



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 1 653 036 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
03.05.2006 Bulletin 2006/18

(51) Int Cl.:
E05G 1/024^(2006.01)

(21) Application number: **04029950.5**

(22) Date of filing: **17.12.2004**

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR**
Designated Extension States:
AL BA HR LV MK YU

(30) Priority: **01.10.2004 SI 200400273**

(71) Applicant: **PRIMAT d.d.
2000 Maribor (SI)**

(72) Inventors:
• **Kristijan, Marko
2211 Pesnica pri Mariboru (SI)**
• **Slavko, Mlinaric
2277 Sredisce ob Dravi (SI)**
• **Matjaz, Kekec
2281 Markovci pri Ptuj (SI)**

(74) Representative: **Vonnemann, Gerhard et al
Vonnemann Kloiber & Kollegen
Sckellstrasse 6
81667 München (DE)**

(54) **Reinforcing profile of the vault or safe security armour**

(57) The reinforcing profile of the vault or safe security armour resolves the problem of higher burglar proof safety of such security devices at simultaneously simple and compact construction of optimal mechanical strength. Reinforcing profiles (4), which assemble the security armour (6) built in the casing (1), juxtapose to the external wall (3) with fold-ups (8), and to the internal wall (2) they juxtapose by horizontal legs (10) and are welded to it through holes (13). The security armour (6) is cast-

in by special filler (5). The reinforcing profile (4) is constructed in the way that its horizontal leg (10) on one side under the angle (α) links up the longer oblique leg (12) with the convexity (9) and fold-up (8), and on the other side under the angle (β) it links up the shorter oblique leg (11) with fold-up (7). Inside the security armour (6), the reinforcing profiles (4) are installed parallel, in the equal position and all preferentially turned to the same direction.

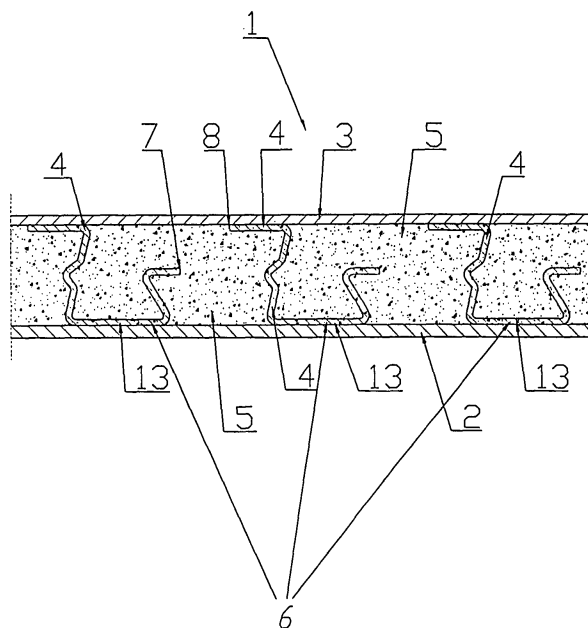


Fig. 1

EP 1 653 036 A1

Description

[0001] The subject of the invention is the reinforcing profile of the vault or safe security armour, or more precisely, it is the reinforcing profile lath for the security armour, being in common with mineral or any other special filler and additional filling elements built in the external wall and door, or in the vault or safe or similar security device casing respectively.

[0002] The invention belongs to the E 05G 1/024 class of the international patent classification.

[0003] The technical problem solved by this invention is such a construction of the reinforcing profile cross section, which will provide higher reinforcement of the filler inside the wall and door elements of the vault or safe or similar security device casing. In this way, their burglar proof safety will likewise be enhanced, or forcible braking in through the door or walls by boring or damaging them in any other way will be made highly difficult and will require more time.

[0004] There are quite some known ways or types respectively of the filler reinforcement of the vaults or safes or similar security devices wall elements. According to the patent FR 1.317.984, there are several known constructions of reinforcing profile insertions placed inside the walls of aforesaid security devices. These profile insertions are made of oblong laths, which in their cross section can have the U, W, Z letters form and their mirror-inverted form, and the Ω letter form. In another version, the profile insertions are made as strips of optional twisted and crooked forms.

[0005] The next known solution is made pursuant to the patent CH 437 045, according to which thermally insulating bodies are inserted into the walls of vaults, and particularly of safes, made as fixed and hollow insertions of plaster filled up with water. The insertions cross section can be of circular or elliptical form.

[0006] Another known solution is made pursuant to the patent GB 2101173, according to which corrugated reinforcing elements are inserted into the walls and doors of safes, the folds of which can be of various forms. They are intended for making a forcible braking in by drilling difficult.

[0007] The next known solution is made according to the patent CZ 293 498 and according to the patent application EP 03008528.6 (publication number EP 1 365 096 A1). According to the aforesaid, the armour is made of steel profiles, being in their horizontal section of the Ω letter form, and whereby angles between adjacent legs are between 60° and 75° . These profiles are partitioned to two virtual but completely congruent halves by a vertical central axis.

[0008] According to the patent application PCT/GB02/02019, there is known a security panel inside which there are circular interactively chain-linked security elements filled up by polyurethane and wood pieces.

[0009] According to the patent GB 1450091, the armour is made as a steel net constructed of four-cornered

section steel bars linked in a spiral.

[0010] According to the patent EP 0 348 556, the armoured mass consists of a concrete mixture and additional compounds and hard substances not linked among them.

According to the patent EP 0 587 956, the armoured mass consists of a concrete mixture and pieces of car tyres.

[0011] A common characteristic of all aforesaid known solutions are the armour elements in the mentioned security devices walls and doors filler. Distinguishing variants are in their form, above all in the form of their cross sections. The problem that has remained unresolved is above all in the fact that known forms of reinforcing profiles inside armours fail to provide sufficient burglar proof safety in case of forcible braking in by various tools and devices.

[0012] According to the invention, the problem is resolved by the reinforcing profile of the vault or safe security armour or any other security device of this type, the main characteristic of which is in the construction of its cross section, whereby there are holes in its legs, as well as the mode of its installation inside the casing walls. The invention will further be presented in details and described following an example of its feasibility and figures, which show

Fig. 1 Casing schematic section of one of the vault or safe walls or doors with built-in security armour and special filler

Fig. 2 Reinforcing profile in axonometric projection

Fig. 3 Reinforcing profile in A-A cross section

[0013] It is evident from Fig. 1 that the casing 1 of the vault or safe or similar security device respectively comprises an internal wall 2 and external wall 3 and security armour 6, installed in the empty space between the wall 1 and wall 2 and welded or otherwise fixed to the internal wall 2 and cast-in by special filler 5. The security armour 6 comprises the reinforcing profiles 4, which run parallel one to another, they are as a rule all turned to the same direction and distant from each other by an optional spacing. It is however in force that reinforcing profiles 4 are as a rule distant from each other by one width of a single reinforcing profile 4 at the most. The minimum spacing between reinforcing profiles 4 is as a rule the spacing where the fold-up 7 of one reinforcing profile 4 is not covered over by the fold-up 8 of the adjacent reinforcing profile 4.

Reinforcing profiles between the internal wall 2 and external wall 3 are installed in the way that they lie with the horizontal leg 10 on the internal wall 2, and with the fold-up 8 on the external wall 3, and they are as a rule all turned to the same direction. On the internal wall 2, the reinforcing profiles 4 are welded through or at holes 13 respectively, constructed in the horizontal leg 10 along the entire reinforcing profile 4. Holes 13 are of optional forms and can optionally be positioned, and their number is likewise optional.

[0014] Optimal casting in the space between the internal plate 2 and external plate 3 by special filler 5, including the security armour 6 inserted into it, is enabled by the difference in height between fold-ups 7 and 8 and holes 14 and 15, constructed in the oblique leg 12 or oblique leg 11 respectively of the reinforcing profile 4, shown in Fig. 2. Holes 14 and 15 can be of optional forms and can optionally be positioned, and their number is likewise optional. In some other feasibility example, the reinforcing profiles 4 can also be constructed without holes 14 and/or 15.

[0015] As evident from Fig. 2, the reinforcing profile 4 is constructed as an oblong lath of characteristic profile construction whereto previously described holes 13, 14 and 15 are made. This characteristic profile construction is evident from Fig. 3, wherein the reinforcing profile 4 is shown in cross section, being completely identical to its front view. Basically, the reinforcing profile 4 is of such a construction or form respectively, which associates with a joint of two mirror-inverted opposite to each other lying Latin letters Z of different sizes and heights respectively. Thereby, the horizontal leg 10 of the reinforcing profile 4 links up oblique legs 11 and 12 in the way that on one side it proceeds into the oblique leg 12, and on the opposite side it proceeds into the oblique leg 11, which is a bit shorter or lower respectively than the oblique leg 12. It is preferentially in force that the shorter oblique leg 11 height is equal to half the height of the longer oblique leg 12, and in some other feasibility example their length ratio can likewise be different. Crossings between the horizontal leg 10 and oblique legs 11 and 12, and further into the convexity 9 and fold-ups 7 and 8, are preferentially rounded off, but they can also be implemented otherwise. The convexity 9 is constructed in or on the longer oblique leg 12, and optionally located. The oblique leg 12 finishes the fold-up 8, which is as a rule parallel to the horizontal leg 10. The oblique leg 11 finishes the fold-up 7, which is as a rule also parallel to the horizontal leg 10 and to the fold-up 8 on the oblique leg 12. The fold-up 7 is preferentially a bit shorter than the fold-up 8. In some other feasibility example, being not presented, the fold-ups 7 and 8 can also be implemented otherwise, and can also be of equal or inversely proportioned different lengths.

[0016] On one side, the horizontal leg 10 clasps by its oblique leg 12 the interactive interior angle α , which is as a rule larger than 75° , and on the other side it clasps by its oblique leg 11 the interior angle β , which is as a rule smaller than 60° . Ensuing from the aforesaid, the size of the interior angle between the oblique leg 12 and its fold-up 8 and the interior angle between the oblique leg 11 and its fold-up 7 depends on angles α and β .

[0017] It is in force for the convexity 9 on the longer oblique leg 12 that it is preferentially implemented on half its length and that it clasps the interior angle γ , which can be of an optional size, but it is recommended to be larger than 40° and smaller than 135° . The convexity 9 is preferentially implemented continually along the entire length

of the reinforcing profile 4, and can be of an optional section. In some other feasibility example, it can also be implemented in the way that it is shorter than the length of the reinforcing profile 4, and can likewise be implemented with intermediate breaks or spacing.

[0018] As already described above, the holes 13 are constructed in the horizontal leg 10 of the reinforcing profile 4, but there is also possible an implementation with holes 14 in the oblique leg 12 and/or in the oblique leg 11 in the way likewise described above. Thereby, it is in force for holes 14 that they can be constructed over or under the convexity 9 on the oblique leg 12.

[0019] The construction of the vault or safe or other similar security device casing 1 with the security armour 6, which comprises the reinforcing profiles 4 according to the invention, enhances the burglar proof safety and above all due to the construction of the reinforcing profile 4 with the convexity 9, holes 14 and 15, and the difference in height between their fold-ups 7 and 8, respectively. The reinforcing profile 4 mechanical strength is increased by the convexity 9, and likewise, in case of forcible braking in the security device, it is difficult to remove special filler 5 from it. The difference in height between oblique legs 11 and 12, or between their fold-ups 7 and 8, enables more simple and optimal casting in each single reinforcing profile 4 in the security armour 6, and consequently the entire interior of the vault or safe or other similar security device casing 1 with special filler 5, and which is additionally facilitated by the holes 14 and 15.

[0020] According to the invention, by using reinforcing profiles the forcible braking in the vault, safe or other similar security device is made highly difficult and requires more time, as in this case threefold cutting of their casing 1 is required. Thus, it is first required to cut its external wall 3 and remove special filler 5 all the way to the lower oblique leg 11 of the reinforcing profile 4 or their fold-up 7, respectively. It is followed by cutting the fold-up 7 and repeated removal of special filler 5 all the way to the internal wall 2. Finally, it is also required to cut the internal wall 2.

Claims

1. The reinforcing profile of the vault or safe security armour built in between the casing internal and external wall and cast-in by special filler, is **characterised by** the fact that the reinforcing profile (4) in its cross section is constructed as two mirror-inverted opposite to each other lying and joined letters Z of different heights in the way that its oblique leg (11) with fold-up 7 is a bit shorter or lower respectively than the oblique leg (12) with fold-up (8); that in the longer or higher respectively oblique leg (12) of the reinforcing profile (4) a convexity (9) is implemented at an optional height, a convexity (9), which runs along the entire length of the reinforcing profile (4).

2. The reinforcing profile according to Claim 1, is **characterised by** the fact that reinforcing profiles (4) in the security armour (6) and consequently inside the walls (2, 3) of the casing (1) are installed parallel, in the equal position, and all turned to the same direction, and welded or otherwise fixed to the internal wall (2) through or at holes (13) constructed in the horizontal leg (10). 5
3. The reinforcing profile according to Claim 1, is **characterised by** the fact that the horizontal leg (10) with oblique leg (12) clasps the interior angle (α), which is larger than 75° , and with the oblique leg (11) it clasps the interior angle (β), which is smaller than 60° . 10 15
4. The reinforcing profile according to Claim 1, is **characterised by** the fact that the interior angle (γ) of the convexity (9) is of optional size and preferentially between 40° and 135° . 20
5. The reinforcing profile according to Claim 1, is **characterised by** the fact that the convexity (9) is preferentially continually implemented, and can also be implemented with intermediate breaks of optional lengths and at optional spacing. 25
6. The reinforcing profile according to Claim 2, is **characterised by** the fact that reinforcing profiles (4) are distant from each other by one width of a single reinforcing profile (4) at the most, or at least by the width, where the fold-up (7) of one reinforcing profile (4) is not covered over by the fold-up (8) of the adjacent reinforcing profile (4). 30 35
7. The reinforcing profile according to Claim 1, is **characterised by** the fact that the reinforcing profile (4) can be constructed with or without holes (14) and/or (15) along oblique legs (12) and/or (11). 40

45

50

55

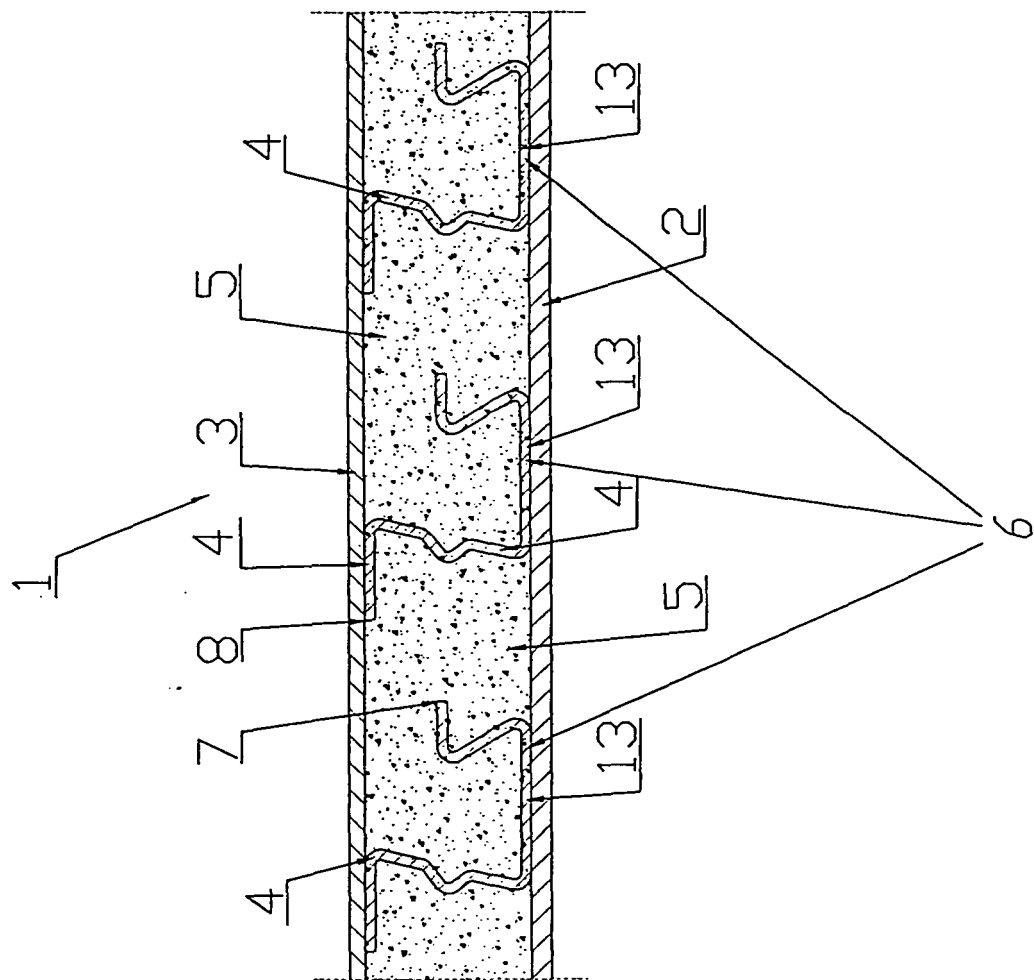


Fig. 1

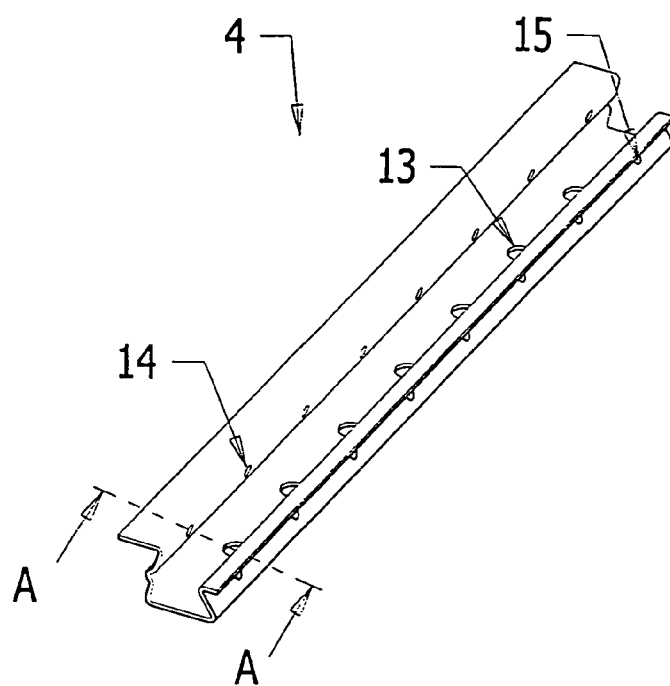


Fig.2

Section A-A

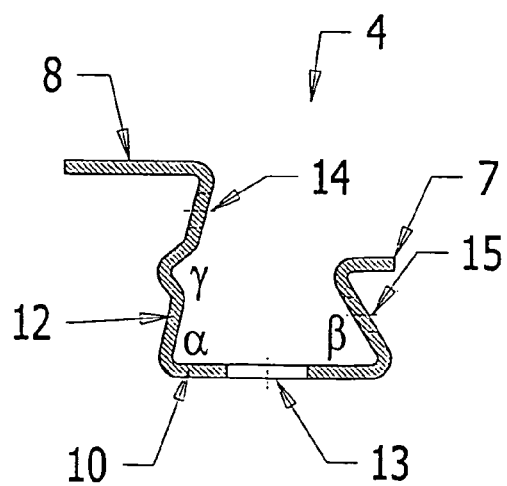


Fig.3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 04 02 9950

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A,D	EP 1 365 096 A (BODE-PANZER S.R.O) 26 November 2003 (2003-11-26) * figure *	1-7	E05G1/024
A,D	FR 1 317 984 A (SOCIETE FICHET, BEAU, HUPPERT & CIE) 10 May 1963 (1963-05-10) * figures *	1-7	
A	FR 2 009 718 A (CAPOZZI EDGARDO) 6 February 1970 (1970-02-06) * the whole document *	1-7	
A	DE 16 83 659 B1 (UNIVERSAL OIL PROD CO) 14 October 1971 (1971-10-14) * the whole document *	1-7	
A	FR 2 459 351 A (FICHET BAUCHE) 9 January 1981 (1981-01-09) * figures *	1-7	
A	DE 42 23 804 A1 (HERMANN GLOERFELD -METALLWAREN- GMBH & CO. KG, 5860 ISERLOHN, DE) 27 January 1994 (1994-01-27) * abstract; figures 6,7,14 *	1	TECHNICAL FIELDS SEARCHED (IPC) E05G E04C
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 30 November 2005	Examiner Di Renzo, R
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

2
EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 04 02 9950

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

30-11-2005

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1365096	A	26-11-2003	CZ 20021740 A3 DE 50300839 D1	14-01-2004 01-09-2005
FR 1317984	A	10-05-1963	NONE	
FR 2009718	A	06-02-1970	DE 1926803 A1	04-12-1969
DE 1683659	B1	14-10-1971	NONE	
FR 2459351	A	09-01-1981	NONE	
DE 4223804	A1	27-01-1994	NONE	