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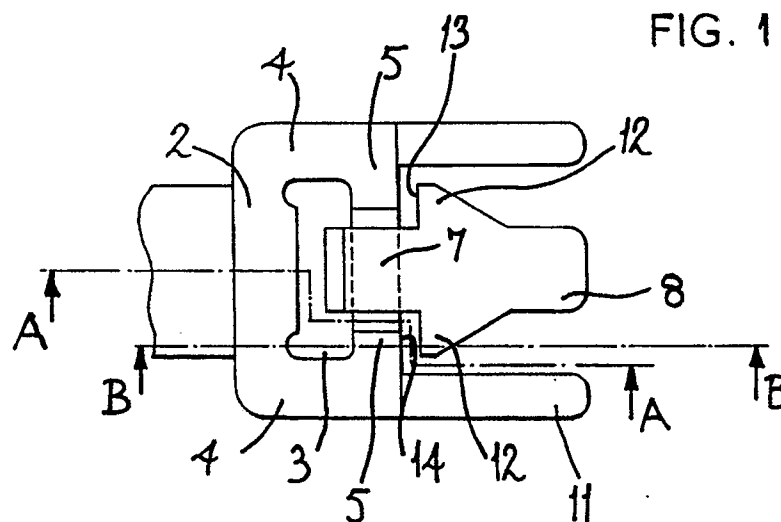
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(54) **Lock for a cable strap fastener.**

(57) Plastics cable strap fastener with flexible fixing strap (15) having teeth at its free end and a lock at the other end provided with a locking finger (8) adapted to engage the teeth at the end of the strap, wherein the locking finger has twin projections (9,10)

on the locking finger to facilitate engagement and a bendable region which permits the locking finger to disengage the teeth so that the fixing strap can be pulled back out of the lock.



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LOCK FOR A CABLE STRAP FASTENER

The invention relates to a lock for a cable strap fastener of plastics material formed in one single piece, wherein a flexible portion at the free end of the fixing strap is provided with teeth which engage with at least one opposing locking tooth of an locking finger of the lock when the flexible portion is inserted into a slot provided in the base member, two lateral parts extending to the side and at right angles therefrom, two arms issuing from the lateral parts and running substantially parallel to the base member and the locking finger, wherein the locking finger is connected integrally through a bendable region to the arms and extends through the space therebetween and with rigid grip parts which are remote from the slot on both sides of the locking finger, are formed in one piece with the base member and are provided for unlocking the locking tooth of the locking finger by pivoting the locking finger against its locking direction so that the flexible portion of the fixing strap can be pulled back out of the slot.

A holding strap for cable bundles or the like is known from German Gebrauchsmuster No. 87 09 493, the lock of which has a receiving opening in the form of a slot for a tongue strap whose teeth can be locked by a catch facing a supporting face for the tongue strap. To prevent unintentional extraction or release of the holding strap from the lock, a release grip connected to the catch is placed against the tongue strap and the tongue strap against the supporting face. A significant disadvantage in this known holding strap is that the release grip, in that portion which is essential for engagement with the tongue, projects from the actual lock member and can pivot against the relatively short supporting face, particularly if no other precautions are taken for the supporting face to operate as an abutment. In other words, there is a risk that the supporting face will also be bent. In a further embodiment of this known holding strap, it is possible, for forming a longer supporting face, to provide an additional projection but this, however, gives rise to the further disadvantage that the entire construction of the lock is therefore technically more complex and requires correspondingly more space which is frequently unavailable for the applications of such a holding strap.

It is an object of the present invention to provide a lock of the type outlined at the beginning such that unintentional extraction of the fixing strap from the slot is avoided without the need for technically complex means such as additional abutments or the like.

According to the present invention, a lock for a cable strap fastener of the kind set out above is

characterised in that the locking finger has, in the region of its locking tooth, of which there is at least one, two lateral projections of which the stop faces running parallel to the arms are at a small distance from the faces of the arms remote from the slot in the locked state of the lock such that the projections are placed with their stop faces, promoting effective engagement of the locking tooth in the corresponding tooth of the fixing strap, on the arms when a pull in the direction opposed to the direction in which the fixing strap is threaded into the slot is exerted on the fixing strap.

The essential advantage of this construction of a lock according to the invention is that, since the locking finger, during an attempt at unintentional removal of the fixing strap from the lock, is moved toward the slot until its stop faces rests on the corresponding face of the two arms, holding of the fixing strap in the lock is further reinforced. The pivotal connection between the locking finger and the lock can therefore optionally be substantially more flexible in design, while saving material, also allowing simple introduction of the fixing strap into the slot, particularly since the pivotal connection as such does not have to contribute to the locking power between fixing strap and locking finger.

In fact, the locking finger, in the locked state and particularly when a pull is exerted on the fixing strap in the direction against the threading direction but without wishing to release the fixing strap from the lock, performs a slight pivoting movement in the direction of the slot until it rests on the lock, guaranteeing good locking of the fixing strap.

In order that the present invention can be better understood a preferred embodiment of the invention will now be described in greater detail by way of example with reference to the accompanying drawings in which:

Figure 1 shows a plan view of a lock for a locking strap,

Figure 2 shows a sectional view along the line A-A in Figure 1, and

Figure 3 shows a sectional view along the line B-B in Figure 1.

A lock 1 is connected integrally to a fixing strap 15 of which only part is shown. At the free end of the fixing strap there is a toothed portion which can be inserted and fixed in a slot 3 in the lock. A fixing strap of this type serves, for example, to loop cable bundles or the like and to hold these components in a fixed position. For this purpose, the fixing strap has a fixing part with which it can be fixed, for example, on the body of a motor vehicle.

The lock consists of a base member 2 which is

continued in the region of its edges by two lateral parts 4 which in turn pass into two arms 5, 5 and into a floor 7 between the arms 5. The arms 5 form a U with the rib 7, the vertical arms being spaced apart by such a distance that a locking finger 8 carrying locking teeth 9, 10 can extend through the space between the arms. This locking finger is connected integrally to the rib 7 and forms therewith a bendable pivotal connection, as described hereinafter.

As shown most clearly in Figure 1, the locking finger 8 has two lateral projections 12 which extend from it like wings from a fuselage. These projections 12 are each provided with a stop face 13 (Figure 3), these stop faces extending parallel to the faces 14 of the arms remote from the slot 3. It is essential for the lateral projections to be wider than the space between the arms 5.

As shown in Figure 1, a small horizontal clearance is provided between the stop faces 13 and the arm faces 14, which is selected such that, even after a relatively short movement of the locking finger 8 round the pivotal connection created by the rib 7 in the direction toward the slot, it rests on the arms. This clearance can be a few tenths of a millimetre in size. This construction ensures that, when the fixing strap 15 introduced into the slot 3 unintentionally experiences a pulling force against the locking direction in the direction of the arrow P in Figure 3, the engagement between the teeth 9, 10 and the teeth provided on the corresponding side at the free end of the fixing strap 15 is reinforced because the two locking teeth are inserted even more firmly in the tooth gaps of the fixing strap by the pivoting movement of the locking finger 8 in the above-mentioned direction and engagement is therefore additionally enhanced.

As shown, particularly in Figure 1, relatively rigid grip members 11 at a distance from and on either side of the locking finger 8 form an extension of the lock. In the lower region 6 (see Figure 3), the grip members are provided with a blunt-edged gripping region. If it is intended to remove the fixing strap from the slot 3 in the direction of the arrow P according to Figure 3, it is sufficient to press the grip members and the locking finger 8 together slightly, for example between thumb and index finger, so that locking finger 8 can be pivoted such that the locking teeth 9, 10 are disengaged from the teeth of the gripping strip, ensuring that the fixing strap can easily be loosened or released from the lock.

Two locking teeth 9 and 10 are provided on the locking finger 8 in the embodiment illustrated. Depending on the application, the number of teeth can be increased, although for some purposes one tooth may be sufficient.

Claims

1. Lock for a cable strap fastener of plastics material formed in one single piece, wherein a flexible portion at the free end of the fixing strap is provided with teeth which engage with at least one opposing locking tooth of a locking finger of the lock when the flexible portion is inserted into a slot provided in the base member, two lateral parts extending to the side and at right angles therefrom, two arms issuing from the lateral parts and running substantially parallel to the base member and the locking finger, wherein the locking finger is connected integrally through a bendable region to the arms and extends through the space therebetween and with rigid grip parts which are remote from the slot on both sides of the locking finger, are formed in one piece with the base member and are provided for unlocking the locking tooth of the locking finger by pivoting the locking finger against its locking direction so that the flexible portion of the fixing strap can be pulled back out of the slot, characterised in that the locking finger (8) has, in the region of its locking tooth (9,10), of which there is at least one, two lateral projections (12) of which the stop faces (13) running parallel to the arms (5) are at a small distance from the faces (14) of the arms (5) remote from the slot (3) in the locked state of the lock such that the projections (12) are placed with their stop faces, promoting effective engagement of the locking tooth in the corresponding tooth of the fixing strap, on the arms (5) when a pull in the direction opposed to the direction in which the fixing strap is threaded into the slot (3) is exerted on the fixing strap.



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EUROPEAN SEARCH REPORT

Application Number

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	US-A-4 236 280 (COURTESY CORP.) * Entire document *	1	B 65 D 63/10

A	BE-A-7 552 31 (PANDUIT CORP.) * Page 12, line 32 - page 13, line 2; figures 1-9 *	1	

			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B 65 D F 16 L
The present search report has been drawn up for all claims			
Place of search		Date of completion of search	Examiner
The Hague		11 February 91	NEWELL P.G.
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