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(54) **WALL CUPBOARD HOLDER WITH PERFECTED FIXING MEANS TO THE SHOULDER OF THE WALL CUPBOARD**

WANDSCHRANKHALTER MIT PERFEKTIONIERTE BEFESTIGUNGSMITTELN AN DER OBERKANTE DES WANDSCHRANKS

SUPPORT DE PLACARD AVEC MOYENS DE FIXATION PERFECTIONNÉS À L'ÉPAULEMENT DU PLACARD

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Description

[0001] The present invention relates to a wall cupboard holder, particularly but not exclusively for kitchen wall cupboards, equipped with fixing means to the shoulder of the cupboard particularly advantageously arranged in relation to the anchoring safety.

[0002] Wall cupboard holders in which a hook is situated at the free end of an arm which extends externally from a box-shaped body made of plastic material, are well known to experts in the field.

[0003] Said box-shaped body contains a mechanism regulating the positions in depth and height of the hook, which is to be hooked to a wall support, a shaped metallic section, peg or other similar item.

[0004] The wall cupboard holder thus structured is fixed to the shoulder of the cupboard by means of self-threading screws, or pressure-yielding plugs made of a plastic material, with a saw-toothed profile, in correspondence with the upper edges of the cupboard, defined by the shoulder, cover and top.

[0005] The screws are pass-through, i.e. they pass through the box-shaped body and are screwed directly into the shoulder of the cupboard, whereas the plugs extend integrally and laterally from the box-shaped body made of plastic material and are pressure-inserted into a corresponding seat of the shoulder.

[0006] A wall cupboard holder of the type briefly described above is described and illustrated, for example, in patents EP 0033179 B1 and EP 0632979 A1.

[0007] According to the known art, there are at least two fixing screws or plugs, interspaced, and lying on a same plane parallel to the upper side of the wall cupboard holder - i.e. to the top of the cupboard - said plane being situated in some embodiments, above and in others below the hooking point of the wall cupboard holder.

[0008] This arrangement of the fixing means of the wall cupboard holder to the shoulder, with respect to the hooking point of the same on the wall, creates - as is explained in more detail hereunder - particularly heavy stress on the cupboard, which can lead to the yielding of the structure, with the risk of its falling and consequent dangers.

[0009] Other known solution are those described in GB2269981 and in EP0342724.

[0010] Both this solutions shows more than two fixing means, placed above and below the arm with the hook.

[0011] Those solution, even if better than those provided with two fixing means, are not able to completely solve the above mentioned drawbacks.

[0012] As a matter of fact if the single fixing means near to the hook became loose, than the remaining ones in the central or rear part of the holder would have to face an high force with an high arm, which causes a great momentum on them.

[0013] On the other hand the particular shape of the regulation device for regulating the horizontal position of the arm would have left no spaces for different solutions.

[0014] An objective of the present invention is to overcome the drawbacks of the known art and said objective is achieved by a wall cupboard holder having the characteristics specified in the main claim and enclosed sub-claims.

come the drawbacks of the known art and said objective is achieved by a wall cupboard holder having the characteristics specified in the main claim and enclosed sub-claims.

[0015] The structural and functional characteristics of the wall cupboard holder with perfected fixing means to the shoulder of the cupboard according to the invention, and its advantages with respect to the known art, will appear more evident from the following description, referring to the enclosed schematic drawings, which illustrate practical embodiments of the same invention. In the drawings:

- figures 1, 2 are two longitudinal and transversal sectional views respectively, illustrating a wall cupboard holder according to the known art fixed to the shoulder of the cupboard by means of a pair of screws lying on the same plane, parallel to the upper side of the wall cupboard holder - i.e. to the top of the cupboard - said plane being above the hooking point of the wall cupboard holder;
- figures 3, 4 are views which together illustrate the system of forces acting on the hooking point and on the fixing screws of the wall cupboard holder to the shoulder of figures 1, 2;
- figure 5 is a longitudinal sectional view, like figure 1, but illustrating the behaviour of the structure in the case of the yielding of one of the screws of the wall cupboard holder;
- figures 6, 7 are two longitudinal and transversal sectional views respectively, illustrating a wall cupboard holder according to the known art fixed to the shoulder of the cupboard by means of a pair of screws lying on the same plane, parallel to the upper side of the wall cupboard holder - i.e. to the top of the cupboard - said plane being below the hooking point of the wall cupboard holder;
- figures 8, 9 are views which together illustrate the system of forces acting on the hooking point and on the fixing screws of the wall cupboard holder to the shoulder of figures 6, 7;
- figure 10, like figure 6, is a longitudinal sectional view, but illustrating the behaviour of the structure in the case of the yielding of one of the screws of the wall cupboard holder;
- figures 11, 12 are two longitudinal and transversal sectional views respectively, illustrating a wall cupboard holder according to the known art fixed to the shoulder of the cupboard by means of a pair of plugs lying on the same plane, parallel to the upper side of the wall cupboard holder - i.e. to the top of the cupboard - said plane being above the hooking point of the wall cupboard holder;
- figures 13, 14 are views which together illustrate the system of forces acting on the hooking point and on the fixing plugs of the wall cupboard holder to the shoulder of figures 11, 12;

- figure 15, like figure 11, is a longitudinal sectional view, but illustrating the behaviour of the structure in the case of the yielding of one of the plugs of the wall cupboard holder;
- figures 16, 17 are two longitudinal and transversal sectional views respectively, illustrating a wall cupboard holder according to the known art fixed to the shoulder of the cupboard by means of a pair of plugs lying on the same plane, parallel to the upper side of the wall cupboard holder - i.e. to the head of the cupboard - the hooking point of the wall cupboard holder also lying on the same plane;
- figures 18, 19 are views which together illustrate the system of forces acting on the hooking point and on the fixing plugs of the wall cupboard holder to the shoulder of figures 16, 17;
- figure 20, like figure 16, is a longitudinal sectional view, but illustrating the behaviour of the structure in the case of the yielding of one of the plugs of the wall cupboard holder;
- figures 21, 22 are two longitudinal and transversal sectional views respectively, illustrating a wall cupboard holder according to the known art fixed to the shoulder of the cupboard by means of a pair of plugs lying on the same plane, which is oblique with respect to the upper side of the wall cupboard holder - i.e. to the top of the cupboard - said plane being below the hooking point of the wall cupboard holder;
- figures 23, 24 are views which together illustrate the system of forces acting on the hooking point and on the fixing plugs of the wall cupboard holder to the shoulder of figures 21, 22;
- figure 25, like figure 21, is a longitudinal sectional view, but illustrating the behaviour of the structure in the case of the yielding of one of the plugs of the wall cupboard holder;
- figures 26, 27 are two longitudinal and transversal sectional views respectively, illustrating a wall cupboard holder according to a first embodiment of the present invention;
- figure 28 is a scheme illustrating the system of forces acting on the hooking point and on the fixing screws to the shoulder of the wall cupboard holder of figures 26, 27;
- figures 29, 30, 31 are views which correspond to figures 26, 27, 28 respectively, but illustrating a second embodiment of the invention;
- figures 32, 33 illustrate two fixing systems of wall

cupboard holders using a short screw and a long screw respectively, passing through traditional seats situated in the box-shaped body; and

- 5 - figures 34, 35 illustrate a fixing system using innovative seats.

[0016] The wall cupboard holder in question is indicated as a whole in the drawings with 10 and is of the type, well-known to experts in the field, comprising a hook 11 situated at the free end of an arm 12 which extends externally from the rear side 13 of a box-shaped body 14.

[0017] The body 14 is moulded in a plastic material and contains a mechanism for regulating the positions in depth and height of the hook 11 which is hooked to the wall in a point 15, for example in a metallic section 16. The depth and height regulations of the hook 11 are obtained, in a known way, by means of respective screws 17, 18, accessible through the rear side 13 of the wall cupboard holder (figure 26).

[0018] The screw 17 is constrained and acts directly at the end of the arm 12 opposite the hook 11, whereas the screw 18 acts in an intermediate area of the arm 12 through a lunette 19. See EP 0033179 B1.

[0019] All the fixing systems of the wall cupboard holder 10 to the shoulder 20 of the cupboard, according to the known art, which use either a pair of self-threading screws 21, 121, (figures 1-10), or a pair of yielding plugs 22, 122, saw-toothed, pressure-inserted into a seat 23 of the shoulder 20 of the cupboard (figures 11-25), suffer from the drawback of creating a system of vertical forces which the wall cupboard holder - partially schematized in the drawings and indicated generically with the number 24 - discharges onto the wall cupboard holder 10. This system of forces can be schematized and simplified in a third-class lever, in which F is the fulcrum, R the reaction and A the action.

[0020] As is well known, a third-class lever is by definition disadvantageous, therefore the screw 21 or plug 22 acts as a fulcrum, whereas the other screw 121 or plug 122 is subjected to considerable stress specifically as a result of the disadvantageous system due to the presence of a third-class lever. Consequently, in the point where there is great stress 121, 122, the chipboard of the shoulder 20 is subjected to pressure which is greater than the acceptable pressure, with a consequent yielding of the anchoring point. This yielding causes the rotation of the wall cupboard holder around the fulcrum F, thus jeopardizing the integrity of the cupboard, in the way illustrated in figures 5, 10, 15, 20 and 25.

[0021] According to the invention, on the other hand, in all its possible embodiments illustrated in figures 26-31 of the drawings, where the wall cupboard holder 10 is fixed to the shoulder 20 of the cupboard using three fixing means (screws 21, 121, 221 or plugs 22, 122, 222), a force system is created which is different from a third-class lever, which is eliminated, as all the fixing points (means) are subjected to stress by forces which define,

for each screw or plug, a resistant moment R1, R2, R3, R4. The sum of the three moments of the three fixing means (screws or plugs), for the static equilibrium of the system, is equal or contrary to the moment generated by the force A (action) applied to the hook 11, which consequently undergoes stress to remain stably hooked in place on the metallic section 16 fixed to the wall P.

[0022] In the situation described above, no fixing means has the passive function of fulcrum, all actively collaborating, on the contrary, to obtain a greater rigidity of the system.

[0023] Figures 26-31 illustrate two embodiments of the invention which use three fixing means 10 (screws 21, 121, 221 or plugs 22, 122, 222), lying on two horizontal and vertical planes P1, P2 respectively, and which, in the example shown, are parallel to the upper 25 and rear 13 sides of the wall cupboard holder 10.

[0024] As can be clearly seen in the drawings, said planes P1, P2 are also respectively parallel to the top 27 and cover 28 of the wall cupboard 24.

[0025] The third lower fixing means 221 is positioned close to the front side 26 of the wall cupboard holder, i. e. near the cover 28 of the cupboard 24.

[0026] According to the known art, the wall cupboard holders are generally fixed to the shoulder of the cupboard using standard screws which have unified lengths. Consequently, it often happens, as illustrated in figures 44, 45, that two subsequent lengths of screws available are either too short (screw V) (figure 44), or too long (screw VI).

[0027] As long screws cannot obviously be used, as they protrude from the opposite part of the shoulder as shown in figure 45, short screws are used with the drawback of engaging a small portion of self-threading screw in the chipboard, thus greatly jeopardizing the hold and/or rigidity of the system (figure 44).

[0028] The system illustrated in figures 46, 47 is innovative thanks to the formation in the box-shaped body 14 of a pass-through seat for the screw, comprising a central cylindrical section 50 having a smaller diameter which broadens out at the opposite ends into a conical section 51 suitable for receiving the head T of the screw, accessible through a cylindrical section 52.

[0029] In this way, from figure 46, it can be seen how a screw which is not long (V2) is also able to penetrate the chipboard for a length which is adequate for ensuring the right hold, without protruding from the shoulder of the cupboard .

[0030] The seats 52 for the head are situated on both sides, as the wall cupboard holders have a right and left side.

[0031] The objective specified in the preamble of the description is therefore achieved.

[0032] The protection scope of the invention is defined by the following claims.

Claims

1. A wall cupboard holder (10) for wall cupboards, comprising:

- a box-shaped body (14) made of plastic material comprising in its turn: an upper side (25) - destined for being buffered against a top (27) of the cupboard (24) - a rear side (13) and a front side (26) - opposite to said rear side - destined to be buffered against the cover (28) of the cupboard (24) -
- an arm (12) which extends externally from said box-shaped body (14)
- a hook (11) with a hooking point (15) situated at a free end of said arm (12)
- a regulation mechanism for regulating the positions in depth and height of said hook (11) contained in said box-shaped body (14)
- exactly three fixing means (21, 121, 221) of said box-shaped body to be fixed to a shoulder (20) of said cupboard (24)
- a first and second fixing means (21, 121) being engaged with two respective interspaced points lying on a first plane (P1),
- a third fixing means (221) being engaged with a third point lying on a second plane (P3)
- said arm (12) being positioned between said first and second plane (P1, P3), said first and second plane (P1, P3) being respectively positioned above and below the hooking point (15)
- said first plane (P1) being parallel to said upper side (25) of the wall cupboard holder (10)
- said third fixing means lies with the first fixing means on a third plane (P2) which is parallel to the front side (26), wherein

said third lower fixing means (221) is positioned close to a front side (26) of the wall cupboard holder (10).

2. The wall cupboard holder according to claim 1, **characterized in that** said fixing means are screws (21, 121, 221) passing through holes situated in the wall cupboard holder.
3. The wall cupboard holder according to claim 1, **characterized in that** said fixing means are shaped plugs (22, 122, 222) which extend laterally from the box-shaped body and can be pressure-inserted in holes situated in the shoulder of the wall cupboard.
4. The wall cupboard holder according to claim 2, **characterized in that** each screw is housed in a seat of the box-shaped body (14) of the wall cupboard holder (10) consisting of a central cylindrical section (50) having a smaller diameter which broadens out at the opposite ends into a conical section (51) suitable for

receiving the head (T) of the screw, accessible through a cylindrical section (52).

Patentansprüche

1. Wandschrankschalter (10) für Wandschränke, umfassend:

- einen kastenförmigen Körper (14), der aus Kunststoffmaterial hergestellt ist und wiederum umfasst: eine obere Seite (25), die dafür bestimmt ist, gegen ein Oberteil (27) des Wandschranks (14) anzuschlagen, eine Rückseite (13) und eine Vorderseite (26) entgegengesetzt zu der Rückseite, die dafür bestimmt ist, gegen die Abdeckung (28) des Wandschranks (24) anzuschlagen,
- einen Arm (12), der sich von dem kastenförmigen Körper (14) nach außen erstreckt,
- einen Haken (11) mit einem Einhakpunkt (15), der an einem freien Ende des Arms (12) gelegen ist,
- einen Regulierungsmechanismus zum Regulieren der Position in Tiefe und Höhe des Hakens (11), der in dem kastenförmigen Körper (14) enthalten ist,
- exakt drei Befestigungsmittel (21, 121, 221) des kastenförmigen Körpers zur Befestigung an einer Schulter (20) des Wandschranks (24)
- wobei ein erstes und zweites Befestigungsmittel (21, 121) mit zwei jeweiligen voneinander beabstandeten Punkten in Eingriff stehen, die auf einer ersten Ebene (P1) liegen,
- ein drittes Befestigungsmittel (221) mit einem dritten Punkt in Eingriff steht, der auf einer zweiten Ebene (P3) liegt,
- der Arm (12) zwischen der ersten und zweiten Ebene (P1, P3) angeordnet ist, wobei die erste und zweite Ebene (P1, P3) jeweils oberhalb und unterhalb des Einhakpunkts (15) angeordnet sind,
- die erste Ebene (P1) parallel zu der Oberseite (25) des Wandschrankschalters (10) liegt, und
- das dritte Befestigungsmittel mit dem ersten Befestigungsmittel auf einer dritten Ebene (P2) liegt, die parallel zu der Vorderseite (26) ist, wobei das dritte untere Befestigungsmittel (221) nahe an einer Vorderseite (26) des Wandschrankschalters (10) angeordnet ist.

2. Wandschrankschalter nach Anspruch 1, **dadurch gekennzeichnet, dass** die Befestigungsmittel Schrauben (21, 121, 221) sind, die durch Löcher verlaufen, die in dem Wandschrankschalter gelegen sind.

3. Wandschrankschalter nach Anspruch 1, **dadurch gekennzeichnet, dass** die Befestigungsmittel Form-

stopfen (22, 122, 222) sind, die sich seitlich von dem kastenförmigen Körper erstrecken und unter Druck in Löcher eingesetzt werden können, die in der Schulter des Wandschranks gelegen sind.

4. Wandschrankschalter nach Anspruch 2, **dadurch gekennzeichnet, dass** jede Schraube in einem Sitz des kastenförmigen Körpers (14) des Wandschrankschalters (10) untergebracht ist, der aus einem zentralen zylindrischen Teilstück (50) besteht, das einen kleineren Durchmesser aufweist, der sich an den entgegengesetzten Enden zu einem konischen Teilstück (51) verbreitert, das zur Aufnahme des Kopfes (T) der Schraube geeignet ist und durch ein zylindrisches Teilstück (52) zugänglich ist.

Revendications

1. Support de placard mural (10) pour placards muraux, comprenant :

- un corps en forme de boîte (14) fait d'une matière plastique et comprenant lui-même : un côté supérieur (25) destiné à être intercalé contre une partie supérieure (27) du placard (24) ; un côté arrière (13) et un côté avant (26), opposé audit côté arrière, destiné à être intercalé contre le panneau (28) du placard (24) ;
- un bras (12) qui s'étend vers l'extérieur depuis ledit corps en forme de boîte (14) ;
- un crochet (11) avec un point d'accrochage (15) situé à une extrémité libre dudit bras (12) ;
- un mécanisme de réglage pour régler les positions en profondeur et en hauteur dudit crochet (11) contenu dans ledit corps en forme de boîte (14) ;
- exactement trois moyens de fixation (21, 121, 221) dudit corps en forme de boîte, destinés à être fixés à un épaulement (20) dudit placard (24) ;
- un premier et un deuxième moyen de fixation (21, 121) étant mis en prise avec deux points respectifs espacés qui se trouvent sur un premier plan (P1) ;
- un troisième moyen de fixation (221) étant mis en prise avec un troisième point qui se trouve sur un deuxième plan (P3) ;
- ledit bras (12) étant positionné entre lesdits premier et deuxième plans (P1, P3), lesdits premier et deuxième plans (P1, P3) étant respectivement positionnés au-dessus et sous le point d'accrochage (15) ;
- ledit premier plan (P1) étant parallèle audit côté supérieur (25) du support de placard mural (10) ;
- ledit troisième moyen de fixation se trouve avec le premier moyen de fixation sur un troisième plan (P2) qui est parallèle au côté avant (26),

dans lequel ledit troisième moyen de fixation (221) est positionné à proximité d'un côté avant (26) du support de placard mural (10).

2. Support de placard mural selon la revendication 1, 5
caractérisé en ce que lesdits moyens de fixation sont des vis (21, 121, 221) qui passent dans des trous situés dans le support de placard mural.
3. Support de placard mural selon la revendication 1, 10
caractérisé en ce que lesdits moyens de fixation sont des chevilles façonnées (22, 122, 222) qui s'étendent latéralement depuis le corps en forme de boîte et qui peuvent être insérées par pression dans des trous situés dans l'épaulement du placard mural. 15
4. Support de placard mural selon la revendication 2, 20
caractérisé en ce que chaque vis est logée dans un siège du corps en forme de boîte (14) du support de placard mural (10) consistant en une section cylindrique centrale (50) ayant un petit diamètre qui s'élargit aux extrémités opposées en formant une section conique (51) adaptée pour recevoir la tête (T) de la vis, accessible à travers une section cylindrique (52). 25

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Fig. 1

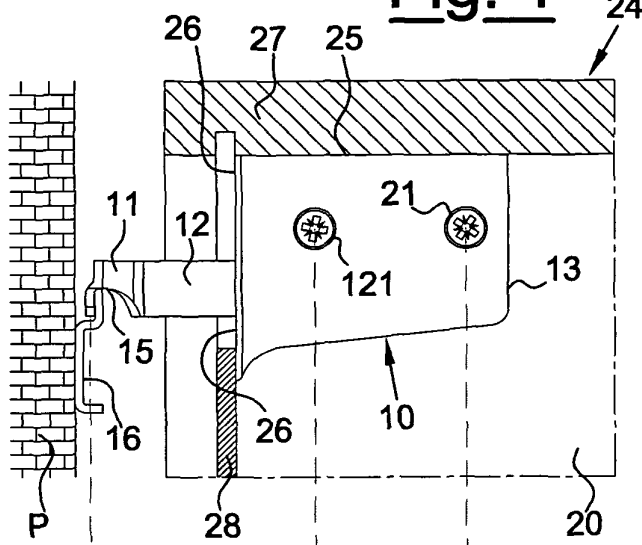


Fig. 2

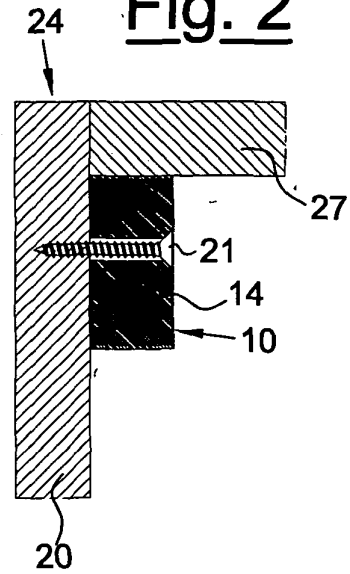


Fig. 3

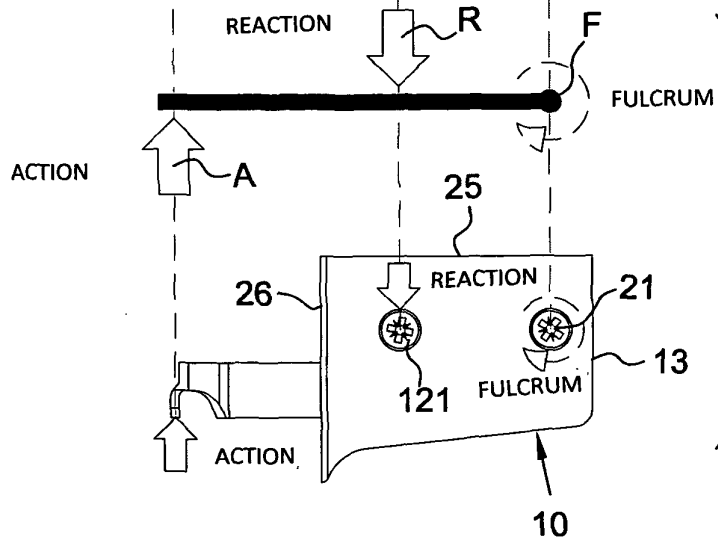


Fig. 4

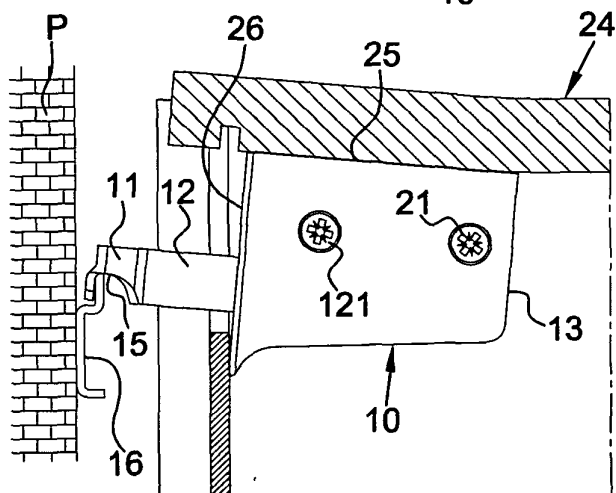


Fig. 5

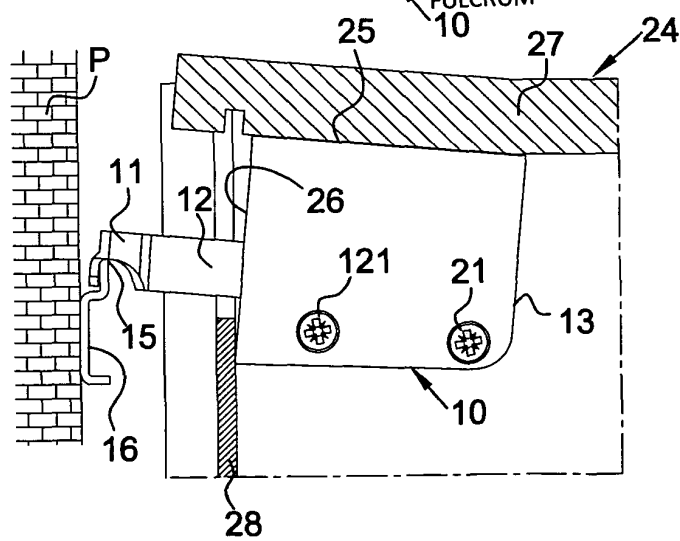
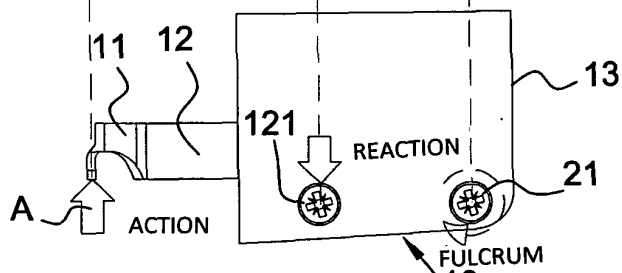
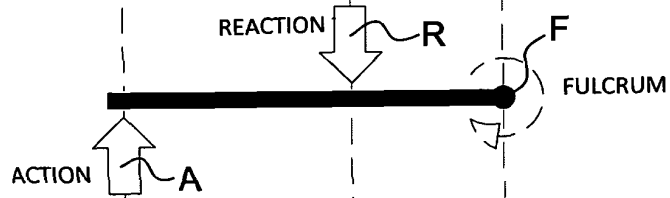
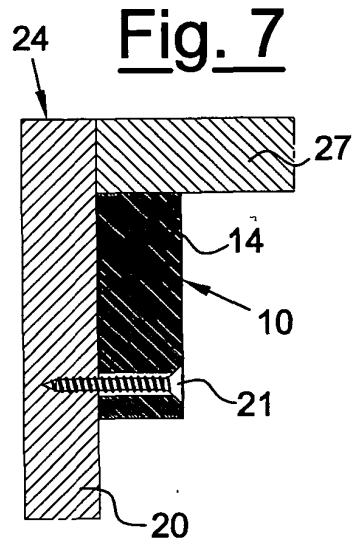
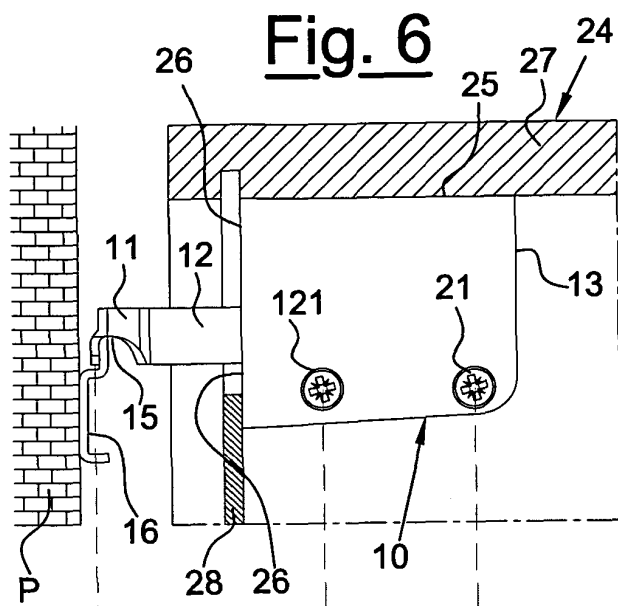


Fig. 11

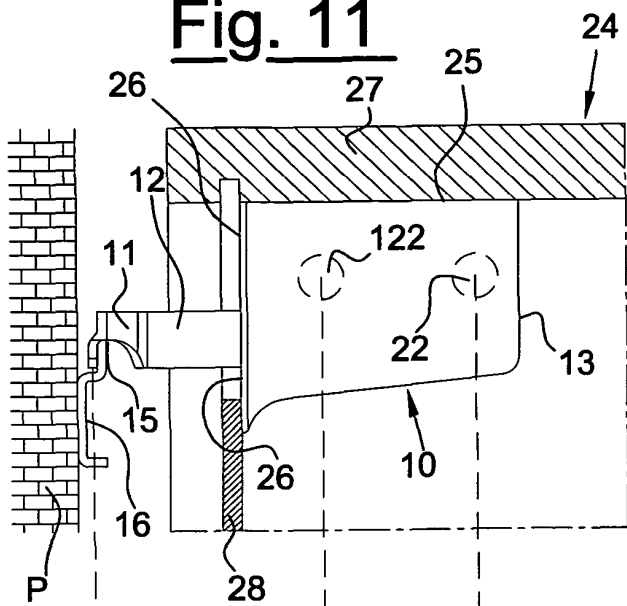


Fig. 12

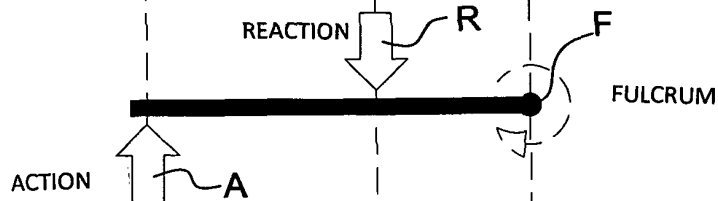
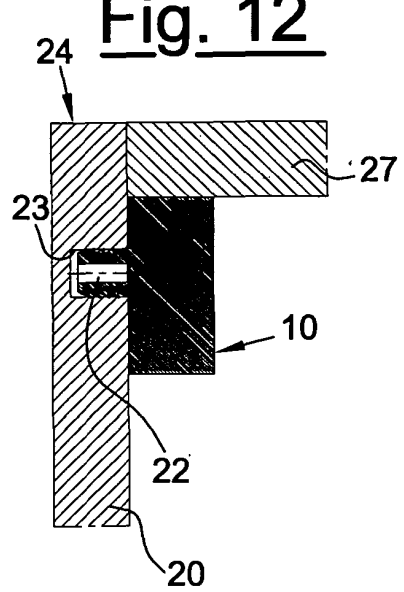


Fig. 13

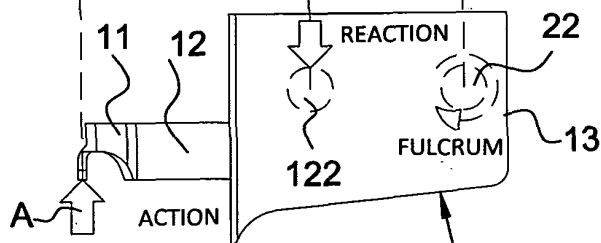


Fig. 14

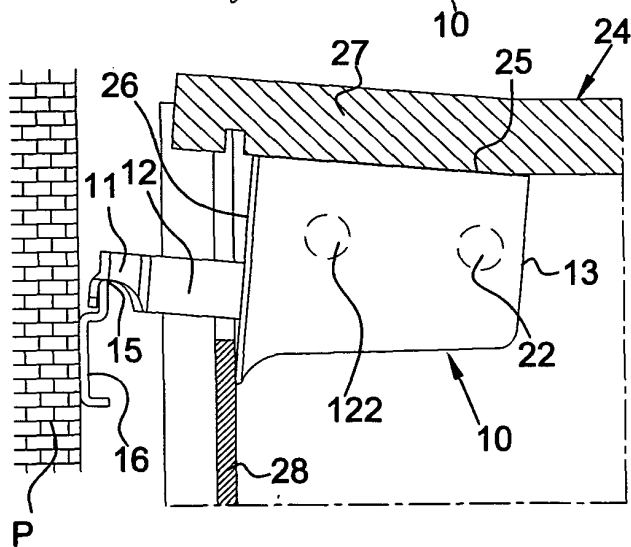
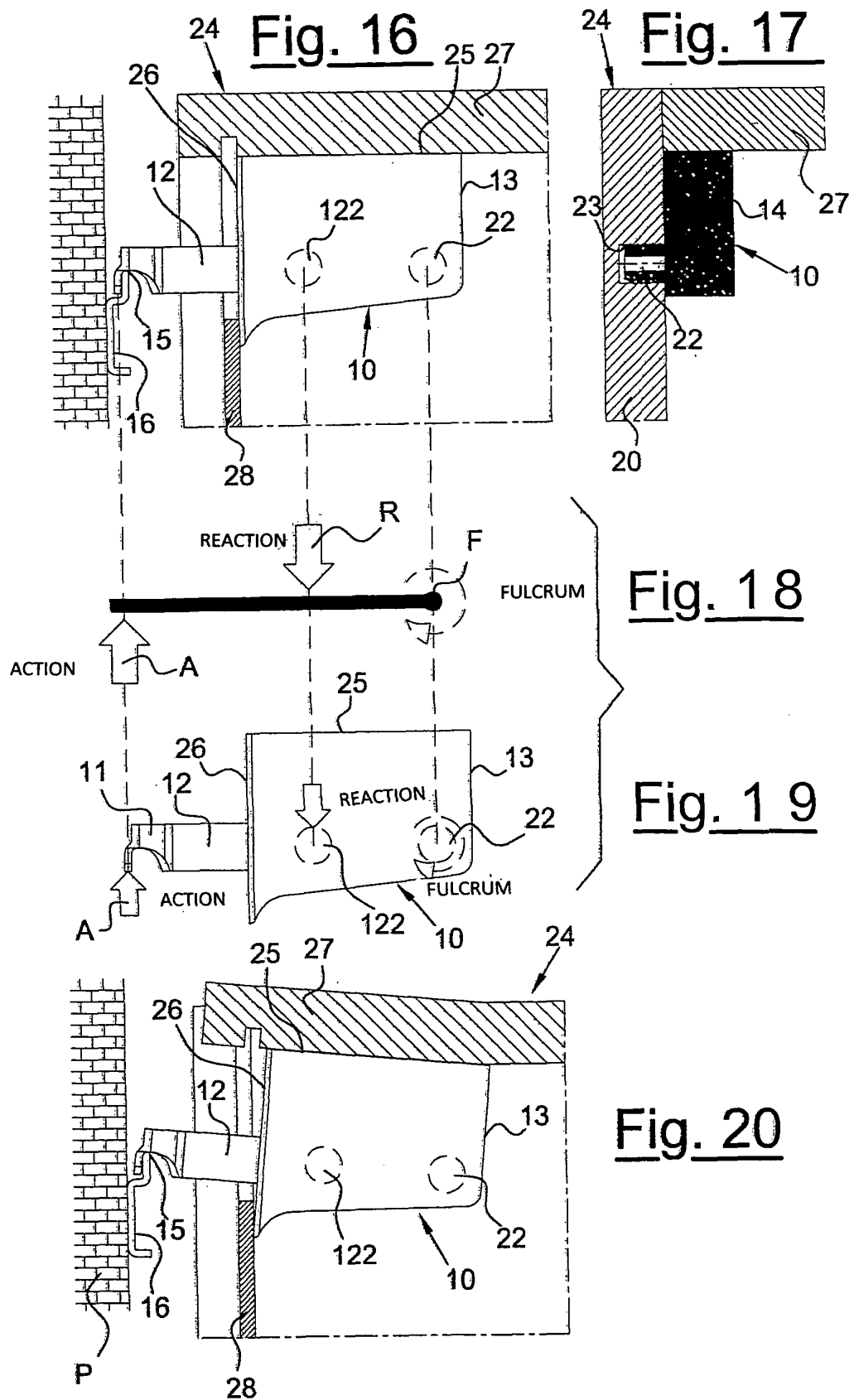
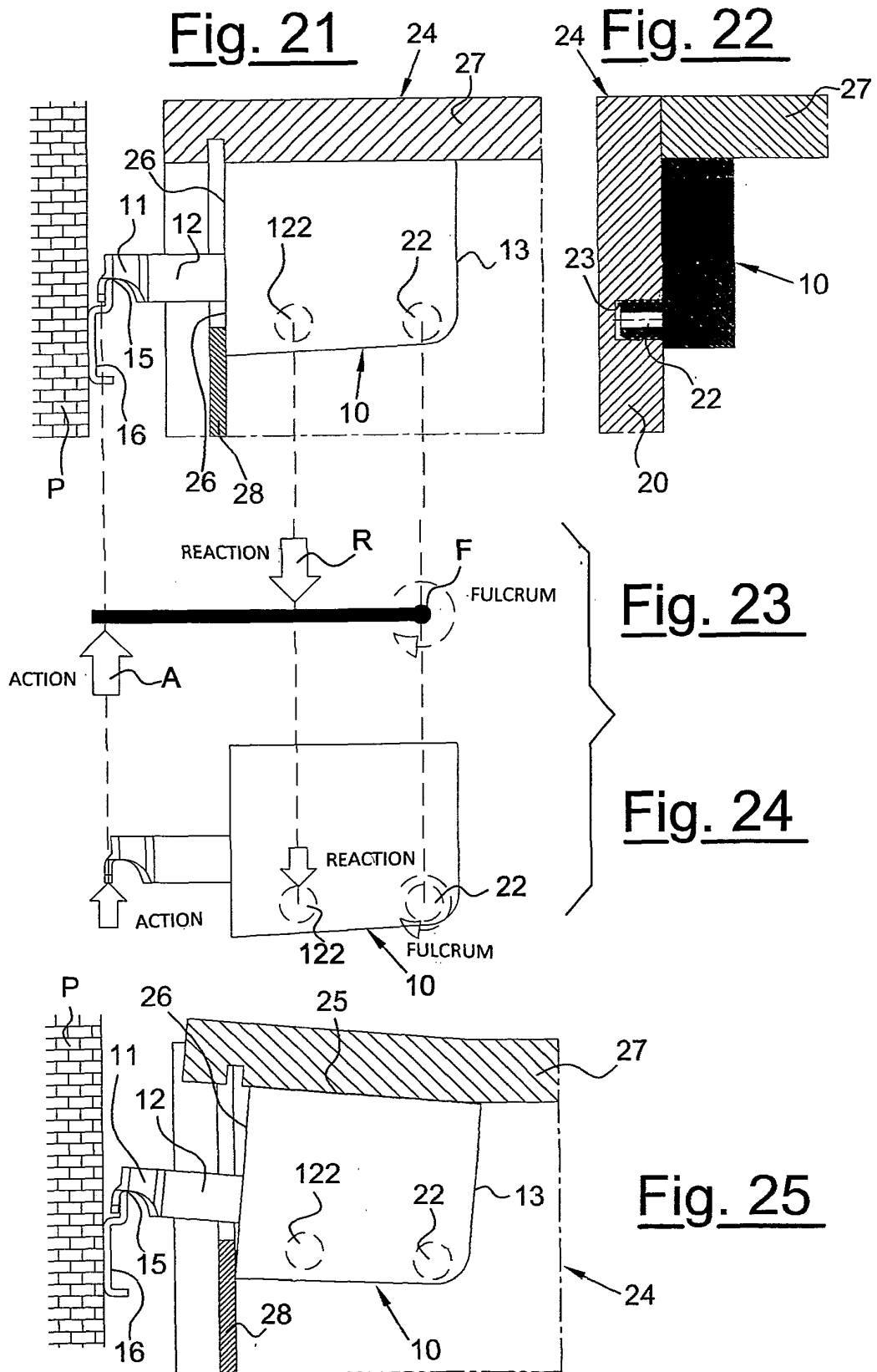
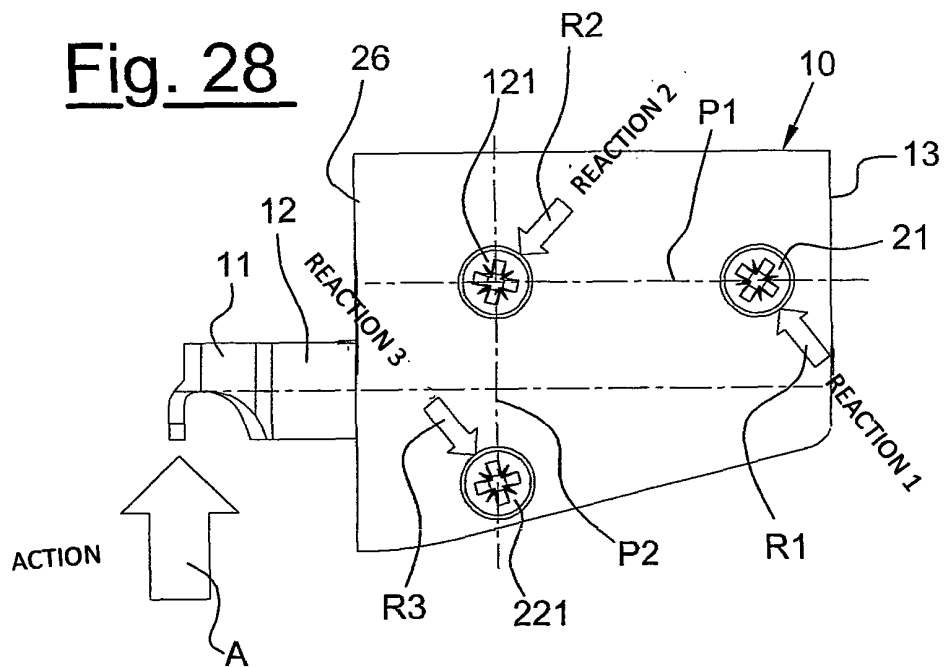
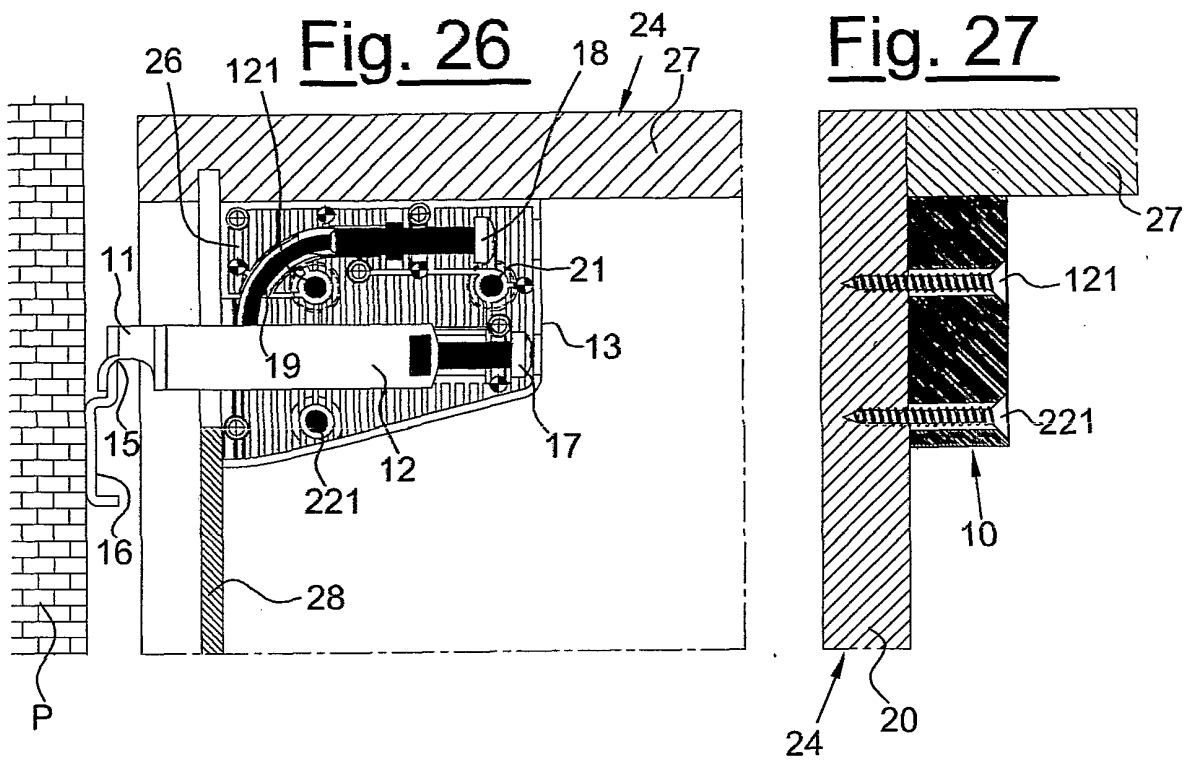


Fig. 15







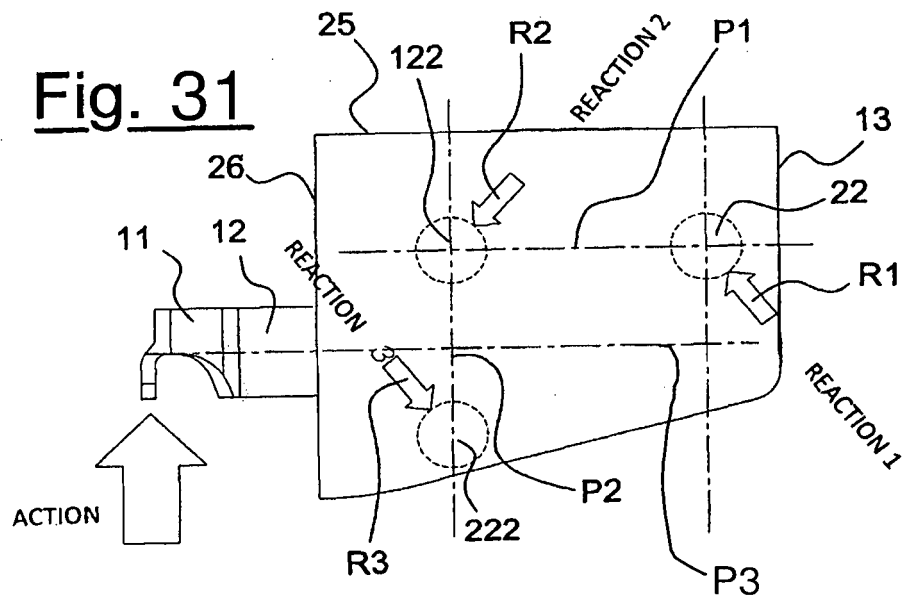
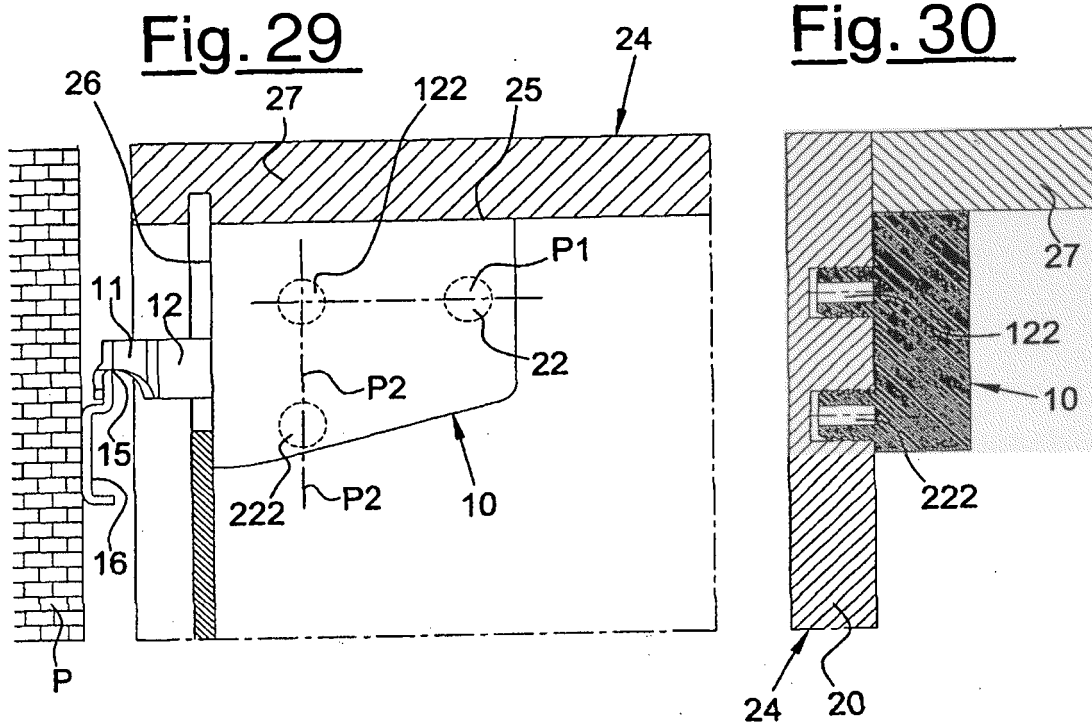


Fig. 32

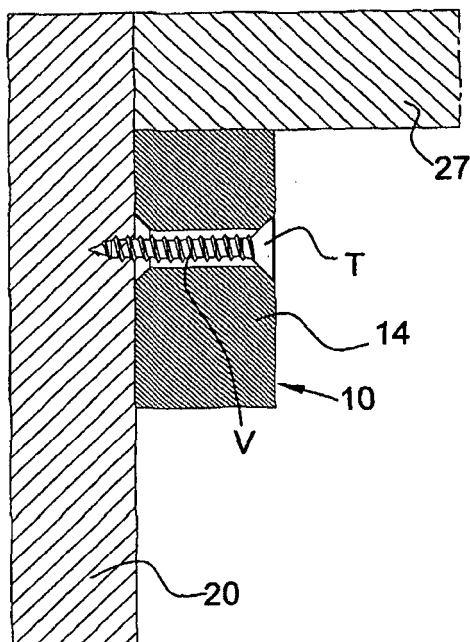


Fig. 33

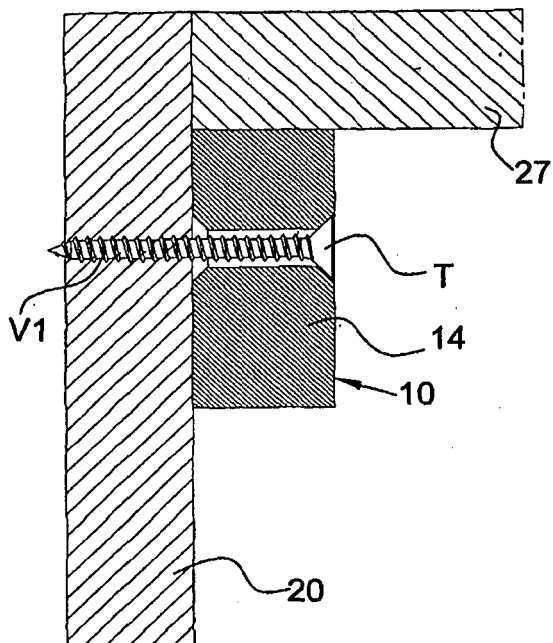


Fig. 34

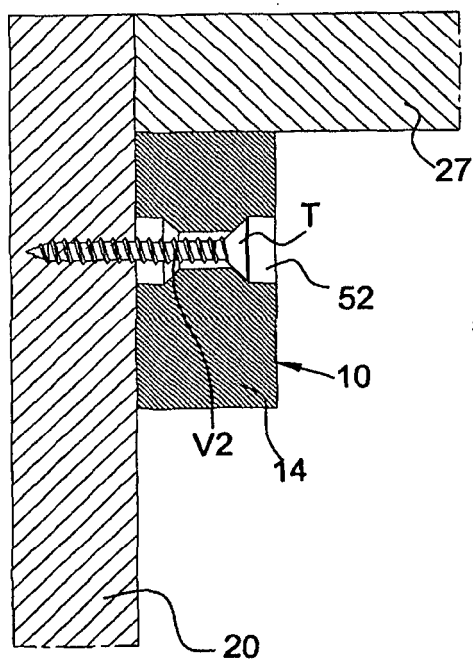
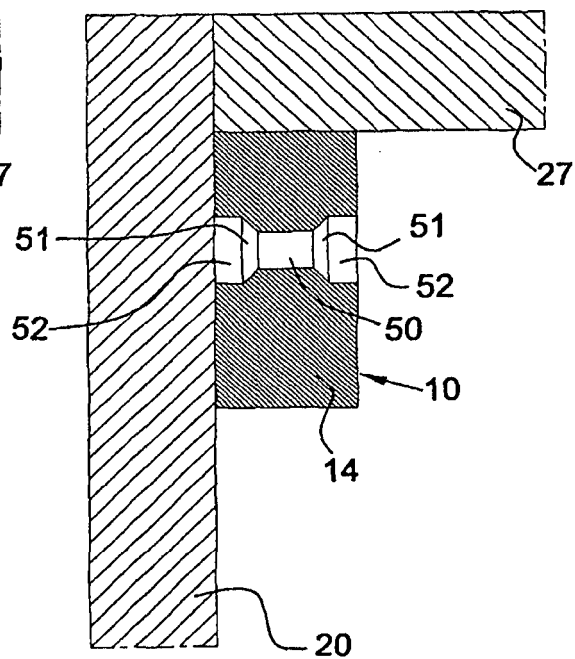


Fig. 35



REFERENCES CITED IN THE DESCRIPTION

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