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NUT LOCKING DEVICE
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Fig. 1

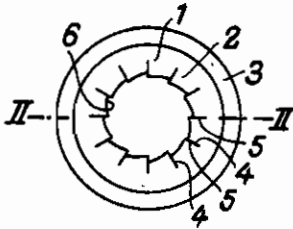


Fig. 2

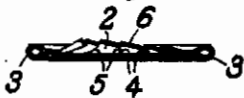


Fig. 3

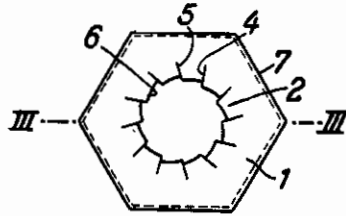


Fig. 4

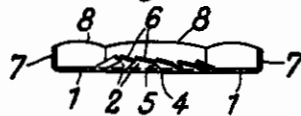


Fig. 5

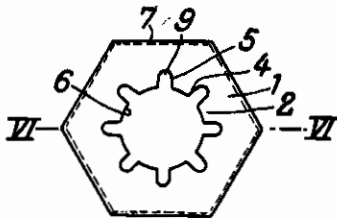


Fig. 6

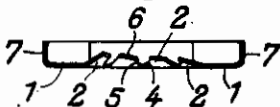


Fig. 7

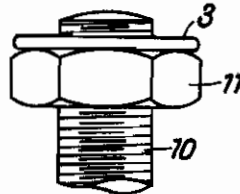
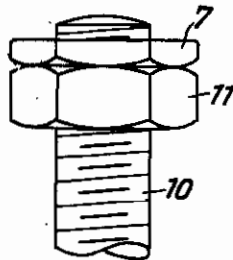


Fig. 8



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NUT LOCKING DEVICE

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The known nut locking devices, comprising springy locking tongues extending from a circular disc, radially engaging in the convolutions of the bolt thread and bent upwardly from the plane of the disc, having for their object to prevent the locking device and the nut from becoming loose by exerting radial pressure, effect the required locking only as long as the radial pressure exerted by the tongues upon the convolutions of the thread is sufficiently great. Should this pressure be reduced by lengthening of the bolt owing to heat, expansion or the like, the possibility arises that the locking device and the nut become loose.

According to the invention this defect is eliminated by providing that the side faces of each locking tongue are disposed radially or at an angle with reference to the radial direction, the inner edge of each tongue, which makes contact with the thread of the bolt, being disposed at an increasing distance from the centre of the locking device in the tightening direction thereof.

Various embodiments of the invention are diagrammatically illustrated by way of example in the accompanying drawing, wherein:—

Fig. 1 is a plan view of the nut locking device,

Fig. 2 shows the same locking device in section on the line II—II of Fig. 1,

Figs. 3 and 4 illustrate another embodiment of the locking device in plan view and in section on the line IV—IV of Fig. 3.

Figs. 5 and 6 show a further embodiment of the locking device in plan view and in section on the line VI—VI of Fig. 5,

Fig. 7 shows a locking device according to Figs. 1 and 2 in side elevation on a bolt with nut,

Fig. 8 shows a locking device according to Figs. 5 and 6 in elevation on a bolt with a nut.

The nut locking device according to Figs. 1, 2 and 7 substantially consists of a disc shaped member 1, which is provided on the inner side with locking tongues 2 extending approximately radially inwards and at its periphery with a downwardly or upwardly beaded edge 3. The sides 4, 5 of each locking tongue extend for example radially, or approximately radially. They may also extend at an angle with reference to the radial direction, as shown in Fig. 3. The inner edges 6 of the locking tongues 2 are so disposed that in the direction in which the locking device is tightened their distance from the centre of the locking device or the central axis of the bolt increases. It is advisable to form the

disc shaped portion 1 of the locking device so that it is domed and springy in the direction of the end of the bolt. Similarly, the locking tongues 2 may also be springy.

In the embodiment shown in Figs. 3 and 4 the side edges 4, 5 of each locking tongue are disposed at an angle with reference to the radial direction in such a manner that they extend at an angle backwards from inside outwards in the tightening direction of rotation. The outer edge 7 of the locking device is bent upwards hexagonally. The upper edge 8 of the rim 1 so formed is rounded upwardly from one corner to the other, but it may also be straight and parallel to the bearing surface of the locking device, as shown in Fig. 6. The rest of the locking device is constructed as in Figs. 1 and 2 and the same reference numerals are employed.

In the embodiment shown in Figs. 5 and 6 slots 9 are disposed between the individual locking tongues 2. In this embodiment the side edges of the locking tongues extend from the middle of the slot 9 disposed therebetween arcuately or inclined towards both sides, so that the slots 9 are wider at the thread of the bolt than at the annular portion 1 of the locking device. However, the side edges 4, 5 may also extend radially, so that the slots 9 are of the same width. In the first mentioned case the locking tongues are stronger.

In Fig. 7 the embodiment according to Figs. 1 and 2 is shown in conjunction with a bolt 10 and a nut 11. This embodiment, wherein the locking device is made of comparatively thin sheet metal, is particularly suitable for a fine thread. Fig. 8 shows the locking device according to Figs. 5 and 6 in conjunction with a bolt 12 and nut 11, which have a coarse thread. In manufacturing the locking device of thin springy sheet metal the locking device, same may be passed over the thread of the bolt up to the nut to be locked and it may be brought into its locking position by light turning. In the locking position the locking tongue lying deepest is wedged between the bolt thread and the nut thread and ensures additional security against loosening of the locking device and of the nut. When the locking device is passed over the thread of the bolt or when the same is screwed on the bolt the locking tongues 2 yield and are bent over towards the end of the bolt and the part thereof which protrudes farthest inward is pressed after the manner of the thin edge of a wedge firmly against the convolutions of the thread of the bolt. When the locking device is

tightened by rotation to the right the tip of the wedge formed by the edge 6 of the locking tongue 2 lies behind. During rotation to the left or in the direction of release of the locking device and nut this tip of the wedge is at the front and prevents any unintentional detachment of the locking device and nut from the bolt, even if these are lengthened by heat or undue stress and the nut moves away from the surface against which it bears. When removing the locking device from the bolt the nut is first tightened a little more, so that the pressure between the nut and the locking device is reduced. The locking device can then be removed by turning it backwards, simultaneously pressing it down on to the

nut or by lifting it off the bolt upwards. The inner diameter of the opening left free by the locking tongues is slightly smaller than the inner diameter of the thread, so that the locking tongues are resiliently bent upwards or downwards when the locking device is mounted on the bolt. In the production of the locking device the tongues 2 are punched out so that the finished locking device has the shape shown in Figs. 1, 3 and 5 in plan, being adapted to the shape of the bolt thread the locking tongues being variously inclined with reference to the plane of the disc 1 in accordance with the pitch of the bolt thread.

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