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(54) **Opening restrictor**

(57) An opening restrictor comprises a body portion (1), a securing bracket (3) and a connector (5) secured to the securing bracket and adapted to be releasably secured to the body portion. The body portion is adapted to be secured to a frame of an opening and includes a releasable lock (23) for releasably securing the connector

to the body portion. The securing bracket is adapted to be secured to an opening member mounted to the frame between the opening member and a device for controlling opening and closing of the opening member. In this way, opening of the opening member is restricted when the connector is secured to the body portion and is unrestricted when the connector is released from the body portion.

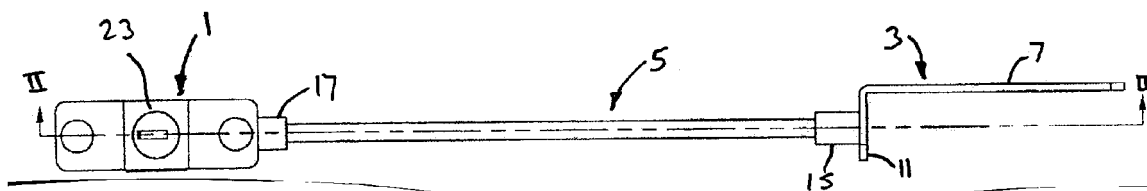


Fig. 1

Description

[0001] This invention relates to an opening restrictor which may be used, for example, to restrict the degree to which a window or a door can be opened. However, the restrictor may be used in other applications where the opening of a substantially planar closure is to be restricted.

[0002] Window restrictors are used to restrict the degree to which a window can be opened in order to prevent persons falling through the window opening. Such window restrictors are generally releasable, or otherwise constructed, in order to allow the window to be opened fully when required, for example for cleaning purposes. A problem with known window restrictors is that they are mounted separately from other window furniture which increases overall cost, increases the number of fixing holes that require to be drilled in the window and/or its frame, and also detracts from the appearance of the window and its furniture.

[0003] It is therefore an object of the present invention to provide an opening restrictor which overcomes, or at least ameliorates, the above disadvantages.

[0004] According to the present invention there is provided an opening restrictor comprising a body portion, a securing means and connecting means secured to the securing means and adapted to be releasably secured to the body portion, the body portion being adapted to be secured to a frame of an opening and including releasable locking means for releasably securing the connecting means to the body portion, and the securing means being adapted to be secured to an opening member mounted to the frame between the opening member and means for controlling opening and closing of the opening member, whereby opening of the opening member is restricted when the connecting means is secured to the body portion and is unrestricted when the connecting means is released from the body portion.

[0005] The securing means may comprise a substantially planar elongate portion adapted to be mounted between the opening member and the means for controlling opening and closing of the opening member, the elongate portion being provided with apertures for the passage of fastening means for the controlling means, and with a portion adapted to extend away from the opening member, for example substantially at right angles thereto, for securing an end of the connecting means.

[0006] The connecting means may comprise a flexible cable, for example of coated wire. The connecting means may be provided at that end region thereof that is releasably secured to the body portion with a profiled portion, for example in the form of an annular recess formed around the periphery of the connecting means, for releasably engaging with the body portion. The connecting means may be provided at that end thereof that is releasably secured to the body portion with a rounded end portion to facilitate insertion of the end of the connecting means into the body portion.

[0007] The body portion may include a securing lever pivotably mounted within the body portion and having an end which is movable between a first position in which the connecting means is secured within an opening in the body portion and a second position in which the connecting means can be withdrawn from the body portion. An end portion of the securing lever may be chamfered to facilitate insertion of the connecting means into the body portion. Biasing means may be provided for biasing the securing lever to the first position. The biasing means may comprise a tongue of resilient material extending from a supporting sheet, the tongue engaging with the securing lever. The biasing means may be mounted within the body portion by means of screw fasteners. The screw fasteners may be in hollow cylindrical form and may be secured in openings passing through the body portion, whereby fastenings for securing the body portion to the frame are able to pass through the openings and through the hollow cylindrical screw fasteners. A base plate may be provided between the biasing means and the hollow cylindrical screw fasteners. The locking means may be movable in its unlocked condition so as to urge the securing lever against the biasing means so as to move the securing lever to its second position.

[0008] For a better understanding of the present invention and to show more clearly how it may be carried into effect reference will now be made, by way of example, to the accompanying drawings in which:

[0009] Figure 1 is a view of one embodiment of an opening restrictor according to the present invention;

[0010] Figure 2 is a sectional view taken along the line II-II of the opening restrictor shown in Figure 1;

[0011] Figure 3 is a perspective view of a securing bracket forming part of an opening restrictor according to the present invention;

[0012] Figure 4 is a perspective view of a modified securing bracket forming part of an opening restrictor according to the present invention;

[0013] Figure 5 is a cross-sectional view of a plug for use with a cable forming part of an opening restrictor according to the present invention;

[0014] Figure 6 is a sectional view of a body forming part of an opening restrictor according to the present invention;

[0015] Figure 7 is a perspective view of a securing lever forming part of an opening restrictor according to the present invention;

[0016] Figure 8 is a perspective view of a biasing spring forming part of an opening restrictor according to the present invention;

[0017] Figure 9 is a plan view of a back plate forming part of an opening restrictor according to the present invention;

[0018] Figure 10 is an elevational view of a hollow cylindrical fastener forming part of an opening restrictor according to the present invention; and

[0019] Figure 11 is a perspective view of an alternative embodiment of the securing lever shown in Figure 7.

[0020] The opening restrictor shown in Figures 1 and 2 comprises a body portion 1 which is releasably connected to a securing bracket 3 by way of a connecting means 5, for example in the form of a cable. The securing bracket 3 as illustrated comprises a window handle bracket which is secured to an opening window (not shown), although a bracket in the form of a door handle plate can be used with a door.

[0021] The securing bracket 3 is made, for example, of stainless steel and includes a substantially planar elongate portion 7 which in use is positioned between an opening member, such as a door or window, and a conventional means, such as a window handle or a door handle, for controlling opening and closing of the opening member. The elongate portion of the securing bracket is provided with apertures 9 to allow the passage of fasteners provided for the window or door handle. Thus no additional fasteners are required to secure the cable 3 to the opening member, while the cable is secured to the opening member in an effective and aesthetically pleasing manner. The securing bracket 3 also includes a portion 11 which extends in a direction away from the opening member, for example substantially at right angles as illustrated. The portion 11 is attached to the elongate portion 7 and is provided with an aperture 13 (shown more clearly in Figure 3). An alternative configuration of securing bracket, for example for use with a door handle mounting, is shown in Figure 4.

[0022] The cable 5 may include a length of conventional flexible steel cable provided with a covering of plastics material. A plug 15 is secured, for example by crimping, to one end of the length of cable and may be made, for example, of stainless steel. The plug 15 is then made captive through the aperture 13 in the bracket portion 11. Ideally, in use the head of the plug 15 is positioned close to part of the opening control means, ideally a non-moving part thereof, so as to restrict access to the plug 15 to minimise the likelihood of tampering. A further plug 17 is secured to the other end of the length of cable, for example by crimping, for releasably securing to the body portion 1. The further plug 17, shown in detail in Figure 5, is formed with a profiled portion 19 and a rounded end 20, which enable the further plug 17 to be releasably secured to the body portion. As illustrated, the profiled portion 19 comprises an annular recess formed around the periphery of the plug 17.

[0023] The body portion 1 includes a body 21 (shown in more detail in Figure 6), for example of die-cast aluminium, into which a lock 23 is secured. The body 21 is formed with two openings 25, 27 for receiving conventional fasteners (not shown) for securing the body portion 1 to a frame of an opening, such as a window frame or door frame, for example. The outer ends of the openings 25, 27 are provided with caps 29, 31, for example of Nylon, which are ideally profiled to match the profile of the body 21. The caps 29, 31 inhibit access to the fasteners and prevent tampering therewith.

[0024] The body 21 is also formed with a lateral open-

ing 33 dimensioned to receive the further plug 17 of the cable 5. A securing lever 35 is pivotally mounted within the body 21 and extends across an opening 37 in which the lock 23 is received. As shown in more detail in Figure 7, the securing lever is formed with an aperture 39 in one end region thereof for mounting the lever in a pivotable manner by way on a securing pin 41, and is formed at the other end thereof with an engaging portion 43 for engaging with the profiled portion 19 of the further plug 17. An outer edge of the engaging portion 43 is formed with a chamfer 45 such that insertion of the rounded end 20 of the further plug 17 causes the lever 35 to pivot from a first position to a second position and to allow the plug 17 into the lateral opening 33. The lever 35 then returns to the first position under the influence of a biasing spring 47 so as to lock the further plug in the body portion 1.

[0025] An alternative securing lever is shown in Figure 11 and functions in essentially the same manner as the securing lever of Figure 7.

[0026] The biasing spring 47 is shown in more detail in Figure 8 and comprises a sheet 49 of resilient material, such as spring steel, formed with a tongue 51 at an angle to the remainder of the sheet and directed towards the securing lever 35 so as to bias the engaging portion 43 into the profiled portion 19 of the further plug 17. The biasing spring 47 is maintained in position in the body 21 by means of a back plate 53 (shown in Figure 9) which is secured in place by two hollow cylindrical screw fasteners 55 (shown in Figure 10) which engage in the openings 25, 27, while allowing screw fasteners for securing the body portion 1 to pass therethrough.

[0027] In use of the opening restrictor according to the present invention, a key (not shown) is used to unlock the lock 23. In the unlocked configuration, a body of the lock can be depressed into the body 21 and is biased to return to an extended position. When the body of the lock is depressed into the body 21, the lever 35 is pivoted to displace the engaging portion 43 out of the lateral opening 33 so as to disengage from the profiled portion 19 of the further plug 17. This allows the further plug 17 to be released from the body portion 1 and allows the window, door or the like to be opened fully. In the locked configuration, the body of the lock cannot be depressed into the body 21 and the further plug 17, if present in the lateral opening 33, cannot be removed, therefore restricting opening of the window, door or the like.

[0028] When the further plug 17 is not present in the lateral opening 33, the window, door or the like can be opened in an unrestricted manner. However, the further plug 17 can be inserted into the lateral opening 33 irrespective of whether the lock 23 is in its locked or unlocked configuration. In either configuration, the rounded end 20 of the further plug 17 contacts the chamfer 45 of the engaging portion 43 of the securing lever 35 and pivots the securing lever 35 to allow the further plug 17 to enter the lateral opening 33 until the engaging portion 43 engages with the profiled portion 19 to retain the further plug in the lateral opening. If the lock 23 is in its unlocked con-

figuration the lock body can be depressed to release the further plug 17, but if key has been used to move the lock to its locked configuration the lock body cannot be depressed and the further plug 17, and therefore the cable 5, is locked to the body portion 1.

Claims

1. An opening restrictor comprising a body portion (1), a securing means (3) and connecting means (5) secured to the securing means and adapted to be releasably secured to the body portion, the body portion being adapted to be secured to a frame of an opening and including releasable locking means (23) for releasably securing the connecting means to the body portion, and the securing means being adapted to be secured to an opening member mounted to the frame between the opening member and means for controlling opening and closing of the opening member, whereby opening of the opening member is restricted when the connecting means is secured to the body portion and is unrestricted when the connecting means is released from the body portion.
2. An opening restrictor as claimed in claim 1, wherein the securing means includes a substantially planar elongate portion (7) adapted to be mounted between the opening member and the means for controlling opening and closing of the opening member, the elongate portion being provided with apertures (9) for the passage of fastening means for the controlling means, and with a portion (11) adapted to extend away from the opening member for securing an end of the connecting means (5).
3. An opening restrictor as claimed in claim 2, wherein the portion (11) of the elongate portion (7) extends away from the opening member substantially at right angles thereto.
4. An opening restrictor as claimed in any preceding claim, wherein the connecting means (5) comprises a flexible cable.
5. An opening restrictor as claimed in any preceding claim, wherein the connecting means (5) is provided, at that end region thereof that is releasably secured to the body portion (1), with a profiled portion for releasably engaging with the body portion.
6. An opening restrictor as claimed in claim 5, wherein the profiled portion is in the form of an annular recess formed around the periphery of the connecting means (5).
7. An opening restrictor as claimed in any preceding claim, wherein the connecting means (5) is provided at that end thereof that is releasably secured to the body portion (1) with a rounded end portion (20) to facilitate insertion of the end of the connecting means into the body portion.
8. An opening restrictor as claimed in any preceding claim, wherein the body portion (1) includes a securing lever (35) pivotably mounted within the body portion and having an end which is movable between a first position in which the connecting means (5) is secured within an opening (33) in the body portion and a second position in which the connecting means can be withdrawn from the body portion.
9. An opening restrictor as claimed in claim 8, wherein an end portion of the securing lever (35) is chamfered (45) to facilitate insertion of the connecting means (5) into the body portion.
10. An opening restrictor as claimed in claim 8 or 9, wherein biasing means (47) is provided for biasing the securing lever (35) to the first position.
11. An opening restrictor as claimed in claim 10, wherein the biasing means (47) comprises a tongue (51) of resilient material extending from a supporting sheet (49), the tongue engaging with the securing lever (35).
12. An opening restrictor as claimed in claim 10 or 11, wherein the biasing means (47) is mounted within the body portion (1) by means of screw fasteners.
13. An opening restrictor as claimed in claim 12, wherein the screw fasteners are in hollow cylindrical form and are secured in openings (25, 27) passing through the body portion (1), whereby fastenings for securing the body portion to the frame are able to pass through the openings and through the hollow cylindrical screw fasteners.
14. An opening restrictor as claimed in claim 13, wherein a base plate (53) is provided between the biasing means (47) and the hollow cylindrical screw fasteners.
15. An opening restrictor as claimed in any one of claims 8 to 14, wherein the locking means (23) is movable in its unlocked condition so as to urge the securing lever (35) against the biasing means (47) so as to move the securing lever to its second position.

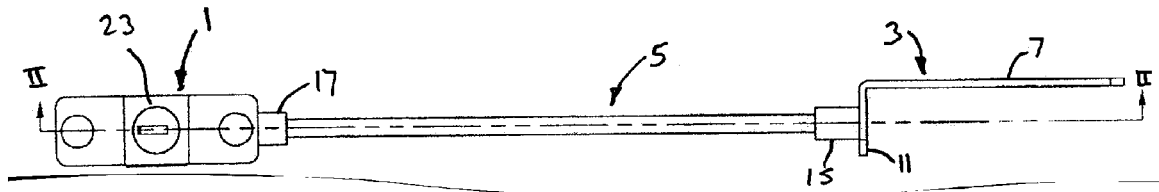


Fig. 1

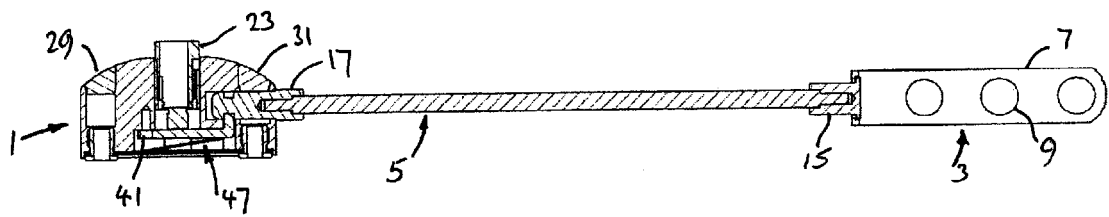


Fig. 2

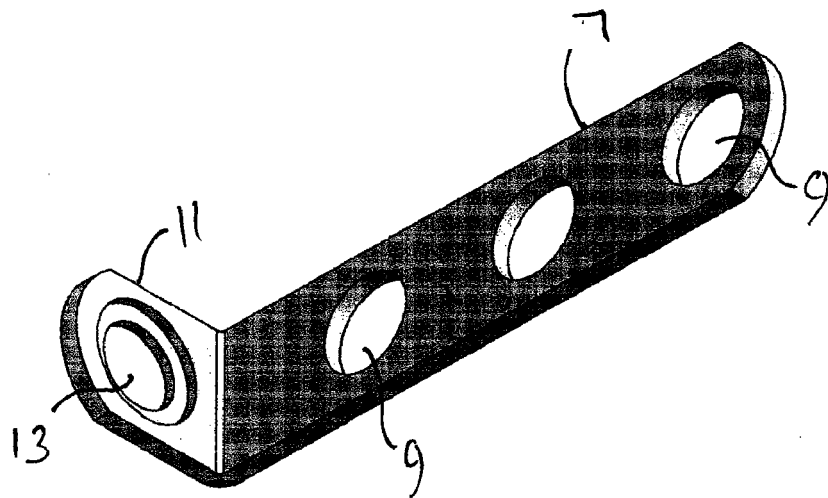


Fig. 3

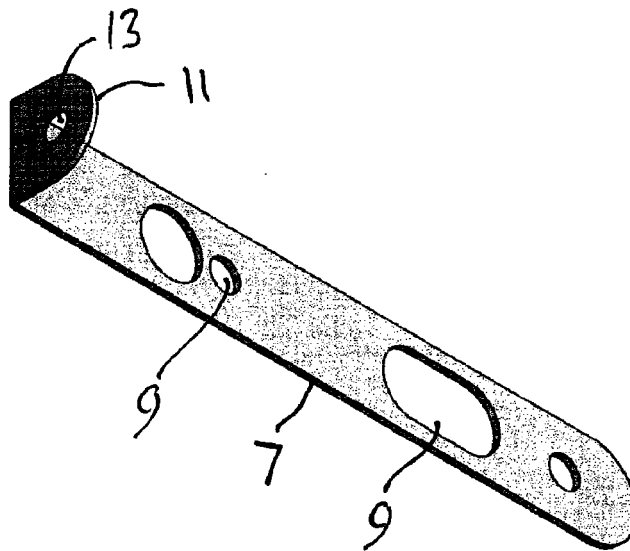


Fig. 4

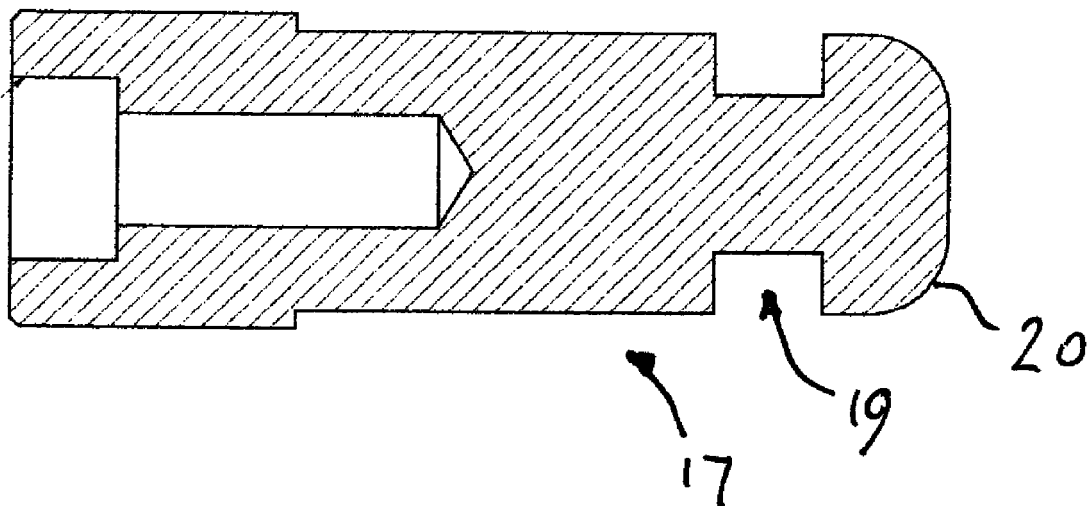


Fig. 5

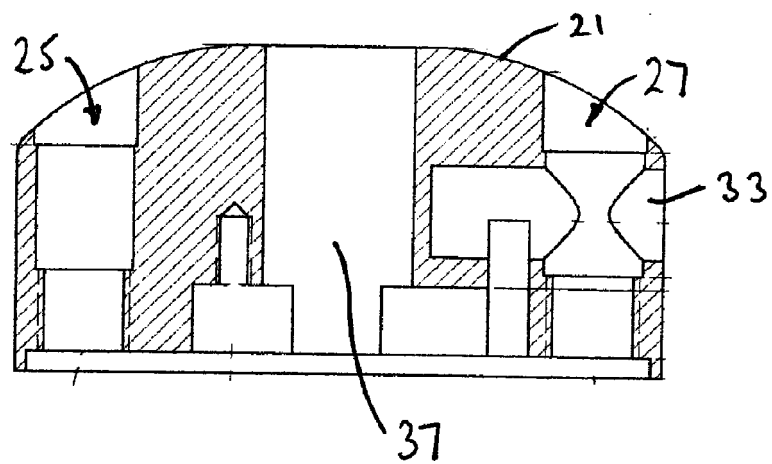


Fig. 6

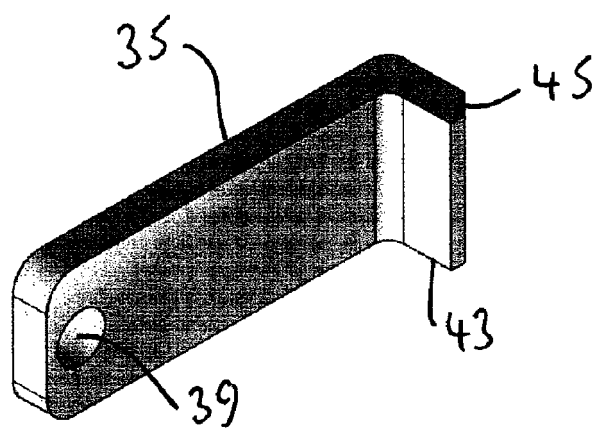


Fig. 7

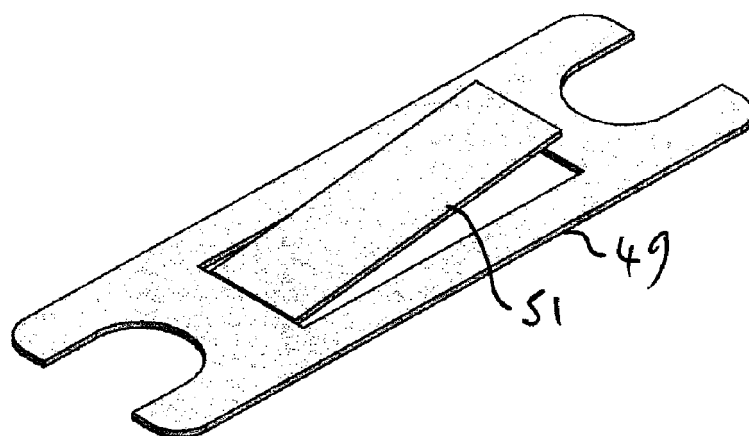


Fig. 8

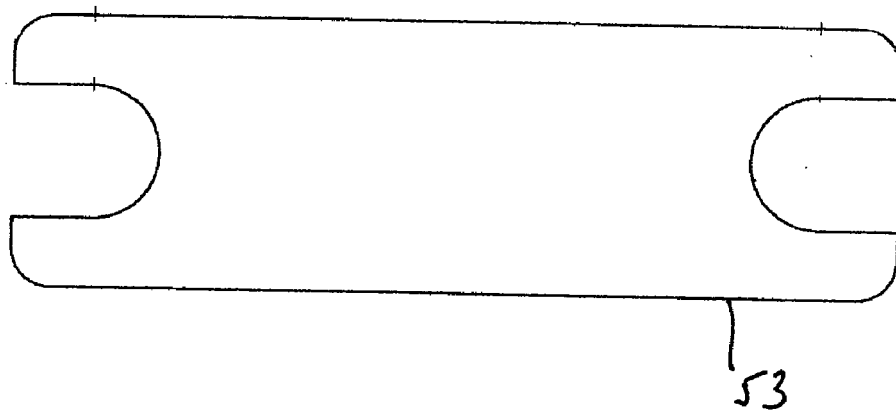


Fig. 9

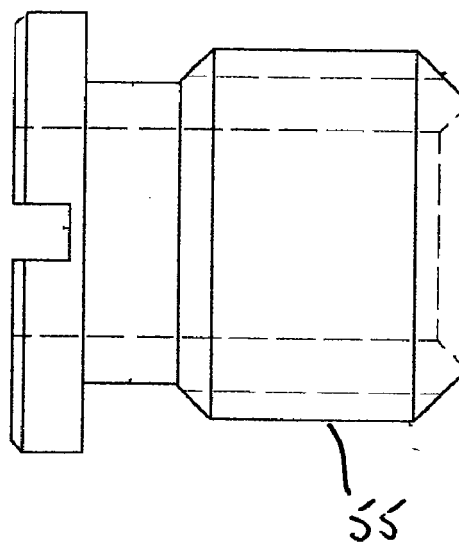


Fig. 10

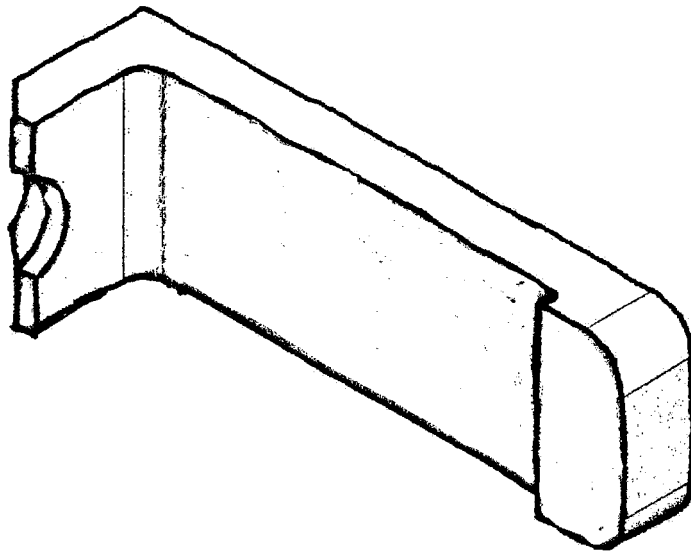


Fig. 11