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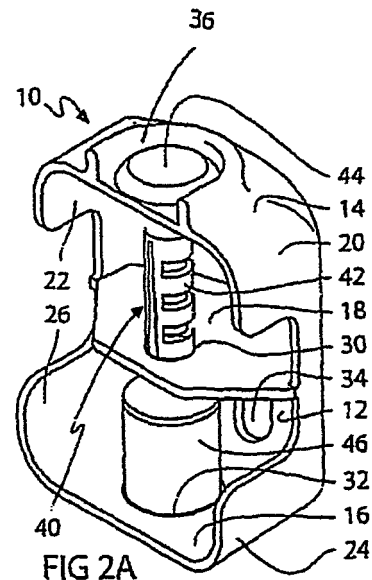
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(54) **A cover for an engagement lock of a container**

(57) A security cover (10) for an engagement lock for a container which has a first member (12) which comprises a rod-shaped elongated body (12) which defines a first (14) and a second end (16), and defines a longitudinal direction of the rod-shaped elongated body (12). The first end (14) constitutes an insertion end which defines a first transversal dimension, and the second end (16) comprises a head which defines a second transversal dimension which is larger than the first transversal dimension of the insertion end. The security cover further has a second member (18) which defines a first surface, an opposite second surface and an outer, third transversal dimension which is larger than the first transversal dimension. The first surface has a cavity, and the engagement lock defines a locked state in which the insertion end is allowed to snap-fit interlock with the cavity, when in the locked state the engagement lock defines a first longitudinal distance from the head to the first surface and a second longitudinal distance from the head to the second surface. The security cover (10) comprises a front plate (12) and further a first plate which extends rearwards in relation to the front plate (12) and defines a first hole (28) which is larger than the first transversal dimension and smaller than the second transversal dimension; the head part and the first hole (28) is countersunk to accommodate at least a part of the head within the first hole. The security cover (10) further comprises a second plate (14) which extends rearwards in relation to the front plate and defines a second hole which is larger than the first transversal dimension and smaller than the third transversal dimension to accommodate the elongated body at said insertion end; the distance between the first and second plates is substantially equal to the first distance. The security cover further comprises a third plate (18) which extends rearwards in relation to the front plate

(12) and defines a third hole (30) which is larger than the third transversal dimension to accommodate the second member at the second surface; the distance between the first and third plates is substantially equal to the second distance.



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Description

[0001] The invention relates to a security cover for an engagement lock for a container.

[0002] Freight containers are used in the transport industry to carry goods over long distances on e.g. ships, trains and trucks. Engagement locks are frequently used for sealing the doors of freight containers and the like during transport. Customs regulations typically require freight containers to be sealed so that any unauthorised access may be easily detected. An example of an engagement lock is described in the international patent application no. W02008/000270 assigned to the applicant OneSeal A/S. The engagement lock described in the above-mentioned patent application comprises a first rod-shaped body which may snap-fit interlock with a second body. The elongated body is provided with annular recesses, where the rod-shaped body may be broken. An authorised person may use a strong pair of scissors or a similar tool for the purpose of opening the engagement lock. After the engagement lock has been opened as described above, it is no longer possible to re-seal the engagement lock since the elongated body has been torn.

[0003] An unauthorised person, such as a thief or a person having fraudulent thoughts, e.g. of transporting illegal goods in a container, will not open the engagement lock as described above, since the unauthorised person does not want the opening and the subsequent closing of the container and the engagement lock to be detected later during inspection of the engagement lock. A broken engagement lock will alert the authorised persons, such as customs officers and other persons handling the container and result in a thorough inspection of the contents of the container and most likely reveal any illegal goods placed in the container, or any other fraudulent action, by the unauthorised person.

[0004] The unauthorised person will therefore attempt to open the engagement lock without breaking it at the annular recesses. The unauthorised person will additionally avoid causing any damage to the engagement lock, e.g. markings, since any damage to the engagement lock may indicate that it has been opened without authorisation or tampered with and may alert the authorised person. Any markings or other traces on the engagement lock will at least raise suspicions of an attack, i.e. an attempt of tampering with the engagement lock or unauthorised opening of the security lock.

[0005] It has recently been discovered that some skilled unauthorised persons may be able to open the engagement lock and subsequently close it without the engagement lock breaking and without leaving any noticeable traces on the engagement lock, which may indicate that an unauthorised opening has taken place. To avoid such an unauthorised opening there is a need for protecting the engagement lock from any attack by the unauthorised person. Such protection may be provided in the form of a security cover. Such security covers are

well known in the prior art and described in several prior publications such as US 4,120,183, US 4,835,996, US 5,008,988, US 5,118,149, US 5,737,946, US 5,754,412, US 5,791,702, US 5,878,604, US 6,009,731, US 6,036,240, US 6,065,314, US 6,464,269, US 6,519,982, US 6,581,419, US 6,846,024, US 7,210,316, US 2004/0135668, WO 2005/019041 and WO 2005/080721. Further prior art related to the present invention includes: US 4,075,742, US 4,835,996, US 4,991,889, US 5,008,988, US 5,118,149, US 5,737,946, US 5,754,412, US 5,791,702, US 5,878,604, US 6,009,731, US 6,036,240, US 6,065,314, US 6,464,269, US 6,519,982, US 6,581,419, US 6,846,024, US 7,210,316, US 2004/0135668, US D565387, WO 2001/54100, WO 2005/019041, WO 2005/080721, WO 2008/000270 and WO 1984/003980,

[0006] The above-mentioned US patents are hereby incorporated by reference.

[0007] At the same time there must still remain an opportunity for authorised persons to inspect the engagement lock and determine if any attack has been made on the engagement lock. It is therefore an object according to the present invention to provide technologies for protecting the engagement lock from attacks by unauthorised persons as well as providing inspection opportunities for authorised persons.

[0008] The above object and the above need together with numerous other objects, needs, features and advantages which will be evident from the below detailed description are according to a first aspect of the present invention obtained by a security cover for an engagement lock for a container and of the kind having:

a first member comprising a rod-shaped elongated body defining a first and a second end, and defining a longitudinal direction of the rod-shaped elongated body, the first end constituting an insertion end defining a first transversal dimension, the second end comprising a head defining a second transversal dimension being larger than the first transversal dimension of the insertion end, and

a second member defining a first surface, an opposite second surface and an outer, third transversal dimension being larger than the first transversal dimension, the first surface having a cavity, the engagement lock defining a locked state in which the insertion end is allowed to snap-fit interlock with the cavity, when in the locked state the engagement lock defining a first longitudinal distance from the head to the first surface and a second longitudinal distance from the head to the second surface,

the security cover comprises:

a front plate,

a first plate extending rearwards in relation to the front plate and defining a first hole being larger than the first transversal dimension and smaller than the second transversal dimension, the

head part and the first hole being countersunk to accommodate at least a part of the head within the first hole,

a second plate extending rearwards in relation to the front plate and defining a second hole being larger than the first transversal dimension and smaller than the third transversal dimension to accommodate the elongated body at the insertion end, the distance between the first and second plates is substantially equal to the first distance,

a third plate extending rearwards in relation to the front plate and defining a third hole being larger than the third transversal dimension to accommodate the second member at the second surface, the distance between the first and third plates is substantially equal to the second distance.

[0009] The freight container should be of the type having a door hasp. The door hasp is typically directly fixed to the wall or door of the container. The door handle should typically have a hole corresponding to a hole in the door hasp. The hole of the door hasp and the hole of the handle should be positioned in registration when the container is locked. The first transversal dimension of the elongated body should be smaller than the interior transversal dimensions of the hole in the door hasp and the hole in the handle so that the container may be locked by introducing the elongated body through the holes. The second and third transversal dimensions of the head and second member, respectively, should be larger than the interior transversal dimensions of the holes, so that the container cannot be opened when the first and second members are in the locked state.

[0010] The insertion end of the elongated body and the cavity of the second member snap-fit interlock so that the locking mechanism is covered inside the cavity so that reversing the process, i.e. unlocking, is not possible. The intended way of opening the engagement lock involves rupturing the elongated body so that the engagement lock is not again lockable. Such locking mechanism may include a protrusion on one of the members and a corresponding recess on the other member. Any unauthorised opening of the engagement lock will therefore be detected. When the engagement lock has been opened by the authorised person by cutting the elongated body, the insertion end remains in the cavity and prevents re-use of the engagement lock.

[0011] The elongated body and the second member of the engagement lock, as well as the door hasp of the container are substantially enclosed in the interior space defined by the front, first and third plates of the security cover when the engagement lock is in the locked state. The rear end of the security cover opposite the front plate may be open and placed juxtaposed to the door of the container, preventing any access to the engagement lock from the rear. The side may as well be opened since the

sides typically accommodate the handles, which are used to swing open the container doors.

[0012] The front plate should be made rigid to prevent any frontal attack on the engagement lock. Such an attack may be made by means of tools such as chisels, pliers, drills etc.

[0013] The first plate should prevent any attacks from the top on the engagement lock. The head part of the engagement lock may rest on the outwards facing surface of the first plate to allow the head to be inspected and to position the head part. The head part has a transversal dimension larger than the first hole so that it may not enter the enclosure through the first hole. The elongated body may extend through the hole into the enclosure. The first hole and the head are countersunk to allow at least part of the head to be enclosed in the first plate. This way the head cannot be tampered with and in particular is inaccessible for gripping instruments such as pliers.

[0014] The second plate and the second hole are used to position the elongated body opposite the head part. The elongated body should thus be substantially accommodated within a volume defined between the front plate, the first plate and the second plate. The elongated body extends through the second hole to support the engagement lock in relation to any transversal movement of the engagement lock. The second plate and the second hole should be placed at a specific distance from the first hole and the first plate equal to the first distance from the head to the first surface so that when the engagement lock is in the locked state and the head part is supported against the first plate, the first surface of the second member should be positioned juxtaposed the second plate so that the engagement lock is supported in relation to both the longitudinal direction and the transversal direction.

[0015] In this context the word 'support' is understood to mean that the movement of the engagement lock is restricted, i.e. the engagement lock may be fixed to the security cover by the first and second plates, or alternatively a margin is allowed so that the engagement lock is merely loosely accommodated by the security cover by the first and second plates. Due to compatibility and fitting reasons, it may be required to allow a margin. Under some circumstances the inspection of the engagement lock by authorised persons may be simplified if the engagement lock is not fixed to the security cover, since it will still allow a rotational degree of freedom. Under all circumstances the margin should not be extensive, since an extensive margin may allow simplified tampering with the engagement lock by the use of tools.

[0016] The third plate should prevent any attacks on the bottom of the engagement lock. The third plate defines the third hole for accommodating the second member near the second surface and for allowing the second member of the engagement lock to be observed through the third hole. The second member may extend partly outside the third hole, or alternatively be flush with the third hole, or yet alternatively be completely within the

security cover.

[0017] The above front, first, second and third plate may be made in a multitude of different material. In some embodiments the plates may be transparent to allow the whole engagement lock to be visually observable. Alternatively, a grid structure or the like may be used for the same purpose. When using a grid structure the engagement lock located behind the plates will be observable.

[0018] The security cover reveals only slight portions of the engagement lock through the aperture, the first hole and the third hole for inspection and installation purposes. The revealed portions are small and not suitable for attack. If an attack is made on such small surfaces, marks and other traces on the engagement lock and/or security cover will be unavoidable.

[0019] In most cases, attacks on the side of the engagement cover are not possible, since on typical containers, opening handles extend towards the side.

[0020] According to a further embodiment of the present invention, the front plate defines an observation aperture for visually observing at least a part of the engagement lock and in particular for visually observing the second member. The frontal plate should be suitable for visually observing the engagement lock accommodated behind the front plate to detect any damage on the engagement lock. In particular the elongated body and/or the second member may be observed through the aperture. The aperture should however be small enough to prevent any access and attacks with tools on the engagement lock through the aperture. The aperture may additionally be covered by a transparent material or grid material to prevent any attacks through the aperture. The aperture is in particular located between the second and third plate for observing the second member. In this way the elongated body is still fully enclosed by the first, second and plates and thereby tamper-proof. Since an unauthorised person may consider tampering with the elongated body of the first member, it preferably remains entirely enclosed by the front plate, first plate and second plate. If the elongated body of the engagement lock is broken, the second member will fall through the third hole and it will be immediately detectable, e.g. by observing through the aperture.

[0021] According to a further embodiment of the present invention, the engagement lock has a specific identifier and the observation aperture has width and a length sufficient for observing the identifier. Each engagement lock produced is provided with a unique identifier such as an engraved number, a bar code, a RFID tag, a colour tag or the like. This prevents an unauthorised person from simply replacing the engagement lock with a similar engagement lock after an unauthorised opening. The identifier should be visible though the aperture so that the authorised person wishing to inspect the identifier may observe the identifier through the aperture and

do not need to remove the security cover.

[0022] According to a further embodiment of the present invention, the observation aperture has a width of about 5-10mm in particular 7.5mm and a length of about 10-20mm in particular 15mm. An aperture having the above measurements is suitable for the most common types of identifiers and provides enough space for quick identification and yet restricts access to the engagement lock to prevent unauthorised persons from tampering with the engagement lock though the aperture.

[0023] According to a further embodiment of the present invention, the head part and the first plate form an even surface. The countersunk first hole and head may form an even surface when the engagement lock is in the closed state. This way any attacks on the head is avoided.

[0024] According to a further embodiment of the present invention, the first plate comprises a security flange protruding outwards in relation to the first plate and at least partially surrounding the first hole. The flange will additionally protect the head of the first member and prevent any access by tools such as pliers or chisels to the head of the first member of the engagement lock. The flange preferably surrounds the first hole to the extent of protecting the head from any attacks, i.e. the part of the engagement lock facing the wall/door of the container may be open and must not be protected by the flange.

[0025] According to a further embodiment of the present invention, the cover comprises plastic, in particular polycarbonate. A plastic cover may be preferred since a plastic cover is rigid during use and at the same time it may be easily broken off when the engagement lock is to be opened. Plastic is also a low cost and environmentally friendly material, which may be disposed of in an ecological way after use.

[0026] According to a further embodiment of the present invention, the cover comprises metal, in particular aluminium or zinc. As an alternative to, or in combination with, plastic, metal may be used, preferably cheap and light metals like aluminium and zinc. Metal typically provides more rigidity than plastic, however the price may be higher for metal than for plastic.

[0027] According to a further embodiment of the present invention, the security cover is made breakable by providing a predetermined breaking point. To simplify authorised opening, a predetermined breaking point may be provided in the security cover. The predetermined breaking point may comprise a recess extending through the front plate, first plate, second plate and third plate for separating the security cover in two parts when opening.

[0028] According to a further embodiment of the present invention, the security cover further comprises two opposite sidewalls. The sidewalls may be desired to avoid attacks from the side. The sidewalls may optionally be designed to accommodate the handles of the container.

[0029] According to a further embodiment of the present invention, the cover deteriorate if an attempt of

an unauthorised opening, such as hammering or drilling of the engagement lock or cover, is made. The security cover may be made in a softer material so that marks will be visible if an unauthorised opening has taken place. This way a successful attempt to open the security cover may be revealed by the marks on the security cover.

[0030] According to a further embodiment of the present invention, the security cover is further provided with an identification marker. The security cover may have a marking, such as an engraved number, a bar code, a RFID tag, a colour tag or the like. This prevents an unauthorised person from simply replacing the security cover with a similar security cover after an unauthorised opening. The marking may correspond to a specific engagement lock to make the replacement of the security cover by the unauthorised person easier to detect.

[0031] According to a further embodiment of the present invention, the second member and the third plate form an even surface. If the third hole is positioned flush with the second member in the locked state, it is more difficult for the unauthorised person to use gripping tools such as pliers.

[0032] According to a further embodiment of the present invention the security cover is irreversibly torn when removed. The security cover is intended to be a one-way cover which is broken off before trying to open the security lock. A broken security cover is thus a sign of unauthorised tampering.

[0033] The above object and the above need together with numerous other objects, needs, features and advantages which will be evident from the below detailed description are according to a second aspect of the present invention obtained by a method of installing a security cover for an engagement lock for a container and of the kind having:

a first member comprising a rod-shaped elongated body defining a first and a second end, and defining a longitudinal direction of the rod-shaped elongated body, the first end constituting an insertion end defining a first transversal dimension, the second end comprising a head defining a second transversal dimension being larger than the first transversal dimension of the insertion end, and
 a second member defining a first surface, an opposite second surface and an outer, third transversal dimension being larger than the first transversal dimension, the first surface having a cavity, the engagement lock defining a locked state in which the insertion end is allowed to snap-fit interlock with the cavity, when in the locked state the engagement lock defining a first longitudinal distance from the head to the first surface and a second longitudinal distance from the head to the second surface,
 the security cover comprises:

a front plate,
 a first plate extending rearwards in relation to

the front plate and defining a first hole being larger than the first transversal dimension and smaller than the second transversal dimension, the head part and the first hole being countersunk, a second plate extending rearwards in relation to the front plate and defining a second hole being larger than the first transversal dimension and smaller than the third transversal dimension, the distance between the first and second plates is substantially equal to the first distance, a third plate extending rearwards in relation to the front plate and defining a third hole being larger than the third transversal dimension, the distance between the first and third plates is substantially equal to the second distance and performing the steps of:

inserting at least a part of the head part of the elongated body in the first hole and at least a part of the insertion end of the elongated body within the second hole,
 inserting the second member in the third hole so that the insertion end is allowed to snap-fit interlock with the cavity, thereby defining the locked state.

[0034] The security cover is installed onto the door hasp of the container together with the engagement lock. To install the security cover, the insertion end of the first member is introduced through the first hole and further through the second hole so that the head is accommodated within the first plate and supported by the first plate.

[0035] Subsequently, the second member is extended through the third hole so that the cavity will snap-fit interlock with the insertion end and the first surface is placed juxtaposed the second plate.

[0036] The above object and the above need together with numerous other objects, needs, features and advantages which will be evident from the below detailed description are according to a third aspect of the present invention obtained by a security assembly for a container including an engagement lock and a security cover, the engagement lock comprising:

a first member comprising a rod-shaped elongated body defining a first and a second end, and defining a longitudinal direction of the rod-shaped elongated body, the first end constituting an insertion end defining a first transversal dimension, the second end comprising a head defining a second transversal dimension being larger than the first transversal dimension of the insertion end, and
 a second member defining a first surface, an opposite second surface and an outer, third transversal dimension being larger than the first transversal dimension, the first surface having a cavity, the engagement lock defining a locked state in which the insertion end is allowed to snap-fit interlock with the

cavity, when in the locked state the engagement lock defining a first longitudinal distance from the head to the first surface and a second longitudinal distance from the head to the second surface, the security cover comprises:

- a front plate,
- a first plate extending rearwards in relation to the front plate and defining a first hole being larger than the first transversal dimension and smaller than the second transversal dimension, the head part and the first hole being countersunk to accommodate at least a part of the head within the first hole,
- an second plate extending rearwards in relation to the front plate and defining a second hole being larger than the first transversal dimension and smaller than the third transversal dimension to accommodate the elongated body at the insertion end, the distance between the first and second plates is substantially equal to the first distance,
- a third plate extending rearwards in relation to the front plate and defining a third hole being larger than the third transversal dimension to accommodate the second member at the second surface, the distance between the first and third plates is substantially equal to the second distance.

[0037] It is contemplated that the security cover and engagement lock may be provided as an assembly.

[0038] The present invention is now to be further described with reference to the drawings in which figures 1A-G are schematic views of a first and presently preferred embodiment of a security cover for an engagement lock for a container, without the engagement lock, figures 2A-G are schematic views similar to the views of figures 1A-G illustrating the first and presently preferred embodiment of a security cover for an engagement lock with an engagement lock positioned within the security cover, and figures 3A-B are an assembly of a container handle, container plate, engagement lock and security cover.

[0039] A detailed description of the figures of the first and presently preferred embodiment of the present invention follows below:

[0040] Figure 1A shows a perspective view of a security cover 10 according to the present invention. The present view shows the rear parts and the interior of the security cover 10. The security cover 10 comprises a front plate 12, which in the present view is facing away from the observer. A security cover 10 further comprises a top plate 14 extending rearwards from the upper end of the front plate 12 and a bottom plate 16 extending rearwards from the lower end of the front plate 12. Between the top plate 14 and the bottom plate 16 an intermediate plate 18 extends rearwards from the front plate 12. On each side of the top plate 14 an upper left side

plate 20 and an upper right side plate 22, respectively, extend downwards from the top plate 14 towards the intermediate plate 18. On the opposite side a lower left side plate 24 and a lower right side plate 26 extend upwards from each side of the bottom plate 16 towards the intermediate plate 18. It should be noted that the upper side plates 20, 22 do not join the lower side plates 24, 26 but define an opening on each side of the intermediate plate 18.

[0041] The top plate 14 defines a top hole 28 for inserting a first member of an engagement lock (not shown). The top hole 28 is being countersunk, i.e. having an inwardly decreasing area. The top hole 28 is being countersunk for accommodating a head part of an engagement lock (not shown). The top hole 28 is optionally provided with a security flange 36 protruding from the top plate 14 and surrounding the top hole 28 in an U-shape. The intermediate plate 18 defines an intermediate hole 30, which is located in registration with the top hole 28. The intermediate hole 30 is designed for accommodating the first member of an engagement lock (not shown). The bottom plate 16 defines a bottom hole 32 in registration with the top hole 28 and the intermediate hole 30 for inserting a second member of an engagement lock (not shown). The front plate 12 defines an observation aperture 34 for visually observing the interior of the security cover 10.

[0042] The security cover 10 is manufactured in a weatherproof material which does not deteriorate when subjected to light impacts which may occur during loading and unloading as well as during transit. Preferably either plastics such as PET or light metal such as aluminium or zinc alloys may be used. The plates 12, 14, 16, 18, 20, 22, 24 and 26 should be thick enough to form a rigid structure for serving the purpose of protecting the engagement lock (not shown), however, the material should be thin enough to allow for the removal of the security cover 10 when the engagement lock (not shown) is accessed.

[0043] Figure 1B shows a front view of the security cover 10. The present view shows the location of the observation aperture 34. The observation aperture 34 is elongated and allows the interior of the security cover 10 to be observed at the location of the second member of the engagement lock (not shown).

[0044] Figure 1C shows a left side view of the security cover 10. The upper left side plate 20 and the lower left side plate 24 define an opening between them for accessing the intermediate plate 18. The purpose of this opening is to accommodate a handle of a container (not shown). This will be further described below in connection with figure 3.

[0045] Figure 1D shows a right side view of the security cover 10, showing the upper right side plate 22 and the lower right side plate 26 and an opening in between for accessing the intermediate plate 18 as described in figure 1C.

[0046] Figure 1E shows a top view of the security cover

10. The top hole 28 in the top plate 14 is shown being countersunk, i.e. having an outer diameter which is larger than the inner diameter. The security flange 36 partly surrounds the top hole 28.

[0047] Figure 1F shows a bottom view of the security cover 10. Since the bottom hole 32 in the bottom plate 16 is larger than the intermediate hole 30, the intermediate plate 18 is partly visible through the bottom hole 32. The bottom hole 32 should be large enough to accommodate the second member of the engagement lock (not shown), which will be further described in connection with figure 2. The present view also reveals part of the observation aperture 34.

[0048] Figure 1G shows a rear view of the security cover 10. The observation aperture 34 is located below the intermediate plate 18 for observing the space within the security cover 10 below the intermediate plate 18 from outside the front plate 12.

[0049] Figure 2A shows the security cover 10 as previously described in connection with figure 1 having an installed engagement lock 40. The engagement lock is installed by inserting the first member 42 through the top hole 28 and further through the intermediate hole 30 so that the head 44 of the engagement lock 40 is accommodated in the upper hole 28. The head 44 is countersunk corresponding to the hole 28. In the present embodiment the head 44 extends above the surface of the top plate 14, and consequently the head is further protected by the security flange 36. In alternative embodiments the head may be level with the top plate 14 or embedded in the top plate 14. The security flange 36 protrudes upwards and surrounds the top hole 28 facing the directions where the head part 44 would be exposed to attack, i.e. all directions except rearwards, i.e. towards the door of the container (not shown). The intermediate hole 30 has a diameter substantially equal, i.e. only slightly larger compared to the first member 42. The first member 42 extends a specific distance through the intermediate hole 30. The second member 46 of the engagement lock 40 defines a diameter larger than the diameter of the intermediate hole 30 and smaller than the diameter of the bottom hole 32 so that the second member 46 can be inserted into the bottom hole 32. The second member 46 of the engagement lock 40 defines a cavity which may snap-fit interlock with the insertion end of the first member 42. The insertion end of the first member 42 is defined as the part of the first member, which extends below the intermediate hole 30. When the engagement lock 40 is in the locked state, i.e. after the first member 42 and the second member 46 snap-fit interlock, the lower end of the second member 46 is slightly extending through the bottom hole 32. In an alternative embodiment, the second member 46 and the bottom plate 16 may be level or the second member 46 may be completely inside the bottom plate 16. The security cover 10 thereby substantially retains the engagement lock 40 in position. Any transversal movement of the engagement lock 40 is prevented by the first member 42 being accommodated within the top

hole 28 and the intermediate hole 30. Any movement of the engagement lock 40 in the longitudinal direction is also prevented by the head 44 being accommodated within the hole 28 and the upper surface of the second member 46 being located in juxtaposed position in relation to the intermediate plate 18.

[0050] Figure 2B shows a front view of the security cover 10 corresponding to figure 1B having an installed engagement lock 40. The observation aperture 34 reveals a part of the second member 46 of the engagement lock 40. The second member 46 may typically be provided with an identification tag which is unique to the specific engagement lock. The identification tag, which is not shown in the figure, may comprise an engraving or similar. The engagement lock 40 may preferably be loosely retained in position so that it may be rotated to allow inspection of the far end of second member 46 not visible through the aperture 34.

[0051] Figures 2C and 2D show the left side view and right side view, respectively, of the security cover 10. The present views reveal a small gap 38 between the upper surface of the second member 46 and the intermediate plate 18. This gap may be used for accommodating the door hasp and the handle of the container (not shown), which will be further described in connection with figure 3.

[0052] Figure 2E and Figure 2F show top and bottom view, respectively, of the security cover 10 including an engagement lock 40.

[0053] Figure 2G shows a rear view of the security cover 10 including an engagement lock 40. The rear is facing the container door (not shown), and must thus not be protected.

[0054] The security cover 10 according to the above-described embodiment of the present invention serves the purpose of firstly protecting the engagement lock 40 from any unintentional deterioration and secondly making any attempt of opening of the engagement lock obvious to an authorised person. When the engagement lock 40 is opened by an authorised person firstly the security cover 10 is removed. The security cover 10 is removed by simply breaking it away. To simplify the breaking, optionally a predetermined breaking point may be provided. Subsequently, when the security cover 10 has been removed, the engagement lock 40 is removed by cutting the first member 42 by means of pliers or the like.

[0055] Figure 3A shows a container handle 50 and a door hasp 52 when the container doors are closed. The handle 50 and door hasp 52 each define a hole 54, the holes being positioned in registration when the container doors are closed. The hole 54 may be used for accommodating a security lock and an engagement lock, which will be further described below.

[0056] Figure 3B shows an assembly 48 comprising a container handle 50, a door hasp 52, an engagement lock 40 as described above comprising a first member 42 (located behind the front plate 12), a second member 46 and a head 44 and a security cover 10 for protecting the engagement lock 40. The handle 50 extends through

the opening between the upper side plates 20, 22 and the lower side plates 24, 26. When the security cover and the engagement lock have been removed, the container door is unlocked and opened by operating the handle 50 outwards in relation to the door hasp 52.

[0057] Any attempt of tampering with the engagement lock will be evident since in that case the security cover would either be missing or there would be visible traces/marks on the security cover. To ensure that the security cover is not simply replaced with a similar security cover after the engagement lock has been opened, the security cover and engagement lock may be given a corresponding unique identification mark.

[0058] A further feature of the security cover and engagement lock is that once they have been opened they are torn beyond repair and cannot be installed again, at least not without leaving clearly visible marks, which will alert any authorised person inspecting the engagement lock and security cover.

[0059] Freight containers typically have double doors. The door hasp is typically accommodated on the first container door. The handle, which is connected to the second door, is used for opening the second door. The engagement lock is interconnects the door hasp and the handle, which are positioned in registration when the container doors are closed. The above design for freight containers is well known in the art.

List of parts with reference to the figures:

[0060]

- 10. Security cover
- 12. Front plate
- 14. Top plate
- 16. Bottom plate
- 18. Intermediate plate
- 20. Upper left side plate
- 22. Upper right side plate
- 24. Lower left side plate
- 26. Lower right side plate
- 28. Top hole
- 30. Intermediate hole
- 32. Bottom hole
- 34. Observation aperture
- 36. Security flange
- 38. Gap
- 40. Engagement lock
- 42. First member
- 44. Head
- 46. Second member
- 48. Assembly
- 50. Handle
- 52. Door hasp
- 54. Hole

Claims

1. A security cover for an engagement lock for a container and of the kind having:

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a first member comprising a rod-shaped elongated body defining a first and a second end, and defining a longitudinal direction of said rod-shaped elongated body, said first end constituting an insertion end defining a first transversal dimension, said second end comprising a head defining a second transversal dimension being larger than said first transversal dimension of said insertion end, and

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a second member defining a first surface, an opposite second surface and an outer, third transversal dimension being larger than said first transversal dimension, said first surface having a cavity, said engagement lock defining a locked state in which said insertion end is allowed to snap-fit interlock with said cavity, when in said locked state said engagement lock defining a first longitudinal distance from said head to said first surface and a second longitudinal distance from said head to said second surface, said security cover comprise:

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a front plate,

a first plate extending rearwards in relation to said front plate and defining a first hole being larger than said first transversal dimension and smaller than said second transversal dimension, said head part and said first hole being countersunk to accommodate at least a part of said head within said first hole,

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a second plate extending rearwards in relation to said front plate and defining a second hole being larger than said first transversal dimension and smaller than said third transversal dimension for accommodating said elongated body at said insertion end, the distance between said first and second plates is substantially equal to said first distance,

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a third plate extending rearwards in relation to said front plate and defining a third hole being larger than said third transversal dimension to accommodate said second member at said second surface, the distance between said first and third plates is substantially equal to said second distance.

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2. The security cover according to claim 1, wherein said front plate defines an observation aperture for visually observing at least a part of said engagement lock and in particular for visually observing said second member.

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3. The security cover according to claim 2, wherein said engagement lock has a specific identifier and said observation aperture has width and a length sufficient for observing said identifier.
4. The security cover according to claim 3, wherein said observation aperture has a width of about 5-10mm in particular 7.5mm and a length of about 10-20mm in particular 15mm.
5. The security cover according to any of the preceding claims, wherein said head part and said first plate form an even surface.
6. The security cover according to any of the preceding claims, wherein said first plate comprises a security flange protruding outwards in relation said first plate and at least partially surrounding said first hole.
7. The security cover according to any of the preceding claims, wherein said cover comprises plastic, in particular polycarbonate and/or metal, in particular aluminium or zinc.
8. The security cover according to any of the preceding claims, wherein said security cover is made breakable by providing a predetermined breaking point.
9. The security cover according to any of the preceding claims, further comprising two opposite sidewalls.
10. The security cover according to any of the preceding claims, wherein said cover deteriorate if an attempt of an unauthorised opening, such as hammering or drilling of said engagement lock or cover is made.
11. The security cover according to any of the preceding claims, further providing an identification marker.
12. The security cover according to any of the preceding claims, wherein said second member and said third plate form an even surface.
13. The security cover according to any of the preceding claims, wherein said security cover is irreversibly torn when removed.
14. A method of installing a security cover for an engagement lock for a container and of the kind having:
- a first member comprising a rod-shaped elongated body defining a first and a second end, and defining a longitudinal direction of said rod-shaped elongated body, said first end constituting an insertion end defining a first transversal dimension, said second end comprising a head defining a second transversal dimension being larger than said first transversal dimension of
- said insertion end, and
- a second member defining a first surface, an opposite second surface and an outer, third transversal dimension being larger than said first transversal dimension, said first surface having a cavity, said engagement lock defining a locked state in which said insertion end is allowed to snap-fit interlock with said cavity, when in said locked state said engagement lock defining a first longitudinal distance from said head to said first surface and a second longitudinal distance from said head to said second surface, said security cover comprises:
- a front plate,
- a first plate extending rearwards in relation to said front plate and defining a first hole being larger than said first transversal dimension and smaller than said second transversal dimension, said head part and said first hole being countersunk,
- a second plate extending rearwards in relation to said front plate and defining a second hole being larger than said first transversal dimension and smaller than said third transversal dimension, the distance between said first and second plates is substantially equal to said first distance,
- a third plate extending rearwards in relation to said front plate and defining a third hole being larger than said third transversal dimension, the distance between said first and third plates is substantially equal to said second distance, and performing the steps of:
- inserting at least a part of said head part of said elongated body in said first hole and at least a part of said insertion end of said elongated body within said second hole
- inserting said second member in said third hole so that said insertion end is allowed to snap-fit interlock with said cavity, thereby defining said locked state.
15. A security assembly for a container including an engagement lock and a security cover, said engagement lock comprising:
- a first member comprising a rod-shaped elongated body defining a first and a second end, and defining a longitudinal direction of said rod-shaped elongated body, said first end constituting an insertion end defining a first transversal dimension, said second end comprising a head defining a second transversal dimension being

larger than said first transversal dimension of said insertion end, and
 a second member defining a first surface, an opposite second surface and an outer, third transversal dimension being larger than said first transversal dimension, said first surface having a cavity, said engagement lock defining a locked state in which said insertion end is allowed to snap-fit interlock with said cavity, when in said locked state said engagement lock defining a first longitudinal distance from said head to said first surface and a second longitudinal distance from said head to said second surface, said security cover comprises:

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- a front plate,
- a first plate extending rearwards in relation to said front plate and defining a first hole being larger than said first transversal dimension and smaller than said second transversal dimension, said head part and said first hole being countersunk to accommodate at least a part of said head within said first hole,
- an second plate extending rearwards in relation to said front plate and defining a second hole being larger than said first transversal dimension and smaller than said third transversal dimension to accommodate said elongated body at said insertion end, the distance between said first and second plates is substantially equal to said first distance,
- a third plate extending rearwards in relation to said front plate and defining a third hole being larger than said third transversal dimension to accommodate said second member at said second surface, the distance between said first and third plates is substantially equal to said second distance.

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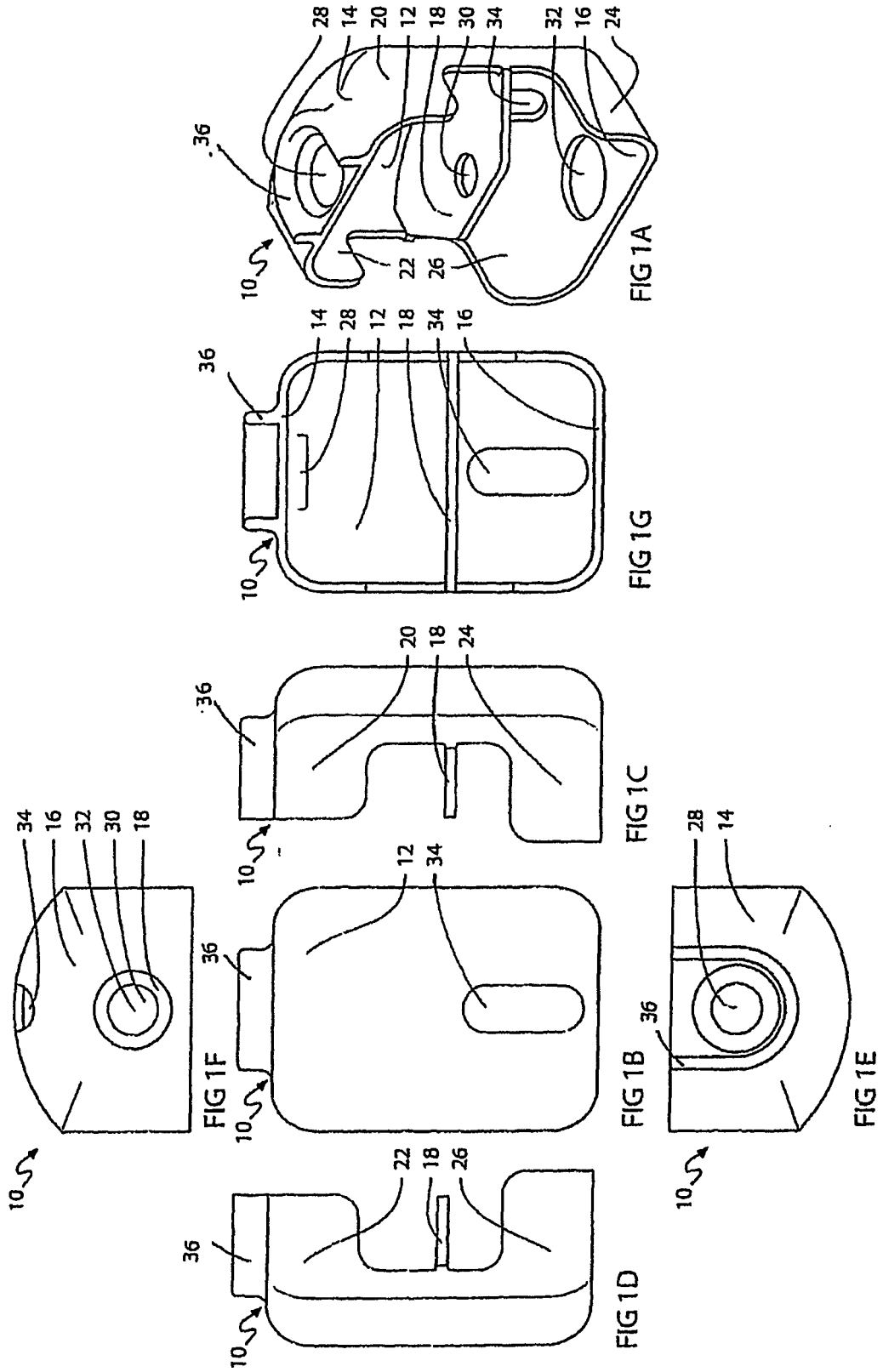
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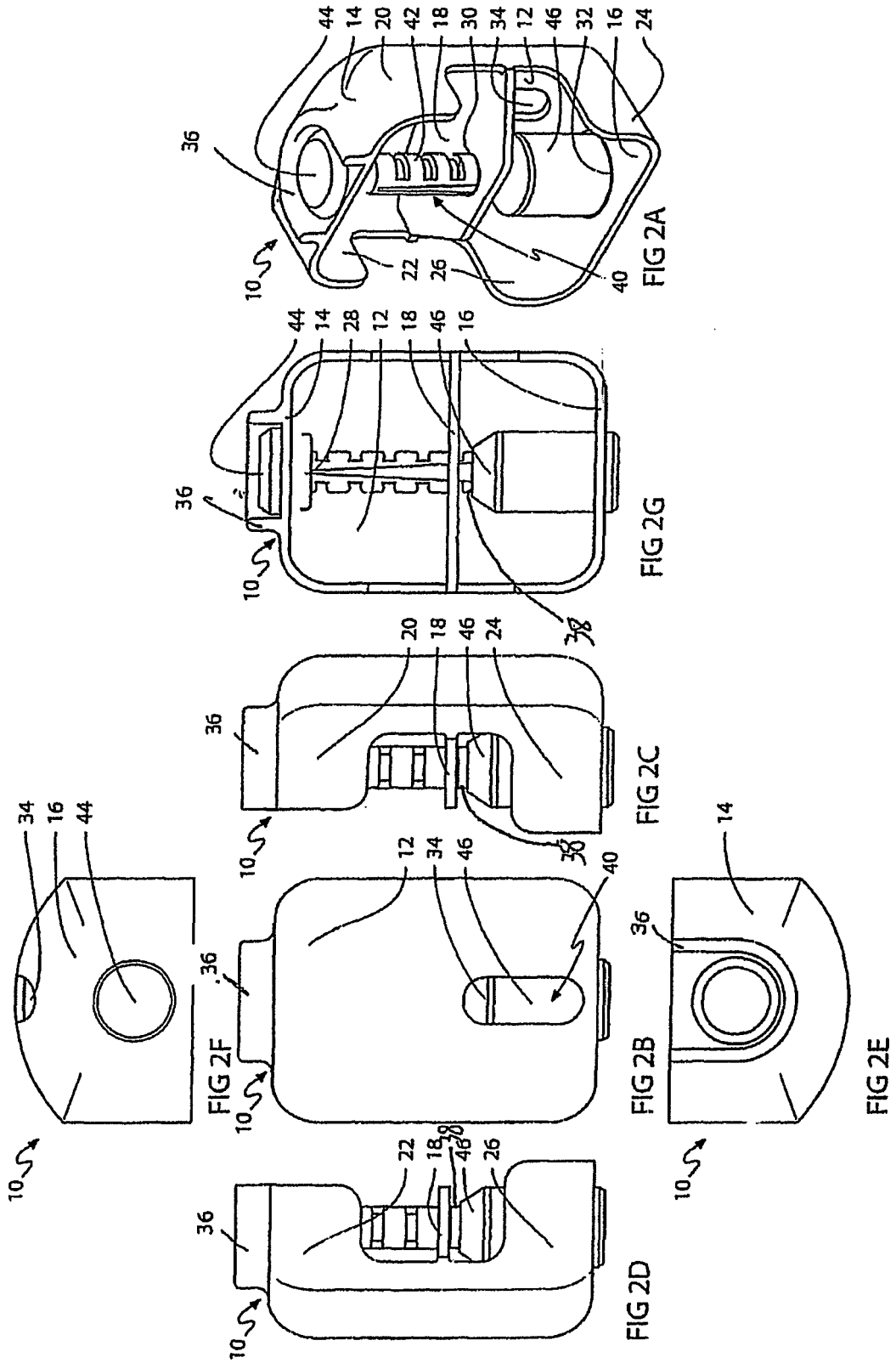
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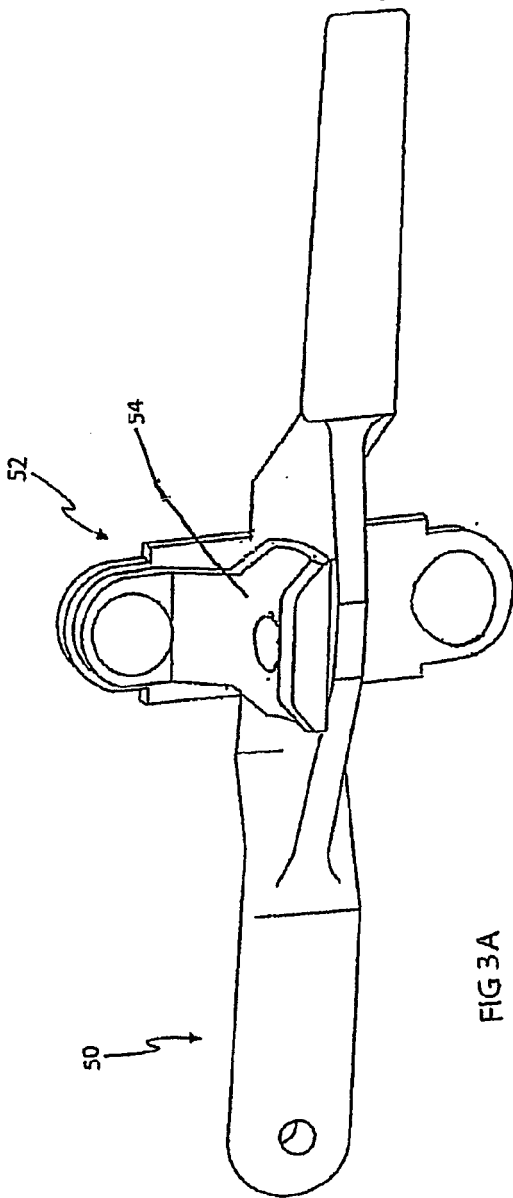


FIG 3A

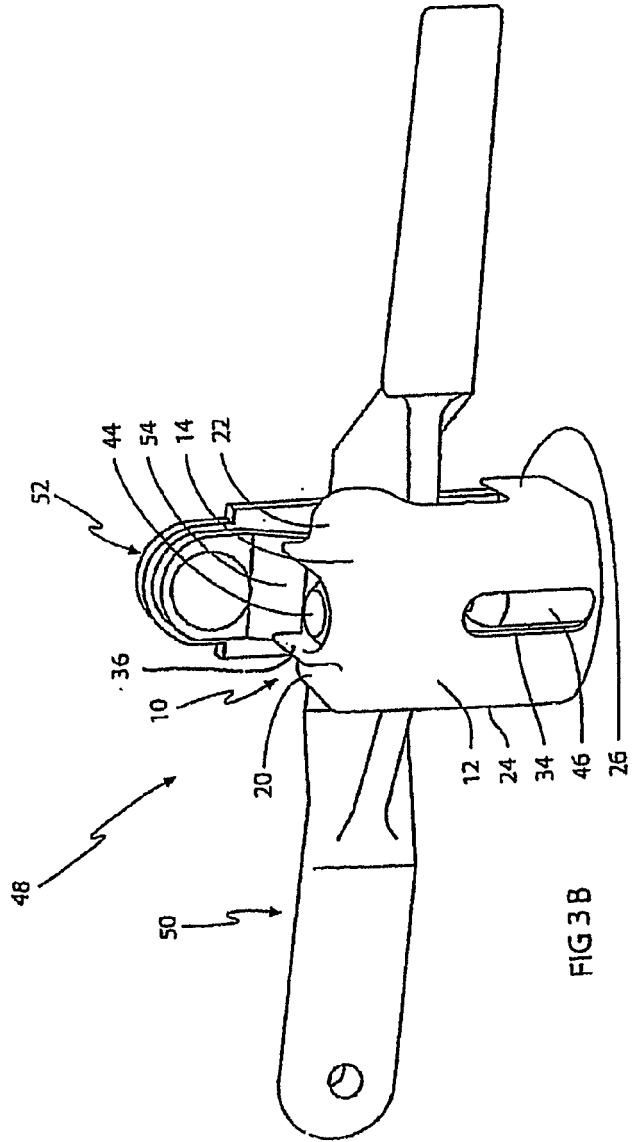


FIG 3B



EUROPEAN SEARCH REPORT

Application Number
EP 08 38 8042

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