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(54) **COMPUTER PHYSICAL SECURITY DEVICE**

SICHERHEITSVORRICHTUNG GEGEN DEN DIEBSTAHL VON COMPUTERN

DISPOSITIF DE SECURITE CONTRE LE VOL D'ORDINATEURS

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Description

BACKGROUND OF THE INVENTION

[0001] The present invention relates to devices for inhibiting the theft of relatively small but expensive pieces of equipment.

[0002] Computers have evolved rather rapidly from large, expensive machines usable only by a few, to relatively small, portable machines which are usable by many. In particular, the development of desk top computers with significant processing power has made computers available to the general population. It is now common for college and even high school students to have their own computer, and desk top computers are in wide spread use as word processors and work stations in almost all forms of business. Desk top computers are relatively small and easily transportable, and an undesirable side effect of their proliferation is the fact that the theft of such computers is a significant problem.

[0003] A variety of devices have been developed to inhibit the theft of desk top computers and similar equipment. Since desk top computer systems involve several components, typically including the computer itself, a separate monitor, keyboard and often a printer, such security systems often employ a cable which attaches each of the components to each other and to a relatively immovable object such as a desk. The principal difficulty in such systems is providing an effective and convenient method for attaching the cable itself to the equipment.

[0004] Kensington Microware Limited, assignee of this application, currently provides a security system which is especially designed for use with particular Apple computers. Certain Apple computer components have slots and internal brackets designed to capture a specially designed tab inserted through the slot so that the tab is not removable. While this system is effective for particular types of Apple computers, it does not work for those Apple computer components and other computer brands which do not have the special designed slots and brackets.

[0005] It is undesirable to require a computer to have specially designed slots and internal capture brackets because the brackets occupy a significant amount of space in an item of equipment which is intended to be as space efficient as possible. Different items of Apple equipment require different sized slots, meaning that the security mechanism must provide a variety of different sized tabs. The tabs, once inserted, cannot be removed without damage to the equipment, meaning that the security system cannot be moved from one computer to the other. Even Apple computers with specially designed slots are typically used with peripheral equipment which does not have them, and, the Kensington system provides screws requiring a special screwdriver which replace the screws used to attach the existing communication cables, securing the peripheral equipment to the base computer by preventing unauthorized

removal of the communication cables. This last aspect of the system has a drawback in that the peripheral equipment cannot be removed from the base computer without the special screwdriver, which can be lost or misplaced.

[0006] Other vendors provide security systems which are not required to interface directly with special slots and capture mechanisms as provided in certain Apple computers. For example, Secure-It, Inc., under the trademark "K Å BLIT", provides a variety of brackets attached to the computer component using existing mounting screws, i.e., screws which are already used to secure items of equipment within the cabinet. Typically, the bracket is apertured so that passage of the cable through the aperture prevents access to the mounting screw and thus prevents removal of the bracket from the equipment. A deficiency of this type of system is that it requires the removal of the existing mounting screw, which may cause some damage to the internal components of the computer. Suitable existing screws are not always available on certain peripherals for convenient attachment of the fastener. For this latter reason, K Å B-LIT also provides glue-on disks which, unfortunately, are permanently secured to the equipment.

[0007] The theft of small but expensive equipment such as desk top computers is a growing problem. Existing devices are simply too inefficient or ineffective, or their application is too limited. As a result, the use of such security systems is rare, computer equipment is typically left unprotected, and it is all too often stolen.

[0008] A computer physical security device of the prior art is known from WO 93/15 295, this being the closest prior art upon which the preambles of claims 1, 10 and 11 have been based. This known security device has an attachment mechanism for inhibiting theft of equipment which includes a housing for a spindle having a first portion rotatable within the housing, a shaft extending outwardly from the housing, and crossmember the end of the shaft having peripheral dimension closely conforming to the internal dimensions of a specially designed slot in the equipment. An abutment mechanism emanates from the housing, and is located on opposite sides of the shaft intermediate the housing and the crossmember. The combined peripheral cross-section dimensions of the abutment mechanism and the shaft closely conform to those of the slot. The crossmember is aligned with the abutment mechanism so that the cross member can be inserted through the slot with the shaft and the abutment mechanism occupying the slot. The spindle is rotated 90° to misalign the crossmember with the slot, thereby attaching the attachment mechanism rigidly to the external wall. A cable is secured to the housing and to an immoveable object to prevent theft of equipment.

SUMMARY OF THE INVENTION

[0009] The present invention is set out in independent

claims 1, 10 and 11. It inhibits the theft of equipment such as personal computers. The equipment must have an external wall provided with a specially designed, approximately rectangular slot having preselected dimensions.

[0010] The claimed systems are far more adaptable and convenient to use than existing systems. The only required modification of the equipment to be protected is a small (preferably about 3 by 7 millimeter) slot in an external wall. Additional brackets, capture mechanisms or the like are not necessary. This small slot can easily be molded into computer systems at essentially no cost and without degrading the integrity of the equipment. The attachment mechanism can readily be installed on the equipment, and removed when appropriate by an authorized user. In one embodiment, a key-operated attachment attaches a single item of equipment to an immovable object with the cable. In a second embodiment, the cable passes through mating apertures in the spindle and the housing of one or more attachment mechanisms to prevent their removal once they have been attached to the equipment and the cable has been installed.

[0011] The attachment mechanism is surprisingly difficult to remove from an item of equipment once it has been installed. In the preferred embodiments, the mechanism is quite small, and it is difficult to apply sufficient leverage to break the mechanism away from the equipment to which it is attached. Forcibly removing the mechanism will result in significant, highly visible damage to the exterior wall, identifying the equipment as stolen and making it difficult to resell, greatly reducing its theft potential.

[0012] The present invention, as to manner and ease of operation, together with further objects and advantages thereof will be better understood from the following description considered in connection with the accompanying drawings in which a preferred embodiment of the invention is illustrated by way of example. It is to be expressly understood, however, that the drawings are for the purpose of illustration and description only and are not intended as a definition of the limits of the invention. Figures 1 to 13 are included as background material already disclosed in WO 93/15 295 and helpful for understanding the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013]

Fig. 1 is a perspective view of a known attachment mechanism attached to a computer monitor;
Fig. 2 is a perspective view of a known attachment mechanism attached to a computer keyboard;
Fig. 3 is a perspective view of the attachment mechanism of Figure 1;
Fig. 4 is an exploded view of the attachment mechanism of Fig. 3;

Fig. 5 is a fragmentary elevation view of a slot in a piece of equipment specially designed to accept the attachment mechanism of either Figure 1 or Figure 2;

Fig. 6 is a section view taken along lines 6-6 of Fig. 3;

Fig. 7 is a section view taken along lines 7-7 of Fig. 3;

Fig. 8 is a fragmentary section view from inside an item of equipment illustrating insertion of a cross-member of the mechanism of Fig. 3 into the slot of Fig. 5;

Fig. 9 is a view similar to that of Fig. 8 with the cross-member misaligned;

Figs. 10A and B are elevation views illustrating the installation of the attachment mechanism of Fig. 3 on an item of equipment;

Fig. 11 is a perspective view of the attachment mechanism of Figure 2;

Fig. 12 is an exploded view of the attachment mechanism of Fig. 10;

Figs. 13A and 13B are side elevation views illustrating the installation of the attachment mechanism of Fig. 11 on an item of equipment; and

Figs. 14 and 15 are side elevational views of embodiments of an attachment mechanism and an engagement mechanism according to the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0014] A security device 10 is illustrated generally by way of reference to Fig. 1. Security device 10 includes an attachment mechanism 12 designed to attach to a component of a computer system, such as computer monitor 14. Attachment mechanism 12 has an aperture 16, and a cable 18 which passes through the aperture when the attachment mechanism 12 is attached to a component such as monitor 14. A lock 20 is fixed to one end of cable 18. The free end of cable 18 may be of the type having a "mushroom" head 22 adapted to penetrate and be secured within lock 20 using key 24. With mushroom head 22 detached from lock 20, cable 18 can be threaded through the apertures 16 of one or more attachment mechanisms 12, and wrapped around a relatively immovable object (not shown) such as the cross bar spanning two legs of a desk. Mushroom head 22 is then inserted into lock 20 and the lock closed using key 24 to secure the computer components to the immovable object.

[0015] A second device, designed primarily to secure single rather than multiple items of computer equipment, is illustrated generally by way of reference to Fig. 2. Embodiment 26 includes an attachment mechanism 28 designed to be secured to a computer component such as keyboard 30. Attachment mechanism 28 is affixed to one end of a cable 32 which has a closed loop 34 at its

other end. Cable 32 is first wrapped around a relatively immovable object, such as a cross piece between two legs of a desk or table, and attachment mechanism 28 is passed through loop 34 and attached to the item to be protected such as keyboard 30 to make it difficult to steal the item of equipment.

[0016] Attachment mechanism 12 of device 10 is illustrated in more detail by way of reference to Figs. 3 and 4 in combination. Mechanism 12 includes a housing 36 having a hollow interior cylindrical cavity 38. An annular plate 40 forms one end of housing 36 and has an aperture 41. A pair of apertures such as aperture 16 are located on opposite sides of housing 36. A small raised aperture 42 is also provided in housing 36 to accommodate a pin 44, as explained in more detail hereinafter.

[0017] A spindle 46 includes a cylindrical portion 48 adapted to fit within the cylindrical cavity of housing 36. Spindle 48 includes a raised plate 50 at one end which forms the aft end of the mechanism when assembled as illustrated in Fig. 3. Spindle 46 also includes a shaft 52 extending outwardly through the aperture 41 in housing 36. A crossmember 54 is located on the distal end of shaft 52.

[0018] An abutment mechanism 56 includes an abutment plate 58 designed to be received within the cylindrical interior cavity of housing 36, and a pair of pins 60 adapted to extend outwardly through the aperture 41 in housing 36. A spring 62 biases abutment plate 58 and spindle 46 rearwardly when the mechanism is assembled, as illustrated in Fig. 3. A plastic bushing 64 designed to prevent scarring of the equipment to which mechanism 12 is attached is affixed to the plate 40 on housing 36 circumscribing aperture 41.

[0019] When mechanism 12 is assembled as illustrated in Fig. 3, crossmember 54 and shaft 52, together with pins 60 on either side of the shaft, extend outwardly beyond housing 46 through aperture 41. Pin 44 engages a groove 66 in spindle 46 so that the mechanism cannot be disassembled without removing the pin. The head of pin 44 is conformed to the shape of a boss 67 on the surface of housing 36 so that the pin cannot be removed without special equipment. Groove 66 has a preselected width allowing limited axial movement of spindle 46 relative to housing 36 with pin 44 engaged so that the axial position of crossmember 54 relative to the housing is somewhat adjustable. Spring 62 biases plate 58 and spindle 46 rearwardly to bias crossmember 54 toward housing 36.

[0020] Groove 66 extends around about 25% of the periphery of spindle 46 so that the spindle can be rotated approximately 90° relative to the housing. A transverse aperture 68 through the cylindrical portion 48 of spindle 46 is aligned with aperture 16 in housing 36 when crossmember 54 is misaligned from pin 60 (see Fig. 4). With spindle 46 rotated 90°, as allowed by pin 44 in groove 68, crossmember 54 is aligned with pin 60, and aperture 68 is not aligned with aperture 16. Cable 18 (see Fig. 1) can only be inserted through the aligned apertures 16,

68 when crossmember 54 is misaligned with pins 60, i.e., when attachment mechanism 12 is attached to the piece of equipment, as explained hereinbelow. With cable 18 passing through aligned apertures 16 and 68, rotation of spindle 46 so as to align crossmember 54 with pins 60 and allow removal of the attachment mechanism is effectively prevented.

[0021] The devices 10 and 26 are designed to operate with items of equipment provided by a special slot, as illustrated in Fig. 5. The exterior wall 70 of the piece of equipment is typically made of sheet metal, or molded plastic, either of which is compatible with the present invention. A relatively small slot 72 is formed in wall 70, by molding or otherwise as appropriate. In the preferred embodiment of slot 72, the slot has a generally rectangular configuration, i.e., the slot is generally rectangular having long parallel sides 74, short parallel sides 75 and rounded corners 76. Slot 72 is relatively small, having a long dimension 78 of seven millimeters, and a short dimension 79 of three millimeters,

[0022] Corners 76 have a radius of curvature 90 from 0.30 mm. to a maximum of 1.5 millimeters. If the radius of curvature 90 is 1.5 mm., the short sides 75 disappear and the slot has a straight-sided oval configuration.

[0023] The peripheral dimensions of crossmember 54 are closely conformed to the interior dimensions of slot 72, as illustrated in Fig. 6. The crossmember 4 of attachment mechanism 12 has a straight-sided oval configuration, i.e., the crossmember is generally rectangular, having straight sides and semi-circular ends. In the preferred embodiment, the long dimension 82 of crossmember 54 is 6.75 millimeters, while the short dimension 83 is 2.75 millimeters, each being slightly less than the corresponding dimension of slot 72. As illustrated in Fig. 7, the peripheral dimensions of the pins 60 and shaft 52 also closely conform to the interior dimensions of slot 72. As with crossmember 54, pins 60 in shaft 52 have a long dimension 84 of 6.75 millimeters, and a short dimension 85 of 2.75 millimeters.

[0024] The insertion of crossmember 54 of attachment mechanism 12 into slot 72 of external wall 70 is illustrated by reference to Figs. 8 and 10A. Before insertion, spindle 46 must be rotated so that crossmember 54 is aligned with pins 60, as illustrated in Fig. 3. With the spindle in this position, the periphery of crossmember 54 and that of pins 60 and shaft 52 are essentially congruent. Since the peripheral dimension of crossmember 54 and pins 60 and shaft 52 in combination are less than the dimensions of slot 72, the crossmember can be inserted through the slot until crossmember 54 is completely inside wall 70 (see Fig. 10A). If necessary, the plate 50 on spindle 46 can be pressed to compress spring 62 so that crossmember 54 is completely inside wall 70.

[0025] As illustrated in Fig. 9, upon insertion of crossmember 54 completely through slot 72, the spindle is rotated by manipulating plate 50 so that crossmember 54 is 90° misaligned with respect to pins 60. The aper-

ture 16 in the side wall of housing 36 will be aligned with the aperture 68 in the spindle, providing a passageway completely through the housing. In this configuration, cable 18 can easily be threaded through the aperture, and the presence of the cable prevents the spindle from being rotated back so as to disengage crossmember 54 from slot 72.

[0026] The attachment mechanism 28 of device 26 is illustrated in more detail by way of reference to the perspective view of Fig. 11 and the exploded view of Fig. 12. Attachment mechanism 28 includes a hollow shell 90 and a nose-piece 92 which, in combination, form a housing. Shell 90 has a hollow cylindrical interior cavity 94, and an integral apertured plate 96 at one end. A pin 98 is inserted through an aperture (not shown) in nose-piece 92 to engage a slot 102 in shell 90. Pin 98 is designed to shear when torque is applied to nose-piece 92 so that an unauthorized attempt to remove the attachment mechanism will simply shear the pin and allow the nose-piece to freely rotate without degrading the attachment of the attachment mechanism to the component to be protected. Slot 102 is axially elongate so that limited axial movement is allowed between shell 90 and nose-piece 92. The forward end of nose-piece 92 has a plate 93 having a central aperture 95.

[0027] A cylindrical collar 106 circumscribes the outer portion of shell 90 and occupies the slot laterally defined by plate 96 and the aft surface 108 of nose-piece 92. Collar 106 has an integral tab 110 with an aperture 112 adapted to receive one end of cable 32. Cable 32 is dead-ended into tab 110 and attached so that it cannot be removed.

[0028] A spindle 114 has a cylindrical portion 116 adapted to be received within a cylindrical lock 118 in shell 90. Cylindrical lock 118 includes a front cylinder 119, and a back cylinder 120. A blunt pin or set screw 121 is inserted through an aperture 125 in shell 90, and through a corresponding aperture 123 in back cylinder 120, to lock the front cylinder rotationally with respect to shell 90. Correspondingly, pin or set screw 127 engages a relatively smaller aperture 129 in front cylinder 119, and a widening 131 in slot 133 in the cylindrical portion 116 of spindle 114. Front cylinder 119 is thus fixed rotationally with respect to spindle 114.

[0029] As with conventional cylindrical locks, a plurality of pins normally span the interface between front cylinder 119 and back cylinder 120 so that the cylinders are rotationally locked together, thus preventing relative rotation between locking shell 90 and spindle 114. However, a key 140 (see Fig. 13B) is insertable through the apertured plate 96 of shell 90 to engage front cylinder 119. The correct key will have bosses located to depress the pins passing between cylinders 119 and 120 so that such pins do not span the interface between the cylinders, allowing the cylinders to rotate with respect to one another. In this fashion, spindle 114 can be rotated with respect to shell 90 only upon insertion and rotation of the appropriate key.

[0030] Spindle 114 also includes a shaft 122, and a crossmember 124 at the free end of the shaft. An abutment mechanism 126 has an abutment plate 128 adapted to fit within nose-piece 92, and a pair of pins 130 adapted to extend outwardly through aperture 95. A spring 132 is located between abutment plate 128 and nose-piece 92 to bias the cylindrical portion 116 of spindle 114 and the abutment plate rearwardly. Abutment plate 126 has an elongate aperture 134 which allows crossmember 124 to extend through the aperture plate. A plastic bushing 136 is fixed to the surface of plate 93 so that the mechanism does not scar the equipment to which it is attached.

[0031] The insertion of attachment mechanism 28 into the exterior wall 137 of a piece of equipment is illustrated by way of reference to Figs. 13 A and B. Wall 136 has a slot 138, which is identical to the slot 72 illustrated in Fig. 8. The peripheral dimensions of crossmember 124, and also those of pins 130 and shaft 122 in combination, are identical to the corresponding parts in Figs. 6 and 7. Simply put, attachment mechanism 28 is designed to fit into the same slot as attachment mechanism 12.

[0032] As illustrated in Fig. 13A, crossmember 124 is aligned with pins 30 so that the crossmember can be inserted into slot 138. When fully inserted, the space in the slot is essentially occupied by pins 130 and shaft 122. If necessary, plate 96 can be depressed to push the cylindrical portion 116 of spindle 114 against spring 132. Once crossmember 124 has been fully inserted through slot 138, a key 140 engaging lock mechanism 118 (see Fig. 12) is used to rotate the spindle 90° and misalign crossmember 124 and slot 138.

[0033] In operation, both attachment mechanism 12 and attachment mechanism 28 are attached to an item of computer or other equipment which has a specially designed slot 72, 138. First, the crossmember 54, 124 is aligned with the pins 60, 130, for insertion to the crossmember through the slot. The spindle 46, 114 is then rotated relative to the housing to misalign the crossmember 54, 124 relative to the slot. The spindle is locked in this configuration by passing the cable 18 through the mating slot 16, 48, or using the key 140. Either way, the attachment mechanism is extremely difficult to disengage by anyone not having the appropriate key 24, 140. Any unauthorized attempt to remove the attachment mechanism from the computer component will most likely result in significant damage to the computer housing, making the computer difficult to resell and greatly reducing its theft potential.

[0034] Fig. 14 illustrates an embodiment of the invention. Security device 200 includes an attachment mechanism 201 designed to be attached to a portable object of equipment, such as a personal computer (not shown), having an external wall 250. Attachment mechanism 201 comprises a housing 202 which generally includes a top end 204, a bottom end 208, and a generally cylindrical side wall 206, which in combination define internal hollow cavity 210. Side wall 206 has a pair of apertures

212 which are aligned with one another and which are sized to allow a cable 242 to pass through the apertures. Top end 204 is provided with an opening 214 which extends to proximate bottom end 208 to provide access for screw 230 into cavity 210, as will be described in more detail hereinafter. A raised plate 218 having a threaded aperture 216 is provided in bottom end 208 of the housing to accommodate insertion of screw 230.

[0035] Integral with bottom end 208 of housing 202 is an engagement mechanism 220 which includes a generally cylindrical shaft 222 and a crossmember 224 attached to the shaft at the distal end of the shaft. As previously described with reference to prior devices, the peripheral dimensions of the crossmember conform closely to the internal dimensions of slot 252. The crossmember 224 is generally rectangular, having straight sides and semi-circular ends, as previously described.

[0036] To secure attachment mechanism 201 proximate external wall 250, housing 202 must first be rotated prior to insertion of screw 230 so that crossmember 224 is aligned with slot 252. Since the peripheral dimensions of crossmember 224 and shaft 222 are less than the dimensions of slot 252, crossmember 224 can be inserted through the slot until the crossmember is completely inside external wall 250, with shaft 222 occupying a portion of slot 252. Housing 202 may then be rotated by grasping onto side wall 206 and turning housing 202 until crossmember 224 is 90 degrees misaligned with respect to the slot. In this position of the crossmember, screw 230 can be inserted through opening 214 in the housing and threaded into aperture 216 in raised plate 218 of the housing. With screw head 232 firmly pressed against the upper surface of plate 218, a length of the screw 234 external the housing will extend beyond the housing for a distance that is slightly greater than the thickness of external wall 250. Further, the peripheral dimension of the screw portion 234 and the shaft 222 in combination is slightly less than the dimensions of the slot. In this way, screw portion 234 and shaft 222 occupy slot 252 when the screw is threadably engaged with aperture 216 in the housing so as to prevent rotation of the housing relative to the external wall and thereby prevent disengagement of crossmember 224 from slot 252. In this configuration, cable 242 can easily be threaded through apertures 212 to secure the housing to an external object (not shown). Once the cable is inserted through apertures 212 in the housing, screw 230 cannot be removed.

[0037] Fig. 15 illustrates a similar configuration to that of Fig. 14 except that a spindle 260 is used instead of a screw to prevent rotation of housing 202'. Spindle 260 includes a cylindrical portion 264 adapted to be rotatably mounted within the cylindrical cavity 210' of the housing. An aperture 268 is formed through cylindrical portion 264 and is sized to allow a cable (not shown) to pass through the aperture. Spindle 260 includes a raised plate 266 at a proximal end of the spindle which forms the aft end of the spindle. Spindle 260 also includes a

pin member 270 extending outwardly through aperture 216' in housing 202'. The length of the pin member 272 external the housing is slightly greater than the thickness of external wall 250.

[0038] In operation, with the crossmember misaligned from the slot as described above with reference to the embodiment of Fig. 14, spindle 260 is positioned in the housing so that base pin 270 is inserted through aperture 216' and into slot 252 proximate shaft 222'. The peripheral dimension of the shaft and the pin in combination is less than the dimension of the slot so that the pin and shaft occupy the slot with the crossmember misaligned 90 degrees. In this position, spindle 260 is rotated by manipulating raised plate 266 so that apertures 212' in the side wall 206' of housing 202' will be aligned with aperture 268 in cylindrical portion 264 of the spindle, providing a passageway completely through the housing. In this configuration, a cable (not shown) can easily be threaded through the apertures, and the presence of the cable prevents spindle 260 from being separated from the housing.

[0039] While certain embodiments of the present invention have been illustrated by way of example, it is apparent that further embodiments could be developed.

[0040] However, it is to be expressly understood that such modifications and adaptations will normally remain within the scope of the present invention, as set forth in the following claims.

Claims

1. A locking system (200), comprising:

a portable electronic computer having an external wall (250) defining a security slot (252);
a housing (202, 202') including a slot engagement member (220) having a slot engaging portion (222, 224, 222', 224') provided with a locking member (224, 224') having a peripheral profile complementary to preselected dimensions of said security slot (252) which thereby permits said locking member (224, 224') to extend into said security slot (252), said slot engagement member (220) being rotatable between an unlocked position wherein said locking member (224, 224') is removable from said security slot (252), and a locked position wherein said locking member (224, 224') is retained within said security slot (252); and
cable attachment means (212, 212') coupled to said housing (202, 202'), for attaching a cable (242) to said housing (202, 202');
a cable (242) coupled to said cable attachment means (212, 212') for securing said portable electronic computer to an object other than said housing (202, 202'); and
a pin (230, 270) adapted to interlock said hous-

ing (202, 202') with the security slot (252) through inhibiting rotation of said housing (202, 202') relative to the slot (252) when said pin (230, 270) extends into the security slot (252) proximate said slot engaging portion (222, 224, 222', 224') whilst said slot engagement member (220) is in said locked position, wherein, when inserted, said pin (230, 270) is retained against removal by means (220) for precluding the removal of said pin (230, 270);

characterized in that

said slot engagement member (220) is fixedly attached to said housing (202, 202'), so that appropriate rotation of the housing (202, 202') relative to said security slot (252) causes the slot engagement member (220) to be rotated between said unlocked and said locked position; and that said pin (230, 270) is releasably insertable through said housing (202, 202'), so that when locking the housing (202, 202') in the security slot (252) by first rotating said slot engagement member (220) relative to said security slot (252) into a locked position, subsequent insertion of said pin (230, 270) to extend through said housing (202, 202') and into the security slot (252) proximate said slot engaging portion (222, 224, 222', 224') prevents rotation of said slot engagement member (220) out of said locked position to an unlocked position.

2. The system of claim 1, wherein said pin (230) includes a first threaded portion, complementary to a second threaded portion in an aperture (216) in said housing (202).
3. The system of claims 1 or 2, wherein said pin (230, 270) extends a distance into the security slot (252) greater than a wall thickness of the external wall (250).
4. The system of any of claims 1 to 3, wherein a first side (208, 208') of said housing (202, 202') abuts said external wall (250), and wherein said housing (202, 202') includes a cavity (210, 210') and a second side (204, 204') opposite said first side (208, 208') that is open to access said cavity (210, 210') wherein said pin (230, 270) is insertable through said second side (204, 204') and into said cavity (210, 210') to interlock said first side (208, 208') and said security slot (252).
5. The system of claim 4, wherein said pin (230) includes a first threaded portion complementary to a second threaded portion in an aperture (216) in said first side (208) of said housing (202).
6. The system of claims 4 or 5,

wherein said housing (202, 202') includes sidewalls (206, 206') orthogonal to said first side (208, 208') wherein said sidewalls (206, 206') include opposing apertures (212, 212') to permit said cable (242) to extend therethrough after insertion of said pin (230, 270) into the security slot (252) to inhibit removal of said pin (230, 270) from said security slot (252).

7. The system of claim 4, further comprising a spindle (260) adapted for insertion into said cavity (210'), said spindle (260) incorporating said pin (270) at a first end such that insertion of said spindle (260) into said cavity (210') inserts said pin (270) into said security slot (252) through an aperture (216') in said first side (208').
8. The system of claim 7, wherein said housing (202') includes sidewalls (206') orthogonal to said first side (208') wherein said sidewalls (206') include apertures (212') and a second end of said spindle (260) includes a transverse aperture (268) collinear with said opposing apertures (212') in said sidewalls (206'), said opposing apertures (212') and said transverse apertures (268) permitting said cable (242) to extend therethrough after insertion of said pin (270) into the security slot (252) to inhibit removal of said pin (270) from the security slot (252).
9. The system of any of claims 1 to 8, wherein said locking member (224, 224') is T-shaped.
10. A locking system (200), comprising:
 - a portable electronic device including an exterior wall (250) defining a security slot (252);
 - cable means (242) for attaching to a first object other than to the portable electronic device;
 - a housing (202, 202') proximate to said electronic device and including a slot engagement member (220) having a slot engaging portion (222, 224, 222', 224') provided with a locking member (224, 224') having a peripheral profile complementary to preselected dimensions of said security slot (252) to thereby permit said locking member (224, 224') to extend into said slot (250), said slot engagement member (220) being rotatable between an unlocked position wherein said locking member (224, 224') is removable from the slot (252) and a locked position wherein said locking member (224, 224') is retained within the slot (252); and
 - means, coupled to said housing (202, 202') for attaching said cable means (242) to said housing (202, 202'); and
 - a pin (230, 270) adapted to interlock said housing (202, 202') with the security slot (252)

through inhibiting rotation of said housing (202, 202') relative to the slot (252) when said pin (230, 270) extends into the security slot (252) proximate the slot engaging portion (222, 224, 222', 224') whilst said slot engaging member (220) is in said locked position wherein, when inserted, said pin (230, 270) is retained against removal by a means (220) for avoiding the removal of said pin (230, 270);

characterized in that

said slot engagement member (220) is fixedly attached to the housing (202, 202') so that appropriate rotation of the housing (202, 202') relative to the security slot (252) causes the slot engagement member (220) to be rotated between said unlocked and said locked position; and that said pin (230, 270) is releasably insertable through said housing (202, 202'), so that when locking the housing (202, 202') in the security slot (252) by first rotating said slot engagement member (220) relative to said security slot (252) into a locked position, subsequent insertion of said pin (230, 270) to extend through said housing (202, 202') and into the security slot (252) proximate said slot engaging portion (222, 224) prevents rotation of said slot engagement member (220) out of said locked position to an unlocked position.

11. A cable attachment system (200) comprising:

a portable computer including an exterior wall (250) provided with a security slot (252) having dimensions of substantially 3 mm by 7 mm; a locking structure, coupled to a cable (242) for attaching to said security slot (252) said locking structure comprising:

a housing (202, 202') adapted to abut said wall (250) adjacent to said security slot (252), said housing (202, 202') including a slot engagement member (220) having a slot engaging portion (222, 224, 222', 224') provided with a locking member (224, 224') having a peripheral profile complementary to said security slot (252) to permit said locking member (224, 224') to extend into said security slot (252), said slot engagement member (220) being rotatable between an unlocked position wherein said locking member (224, 224') is removable from said security slot (252), and a locked position wherein said locking member (224, 224') is retained within said security slot; and said cable (242) for securing said portable computer to an object other than to said

housing (202, 202'); and a pin (230, 270) adapted to interlock said housing (202, 202') with said security slot (252) through inhibiting rotation of said housing (202, 202') relative to said slot (252) when said pin (230, 270) extends into said security slot (252) proximate said slot engaging portion (222, 224, 222', 224') whilst said slot engagement member (220) is in said lock position, wherein, when inserted, the pin (230, 270) is retained against removal by a means (220) for avoiding the removal of said pin (230, 270);

characterized in that

said slot engagement member (220) is fixedly attached to said housing (202, 202') so that appropriate rotation of said housing (202, 202') relative to said security slot (252) causes the slot engagement member (220) to be rotated between said unlocked and said locked position; and that said pin (230, 270) is releasably insertable through said housing (202, 202'), so that when locking the housing (202, 202') in the security slot (252) by first rotating said slot engagement member (220) relative to said security slot (252) into a locked position, subsequent insertion of said pin (230, 270) to extend through said housing (202, 202') and into the security slot (252) proximate said slot engaging portion (222, 224) prevents rotation of said slot engagement member (220) out of said locked position to an unlocked position.

Patentansprüche

1. Verriegelungssystem (200), enthaltend:

einen tragbaren elektronischen Rechner, der eine Außenwand (250) besitzt, die einen Sicherungsschlitz (252) aufweist; ein Gehäuse (202, 202'), welches ein Schlitz-eingriffselement (220) besitzt, das einen Schlitz-eingriffsabschnitt (222, 224, 222', 224') aufweist, der mit einem Verriegelungselement (224, 224') versehen ist, welches ein Umfangsprofil besitzt, das komplementär zu den vorbestimmten Abmessungen des Sicherungsschlitzes (252) ist, wodurch dem Verriegelungselement (224, 224') ermöglicht wird, sich in den Sicherungsschlitz (252) hineinzuerstrecken, wobei das Schlitz-eingriffselement (220) zwischen einer Entriegelungsstellung, in der das Verriegelungselement (224, 224') aus dem Sicherungsschlitz (252) herausnehmbar ist, und einer Verriegelungsstellung, in der das Verriegelungselement (224, 224') innerhalb des Sicherungsschlitzes (252) gehalten ist, drehbar ist,

und Kabelanbringmittel (212, 212'), die mit dem Gehäuse (202, 202') verbunden sind, um ein Kabel (242) an dem Gehäuse (202, 202') anzu-

bringen;
ein Kabel (242), das mit den Kabelanbringmit-

teln (212, 212') verbunden ist, um den tragba-
ren elektronischen Rechner an einem anderen
Gegenstand als dem Gehäuse (202, 202') zu
sichern; und
einen Stift (230, 270), der in der Lage ist, das
Gehäuse (202, 202') mit dem Sicherungs-
schlitz (252) durch Verhindern der Drehung des
Gehäuses (202, 202') relativ zu dem Schlitz
(252) zu verriegeln, wenn sich der Stift (230,
270) in den Sicherungsschlitz (252) in der Nähe
des Schlitzeingriffsabschnitts (222, 224, 222',
224') hinein erstreckt, während sich das
Schlitzeingriffselement (220) in der Verriegel-
ungsstellung befindet, wobei, wenn der Stift
(230, 270) eingesetzt ist, dieser gegen eine
Herausnahme durch Mittel (220) zum Verhin-
dern des Herausnehmens des Stiftes (230,
270) gehalten ist;

dadurch gekennzeichnet,

dass das Schlitzeingriffselement (220) fest an dem
Gehäuse (202, 202') angebracht ist, so dass eine
geeignete Drehung des Gehäuses (202, 202') rela-
tiv zu dem Sicherungsschlitz (252) das Schlitzein-
griffselement (220) zwischen der Entriegelungs-
und der Verriegelungsstellung dreht; und dass der
Stift (230, 270) durch das Gehäuse (202, 202') her-
ausnehmbar einsetzbar ist, so dass, wenn das Ge-
häuse (202, 202') in dem Sicherungsschlitz (252)
zunächst durch ein Drehen des Schlitzeingriffsele-
mentes (220) relativ zu dem Sicherungsschlitz
(252) in einer Verriegelungsstellung verriegelt ist,
anschließend das Einführen des Stiftes (230, 270)
in der Weise, dass er sich durch das Gehäuse (202,
202') hindurch und in den Sicherungsschlitz: (252)
in der Nähe des Schlitzeingriffsabschnitts (222,
224, 222', 224') hinein erstreckt, die Drehung des
Schlitzeingriffselements (220) aus der Verriegel-
ungsstellung in eine Entriegelungsstellung verhin-
dert.

2. System nach Anspruch 1,
bei dem der Stift (230) einen ersten Gewindeab-
schnitt aufweist, der zu einem zweiten Gewindeab-
schnitt in einer Öffnung (216) in dem Gehäuse (202)
komplementär ist.
3. System nach Anspruch 1 oder 2,
bei dem sich der Stift (230, 270) über eine Strecke
in den Sicherungsschlitz (252) hinein erstreckt, die
größer ist als die Wanddicke der Außenwand (250).
4. System nach einem der Ansprüche 1 bis 3,

bei dem eine erste Seite (208, 208') des Gehäuses
(202, 202') an der Außenwand (250) anliegt und bei
dem das Gehäuse (202, 202') einen Hohlraum
(210, 210') sowie eine zweite, der ersten Seite (208,
208') gegenüberliegende Seite (204, 204') enthält,
die für einen Zugang zu dem Hohlraum (210, 210')
offen ist, wobei der Stift (230, 270) durch die zweite
Seite (204, 204') und in den Hohlraum (210, 210')
hinein einführbar ist, um die erste Seite (208, 208')
und den Sicherungsschlitz (252) miteinander zu
verriegeln.

5. System nach Anspruch 4,
bei dem der Stift (230) einen ersten Gewindeab-
schnitt enthält, der zu einem zweiten Gewindeab-
schnitt in einer Öffnung (216) der ersten Seite (208)
des Gehäuses (202) komplementär ist.
6. System nach Anspruch 4 oder 5,
bei dem das Gehäuse (202, 202') Seitenwände
(206, 206') aufweist, welche senkrecht zu der er-
sten Seite (208, 208') verlaufen, wobei die Seiten-
wände (206, 206') gegenüberliegende Öffnungen
(212, 212') enthalten, um dem Kabel (242) zu er-
möglichen, sich nach dem Einführen des Stiftes
(230, 270) in den Sicherungsschlitz (252) dort hin-
durch zu erstrecken, um das Herausnehmen des
Stiftes (230, 270) aus dem Sicherungsschlitz (252)
zu verhindern.
7. System nach Anspruch 4,
weiterhin enthaltend eine Spindel (260), welche für
das Einführen in den Hohlraum (210') geeignet ist,
wobei die Spindel (260) den Stift (270) an einem
ersten Ende in der Weise enthält, dass das Einfüh-
ren der Spindel (260) in den Hohlraum (210') den
Stift (270) in den Sicherungsschlitz (252) über eine
Öffnung (216') in die erste Seite (208') einführt.
8. System nach Anspruch 7,
bei dem das Gehäuse (202') Seitenwände (206')
enthält, die senkrecht zu der ersten Seite (208') ver-
laufen, wobei die Seitenwände (206') Öffnungen
(212') enthalten, und bei dem ein zweites Ende der
Spindel (260) eine Queröffnung (268) besitzt, wel-
che kollinear mit den gegenüberliegenden Öffnun-
gen (212') in den Seitenwänden (206') ist, wobei die
einander gegenüberliegenden Öffnungen (212')
und die Queröffnungen (268) dem Kabel (242) er-
möglichen, sich nach dem Einsetzen des Stiftes
(270) in den Sicherungsschlitz (252) dort hindurch
zu erstrecken, um das Herausnehmen des Stiftes
(270) aus dem Sicherungsschlitz (252) zu verhin-
dern.
9. System nach einem der Ansprüche 1 bis 8,
bei dem das Verriegelungselement (224, 224') T-
förmig ist.

10. Verriegelungssystem (200), enthaltend:

eine tragbare elektronische Vorrichtung, die eine Außenwand (250) besitzt, welche einen Sicherungsschlitz (252) aufweist;

Kabelmittel (242) zum Anbringen an einen ersten Gegenstand, der von der tragbaren elektronischen Vorrichtung verschieden ist;

ein Gehäuse (202, 202') in der Nähe der elektronischen Vorrichtung, welches ein Schlitzeingriffselement (220) besitzt, das einen Schlitzeingriffsabschnitt (222, 224, 222', 224') aufweist, welcher mit einem Verriegelungselement (224, 224') versehen ist, das ein Umfangsprofil aufweist, welches zu vorbestimmten Abmessungen des Sicherungsschlitzes (252) komplementär ist, um hierdurch dem Verriegelungselement (224, 224') zu ermöglichen, sich in den Schlitz (252) hinein zu erstrecken, wobei das Schlitzeingriffselement (120) zwischen einer Entriegelungsstellung, in der das Verriegelungselement (224, 224') aus dem Schlitz (252) herausnehmbar ist, und einer Verriegelungsstellung, in der das Verriegelungselement (224, 224') innerhalb des Schlitzes (252) gehalten wird, drehbar ist; und

Mittel, die mit dem Gehäuse (202, 202') verbunden sind, um die Kabelmittel (242) an dem Gehäuse (202, 202') anzubringen;

einen Stift (230, 270), der in der Lage ist, das Gehäuse (202, 202') mit dem Sicherungsschlitz (252) durch Verhindern der Drehung des Gehäuses (202, 202') relativ zu dem Schlitz (252) zu verriegeln, wenn sich der Stift (230, 270) in den Sicherungsschlitz (252) in der Nähe des Schlitzeingriffsabschnitts (222, 224, 222', 224') erstreckt, während sich das Schlitzeingriffselement (220) in der Verriegelungsstellung befindet, wobei, wenn der Stift (230, 270) eingeführt ist, dieser gegen Herausnahme durch ein Mittel (220) zum Verhindern des Herausnehmens des Stiftes (230, 270) gehalten ist;

dadurch gekennzeichnet,

dass das Schlitzeingriffselement (220) fest an dem Gehäuse (202, 202') angebracht ist, so dass eine geeignete Drehung des Gehäuses (202, 202') relativ zu dem Sicherungsschlitz (252) das Schlitzeingriffselement (220) zwischen der Entriegelungs- und der Verriegelungsstellung dreht, und dass der Stift (230, 270) durch das Gehäuse (202, 202') hindurch lösbar einsetzbar ist, so dass, wenn das Gehäuse (202, 202') in den Sicherungsschlitz (252) zunächst durch ein Drehen des Schlitzeingriffselementes (220) relativ zu dem Sicherungsschlitz (252) in eine Verriegelungsstellung verriegelt ist, anschließend das Einführen des Stiftes (230, 270),

um sich durch das Gehäuse (202, 202') hindurch und in den Sicherungsschlitz (252) in der Nähe des Schlitzeingriffsabschnitts (222, 224) hinein zu erstrecken, die Drehung des Schlitzeingriffselementes (220) aus der Verriegelungsstellung in eine Entriegelungsstellung verhindert.

11. Kabelanbringsystem (200), enthaltend:

einen tragbaren Rechner, der eine Außenwand (250) aufweist, die mit einem Sicherheitsschlitz (252) versehen ist, der Abmessungen von im Wesentlichen 3mm bis 7mm besitzt;

eine Verriegelungsstruktur, die mit einem Kabel (242) zum Anbringen an dem Sicherheitsschlitz (252) verbunden ist, wobei die Verriegelungsstruktur enthält:

ein Gehäuse (202, 202'), das in der Lage ist, gegen die Wand (250) benachbart zu dem Sicherheitsschlitz (252) anzuliegen, wobei das Gehäuse (202, 202') ein Schlitzeingriffselement (220) mit einem Schlitzeingriffsabschnitt (222, 224, 222', 224') enthält, der mit einem Verriegelungselement (224, 224') versehen ist, welches ein Umfangsprofil aufweist, das zu dem Sicherheitsschlitz (252) komplementär ist, um dem Verriegelungselement (224, 224') zu ermöglichen, sich in den Sicherheitsschlitz (252) hinein zu erstrecken, wobei das Schlitzeingriffselement (220) zwischen einer Verriegelungsstellung, in der das Verriegelungselement (224, 224') aus dem Sicherheitsschlitz (252) entnehmbar ist, und einer Verriegelungsstellung, in der das Verriegelungselement (224, 224') innerhalb des Sicherheitsschlitzes gehalten ist, drehbar ist; und

das Kabel (252) zum Sichern des tragbaren Rechners an einem Gegenstand, der von dem Gehäuse (202, 202') verschieden ist; und

einen Stift (230, 270), der in der Lage ist, das Gehäuse (202, 202') mit dem Sicherheitsschlitz (252) durch Verhindern des Drehens des Gehäuses (202, 202') relativ zu dem Schlitz (252) zu verriegeln, wenn sich der Stift (230, 270) in den Sicherheitsschlitz (252) in der Nähe des Schlitzeingriffsabschnitts (222, 224, 222', 224') hinein erstreckt, während sich das Schlitzeingriffselement (220) in der Verriegelungsstellung befindet, wobei, wenn der Stift (230, 270) eingesetzt ist, dieser gegen Herausnahme durch ein Mittel (220) zum Verhindern des Herausnehmens des Stiftes (230, 270) gehalten

ist;

dadurch gekennzeichnet,

dass das Schlitzeingriffselement (220) fest an dem Gehäuse (202, 202') angebracht ist, so dass eine geeignete Drehung des Gehäuses (202, 202') relativ zu dem Sicherungsschlitz (252) das Schlitzeingriffselement (220) zwischen der Entriegelungs- und der Verriegelungsstellung dreht, und dass der Stift (230, 270) durch das Gehäuse (202, 202') freigebbar einsetzbar ist, so dass, wenn das Gehäuse (202, 202') in dem Sicherungsschlitz (252) durch zunächst ein Drehen des Schlitzeingriffselementes (220) relativ zu dem Sicherungsschlitz (252) in einer Verriegelungsstellung verriegelt ist, anschließend das Einführen des Stiftes (230, 270), um sich durch das Gehäuse (202, 202') hindurch und in den Sicherungsschlitz (252) in der Nähe des Schlitzeingriffsabschnitts (222, 224) hinein zu erstrecken, die Drehung des Schlitzeingriffselementes (220) aus der Verriegelungsstellung in eine Entriegelungsstellung verhindert.

Revendications

1. Système (200) de verrouillage comportant :

un ordinateur électronique portable ayant une paroi extérieure (250) définissant une fente (252) de sécurité,

un boîtier (200, 202') comprenant un élément (220) d'engagement de fente ayant une partie (222, 224, 222', 224') d'engagement de fente, pourvu d'un élément de verrouillage (224, 224') ayant un profil périphérique complémentaire de dimensions préalablement choisies de ladite fente de sécurité (252), ce qui permet ainsi aux dits éléments de verrouillage (224, 224') de pénétrer dans ladite fente de sécurité (252), ledit élément (220) d'engagement de fente pouvant être tourné entre une position déverrouillée dans laquelle ledit élément de verrouillage (224, 224') peut être enlevé de ladite fente de sécurité (252), et une position verrouillée dans laquelle ledit élément de verrouillage (224, 224') est retenu dans ladite fente de sécurité (252) ; et,

un moyen (212, 212') d'attache de câble couplé audit boîtier (202, 202'), pour attacher un câble (242) audit boîtier (202, 202') ;

un câblé (242) couplé audit moyen (212, 212') d'attache de câble pour assujettir solidement ledit ordinateur électronique portable à un objet autre que ledit boîtier (202, 202') ; et

un goujon (230, 270) conçu pour verrouiller ledit boîtier (202, 202') à la fente de sécurité (252) en empêchant une rotation dudit boîtier (202,

202') par rapport à la fente (252) lorsque ledit goujon (230, 270) pénètre dans la fente de sécurité (252) à proximité de ladite partie (222, 224, 222', 224') d'engagement de fente tandis que ledit élément (220) d'engagement de fente est dans ladite position verrouillée, ledit goujon (230, 270), lorsqu'il est introduit, étant retenu de façon à ne pas pouvoir être enlevé par un moyen (220) destiné à empêcher l'enlèvement du goujon (230, 270) ;

caractérisé en ce que

ledit élément (220) d'engagement de fente est relié fixement audit boîtier (202, 202') afin qu'une rotation appropriée du boîtier (200, 202') par rapport à ladite fente de sécurité (252) fasse tourner l'élément (220) d'engagement de fente entre lesdites positions déverrouillée et verrouillée ; et,

ledit goujon (230, 270) peut être introduit de façon libérable à travers ledit boîtier (202, 202') afin que, lorsqu'on verrouille le boîtier (202, 202') dans la fente de sécurité (252) en faisant tourner d'abord ledit élément (220) d'engagement de fente par rapport à ladite fente de sécurité (252) juste que dans une position verrouillée, une introduction subséquente dudit goujon (230, 270) afin qu'il s'étende à travers ledit boîtier (202, 202') et pénètre dans la fente de sécurité (252) à proximité de ladite partie (222, 224, 222', 224') d'engagement de fente empêche ledit élément (220) d'engagement de fente de quitter en tournant la position verrouillée vers une position déverrouillée.

- 2.** Système selon la revendication 1, dans lequel ledit goujon (230) comprend une première partie filetée, complémentaire d'une seconde partie filetée dans une ouverture (216) dudit boîtier (202).
- 3.** Système selon la revendication 1 ou 2, dans lequel ledit goujon (230, 270) s'étend sur une distance, dans la fente de sécurité (252), supérieure à une épaisseur de la paroi extérieure (250).
- 4.** Système selon l'une quelconque des revendications 1 à 3, dans lequel un premier côté (208, 208') dudit boîtier (202, 202') porte sur ladite paroi extérieure (250), et dans lequel ledit boîtier (202, 202') présente une cavité (210, 210') et un second côté (204, 204') opposé audit premier côté (208, 208') qui est ouvert pour accéder à ladite cavité (210, 210'), ledit goujon (230, 270) pouvant être introduit à travers ledit second côté (204, 204') dans ladite cavité (210, 210') pour verrouiller entre eux ledit premier côté (208, 208') et ladite fente de sécurité (252).
- 5.** Système selon la revendication 4, dans lequel ledit goujon (230) comprend une première partie filetée

complémentaire d'une seconde partie filetée dans une ouverture (216) dans ledit premier côté (208) dudit boîtier (202).

6. Système selon la revendication 4 ou 5, dans lequel ledit boîtier (202, 202') comprend des parois latérales (206, 206') orthogonales audit premier côté (208, 208'), dans lequel lesdites parois latérales (206, 206') présentent des ouvertures opposées (212, 212') pour permettre audit câble (242) de s'étendre à travers elles après l'introduction dudit goujon (230, 270) dans la fente de sécurité (252) pour empêcher l'enlèvement dudit goujon (230, 270) de ladite fente de sécurité (252). 5
7. Système selon la revendication 4, comportant en outre une broche (260) conçue pour être introduite dans ladite cavité (210') ladite broche (260) comprenant ledit goujon (270) à une première extrémité afin que l'introduction de ladite broche (260) dans ladite cavité (210') introduise ledit goujon (270) dans ladite fente de sécurité (252) à travers une ouverture (216') dans ledit premier côté (208'). 10
8. Système selon la revendication 7, dans lequel ledit boîtier (202') comprend des parois latérales (206') orthogonales audit premier côté (208'), dans lequel lesdites parois latérales (206') présentent des ouvertures (212') et une seconde extrémité de ladite broche (260) présente une ouverture transversale (268) colinéaire avec lesdites ouvertures opposées (212') dans lesdites parois latérales (206'), lesdites ouvertures opposées (212') et lesdites ouvertures transversales (268) permettant audit câble (242) de passer à travers elles après l'introduction dudit goujon (270) dans la fente de sécurité (252) pour empêcher l'enlèvement dudit goujon (270) de la fente de sécurité (252). 15
9. Système selon l'une quelconque des revendications 1 à 8, dans lequel ledit élément de verrouillage (224, 224') est en forme de T. 20
10. Système de verrouillage (200), comportant : 25
 - un dispositif électronique portable comprenant une paroi extérieure (250) définissant une fente de sécurité (252) ; 30
 - un moyen à câble (242) destiné à être attaché à un premier objet autre que le dispositif électronique portable ; 35
 - un boîtier (202, 202') proche dudit dispositif électronique comprenant un élément (220) d'engagement de fente ayant une partie (222, 224, 222', 224') d'engagement de fente pourvue d'un élément de verrouillage (224, 224') ayant un profil périphérique complémentaire de dimensions préalablement choisies de ladite 40

fente de sécurité (252) pour permettre ainsi audit élément de verrouillage (224, 224') de pénétrer dans ladite fente (250), audit élément (220) d'engagement de fente pouvant tourner entre une position déverrouillée dans laquelle ledit élément de verrouillage (224, 224') peut être enlevé de la fente (252) et une position verrouillée dans laquelle ledit élément de verrouillage (224, 224') est retenu dans la fente (252) ;

et un moyen, couplé audit boîtier (202, 202'), pour attacher ledit moyen à câble (242) audit boîtier (202, 202'),

un goujon (230, 270) conçu pour verrouiller ledit boîtier (202, 202') avec la fente de sécurité (252) en empêchant une rotation dudit boîtier (202, 202') par rapport à la fente (252) lorsque ledit goujon (230, 270) pénètre dans la fente de sécurité (252) à proximité de la partie (222, 224, 222', 224') d'engagement de fente tandis que ledit élément (220) d'engagement de fente est dans ladite position verrouillée, ledit goujon (230, 270) lorsqu'il est introduit, est en retenue contre tout enlèvement par un moyen (220) destiné à éviter l'enlèvement dudit goujon (230, 270),

caractérisé en ce que

ledit élément (220) d'engagement de fente est attaché fixement au boîtier (202, 202') afin qu'une rotation appropriée du boîtier (202, 202') par rapport à la fente de sécurité (252) fasse tourner l'élément (220) d'engagement de fente entre lesdites positions déverrouillée et verrouillée ; et en ce que

ledit goujon (230, 270) peut être introduit de façon libérable à travers ledit boîtier (202, 202') afin que, lorsqu'on verrouille le boîtier (202, 202') dans la fente de sécurité (252) en faisant tourner d'abord ledit élément (220) d'engagement de fente par rapport à ladite fente de sécurité (252) jusque dans une position verrouillée, l'introduction subséquente dudit goujon (230, 270) afin qu'il s'étende à travers ledit boîtier (202, 202') et pénètre dans la fente de sécurité (252) à proximité de ladite partie (222, 224) d'engagement de fente empêche ledit élément (220) d'engagement de fente de quitter en tournant ladite position verrouillée vers une position déverrouillée. 45

11. Système (200) d'attache de câble comportant : 50

- un ordinateur portable comprenant une paroi extérieure (250) pourvue d'une fente de sécurité (252) ayant des dimensions sensiblement de 3 mm sur 7 mm ;
- une structure de verrouillage, couplée à un câble (242) destiné à être attaché à ladite fente de sécurité (252), ladite structure de verrouilla- 55

ge comportant :

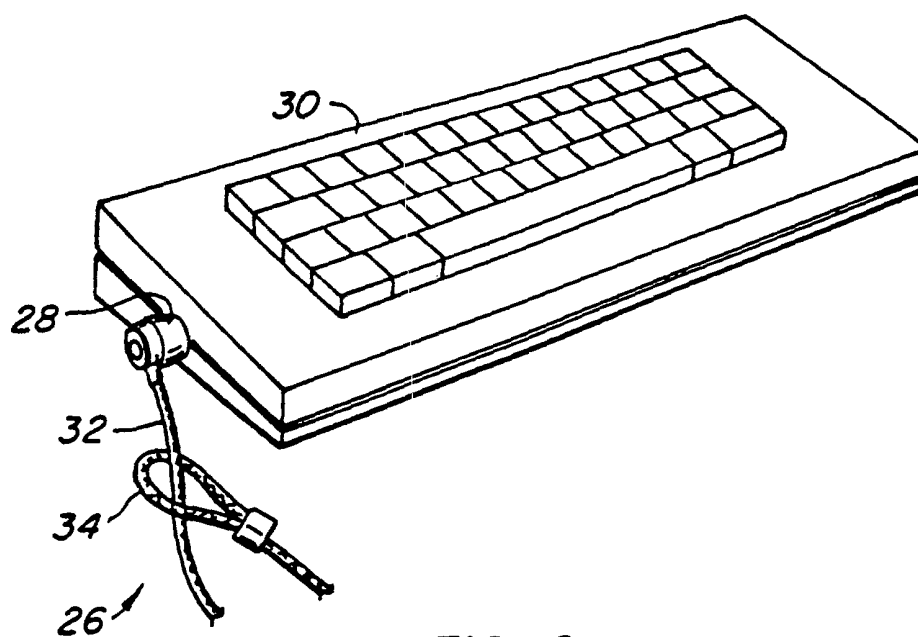
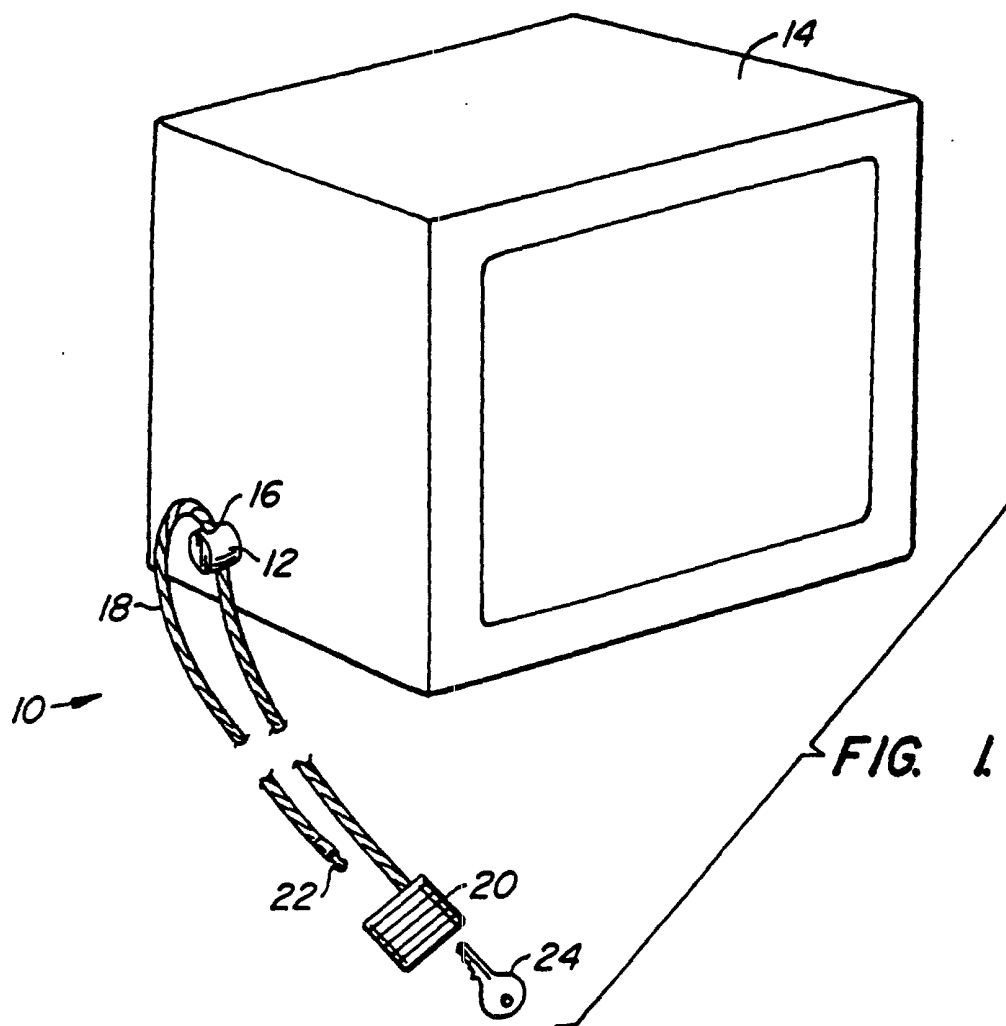
un boîtier (202, 202') conçu pour porter contre ladite paroi (250) adjacente à ladite fente de sécurité (252), ledit boîtier (202, 202') comprenant un élément (220) d'engagement de fente ayant une partie (222, 224, 222', 224') d'engagement de fente pourvue d'un élément de verrouillage (224, 224') ayant un profil périphérique complémentaire de ladite fente de sécurité (252) afin de permettre audit élément de verrouillage (224, 224') de pénétrer dans ladite fente de sécurité (252), ledit élément (220) d'engagement de fente pouvant tourner entre une position déverrouillée dans laquelle ledit élément de verrouillage (224, 224') peut être enlevé de ladite fente de sécurité (252), et une position verrouillée dans laquelle ledit élément de verrouillage (224, 224') est retenu dans ladite fente de sécurité ; et
 ledit câble (242) destiné à relier solidement ledit ordinateur portable à un objet autre que ledit boîtier (202, 202') ; et
 un goujon (230, 270) conçu pour verrouiller ledit boîtier (202, 202') avec ladite fente de sécurité (252) en empêchant une rotation dudit boîtier (202, 202') par rapport à ladite fente (252) lorsque ledit goujon (230, 270) pénètre dans ladite fente de sécurité (252) à proximité de ladite partie (222, 224, 222', 224') d'engagement de fente, tandis que ledit élément (220) d'engagement de fente est dans ladite position verrouillée, le goujon (230, 270), lorsqu'il est introduit, étant retenu de façon à ne pas pouvoir être enlevé par un moyen (220) pour éviter l'enlèvement dudit goujon (230, 270) ;

caractérisé en ce que

ledit élément (220) d'engagement de fente est attaché fixement audit boîtier (202, 202') afin qu'une rotation appropriée dudit boîtier (202, 202') par rapport à ladite fente de sécurité (252) fasse tourner l'élément (220) d'engagement de fente entre lesdites positions déverrouillée et verrouillée ; et **en ce que**

ledit goujon (230, 270) peut être introduit de façon libérable à travers ledit boîtier (202, 202') afin que, lorsqu'on verrouille le boîtier (202, 202') dans la fente de sécurité (252) en faisant tourner d'abord ledit élément (220) d'engagement de fente par rapport à ladite fente de sécurité (252) jusque dans une position verrouillée, l'introduction subséquente dudit goujon (230, 270) afin qu'il s'étende à travers ledit boîtier (202, 202') et pénètre dans la fente de sécurité (252) à proximité de ladite partie (222, 224)

d'engagement de fente empêche ledit élément (220) d'engagement de fente de quitter en tournant ladite position verrouillée vers une position déverrouillée.



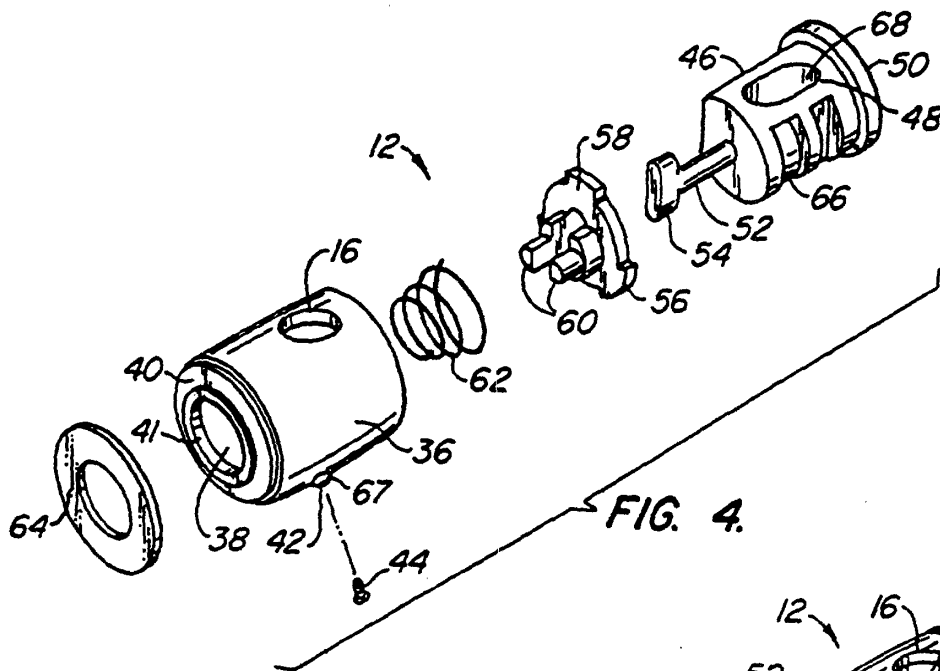


FIG. 4.

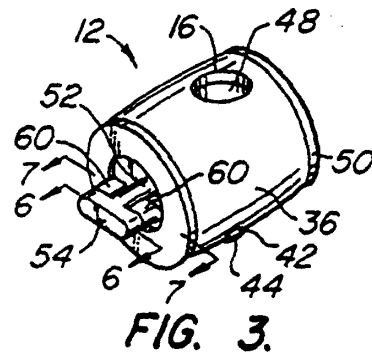


FIG. 3.

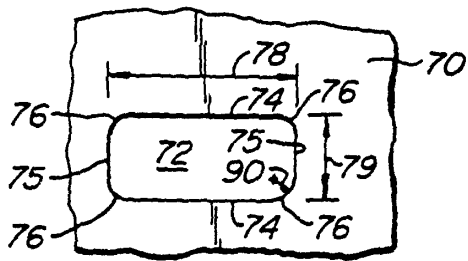


FIG. 5.

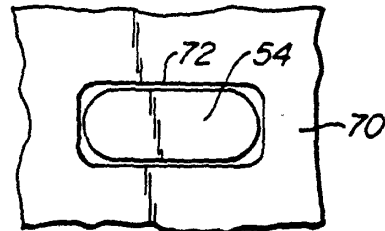


FIG. 8.

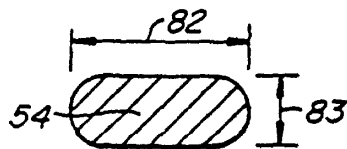


FIG. 6.

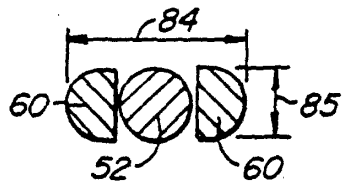


FIG. 7.

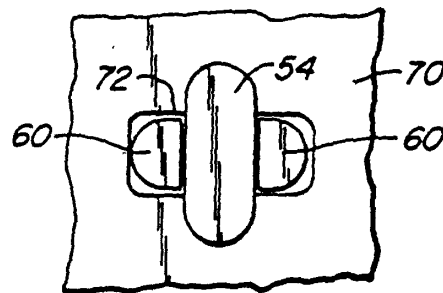


FIG. 9.

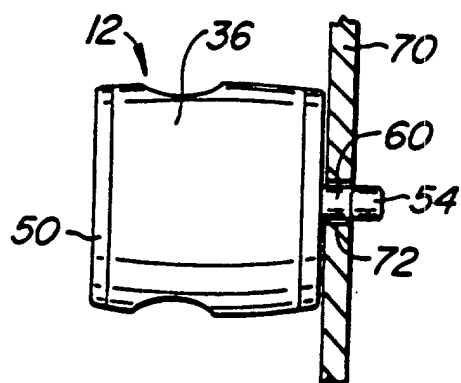


FIG. 10A.

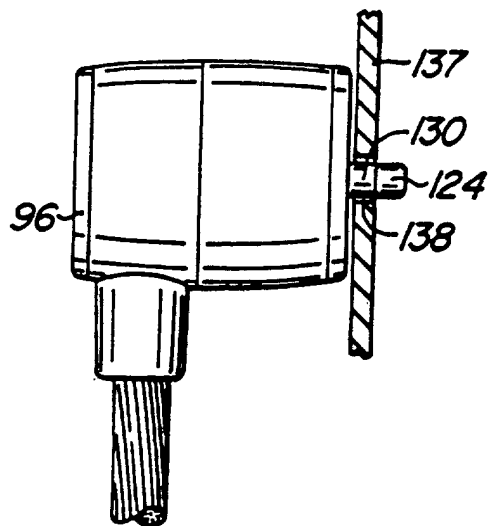


FIG. 13A.

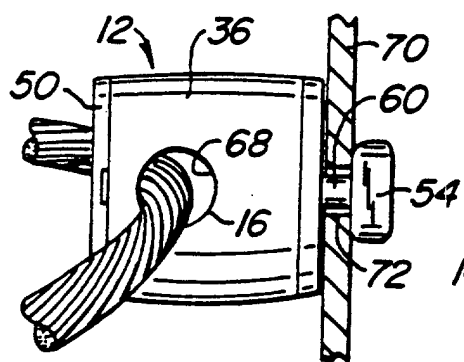


FIG. 10B.

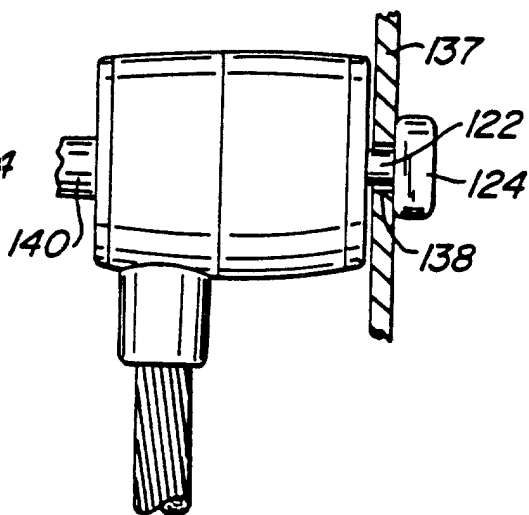
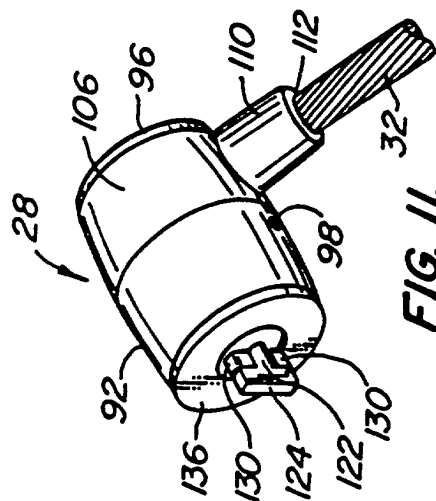
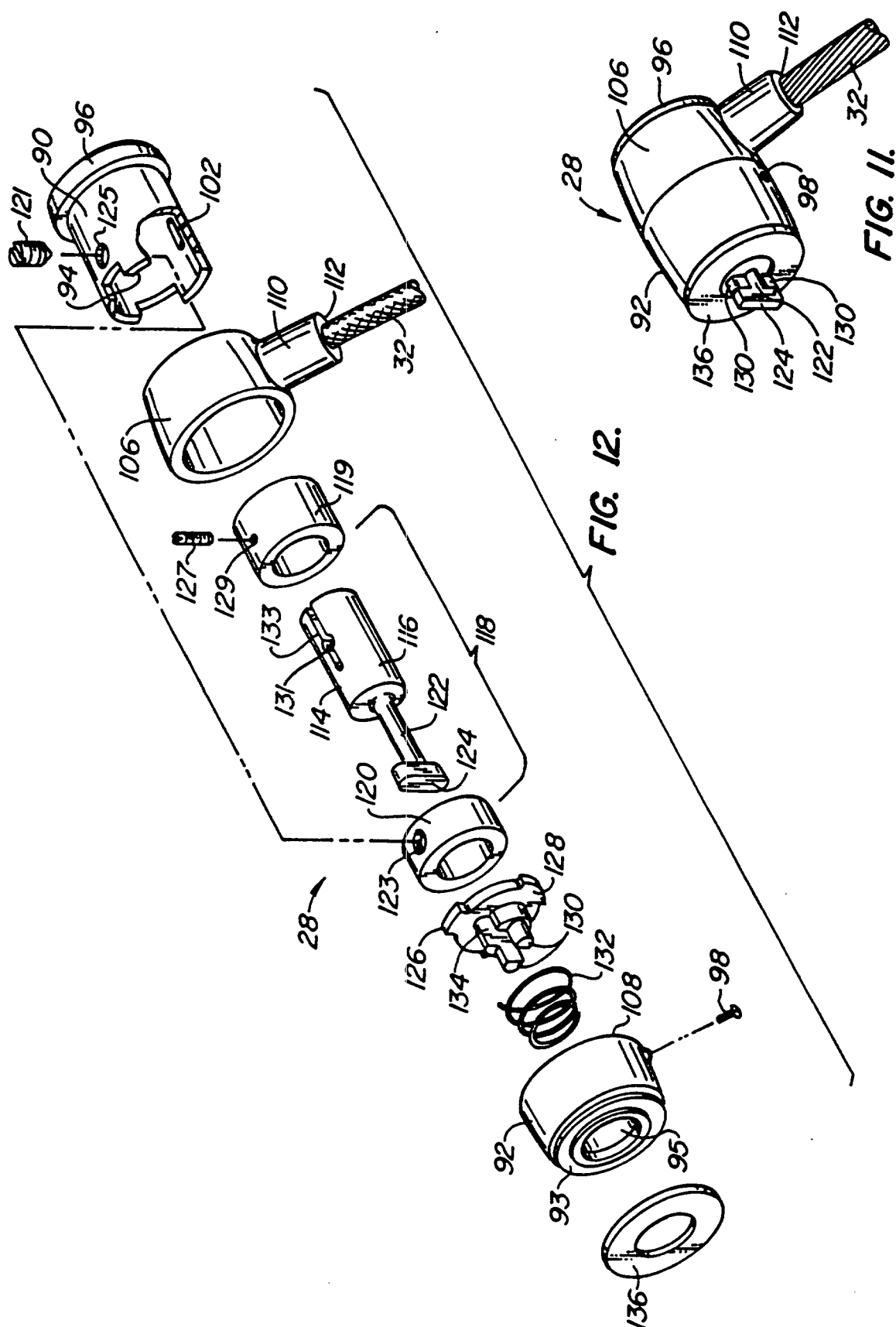


FIG. 13B.



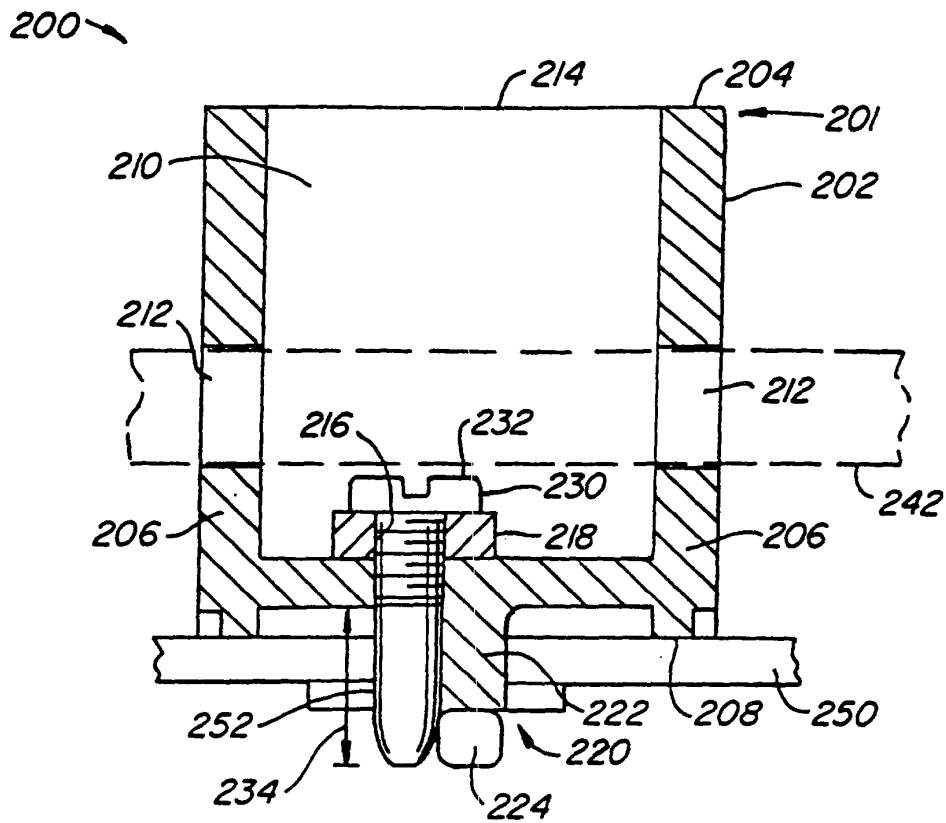


FIG. 14.

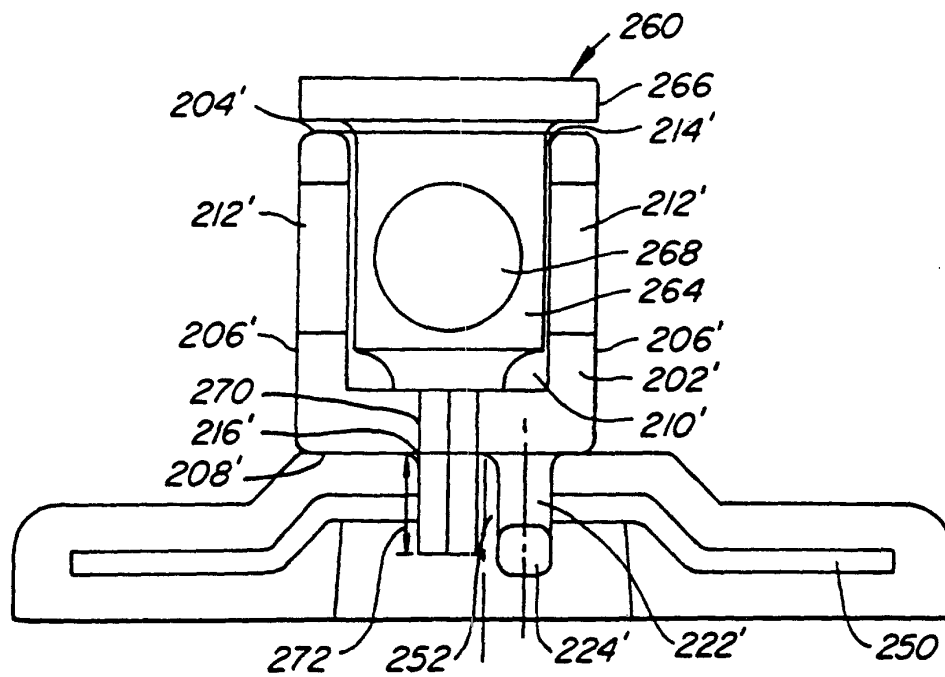


FIG. 15.