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(54) **Burglar-proof profile for the edge of a door**

Einbruchhemmendes Profil für die Kante einer Tür

Profilé anti-effraction pour le bord d'une porte

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Description

[0001] The invention relates to a cover profile assembly such as described in the preamble of claim 1 and as known from f.e., EP-A-0 213 970 A, US 3 405 962 and FR 2 689 172.

[0002] It is known that the resistance against burglary of a door- or panel casing, which hingedly supports a door or panel which is provided with a lock, not only depends on the quality of the lock as used but also very much on the width of the always present gap between the casing and the door. This gap must, of course, be as small as possible; tests have shown that a width thereof bigger than 2 mm appreciably increases the sensitivity for burglary and as a result the gap must be covered by a cover strip. Even then it is essential that the distance which must be bridged is as small as possible.

[0003] However: as will be clear and as is also shown in fig. 1 of the drawing, one cannot make the gap which is present when the door is closed arbitrarily small because then, when opening the door, the inner end edge thereof runs against the casing.

[0004] To obviate this drawback the prior art as described above already proposed the measures as mentioned in the preamble of the mainclaim, the effects of which are described on the hand of figure 2 As shown therewith is obtained that at all times a minimum gap and a free running door are assured.

[0005] The invention aims to improve this known cover profile, particularly to enlarge the possible uses thereof. This is obtained by the measures according to the characterising clause of claim 1.

[0006] By these measures the profile becomes very useful for mounting a multi-lock assembly on the end edge of a door or panel.

[0007] Mounting the usual multi-lock assembly requires a lot of labour and must be done very accurately. The lock front plate must be embedded very accurately into the end edge of the door, taking care that space is made free to accommodate the control rods which run from the main lock to the auxiliary locks. When this is not done very accurately the control rods jam and the lock assembly can only be controlled with difficulty or not at all. In practice the usual multi-point lock assemblies give a lot of problems by warping or swelling of the door.

[0008] All these problems are now completely eliminated: not only with the assembly according to the invention the gap between door and door casing, which is burglar-sensitive is covered entirely, the front edge of the panel being covered by the cover strip, but moreover the control rods are safely enclosed within the ribs extending from the body: mounting of the multi-point lock assembly is not only very much easier but furthermore it is ensured that, by the protected run of the control rods, the lock assembly can always be operated without any problems. The spaces within which the ribs, enclosed by the control rods must lie can be roomier than strictly

necessary without spoiling the appearance of the door so that a problem-free mounting is ensured.

[0009] With the usual multi-point lock assemblies having the narrow lock front plate one has no choice as to the positioning of the fixing screws: these go through the centre line of the lock front plate so that in the control rods a number (8 to 10) of elongate slits must be formed, each having the length of the stroke of the control rod. Of course these slits result into a local weakening of these, already narrow and thin (12 x 2 mme) control rods which, without counter-measures results into a local buckling thereof. These counter-measures include providing local guides which each are shaped as a short stub, extending through the slit, with one end fixed to the lock front plate and having at the other end a broader head, gripping behind the rod. Providing the slits in the control rods is a costly matter while providing the extra guide - which can, of course, only be done after lock front plate, locks and rods are assembled - also increases the costs.

[0010] Mounting a usual multi-point lock assembly must be done very carefully: when one uses fixing screws which are too thick or when just one screw is placed under an angle the control rod will jam thereagainst so that using the lock becomes very difficult, if not impossible. Warping of the door also has as a result that the control rods jam against one or more screws.

[0011] With the combination: cover profile and locks according to the invention all these objections are eliminated: the plate is wide enough to provide the screws at both sides of the control rods.

[0012] A major advantage of the proposal according to the invention is that by the use thereof a normal multi-point lock assembly which, when used in itself, would result into a safety class "standard" and which could only pass from this class "standard" to the class "heavy" by using extra anti-burglar strips, the combination according to the invention results in that the assembly is directly classified as "heavy".

[0013] The elongate shallow chamber as proposed in claim 2 offers a space in which the individual, short lock front plates of a number, for instance three, locks can be accommodated, but in which also fits the elongate lock front plate of a ready-made multi-point lock assembly. In mounted condition a leg can extend to above the door casing, fulfilling the known function of covering the gap between door (or panel) on the one hand and door or panel casing on the other hand while the lock front plate of the lock front plates respectively are accommodated, protected, in the chamber.

[0014] When dimensioned correctly the profile according to the invention offers the possibility to obtain a much better burglar-proof effect while the embedding of the lock front plates in the end edge of the door which ask for a lot of labour is, of course, omitted.

[0015] The profile can be used as a "first use" profile but is also excellently suited for renovation; only a small strip of the end edge of an existing door has to be re-

moved to mount the profile.

[0016] A centrally controlled multi-point lock assembly comprises a control element which runs behind the lock front plate and intercouples the locks. According to the invention this control element can be accommodated simply when, according to a preferred embodiment, a second shallow chamber is formed from parts of the bottom of the first chamber.

[0017] Preferably the profiles according to the invention are extruded from aluminum, having as an advantage that such a profile is dimensioned very accurately, does not warp, can be provided in a simple way with a surface protection coating and offers, as practice has shown, an excellent protection against attempts to destroy it. Contrary to the known profiles made up from sheet material an attempt to destroy the profile material will result in local yielding with elastic deformation of the material while the adjacent profile parts will remain as they are, undeformed, and without the effect that a lock fraying of the profile results in a removal of a whole length of the profile. The result will be that a burglar must try to force such a profile over its entire length at a number of places which is, of course, very time consuming.

[0018] The claimed exclusive rights furthermore cover an assembly such as described in claim 11.

[0019] The invention will be elucidated on the hand of the drawings. In the drawings show:

- fig. 1 a cross-section through a combination of door and -casing as known in itself;
- fig. 2 a similar cross-section, of the profile according to the above documented prior art;
- fig. 3-10 cross-sections through various embodiments according to the invention.

[0020] Fig. 1 shows schematically a door casing 2 supporting, by means of the schematically shown hinge 4, an outwardly opening door 6. As an example it is assumed that this door has a width $b = 800$ mm.

[0021] It is furthermore assumed that the assembly has such dimensions that the gap s , present between the outer end edge 6a of the door and the door casing 2, is 2 mm.

[0022] Assuming that the door has a thickness $d = 40$ mm and that the distance between the center 4a of the hinge 4 and the door front is 10 mm (practical values) there results between the center 4a of the hinge 4 and the lefthand under- edge 6b of the door 6 a radius $R = 801.6$ mm. This means that, starting from an initial gap of 2 mm, when opening the door, there remains between the lefthand under edge 6b of the door and the adjacent doorcasing 2 a gap of only 0.4 mm width.

[0023] However, with wooden doors this is insufficient: in unfavourable wheather conditions, such as a high humidity, the door will swell and will inevitably run against the door casing when opened.

[0024] Thus one always uses in practice a gap with a

width s bigger than 2 mm, minimal 4 mm, so that the door will never run against the door casing.

[0025] However: the closing elements of the always present lock 8 must, of course, bridge this bigger gap so that the sensitivity for burglary increases; furthermore it is inevitable to bridge the gap by means of a broad anti-burglar strip. Even then such a wide gap and cover strip remain unfavourable.

[0026] The prior art as documented above eliminates this drawback. According tot the invention it is proposed - vide fig. 2 - to provide on the end edge 7 of the door 6 a profile which covers this end edge and has a tapering thickness, and is arranged in such a way that the greatest thickness is present at the outer side of door 6, and the smallest thickness at the inner side of this door.

[0027] Fig. 2, which closely corresponds with fig. 1, shows this profile 10 of which the thickness at the location 10a, thus at the outer side of door 6, is for instance 3.6 mm and at the location 10b, thus at the inner side of the door, 2 mm. When the door is closed there remains a gap of 2 mm, while, when opening the door the under edge, now being in fact the under end 10b of profile 10, will still run free from the door casing with a large margin.

[0028] Fig. 2 shows how a profile 10 with at its outer end 10a a bent-over rib 10c and at its inner end a similar rib 10d; the door end edge 7 is enclosed between these ribs.

[0029] The invention improves this prior art and a number of embodiments thereof will now be described.

[0030] Fig. 3 shows in cross-section a part of the door casing 20 and a door 22, supported therein, of which the end edge 24 is covered by a profile 26 according to the invention. This profile 6 shows the tapering as proposed by the invention: the thickness d_1 thereof at the outer side 22a of door 22 is greater than the thickness d_2 at the location of the inner side 22b of the door. In this example the tapering is approximately 1:25, corresponding with an angle between a tangent of front and rear face respectively of the profile body of approx. $2^\circ 30'$.

[0031] Fig. 3 shows how a lock 28 is embedded within the door 22 and is enclosed by the cross ribs 30a, 30b which extend from the body 26a of the profile 26. Thus the profile 26 does not only constitute a covering profile but also a lock front plate. The cross ribs 30a, 30b, can be embedded closely within the door 22 and then prevent effectively warping of the door. This is, however, not necessary.

[0032] Reference numerals 32 and 34 respectively denote the control elements of the lock 28.

[0033] Fig. 4 is a view similar to fig. 3; corresponding elements are denoted with the same reference numerals as used in fig. 2. This figure shows how the space 40, present between the ribs 30a, 30b is used to house the control rods 42, shown in cross-section, of a multi-point lock assembly of which the individual locks themselves are not shown; they are shown in fig. 5. Fig. 4 shows how for fixing the profile 26 to the door front edge 24 no screws are used which go through the median

plane of the door, but screws 44, 46 which lie at both sides of the ribs 30a, 30b, with as an advantage that no central slits have to be formed in the control rods, such as the rods 42, of a multi-point lock assembly to accommodate these screws - with all the disadvantages which this entails. In fact the control rods 24 are protectively enclosed between the ribs 30a, 30b: swelling or warping of the door will no longer adversely affect the correct operation of the multi-point lock assembly. The mounting of the lock front plate is particularly simple because the space within the ribs 30a, 30b eventually come to lie does not need to be trimmed very accurately and particularly can be wider than strictly necessary.

[0034] In fact a profile according to fig. 4 with a number of locks fixed thereto constitutes a complete multi-point lock assembly, such as shown in fig. 5. This figure shows a profile 50 according to the invention and having the cross-section such as shown in fig. 6. The profile body 50a of this profile supports three locks, namely a central lock 52 with day bolt 54 and night bolt 56, an upper auxiliary lock 58 with a pin-shaped bolt 60 and a lower auxiliary lock 62 with the pin-shaped bolt 64.

[0035] The cross-section according to fig. 6 shows the profile 50 of which the body part 50a has the tapering configuration described hereinbefore; this figure also shows schematically the central lock 52 which is fixed with the screws 68 to the body part 50a and which has the bolt 70, shown with dashed lines and fitting into the recess 72 in the door casing 20. From the body part 50a extend the ribs 74a, 74b, of which shape and function correspond with the ribs 30a, 30b described hereinbefore. The difference with the profiles described before is that the body part 50a extends at the front edge in, on the one end, an abutment rib 76, abutting against the front plane 22a of the door 22 and on the other end a bent-over covering rib 78, directed oppositely to rib 76 and covering the gap 80 between the door on the one hand and the profile body 50a on the other hand, thus resulting in a much better protection against burglary. The abutment rib 76 not only gives an effective protection against attempts to remove the profile from the door, but also against attempts to reach the lockcasing 52 with burglary tools.

[0036] Fig. 7 relates to the same profile as the one described on the hand of fig. 6 and shows how, when with the profile according to the invention a number of locks is combined into a multi-lock assembly - such as shown in fig. 5 - the control rods 82 are protected embedded between the ribs 74a, 74b. This figure also shows the fixing screws 84, 86, positioned in the way as already discussed on the basis of fig. 4.

[0037] Fig. 8 shows a door casing 20, and part of a door 22, supported by it, of which the end edge 24 is covered by a profile 90 according to the invention. The profile body 90a thereof has a configuration which differs from the embodiments described before. The profile 90 has the abutment rib 92, extending therefrom, and the opposite covering rib 94 which bridges the gap be-

tween door and door casing, while the profile body 90a has the already described tapering configuration. In this embodiment, however, a chamber 90b is formed in the body part 90a, bounded by the short ribs 96a, 96b, extending from the body part 90a and the cross ribs 98a, 98b, extending from these ribs, directed towards each other, and being parallel with the body part 90a. In the chamber 90b, bounded by the ribs 96a, 96b on the one hand and the ribs 98a, 98b on the other hand the lock front plate of a multi-point lock assembly, denoted with reference numeral 100, is accommodated; the control rods 102 of this multi-point lock assembly are accommodated in the space between the ends of the ribs 98a, 98b. Behind this first chamber there is a second chamber 104, bounded by the cross ribs 106a, 106b and the bottom rib 108. This second chamber, is embedded in the door 22 which is thus appreciably strengthened and cannot warp anymore. The locks of the multi-point lock assembly, fixed to the lock front plate 100, are not shown in fig. 8.

[0038] Fig. 9 shows a cross-section of a profile assembly as sold by applicant and in principle described in the Dutch patent 140 316, and having the configuration as shown in the leaflet: "De nieuwe generatie Deurnaalden! P-Deurnaalden", 1979, page 6 ff, but now modified in the way as proposed by the invention. Of the double doors 1101-112 the end edge of door 110 accommodates the profile 114 as known from said leaflet with the end locking element 116 and its control element 118. Door 112 accommodates one or more locks and the profile 120 which covers this door 112 has a first chamber 122 which is the space between the ribs 126a-126b which extend from the body part 124 with thereafter a second chamber 126 adjacent to the ribs 130a, 130b, and the bottom 132 through which go the screws 134.

[0039] The first chamber 122 accommodates a lock front plate 124 and the second chamber 128 accommodates a common control element 136; there is sufficient depth to accommodate a control element which stands on its edge.

[0040] Finally the profile assembly according to fig. 1C resembles for the greater part the one according to fig. 9; corresponding parts are denoted with the same reference numerals.

[0041] The difference with the assembly according to fig. 9 is that the body part 142 of the profile 120 does not define a chamber but has only two short extending ribs 144a, 144b, destined to accommodate thereinbetween the control rods 146 of a multi-point lock assembly of which the locks are not shown. The profile 142 is fixed to the door 112 by means of the screws 148a, 148b, lying at both sides of the ribs 144a, 144b, respectively.

Claims

1. Cover profile (10,26,50) comprising a profile body

(26a,50a,90a) to be fixed to the end edge (24) of a door or panel (6,22) which is hingedly supported in a door or panel casing (2,20), in which the thickness of the profile body (26a,50a,90a) as seen in a direction perpendicular to the fixing plane thereof increases from the, in mounted position outer, end edge (10a) to the inner end edge (10b) in such a way that, when opening the door or panel, a gap remains between the inner end edge and the door or panel casing,

characterised in that the profile body (26a,50a) comprises

at least three mutually distant recesses, each for accommodating the respective bolt (60,54,56,64) of one of three separate locks (58,52,62) and by two, distant ribs, (30a,30b;74a,74b) extending at the lock housing side for accommodating therebetween a lock control rod (82,102).

2. Cover profile according to claim 1 **characterised in that** the profile body part (90a) defines an elongate shallow chamber (90b) of which the bottom, in mounted position, is directed towards the end edge (24) of door or panel (fig.8).
3. Cover profile according to claim 2 **characterised in that** a second shallow chamber (104) is formed from a part of the bottom of the first chamber (90b) (fig.8).
4. Cover profile according to claims 6-7, **characterised in that** the first (90b) and second (104) chamber respectively are square.
5. Cover profile according to claims 3-4, **characterised by** two end ribs (90a,98b) directed with their end edges to each other, extending from the bottom of the first chamber (90b) and partly covering the second chamber (104).
6. Cover profile according to one or more of the preceding claims, **characterised in that** it is fabricated by extrusion from aluminum.
7. Assembly comprising a cover profile according to one or more of the preceding claims in combination with at least three locks to be accommodated therein.

Patentansprüche

1. Deckprofil (10, 26, 50) mit einem Profilkörper (26a, 50a, 90a), der an der Endkante (24) einer schwenkbar in einer Türverschalung oder Türfüllungsverschalung (2, 20) haltbaren Tür oder einer Türfüllung (6, 22), befestigt ist, wobei die Dicke des Profilkörpers (26a, 50a, 90a) in einer Sicht ver-

tikal auf seiner Befestigungsebene von der in geschlossener Stellung äußeren Endkante (10a) hin zur inneren Endkante (10b) derart ansteigt, dass bei geöffneter Tür oder Türfüllung ein Freiraum zwischen der inneren Endkante und der Tür oder der Türverschalung verbleibt, **dadurch gekennzeichnet, dass** der Profilkörper (26a, 50a) zumindestens drei gegenseitig entfernte Aussparungen zur jeweiligen Aufnahme von zugeordneten Bolzen (60, 54, 56 64) von drei separaten Schließvorrichtungen (58, 52, 62) umfasst und zwei Distanzrippen (30a, 30b; 74a, 74b) aufweist, die sich an der Schließvorrichtungsgehäusesseite zur Umschließung einer Schließvorrichtungssteuerstange (82, 102) erstrecken.

2. Deckprofil nach Anspruch 1, **dadurch gekennzeichnet, dass** das Profilkörperteil (90a) eine verlängerte flache Kammer (90b) bildet, deren Boden in montierter Stellung auf die Endkante (24) der Tür oder Türfüllung ausgerichtet ist (Fig. 8).
3. Deckprofil nach Anspruch 2, **dadurch gekennzeichnet, dass** eine zweite flache Kammer (104) aus einem Teil des Bodens der ersten Kammer (90 b) gebildet ist (Fig. 8).
4. Deckprofil nach den Ansprüchen 1 bis 3, **dadurch gekennzeichnet, dass** die erste Kammer (90 b) und die zweite Kammer (104) jeweils rechteckig sind.
5. Deckprofil nach den Ansprüchen 3 bis 4, **gekennzeichnet durch** zwei Endrippen (90a, 98b), deren Endkanten aufeinander ausgerichtet sind und sich vom Boden der ersten Kammer (90 b) erstrecken und die zweite Kammer (104) teilweise abdecken.
6. Deckprofil nach einem oder mehreren der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** es durch Extrusion von Aluminium hergestellt ist.
7. Anordnung, die ein Deckprofil nach einem oder mehreren der vorausgegangenen Ansprüche in Kombination mit zumindest drei darin einzupassenden Schließvorrichtungen umfasst.

50 Revendications

1. Profilé de recouvrement (10, 26, 50) comprenant un corps de profilé (26a, 50a, 90a) devant être fixé au bord d'extrémité (24) d'une porte ou d'un panneau (6, 22) qui est supporté de manière articulée dans un encadrement de porte ou de panneau (2, 20) dans lequel l'épaisseur du corps de profilé (26a, 50a, 90a), telle que vu dans une direction perpen-

diculaire au plan de fixation de celui-ci, augmente depuis le bord d'extrémité extérieur (10a) dans la position montée, jusqu'au bord d'extrémité intérieur (10b) de telle manière que, lors de l'ouverture de la porte ou du panneau, un espace subsiste entre le bord d'extrémité intérieur et l'encadrement de porte ou de panneau, **caractérisé en ce que** le corps de profilé (26a, 50a) comprend au moins trois évidements mutuellement distants, chacun pour recevoir le boulon (60, 54, 56, 64) respectif de l'un de trois verrous distincts (58, 52, 62), et deux nervures distantes (30a, 30b ; 74a, 74b) s'étendant du côté de logement des verrous pour recevoir entre elles une tige de commande de verrou (82, 102).

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2. Profilé de recouvrement selon la revendication 1, **caractérisé en ce que** la partie de corps de profilé (90a) définit une chambre allongée peu profonde (90b) dont le fond, dans la position montée, est dirigé vers le bord d'extrémité (24) de la porte ou du panneau (figure 8).

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3. Profilé de recouvrement selon la revendication 2, **caractérisé en ce qu'**une deuxième chambre peu profonde (104) est formée à partir d'une partie du fond de la première chambre (90b) (figure 8).

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4. Profilé de recouvrement selon les revendications 6 et 7, **caractérisé en ce que** les première (90b) et deuxième (104) chambres sont respectivement carrées.

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5. Profilé de recouvrement selon les revendications 3 et 4, **caractérisé par** deux nervures d'extrémité (98a, 98b) orientées avec leurs bords d'extrémité l'un vers l'autre, s'étendant depuis le fond de la première chambre (90b) et recouvrant partiellement la deuxième chambre (104).

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6. Profilé de recouvrement selon une ou plusieurs des revendications précédentes, **caractérisé en ce qu'il** est fabriqué par extrusion à partir d'aluminium.

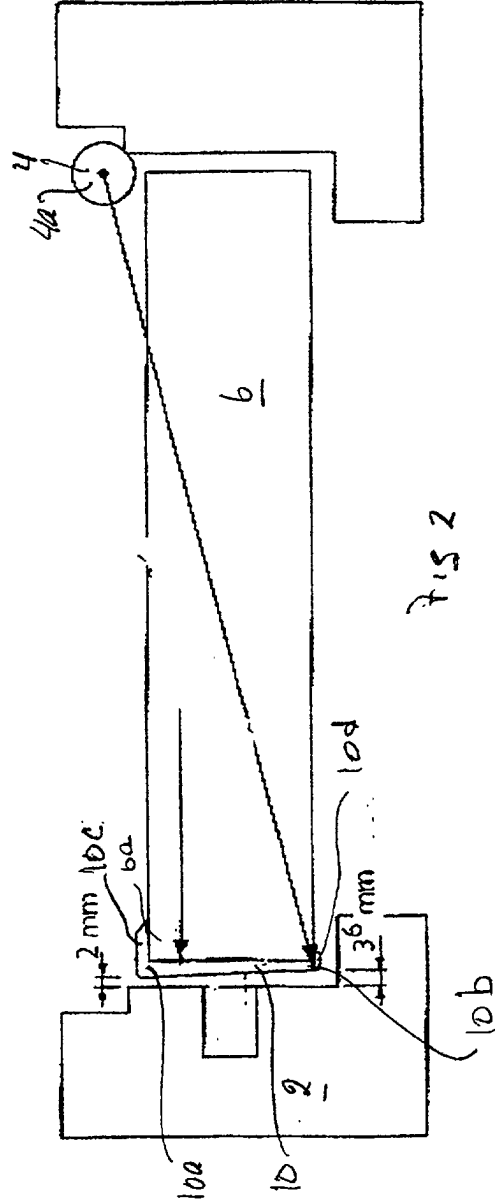
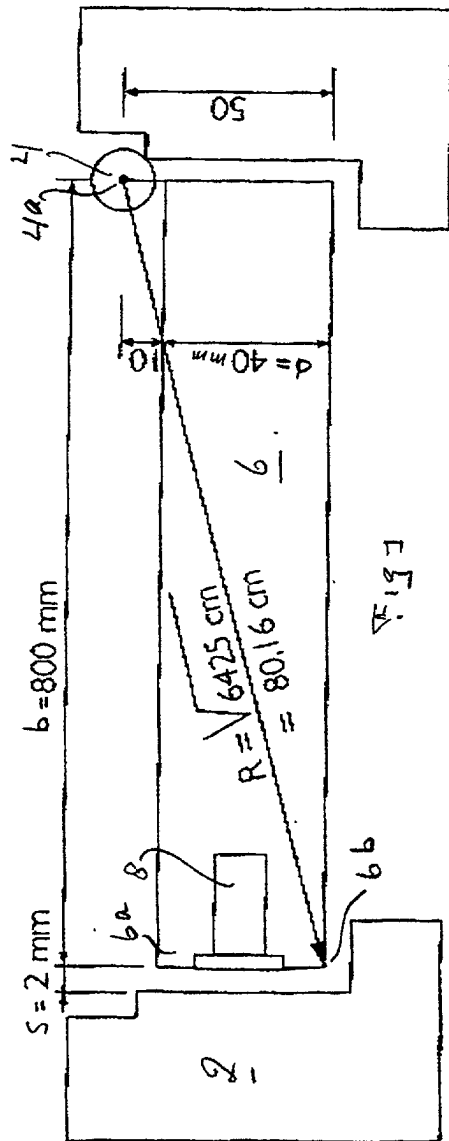
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7. Ensemble comprenant un profilé de recouvrement selon une ou plusieurs des revendications précédentes en combinaison avec au moins trois verrous devant être reçus dans celui-ci.

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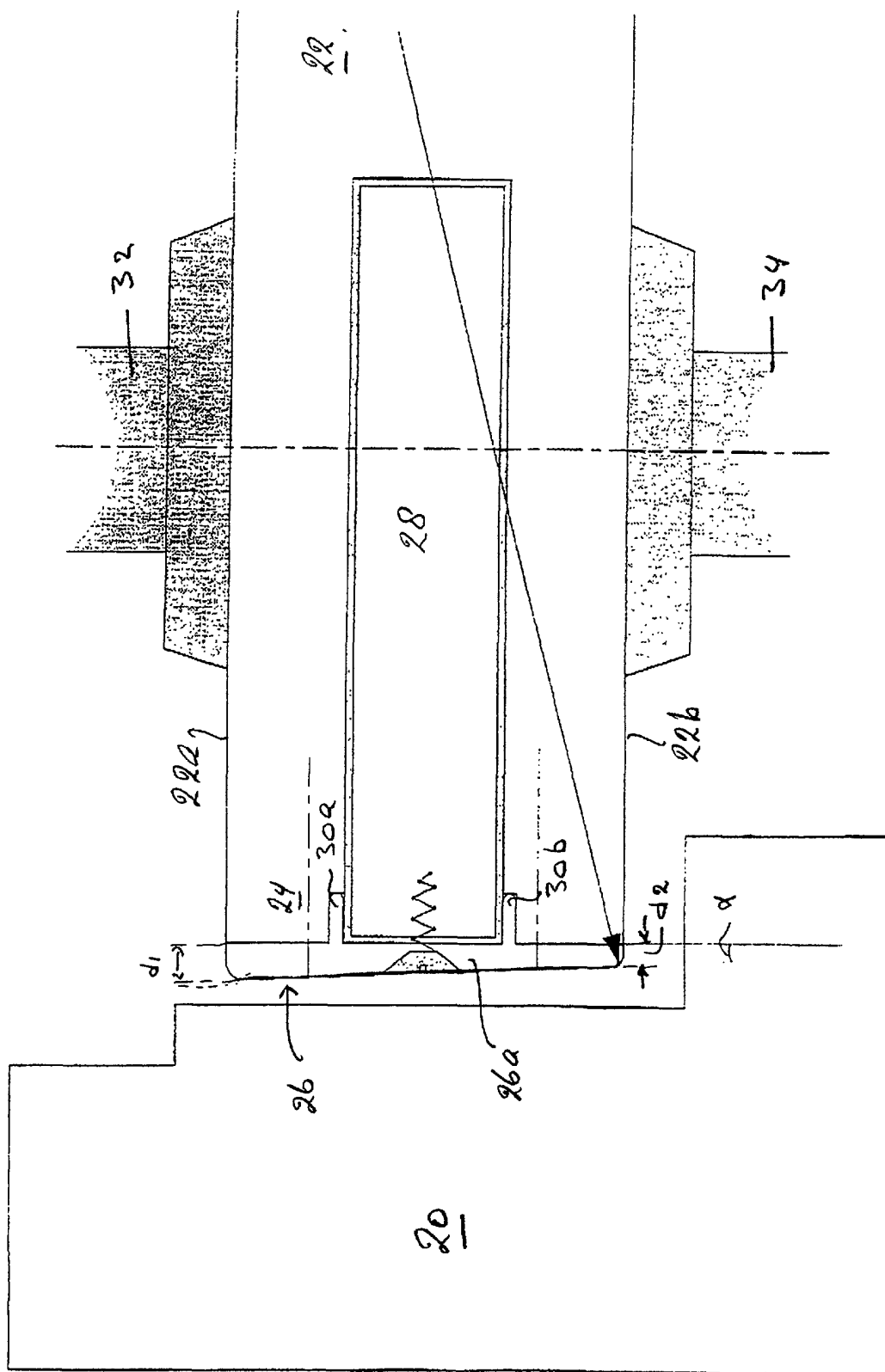
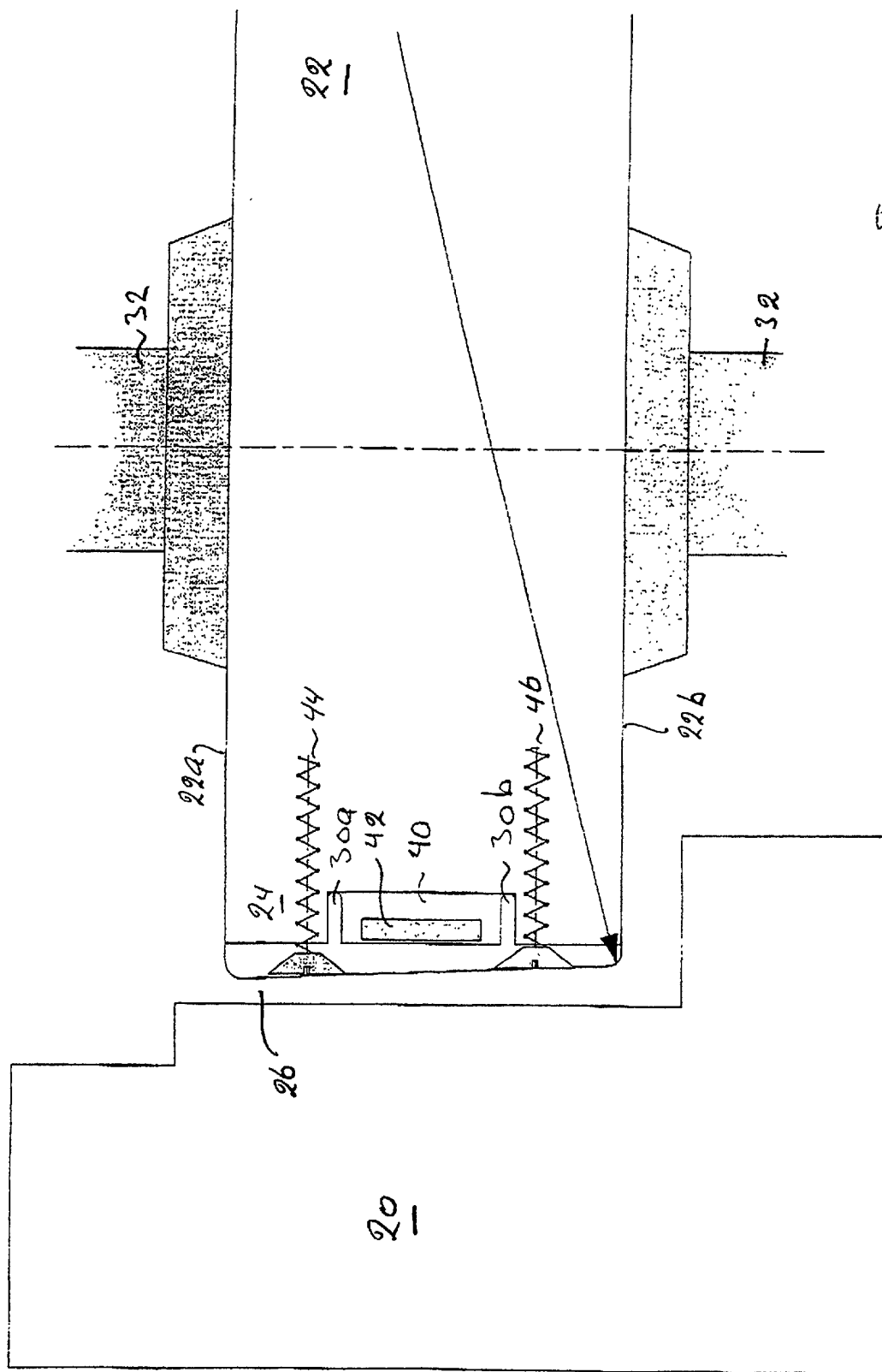
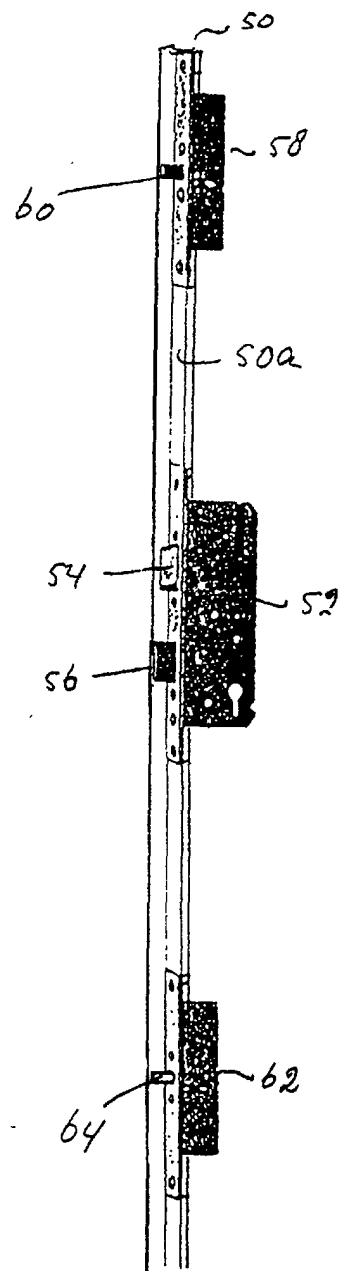
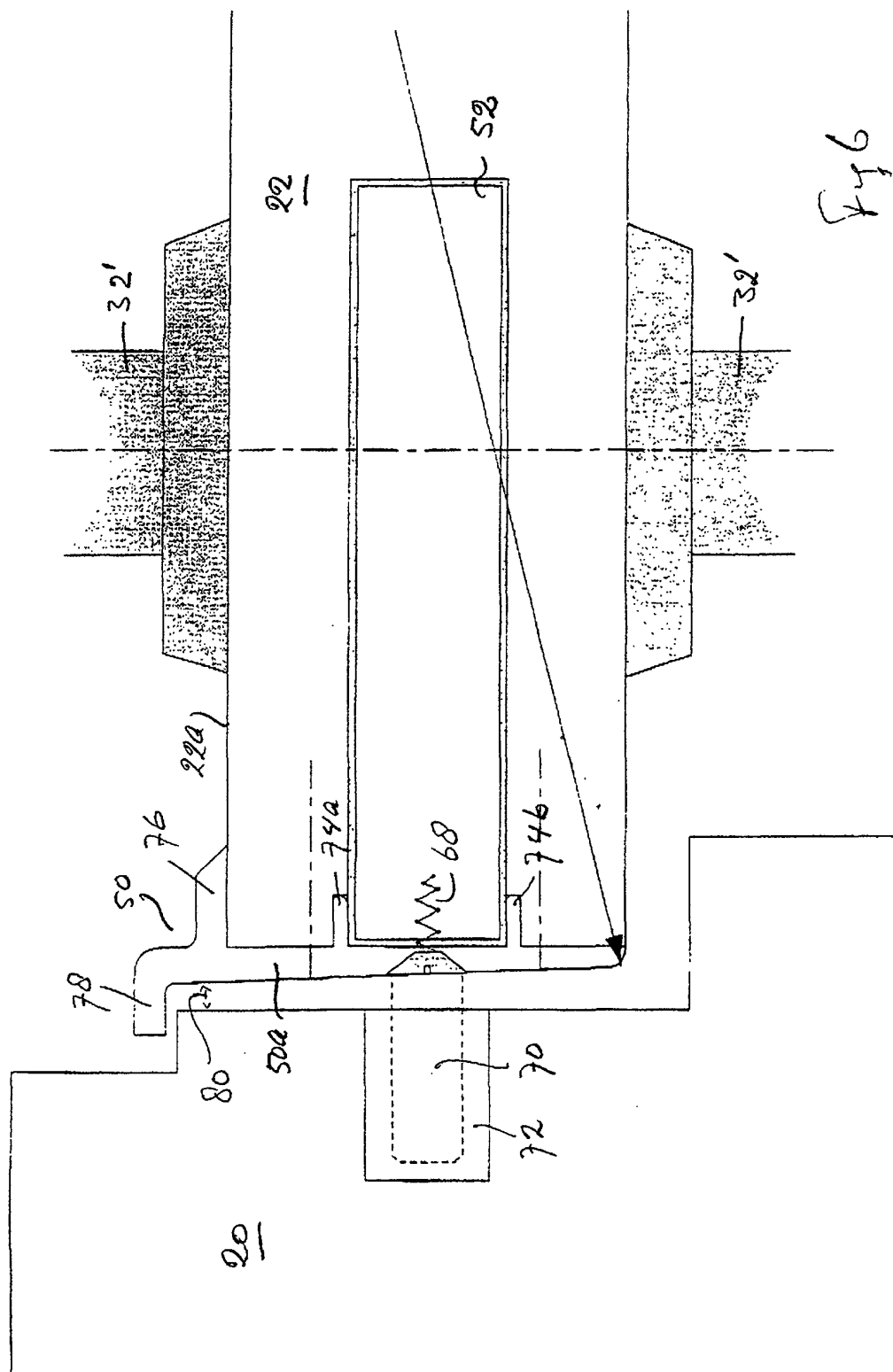


Fig. 3.





Figs



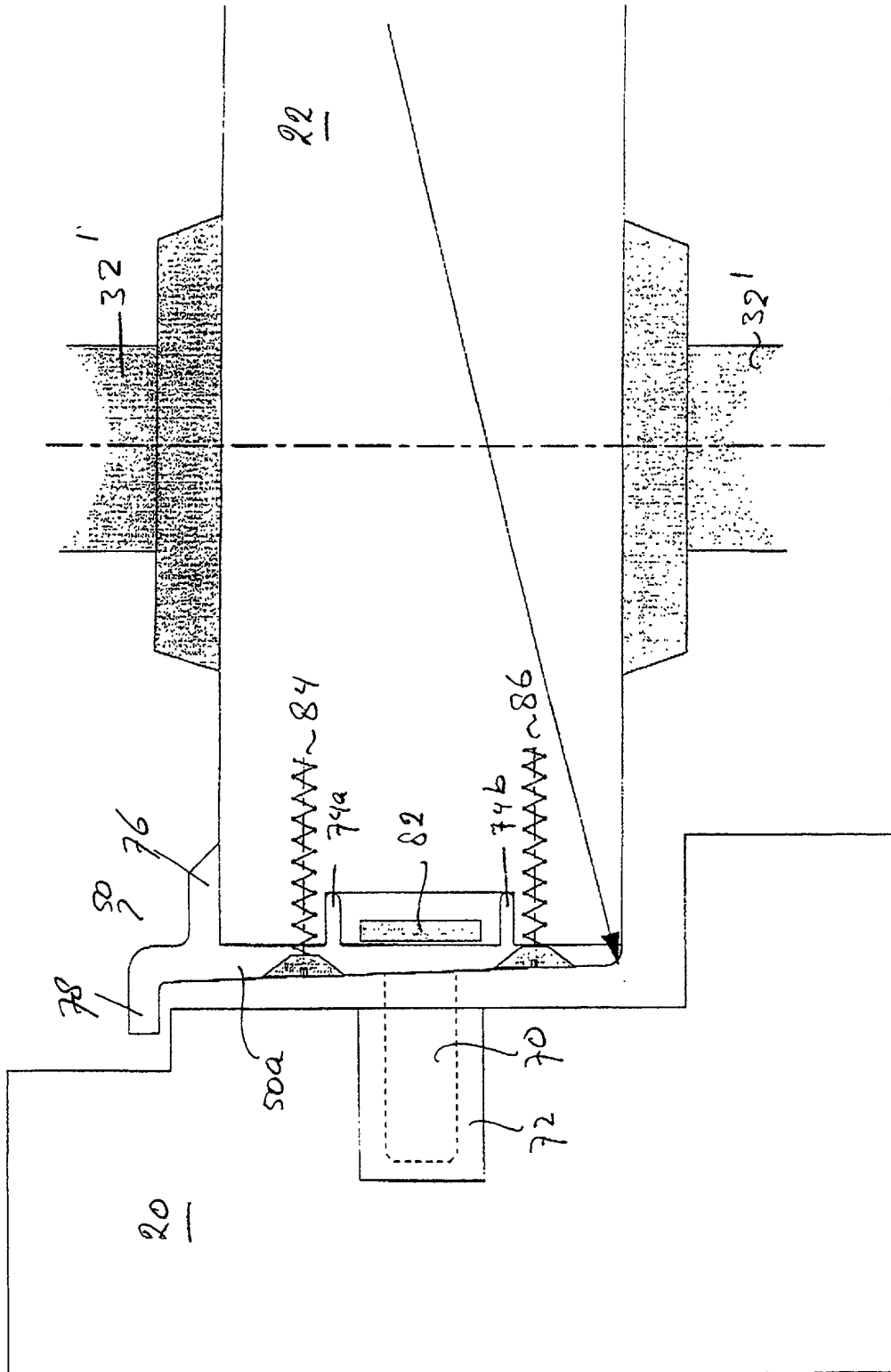
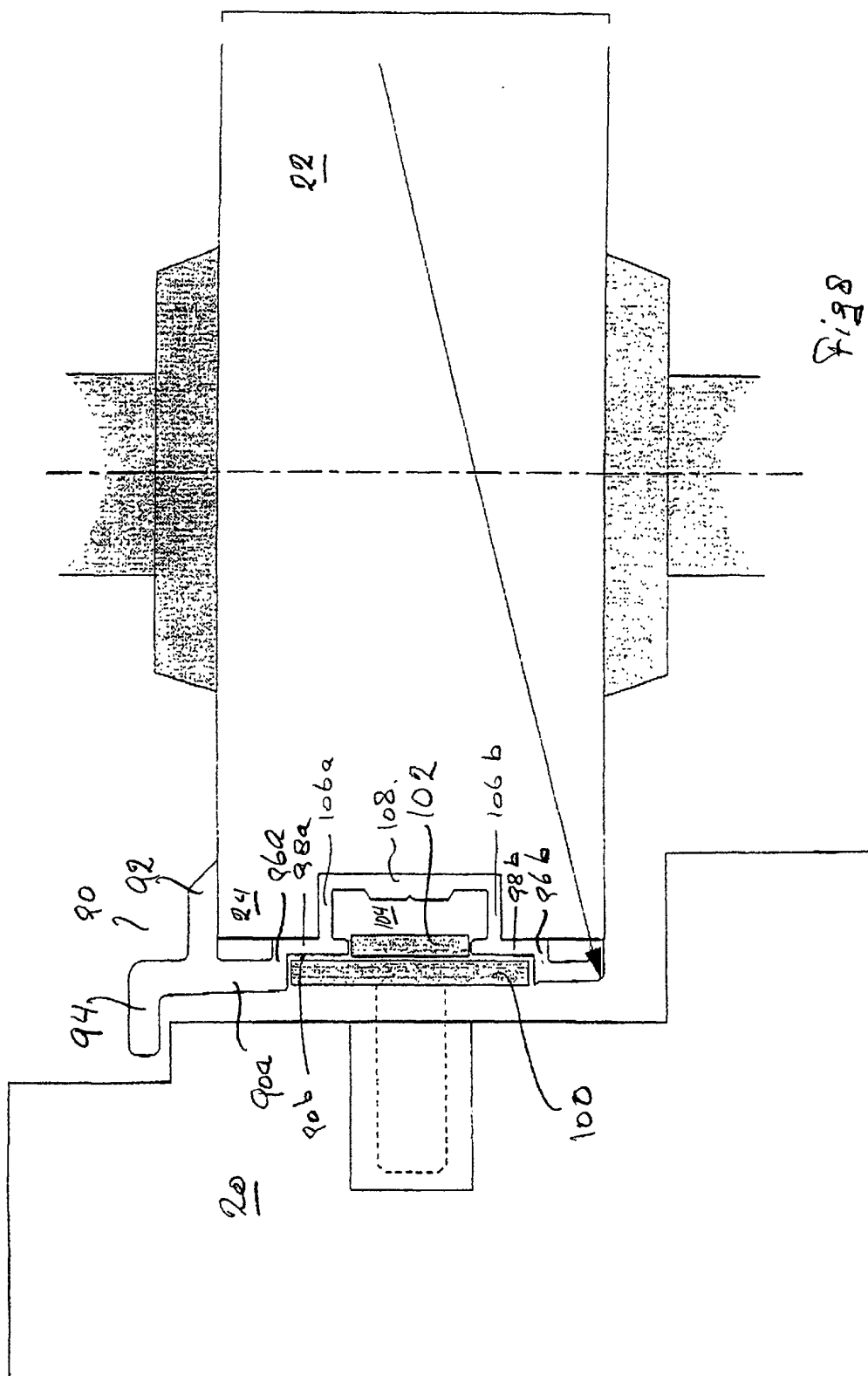
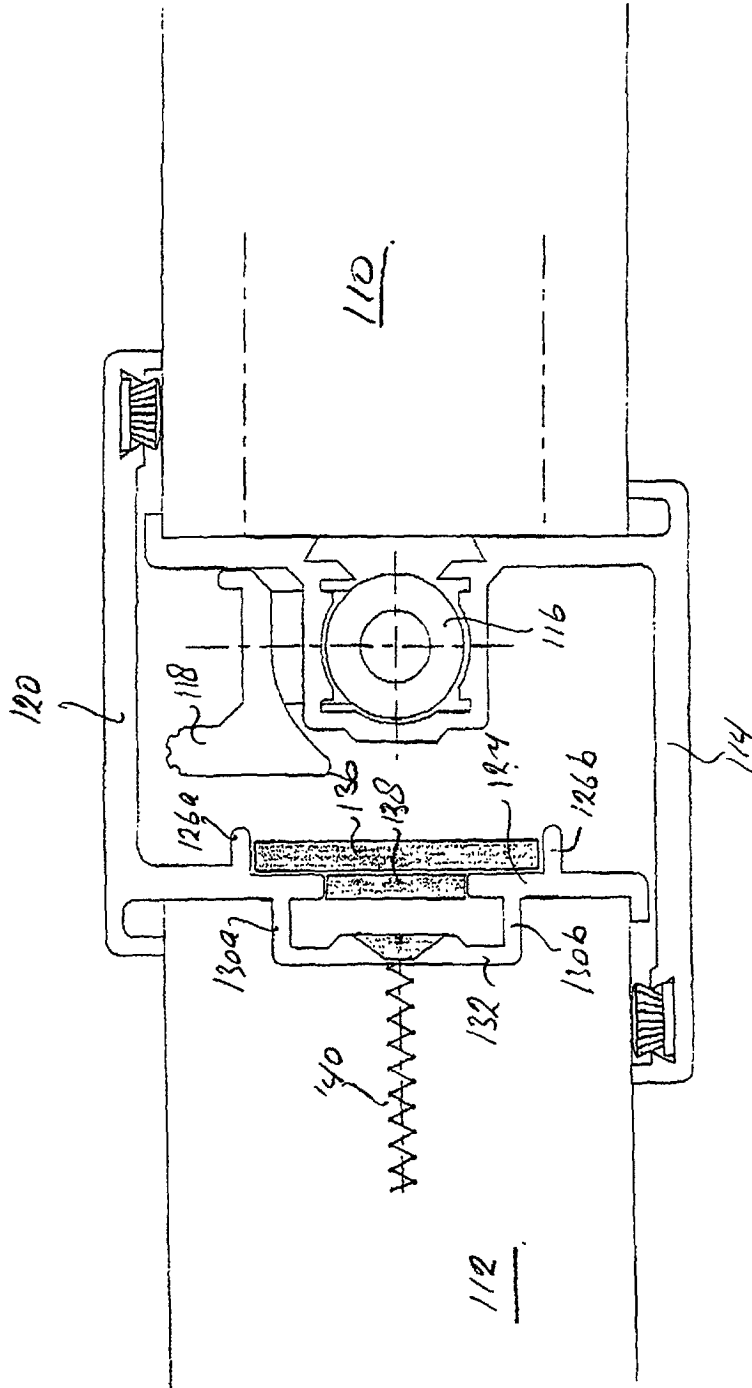


Fig. 7





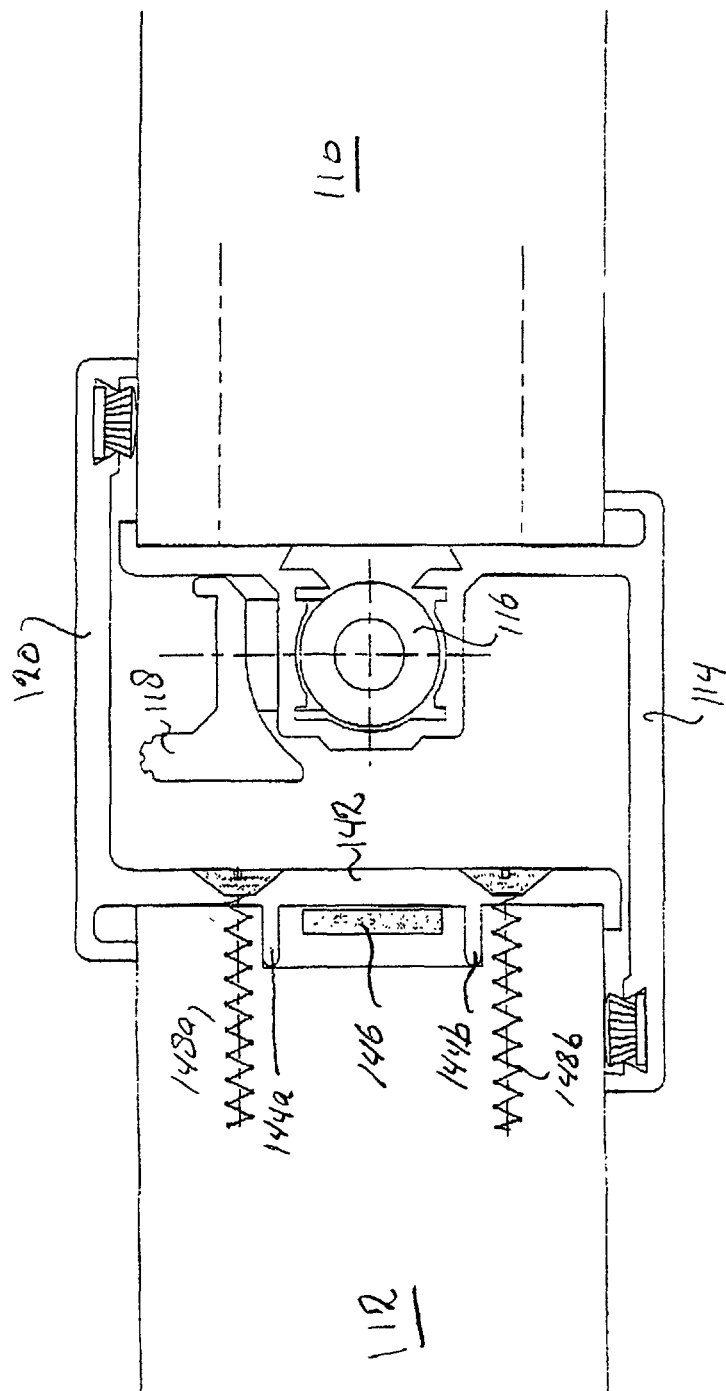


Fig 10