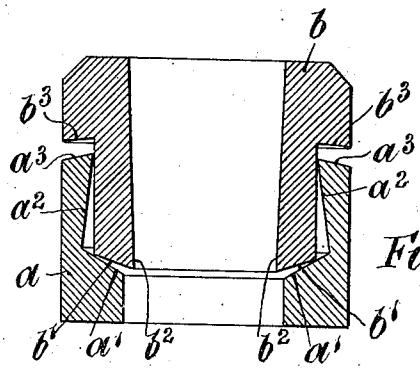

Fig. 3.

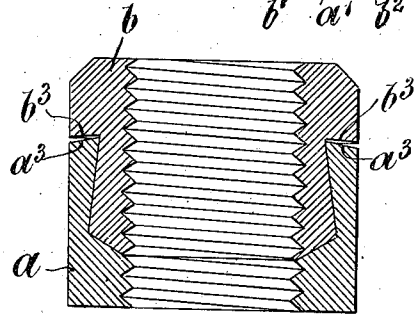

Fig. 1.

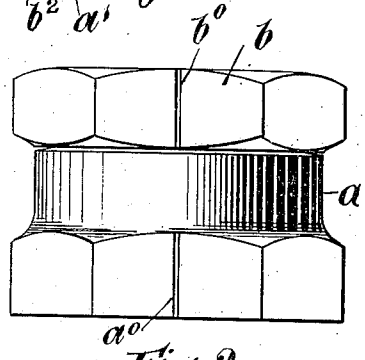

Fig. 2.

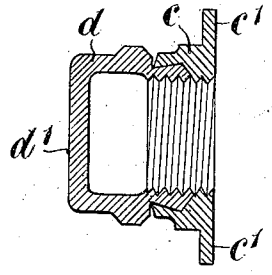

Fig. 4.

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LOCK-NUT.

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To all whom it may concern:

Be it known that I, WALTER CLAY PETERS, subject of the King of Great Britain, residing at 132 Franciscan road, Tooting, in the county of London, England, have invented new and useful Improvements in Lock-Nuts, of which the following is a specification.

This invention relates to improvements in the manufacture of that type of lock-nut in which an undercut circular recess is formed in one end of one of the nuts to constitute a socket and a circular projection is provided on the other, of such proportions that by a distorting force the projection is caused to fill more or less completely the undercut recess and constitute a spigot, and thereby cause the nuts to be inseparably united while being capable of rotation relatively to one another.

In such constructions, as previously described, the twin-nut as far as its locking property is concerned, acts only in the same manner as a pair of separable lock-nuts, when they are so rotated relatively to each other as to tend to force the faces toward one another and the only merit in the interconnection is their inseparability.

Now according to the present invention I dish the annular surface which forms the bottom of the socket whereby it slopes downward toward the axis of the screw-bolt. Moreover instead of the meeting surfaces of the nuts being parallel plane surfaces, one or both may be coned to such a degree that on locking the nuts they come into contact first around the border of the socket-recess.

Referring to the accompanying drawings:—Figure 1 is a central longitudinal section of the twin-nut, taken in a direction at right angles to the flats which are provided to fit spanners. Fig. 2 is an outside elevation as viewed in a direction at right angles to Fig. 1. Fig. 3 is a longitudinal section showing the components of the twin-nut assembled preparatory to union, and Fig. 4 is a longitudinal section of a modification.

In these drawings, a is the socket-formed nut having at the base of the socket a surface a^1 which slopes downward toward the axis of the bolt, an overhanging wall a^2 and a slightly coned top a^3 for the wall. The exterior of the wall is made cylindrical and of a diameter equal to the width across the flats of the nut for the purpose of removing redundant material which does not conduce to increase of strength, thus promoting the yieldability of the wall to a crushing force.

The spigot nut b, before being subjected to the distorting force requisite to enable it to fill the socket, is made longer than the depth of the socket, the exterior diameter of the spigot is as large as will permt it to enter the socket, the interior diameter is gradually contracted toward the extremity of the spigot, as indicated by b^2 in Fig. 3, and the end b^1 is so shaped that when the two nuts are assembled, the outer border of the extremity of the spigot rests on the sloping base a^1 of the socket as shown in Fig. 3.

The distortion is effected by the combined operation of longitudinal crushing and radial expansion by forcing a drift through the interior, after which, with the marks a^0 b^0 in line with one another, a continuous screw-thread is formed in the interior of the twin-nut, the resulting product being as shown in Figs. 1 and 2 in which a narrow interval is left between the surface a^3 of the socket-nut and the corresponding surface b^3 of the spigot-nut which bears thereon in the locked condition of the nuts, this interval converging toward the axis of the bolt with the object of promoting the contraction of the internal diameter of the socket under the locking strain.

The effect of such a construction is as follows:—After screwing the twin nuts on the bolt and then rotating them relatively to one another in a direction to tend to make them approach each other along the thread of the bolt, the extremity of the spigot will come into pressure contact with the shelving bottom of the socket and the coping of the wall of the socket into pressure contact with the base of the spigot, resulting in a longitudinal shortening of the double wall and a corresponding thickening thereof, accompanied by a convergence of the foot of the spigot. The elastic yielding of the double wall will cause the threaded interior of the spigot to engage itself more deeply with the screw-threads of the bolt and fill up the interposed slackness spaces. This action will be accompanied by pressure on the border of the socket and cause the overhanging wall thereof to still further overhang and tightly embrace the exterior surface of the wall of the spigot. By such means a locking action will be called into existence which is supplementary to that

which occurs in the locking of two ordinary separable nuts. The character of the supplementary locking action is such that the greater the axial pressure applied to the base of the inside nut, the more intense will the clasping action become so that, even with most intense vibration and under great strain, there will be no slackening of the hold fast. A further effect of the longitudinal shortening of the double wall, the consequent approach of the two nuts and the clasp of the diverging outer surface of the wall of the spigot, by the overhanging wall a^2 of the socket, is to tend to draw the socket-nut into a position in which the screw-thread thereof will bear on the thread of the bolt on the side to assist in sustaining the working load.

In Fig. 4 is shown an adaptation of the above described lock-nut to an oil-cap to complete the inclosure of the axle bearing of a wheel and prevent the entrance of dust and the escape of oil. In this construction the socket nut c is formed with a flange c^1 which may, but not necessarily does make a liquid-tight joint with the hub of the wheel, and the partner nut d is formed with a solid inclosing end d^1. The joint between c and d being liquid-tight, the construction performs the function of the ordinary cap-nut and possesses the added advantage that it is impossible for it to work loose.

1. In a twin lock-nut, a nut having an undercut recess with a shelving bottom, a second nut and a spigot on said second nut fitting said recess.

2. In a twin lock-nut, a nut having an undercut recess with a shelving bottom and a conical end surface surrounding said recess, a second nut and a spigot on said second nut fitting said recess.

3. In a twin lock-nut, a nut having an undercut recess with a shelving bottom and a cylindrical exterior around said recess, a second nut and a spigot on said second nut fitting said recess.

4. In a twin lock-nut, a nut having an undercut recess with a shelving bottom, a conical end surface surrounding said recess and a cylindrical exterior around said recess, a second nut and a spigot on said second nut fitting said recess.

5. In a twin lock-nut, a nut having an undercut recess with a shelving bottom, a flange on said nut at the end remote from said recess, a second nut having a solid end and a spigot on said second nut fitting said recess.

I testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WALTER CLAY PETERS.

Witnesses:

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