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(54) FASTENING CLIP.

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Description

The present invention relates to a fastening clip for securing flat articles together, such as an article of clothing and an identification tag, comprising a housing having inner walls converging towards an opening adapted to receive the shank of a pin member, one of said walls being located adjacent said opening, and in said housing a wedging member formed as a cylindrical roller being spring biased towards the opening and having its generatrix situated parallel to said walls, said roller allowing insertion of the shank of the pin member when moved against the bias of the spring while by a subsequent outward pull of the shank being wedged between one of said walls and the shank and by frictional engagement preventing withdrawal of the shank.

Fastening clips of this kind are used particularly to prevent articles of garment and similar articles from being removed from a shop before they are paid for resp. debited, an identification tag capable of releasing a burglar alarm at the exit from the shop being temporarily fastened to the said article. The fastening clip must be easily released and the identification tag easily removed by the shop assistant who receives payment for the article or enters the sale in the books. On the other hand, releasing of the fastening clip must be possible only by using of a special tool or device.

From the specification of U.S. Patent No. 3,858,280 a fastening clip of the kind in question is known, in which the wedging member comprises a spring biased guide body wherein two or three balls are so mounted in radial channels that at attempts to pull out the pin member, they are wedged in between the shank thereof which is inserted in an axial bore in the guide body, and the converging walls of the housing, thereby preventing by friction engagement a further pulling out of the pin member. For releasing the fastening clip, when the tag is to be removed, a special tool is used which is capable of pulling the guide body in a direction away from the opening, thereby neutralizing the wedging effect of the balls on the shank of the pin member. This special tool may be adapted to mechanically engage a bore in the end of the guide body remote from the opening, or it may be a device comprising a magnet being capable of moving the retainer made of steel against the spring bias in such a way that the balls release their hold of the shank of the pin member.

From the specification of the Published German Patent Specification No. 27 16 825 a sealing lock is furthermore known, comprising a housing having walls converging towards an opening for a wire and in the housing a wedging member in the shape of a cylindrical disc spring biased towards the opening. In this lock, the wire over the entire length in the housing is wedged in a groove formed by an arched end wall of the housing, and it is secured in the groove by the disc which is thinner than the width of the

groove and by recesses provided in the housing after insertion of the wire. The lock is rather complicated and expensive and still made to be used only once, and it is not fit for safe guiding of a top member to be inserted, locked and released again several times. A corresponding safe guiding of the shank, however, is not obtainable in the relatively simple and cheap housings of the fastening clips referred to.

It is the object of the invention to provide a fastening clip of the kind in question, which in addition to being easier to produce than corresponding known fastening clips, offers a greater security against unwarranted release.

The fastening clip according to the invention is characteristic in that the roller has a circumferential guide groove extending in a radial plane opposite the opening.

The housing for such a fastening clip is easily made e.g. of plastic and, as the wedging member comprises no guide body or ball retaining member but is a mere cylindrical roller comprising a circumferential groove, it is possible to produce the fastening clip in a considerably simplified and cheap manner, i.e. because the wall of the housing situated opposite the guide groove may be formed without or with only very simple guiding means. An unwarranted release of the fastening clip by mechanical withdrawal of the wedging member against the spring bias by means of a special tool or a copy thereof is unthinkable, as in practice the roller is imagined withdrawn only by means of a magnet.

The roller according to the invention is preferably made of hardened steel or a similar hard material and comprises a guide groove formed with sharp corner edges where joining the cylindrical surface of the roller. This permits the roller to engage a shank of softer material in a highly solid manner by pressing itself into said shank.

If desired, the inner side wall situated nearest to the opening may according to the invention be covered by a hard metal plate, which eliminates the risk of damaging the wall of a housing made of plastic.

In a preferred embodiment of the fastening clip according to the invention, the housing forms an integral part of a plate which along its periphery is connected to a plate having a corresponding contour and comprising a part which forms a closure for the end of the housing remote from the opening.

This permits, for example, the incorporation of an alarm release between the plates.

According to the invention it is preferred that a groove is formed in the side wall of the housing lying nearest the opening, or in a metal plate covering said opening, this groove forming a guiding for the shank of an inserted pin member. This prevents the shank from tilting which ensures that the sharp edges of the guide groove of said roller are permitted to catch a firm hold in the shank, when attempts are made to withdraw said shank.

In the following the invention is explained in details with reference to the drawing, in which

Figure 1 shows a longitudinal section through an embodiment of the fastening clip according to the invention, and

Figure 2 shows a cross-section through the fastening clip according to Figure 1.

The fastening clip shown in the drawing comprises a housing 1 having an opening 2 through which a shank 3 of a pin member 4 to be secured to the housing, is inserted. The housing 1 comprises opposed side walls 5 and 6, and the interior of the side wall 5 converges towards the side wall 6 in the direction towards the opening 2. A wedging member formed as a roller 7 is placed with the axis thereof lying parallel to the walls 5 and 6.

Opposite the opening 2, the roller comprises a circumferential guide groove 8 extending in a radial plane, and the roller is so dimensioned that on insertion of a shank 3 against the bias of a pressure spring 9 it will be pressed in a direction away from the opening 2 in such a manner that when the shank 3 is subsequently pulled outwards, the roller will function as a wedging member pressing the shank against the wall 6 and preventing by friction that the pin member 4 is withdrawn from the housing 1.

The roller 7 is preferably made of hardened steel, and the guide groove 8 has sharp edges where joining the cylindrical surface of the roller. The sharp edges and the hard material permit the roller during the wedging to catch a firm hold in the shank 3 which consists of a softer material.

The housing 1 may also be made of a relatively hard material, but usually it consists of a cheap material, e.g. of plastic, and in this case it is preferred to place at the inner side of the wall 6 a hard metal plate 10 absorbing the wedging pressure from the roller 7. Furthermore, it has proved to be expedient to provide a guiding for the shank 3 in the shape of a groove 11 in the wall 6 or in the metal plate 10 which ensures that the shank 3 will not tilt but will always remain in a position where the sharp edges of the guide groove 8 of the roller are permitted to penetrate into the shank and stamp it. Considering the diameter and the material of the shank, the optimum width of the guide groove 8 for the best possible stamping and retaining of the shank by a kind of three-point fixing is easily determined in practice.

The fastening clip is especially intended for attaching to articles of clothing or similar flat articles, an identification tag or a plate which is adapted to release an acoustic burglar alarm at the exit from a shop, and the housing of the fastening clip is preferably formed on a plate which is connected along its periphery with a plate of a similar contour, closing the end of the housing remote from the opening and forming with the first mentioned plate a capsule containing a coil adapted to activate a burglar alarm at the exit from the shop. When the article has been paid for or debited in the shop, the shop assistant

places the housing 1 of the fastening clip in such correct position relative to the magnetic field of a specially formed magnet that the roller 7 is moved against the bias of the spring 9 in a direction away from the opening 2 so that the shank 3 is no longer wedged but is permitted to be withdrawn from the housing.

Claims

1. A fastening clip for securing flat articles together, such as an article of clothing and an identification tag, said clip comprising a housing (1) having inner walls (5, 6) converging towards an opening (2) adapted to receive the shank (3) of a pin member, one (6) of said walls being located adjacent said opening (2), and in said housing a wedging member formed as a cylindrical roller (7) being spring biased towards the opening and having its generatrix situated parallel to said walls (5, 6), said roller allowing insertion of the shank (3) of the pin member when moved against the bias of the spring while by a subsequent outward pull of the shank being wedged between one of said walls (5) and the shank (3) and by frictional engagement preventing withdrawal of the shank, characterized by said roller (7) having a circumferential guide groove (8) extending in a radial plane opposite the opening (2).

2. A fastening clip according to claim 1, characterized by said roller (7) being made of hardened steel or a similar hard material, and the guide groove (8) having sharp corner edges where joining the cylindrical surface of the roller.

3. A fastening clip according to claim 1 or 2, characterized by the inner side wall (6) nearest to the opening (3) being covered by a hard metal plate (10).

4. A fastening clip according to any of the preceding claims, characterized by said housing (1) forming an integral part of a plate which is connected along its periphery with a plate having a corresponding contour and comprising a part forming a closure for the end of the housing remote from the opening (2).

5. A fastening clip according to any of the preceding claims, characterized in that a groove (11) forming a guide for the shank (3) of an inserted pin member (4), is provided in the side wall (6) of the housing, which is nearest to the opening (2), or in a metal plate (10) covering said side wall.

Patentansprüche

1. Befestigungsklammer zum gegenseitigen Befestigen von flachen Gegenständen, wie etwa ein Kleidungsstück und einen Identifizierungs-Anhänger, welche Befestigungsklammer ein Gehäuse (1) mit inneren Wänden (5, 6) aufweist, die in Richtung einer Öffnung (2) zur Aufnahme des Schaftes (3) eines Stiftgliedes zusammenlaufen und deren eine (6) angrenzend an die Öffnung (2) angeordnet ist, in welchem Gehäuse ein Verkeilungsglied in der Form einer zylindrischen

Rolle (7) vorgesehen ist, die in Richtung der Öffnung federnd vorgespannt ist und mit ihrer Erzeugenden parallel zu den Wänden (5, 6) liegt und die eine Einführung des Schaftes (3) des Stiftgliedes bei Bewegung entgegen der Federwirkung der Feder gestattet, dagegen bei einem anschließenden Rückzug des Schaftes zwischen einer der Wände (5) und dem Schaft (3) eingeklemmt wird und durch Reibungseingriff ein Herausziehen des Schaftes verhindert, dadurch gekennzeichnet, daß die Rolle (7) auf dem Umfang eine Führungsnut (8) in einer der Öffnung (2) gegenüberliegenden Radialebene aufweist.

2. Befestigungsklammer nach Anspruch 1, dadurch gekennzeichnet, daß die Rolle (7) aus gehärtetem Stahl oder ähnlichem harten Material besteht und daß die Führungsnut (8) scharfe Kanten am Übergang zu der zylindrischen Oberfläche der Rolle aufweist.

3. Befestigungsklammer nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß die innere seitliche Wand (6) angrenzend an die Öffnung (2) durch eine harte Metallplatte (10) abgedeckt ist.

4. Befestigungsklammer nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß das Gehäuse (1) ein zusammenhängendes Teil bildet mit einer Platte, die entlang ihrem Umfang mit einer Platte entsprechender Kontur verbunden ist und einen Teil aufweist, der einen Verschuß für das Ende des Gehäuses gegenüber der Öffnung (2) bildet.

5. Befestigungsklammer nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß eine Nut (11), die eine Führung für den Schaft (3) des eingeführten Stiftgliedes (4) bildet, in der Seitenwand (6) des Gehäuses, die der Öffnung (2) am nächsten liegt, oder in einer diese Seitenwand abdeckenden Metallplatte (10) ausgebildet ist.

Revendications

1. Pince de fixation servant à fixer l'un sur l'autre des articles plats, comme par exemple un vêtement et une étiquette d'identification, ladite pince comprenant un logement (1) comportant

des parois intérieures (5, 6) convergeant en direction d'une ouverture (2) apte à recevoir la tige (3) d'un organe en forme de broche, l'une (6) desdites parois étant située au voisinage de ladite ouverture (2), et, dans ledit logement, un organe de coincement constitué par un galet cylindrique (7) étant sollicité par un ressort en direction de l'ouverture, et ayant sa génératrice parallèle auxdites parois (5, 6), ledit galet permettant l'insertion de la tige (3) de l'organe en forme de broche lors d'un déplacement à l'encontre de la sollicitation du ressort, tandis que, lors d'une traction ultérieure exercée sur la tige en direction de l'extérieur, le galet est bloqué par effet de coin entre l'une desdites parois (5) et la tige (3) et empêche, sous l'effet du contact par frottement, le retrait de la tige, caractérisée en ce que ledit galet (7) possède une gorge circonférentielle de guidage (8) située dans un plan radial s'étendant en vis-à-vis de l'ouverture (2).

2. Pince de fixation selon la revendication 1, caractérisée en ce que ledit galet (7) est constitué en acier trempé ou en un matériau dur similaire et que la gorge de guidage (8) possède des arêtes vives à l'endroit où elle rejoint la surface cylindrique du galet.

3. Pince de fixation selon la revendication 1 ou 2, caractérisée en ce que la paroi latérale intérieure (6) la plus proche de l'ouverture (2) est recouverte par une plaque de métal dur (10).

4. Pince de fixation selon l'une quelconque des revendications précédentes, caractérisée en ce que ledit logement (1) fait partie intégrante d'une plaque qui est raccordée, le long de son pourtour, à une plaque possédant un contour correspondant et comportant une partie formant organe de fermeture pour l'extrémité du logement, qui est distante de l'ouverture (2).

5. Pince de fixation selon l'une quelconque des revendications précédentes, caractérisée en ce qu'une gorge (11) formant un guide pour la tige (3) d'un organe en forme de broche (4) inséré, est ménagée dans la paroi latérale (6) du logement, qui est la plus proche de l'ouverture (2), ou dans une plaque métallique (10) recouvrant ladite paroi latérale.

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Fig. 1

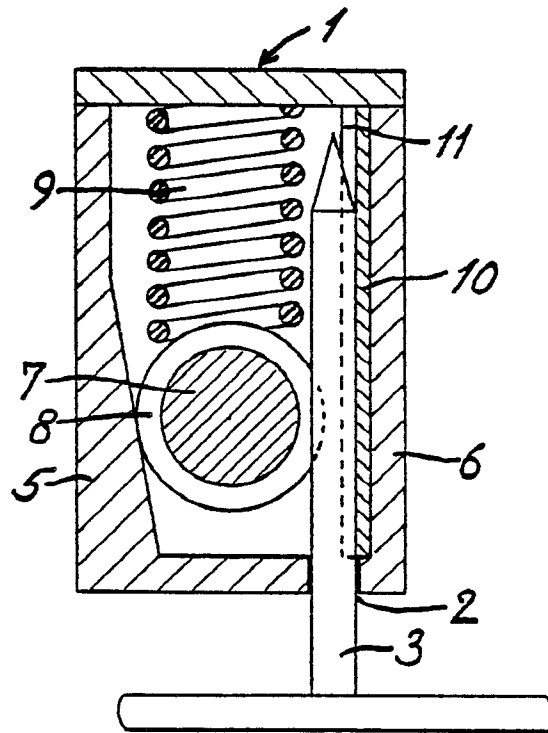


Fig. 2

