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(71) Applicants:

- **Mateu Gil, Maria Desamparados**
46002 Valencia (ES)
- **Mateu Gil, Lorena**
46002 Valencia (ES)

- **Mateu Gil, Beatriz**
46002 Valencia (ES)

(72) Inventors:

- **Mateu Gil, Maria Desamparados**
46002 Valencia (ES)
- **Mateu Gil, Lorena**
46002 Valencia (ES)
- **Mateu Gil, Beatriz**
46002 Valencia (ES)

(74) Representative: **Del Campo Castel, Domingo**
Puerto Rico, 8-B-1.o-B
28016 Madrid (ES)

(54) NEW FIRE-PROOF HOUSING WHICH IS FIRE RESISTANT DURING A PREDETERMINED TIME

(57) A new enclosure fire-resistive for a predetermined time, consisting of incorporating on a structural forging (1) of glass wool felt (2), on which a parquet or platform is placed formed by wooden plates (3), with lateral expansion joints (4) and (4'), and above same a wooden skirting board (5) - (5'), with walls or vertical partitions (10), formed by plywood boards (11), incombustible board (12), and wooden board formed by planks (13), with a metallic square bar (14), fixed to the forging (1), where intumescent products are joined, there being, at the upper part, a part (15) fixing or bonding the board (11), (12) and (13), having ceilings (20) formed by noble wood strips (21), with thermally and acoustically insulated felts (28), and intumescent tapes (26), a second balancing strip (22) being glued on the strip (21), made of a similar wood, and a third strip (23) configuring a profile adopting a reverse "T" shape, and relying optionally on several types of doors forming several embodiments of same (41), (61), (81) and (101).

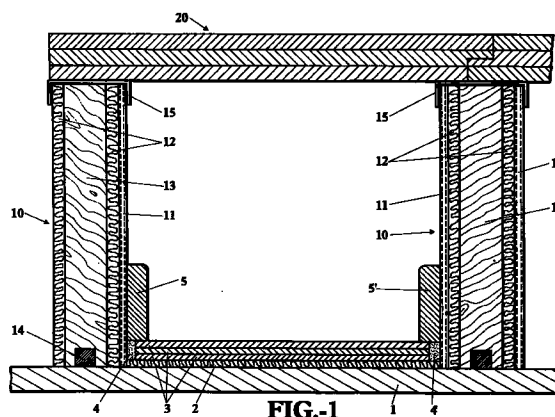


FIG.-1

EP 0 752 505 A1

Description

BACKGROUND OF THE INVENTION

The present specification refers to a new enclosure fire-resistive for a predetermined time, the obvious purpose of which is to resist the fire action for a determined period of time, keeping in adequate conditions till the arrival of the fire service, the people and materials staying within the enclosure, retaining its shape and resistance during the fire, and relaying on a markedly low thermal conductivity, the enclosure being able of being installed inside a building, or on a mobil structure, such as a ship, the own enclosure having doors which, according to their characteristics, allow the inner area to maintain adequate conditions for a predetermined period of time.

FIELD OF THE INVENTION

This invention finds its application in the field of the industry devoted to the manufacture of fire-resistant structures.

RELATED ART

In principle, all the materials used in the manufacture of enclosures or dwellings being qualified to resist the fire action during a predetermined period of time must previously meet a series of particular requirements, amongs which it is to be pointed up stability, resistance, insulation and lack of toxicity.

With regard to stability, all the materials should behave in a stable way in the presence of a fire, that is to say, they should not lose their mechanical features before the existence of a fire.

In relation to resistance, the materials should have a high flame and fire resistant degree, while with regard to insulation, the materials used must be very much heat insulating.

Lastly, as for toxicity, these materials should not give off, at any moment, toxic or inflammable gases, even during the combustion.

Up till now, it has been thought that those materials presenting the above mentioned conditions are configured as conventional incombustible materials, assuring that their incombustibleness can eliminate any danger in case of a fire.

Nevertheless, it has been proved that the characteristics of the above mentioned chosen and pointed out materials are not accurate, since for a building material to provide safety in the presence of a fire, it is very important that it retains, in an essential way, its shape and resistance in the fire, relaying on a thermal conductivity, markedly low.

A material gathering these conditions is, undoubtedly, preferred to another material which may not burn, but losing its resistance quickly when submitted to the flame action.

This reasoning is based on the fact that, in a building, the - function of the materials is to support it and, consequently, to create a space to be used as a room, warehouse, etc, for which reason, if they still maintain said function, even in case of a fire, they are valid, even if they can burn.

On the other hand, if they own these properties, they will allow the persons and materials protected by them to be more easily saved, and also they will permit to put in action the fire extinguishing system probably existing in the enclosure.

By way of example, it can be asserted that, at present, firemen do prefer to intervene in a fire with wooden stairs and structures than in a building having mechanical stairs and structures, or with masonry works, since in the first case, firemen can take preventive measures, knowing the ground they are acting, while in the other two latter cases, the materials, when heated by the fire action, make the transit difficult, they crack open and collapse without warning.

Consequently, wood is proving to be, at present, one of the most adequate materials to control a fire.

In an objective manner, wood is, also, one of the materials better combining the above mentioned four qualities, namely: stability, resistance, insulation and lack of toxicity, although, nevertheless, the downturn in using wood in the building industry has been due, mostly, to the poor quality of the material used.

Also, the inadequate application of wood, too much often discredited before many builders, has had an influence on the lack of utilization of same, but, nevertheless, the introduction of new technologies and new materials, allows a harmonic conjunction of same, creating the appearance of a new product, which, used in an adequate way, can act preventing a fire, this being a way at present considered as suitable to control same, so providing a valuable time for saving both persons and materials protected by same, allowing, - also, the fire extinguishing system to be put in action, if provided.

Obviously, the use of wood at present as a material for building or manufacturing fire-resistive enclosures, must rely on a greater resistance, both as regard the flexion and the compression, a greater fully, or practically fully annulment and reduction of thermal conductivity and expansion, and, at the same time, a reduction and annulment of dimensional variations, that is to say, contractions and expansions.

It should be pointed out that, in an axial sense, the dimensional variations of wood, in parallel to the fibers, and under the effects of the humidity changes, are practically null.

Also, the wood used must improve both inertia and its mechanical characteristics, and its temperature must be constante, so making easy the assembly of different parts, both if they are bonded by gluing, and by using nails, screws, pegs, etc.

The above mentioned for building fire-resistive enclosures - should be also applied to access doors to same, or to doors installed, in dwellings, which must

meet the mentioned characteristics.

Nevertheless, until now, nothing is known about the existence of a new enclosure fire-resistive for a predetermined period of time, fitted with doors also fire-resistive, the material of which, used in a basic manner, is wood.

SUMMARY OF THE INVENTION

The new enclosure fire-resistive for a predetermined time, as proposed by the invention, constitutes per se an evident novelty in the field of application to which it is incorporated, since - starting from same, and using a wood fitted with the adequate characteristics, allows the persons and materials protected within the enclosure to be saved with the aid of doors, and at the same - time, it manages to expand the fire action, so allowing the fire extinguishing services in the enclosure to arrive in due course of time.

In a most definite way, the new enclosure fire-resistive for a predetermined time, which is the object of the invention, is constituted starting from the following elements, namely:

- Floor
- Walls
- Ceiling
- Doors
- Windows

The floor or walking flooring, known as pavement, will be supported or sustained on a forging or structural element used, and it will be composed of a glass wool felt, or similar product, classified as incombustible, relying on all the necessary requirements for an adequate performance.

Also, the floor will have a parquet or platform composed of several sheets of wood glued one another, and treated with ignifuge and intumescent products.

The floor will have an appropriate expanding joint, and the relative wooden skirting boards.

It will be also valid any other type of natural or synthetic flooring, provided that it combines the four conditions of stability, resistance, insulation and lack of toxicity in the presence of a fire.

The vertical walls or ornaments will be adorned with decorations on a sole face, forming a sandwich, and being composed of fiber or - agglomerate plywood boards, subject to an ignifugation treatment, the board being decorated on one of its faces, and this face being fully smooth and treated with plates, sheets or natural or synthetic paintings, or presenting the corresponding raised work by means of wood, agglomerate or similar mouldings.

These mouldings can match or not the above men-

tioned plates, - sheets, papers or natural or synthetic paintings, and counting on an exhaustive compliance of requirements in that respect.

Said board can be also constituted as an incombustible board, made on the basis of gypsum, alabaster or fibrosilicates, and it can be fully flat or embossed, and decorated in the same manner as that above mentioned.

The walls will count also on an incombustible board, glued, - screwed down or nailed, or with several of these harmonicalle - combined systems, on the anterior board, and this incombustible board will be composed or manufactured by using gypsum, alabaster, fibrosilicates or any other product classified as incombustible and having a thickness according to the adequate requirements.

The invention counts also on the portion corresponding to the walls on other wooden board composed or formed of planks or small planks glued one other, of same wood, or from other wood different to that used in the invention, relying on the same or different - densities, and fulfilling in a total and absolute way the requirements in that respect, and having a predetermine thickness.

The latter wooden board will be treated on both faces with the other ornamental and incombustible boards, in order to compensate for the stresses or strains which could cause twists, fissures or warpings.

Also, this latter board will be the core or framework of the - sandwich, decorated on a sole face, and will be vertically fastened one to other, by using known procedures or systems, such as grooves, tongues or dovetails.

Horizontally, at its lower part, on the floor, this board will be fitted with a protuberance having a "U"-shape, inside which, a metal or wooden square bar will be housed, fixed to the floor or structural forging, by means of conventional screws, nails, glue or welding, but in both cases, this square bar, either metallic, or - wooden, will house inside it intumescent products or pastes which will act at a predetermined temperature beforehand.

As for the upper part, the boards will be fastened by means of a reversed "U" embracing the boards of the all ornament or gap, this reversed "U" being made of a metallic plate or any other similar and adequate product; if it is a metal plate will be treated against rusting, and in all cases against any other damaging agent.

These boards will be designed with widths, ones being multiple of others, covering, consequently, any gap.

All the boards will be fitted, at their grooves, dovetails or bonding tongues, both horizontal and vertical, that is to say, throughout their perimeter, with intumescent products strategically placed at the joints or bondings, and inserted into the - wood, to appear at calculated and predetermined temperatures beforehand, in order to impede, hamper and obstruct the fire action.

Also, throughout their perimeter, the boards will be

insulated, thru acoustic devices, together with the adequate products.

The ceilings, or rather, the false ceilings, will be made self-supporting, and will be constituted starting from an exposed strip made of noble wood, agglomerate or fiber, covered with a natural or synthetic plate, and this strip will be moulded and fitted with a groove, which will support a polygonal shaped box, inside which a thermically and acoustically insulated filter or glass blanket will be housed, this box or case being fitted throughout its perimeter and the edges with both intumescent tapes ready to act in the presence of heat, the intumescent tapes being inserted into splits made at the sides of the box for this purpose, each of these boxes being mounted screwed, glued or nailed at their four corners, with a neoprene, synthetic rubber, P.V.C. or similar gasket, in order to provide a high watertightness.

On the noble wood strip, a balancing strip will be glued. This strip can be made of conventional wood, agglomerate, dovetail, fibers or similar materials, this third strip having a reverse "T" shape, and counting on a greater stiffness in order to avoid, at the same time, twists and warps, being screwed at its upper part by using a fastening system.

It should be pointed out in a restricted way that the strips will be bonded one other by means of known half wood bondings, but supported on vertical ornaments, also known as partitions.

The strips will form symmetrical polygons, ones others, to act as registers, giving access to the false ceiling or roof, and - will be formed with fire retardant and incombustible ornamental - materials, as well as with intumescent products, strategically arranged on the gaskets in order to prevent and impede the fire action.

The exposed portion of these registers, like cases or boxes, will be configured by means of ornamental plates, either natural or synthetic, glued on fire retardant and incombustible boards, containing fireproof mineral wool felts, and these registers will be fastened by means of conventional systems to half-wood interlaced bolster crosspieces, as above mentioned.

In a first embodiment, the doors can be constituted starting from a bore or supporting structural element, which is formed starting from a wooden board, fully coated, and using plates or sheets of a fireproof material, and, in turn, the door will be fitted with a fire retardant board to be hidden by means of a decorative plate, if desired, which can be made of different materials and presenting different ornamentations, according to the purpose of the door in question, such as a wooden plate, a stratified board, a plastic methacrilate sheet, or similar, and these external elements can be fitted with an adequate treatment, such as, for example, painting, polishing, varnishing or enameling.

The door has a wooden perimetric edge having inside a plurality of intumescent tapes, arranged in specific points to carry out a predetermined function.

Said door has a frame, adequately arranged, and, also, has appropriate iron fittings.

Obviously, the door can have different thickness, and according to its specific configuration, it will allow the fire to act for a greater or lesser time. This application is effected to the - doors and, also, to the windows, for which, both the frames and cases, and the leaves will be made of fire retardant wood and intumescent putties, pastes or tapes, on which glasses prepared for standing high temperatures will be installed.

Lastly, it should be pointed out that the purpose of the invention is to protect the wood from a fire, for which it is imperative to insulate all the metallic elements, as well as all good heat-conductive elements by means of intumescent products or tapes, to be, also incombustible or fire-retardant, so that a fire cannot be produced by heat transmission.

DESCRIPTION OF THE DRAWINGS

In order to complement this description and to aid to a better understanding of the characteristics of the invention, the appending drawings, which are a part of this specification, show, by way of illustrative and non-limiting example, the following figures.

Figure 1 shows a side elevational view, duly sectioned of the object of the invention related to a new enclosure fire-resistive for a predetermined time.

Figure 2 shows a side elevational view, also sectioned, of the ceiling.

Figure 3 corresponds to a detail on the bonding of the object shown in Fig. 2.

Figure 4 shows the manner in which the external ornamental - parts of the ceiling are bonded at half-wood.

Figure 5 corresponds to a perspective view on the final disposition of the ornamental elements composing the ceiling, bonded at half-wood, squematically represented in Fig. 4.

Figure 6 shows a plan view, at the upper part of the object of the invention.

Figure 7 shows a sectioned view of the doors and windows of the invention, configured without mouldings.

Figure 8 shows a similar view of the object represented in Fig. 7, but with mouldings.

Figure 9 shows a sectioned view of a second embodiment of the object represented in Figs. 7 and 8, applicable to the object of the invention, a section of the frame and joint covering appearing in this figure.

Figure 10 corresponds to a similar view to that represented in Fig. 9, with mouldings.

Figure 11 corresponds to a third embodiment of the doors of the invention, showing also a section of the frame and joint covering.

Figure 12 corresponds again to a view of the object represented in Fig. 11, with mouldings.

Figure 13 shows, lastly, a fourth embodiment of the object of the invention related to doors and windows, without mouldings.

Figure 14 shows, again, the embodiment represented in Fig. 13, with mouldings.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

From the Figures 1 thru 6, it can be seen that the new enclosure fire-resistive for a predetermined time, which is the object of the invention, is constituted starting from a floor supported on a forging (1), composed by glass wood felt (2), or a similar product, classified as incombustible, and on which a parquet or platform (3) is installed, composed of several layers of wood glued ones others, and treated with fire-retardant and intumescent products, the sides of the platform or parquet being composed of a wood sheet (3), with expansion joints (4) and (4'), and on which wood skirting boards (5) and (5') will be incorporated.

As above mentioned, any type of natural or synthetic floor will be valid, provided that it meets the conditions of resistance in the presence of a fire.

The walls (10) or vertical partitions decorated on one face, forming a sandwich, are constituted by a plywood board (11), agglomerated or of fibers, subject to a fire-retardant treatment, which board can be incombustible, made of gipsum, alabaster o fibrosilicates, flat or embossed, and decorated as it seems convenient, with or without mouldings.

Also, the walls or vertical partitions rely on a screwed, nailed or glued incombustible board (12), or with several of these - systems combined on the board (11), and this incombustible board (12) can be composed of gypsums, alabasters, fibrosilicates or any other product classified as incombustible.

The walls (13) have a board which can be of two types, namely:

A. A wood board composed or formed by planks or small planks - glued ones others, of same wood or of different woods, of same or different thicknesses, and with a predetermine density, according the requirements.

B. A board formed by a frame made of wood, hollow inside, this void being filled by boards made of fiber agglomerates or similar, duly fire-resistant, as well as by means of fiber or wool felts, or similar, insulating both thermically and acoustically.

The wooden board (13) will be treated, on both faces, with the boards (11) and (12), decorative and incombustible, respectively, in order to compensate for the stresses and strains possibly causing twists, fissures or warps.

The board (13) if composed of planks or small planks, as above mentioned, and will be configured as the core or framework of the sandwich (10), decorated on one face, and it will be vertically fastened, one other, by using different groove, tongue or dovetail systems.

Horizontally, at the lower part, in the floor, this board will carry a protuberance adopting a "U" shape, to house, inside, a - square (14) made of a metallic or

wooden material, to be fastened to the forged or structural floor (1) by screwing, nailing, glueing or welding, but in both cases, this square bar, both metallic and wooden, (14) will house intumescent products or pastes which will act at a predetermined temperature beforehand.

As for the upper part, the boards (11), (12) and (13) will be fastened by means of a reverse "U" (15), embracing the boards of a whole partition or void, and this part (15) will be made of a metallic plate or any other similar product, being treated, if metallic, against the rust, and in all cases, against any damaging agent.

The boards (11), (12) and (13) will have adequate widths in measures which are multiples ones others, to cover any void.

All the boards will have at their grooves, dovetails or bonding tongues, both horizontal and vertical, that is to say, throughout their perimeter, both thermal and acoustic joints, as well as intumescent products, strategically arranged on the joints or bondings, and inserted into the wood to appear at calculated and predetermined temperatures, to impede, obstruct and hinder the fire action.

The ceilings (20, or rather the false ceilings (20) will be selfsupporting, and they will be constituted starting from an exposed strip (21), made of noble wood, agglomerate or fibers, coated with natural or synthetic sheet, which will be moulded and fitted with a groove on which a polygonal box will be supported, and inside which an isolant thermal and acoustic glass felt or blanket (28) will be housed, this box being fitted throughout its perimeter, and both edges, upper and lower, with intumescent tapes (27) adequately prepared to act against the heat action, and these intumescent tapes or similar (27) will be inserted into splits made on sides of the box (25), for this purpose, and each box will be screwed, glued or nailed mounted, at the four corners, with a neoprene, synthetic rubber, P.V.C. or similar gasket, to provide the invention with a high watertightness.

On the noble wood strip (21), other balancing strip (22) will be glued, made of conventional wood, agglomerate or plywood, of fiber or similar, which being glued to a third strip (23), will provide the whole reversed "T" profile with a greater stiffness, avoiding, at the same time, twists and warps, being screwed, at the upper part, to the fastening system (24) and (25).

The ceiling will be adorned with strips (3) and (31), bonded at half-wood (32), forming symmetrical polygons ones others, to be acted as registers, giving an access to the false ceiling or roof, and they will be formed with fire-resistant and incombustible decorative materials, with intumescent products strategically arranged in the joints to hinder or impede the fire action.

The exposed portion of these registers, configured as a box (40), will be formed by decorative natural or synthetical sheets, glued on fire-resistant and incombustible boards which contain mineral wool felts, which are incombustible, and these registers - will be fastened by conventional systems to interlaced bolster or cross-

pieces at half-wood, as already mentioned.

The doors and windows can be constituted, according to the prevailing legislation, of several configurations, in order to obtain a greater or lesser fire resistance, forming always doors and windows by means of frames and frameworks, with the cooperation of intumescent pastes or tapes, on which glasses prepared for standing very high temperatures will be installed.

In a first embodiment, the doors of the invention will be constituted starting from a wooden support (41) having an incombustible board (42), and an intumescent tape (43), having wood, agglomerate or fiber zones (44), and a strip or wooden sheet (45), as an intumescent tape protector.

In the leaf, there is a frame having a wooden support (46), a wooden plate (47), an intumescent tape (48) and a wooden strip or plate (49) acting as a protector for the intumescent tape, there being on the panel, a wooden structural support (50), an incombustible board (51), a fire-resistant board (52), a wooden plate (47), having a joint covering (54), and mouldings (53) which can be incorporate optionally.

In synthesis, the door relies on a wooden board fitted with - plates of an incombustible material, protecting each of the board sides, which is insulated from the exterior, and, consequently, - from a possible fire extension by using fire-resistant boards and decorative plates, all made of adequate materials to the utilization of the door, and treated by means of conventional procedures.

Also, a perimetric wooden edge has been provided, incorporating intumescent tapes and a continuous wooden plate protecting the intumescent tape.

The frame of the door of this first embodiment, is composed of a core of wood including incombustible plates and intumescent tapes, as already mentioned.

In a second embodiment, the door (61) can be formed starting - from a wooden support (62), formed by four strips which are conveniently bonded ones others, there being, between each pair of strips (62), an incombustible board (63), preferently made of silicate and gypsum, the ends of which incorporating intumescent tapes (64), counting on external mouldings or joints coverings having three internal mortise's incorporating the intumescent tapes (64), and later, wooden strips or plates (66) acting as protectors for the intumescent tapes (64).

The own door (61) is constituted by a series of inner bodies configuring a board (71) formed by a panel, and a resinous or abundant structural wooden support, in accordance with the requirement delimited to the door, this portion of the board (71) being coated, and acting as a structural wooden support on its major faces, by two steel plates (74), which configure an armour, which is, in turn, - externally coated with incombustible boards (63) on sides, the ends of the major boards having intumescent tapes (69), similar to those intumescent tapes (64), but of small size.

On the sides of the center structure, it has been provided the incorporation of two lengthened pieces forming an external frame (67), constituting a wooden support having a resinous or abundant characteristic, there being, in the external board, and on its major faces, two mortises incorporating intumescent tapes (69), and being coated, on the door sides, by a wooden plate strip or board (70), acting as a protector for said intumescent tape.

Following with the door area, and externally coating the incombustible board (63), there is incorporated a fire-resistant board (73) externally coated with a wooden plate (68) of natural or synthetical material, being able of presenting any decorative ornamentation.

Lastly, this second embodiment can rely on mouldings (74), having two mortises bin which intumescent tapes (64) can be internally incorporated, and externally incorporated in the board, acting a protection of the intumescent tape (64) wooden strips or plates (66).

In short, this embodiment configures starting from a panel or leaf comprising a wooden board fully insulated from the exterior by means of incombustible material plates, and these by both fire-resistant boards, which are coated with a decorative plate, adquately treated, and presenting a perimetric edge of resinous or abundant conventional wood in accordance with the requirements, on which intumescent tapes are incorporated, one of them coplanar to the outer surface of the field, and other housed within said edge, and there being intumescent tapes located between the inner part of the edge and the rims of the incombustible plates, there being arranged, on the edge of the door leaf, a continuous wooden plate protecting the external intumescent tape.

The, invention relies on a conventional wooden core including incombustible and intumescent plates, this zone being the center area or core of the door, independently of the existence of a frame fitted with similar characteristics to the door, a joint covering and optional mouldings also fitted with intumescent tapes and protectors of same.

Also, the invention can rely on a door configured in a third embodiment, this door (81) being constituted starting from a wooden support (82), formed by five woodrn bodies bonded ones others, there being between each pais of wood strips or bodies (82), an incombustible board (83, preferably made of silicate and gypsum, on the ends of which there are incorporated intumescent tapes (84), the sides of the intumescent tapes (84) having protecting bodies or parts (86), same that the optional joints coverings (85), having three mortises in the upper part, which incorporate intumescent tapes (84) and later coated with strips (86), in order to protect these intumescent tapes (84).

The own door (81) is constituted by a series of bodies (91), configuring the board, forming the panel and structural support of resinuous or leafy wood, in accordance with the requirements delimited to the door, this zone (91) being coated, which acts as a structural

wooden support on its major faces, with two steel plates (94), forming an armour, which, in turn, is coated externally with incombustible boards (83) on the four corners, their being on the ends of the major boards, intumescent tapes (89), which are similar to the intumescent tapes (84), but of less size.

The sides of the center structure have incorporated two lengthened parts forming the external frame (87), forming a wooden support having a resinous or leafy wood, and the external board, and part of the internal one, having mortises incorporating intumescent tapes (89), the side external zone being coated with a protecting body (90), while those located on the minor faces of the bodies (87) are externally coated by an outer protecting sheel, made of any material considered convenient, this shhet can present any ornamentation.

Lastly, this embodiment can rely on moulding (95) having a mortise in the internal face, which incorporate intumescent tapes (84), later incorporated in the board, wood strips or plates (86) acting as a protection for the intumescent taper (4).

Finally, it should be pointed out that in this embodiment it has been contemplated the incorporation, in the part (82) configuring the frame having a large size and faced with the lateral zone of the door, of a mortise in which an intumescent tape (89) and the corresponding external strip (90) are included.

In a fourth option or embodiment, the door (101) is constituted starting from a wooden support (102), formed by five wooden bodies or strips bonded ones others, there being, between the first pair of strips (102), an incombustible board (103), preferably made of a silicate and gypsum, in the ends of which there are intumescent tapes (104), and protecting bodies or mouldings for the intumescent tapes, incorporated, there being also an incombustible board (104) located between both center bodies, markedly one of them more thickened in relation to the other one, and relying also on an incombustible board (103), between the wooden thick body and the external element (102), joint coverings appearing optionally (105), showing the existence of three mortises, in the inner zone of which intumescent tapes (104), covered by strips (106), are incorporated.

The own door (101), constituting this fourth embodiment is formed by a series of internal bodies configuring a board (111), forming the panel, and, at the same time, constituting the resinous or leafy wood structural support, in accordance with the requirements delimited to the doors, this board zone (111), acting as a structural support made of wood on its major faces, being coated with two steel plates (114), forming an armour, which, in turn, is coated, on its outer part, by incombustible boards (103) on its four corners, the ends of the major boards (103) having intumescent tapes (109), similar to the intumescent tapes (104), but markedly smaller.

The sides of the center structure incorporate two elongated - parts forming an external frame (107) forming the wooden support of a resinous or leafy character-

istics, the external body presenting four mortises conveniently arranged on the major and minor faces, having different dimensions, intumescent tapes (109), and the door being covered by a wooden board or plate (117), acting as a protection for the intumescent tape (109), located on the major external face of the side body (107).

Following with the door area, and externally covering the incombustible board (103), a fire-resistant board (113), is incorporated, which is externally covered by a wooden plate (108), made of any material considered as convenient, independently of whether it may be natural or synthetical and can present different decorative ornamentations.

Lastly, the invention in this embodiment can rely on mouldings (115) which will have two mortises in which intumescent tapes (104) will be internally incorporated, and externally incorporated in the board, acting as a protection of the intumescent tape (104) some wooden strips or plates (106).

It should be pointed out that the different metallic elements to be incorporated in the invention, like all the elements constituting good heatconduction, will be protected with intumescent tapes or products, also incombustibles or fire-retardant, so that a fire cannot be provoked by a heat transmission.

Claims

1. A new enclosure fire-resistive for a predetermined time, of those constituted starting from the utilization of an adequately treated wood, characterized in that it is constituted starting - from a floor located on a forging or similar (1), walls (10), vertically arranged, and ceiling (20), with doors and windows (41), (61). (81) and (101), with or without mouldings, made of fire-resistant materials, and the floor being constituted by a glass wool felt layer (2) of an incombustible quality, on which a parquet or platform composed of several wooden plates glued ones others, and treated with fire-retardant and intumescent - products, are located, the wooden plates (3) having an expansion joint (4) and (4'), and a wooden skirting board (5) at the upper side (and also 5'), the walls or vertical partitions (10) forming a sandwich.
2. A new enclosure fire-resistive for a predetermined time, according to claim 1, characterized in that the walls (10) are formed by a board (11), made of plywood, fiber agglomerate, with a fire-retardant treatment, decorated on one face, with or without mouldings, sheets or similar, the board (11) being made of alabaster or fibrosilicates, the walls having a second incombustible board (12), glued, screwed or nailed on the board (11), made of gypsum, alabaster or fibrosilicate, or any other products classified as incombustible, having a determinated thickness, and relaying on a third wooden board

(13), formed by planks or small planks glued ones others, of the same or different wood, with the same or different densities, and with a predetermined thickness, this board being treated on both faces by the boards (11) and (12), acting as the core or framework of the assembly (10), being fastening one to other vertically by means of grooves, tongues or dovetails joints, and having, at the lower part in the floor, a projection adopting a "U" shape.

3. A new enclosure fire-resistive for a predetermined time, according to claim 2, characterized in that inside the projection adopting a "U" shape, there is a square rod (14), made of metal or wood, fixed to the floor or structural forging (1) by means of - screws, nails, glueing or welding, housing internally intumescent products or pastes, and having at the upper part of the assembly of boards (10), a common fastening formed by a reversed "U" (15), embracing the boards of a void partition, this part (15) being - made of a metallic plate or similar.

4. A new enclosure fire-resistive for a predetermined time, according to claim 1, characterized in that all boards will be fitted with grooves, dovetails, or bonding tongues, both horizontal and vertical, of intumescent products located on the joints or bondings.

5. A new enclosure fire-resistive for a predetermined time, according to claim 1, characterized in that the ceilings (20) will be selfsupporting, and they will be constituted by an exposed strip - made of noble wood (21), agglomerate or fibers, covered with a natural or synthetical sheet, moulded and fitted with a groove on which a polygonal box will be supported, in the interior of which, a thermically and acoustically insulating glass felt or blanked will be - housed (28), this box being fitted, throughout its perimeter, and on the upper and lower edges, with intumescent tapes (16), which will be inserted into splits existing in the sides (25) of the box, and the boxes screwed, glued, or nailed on their four corners being mounted with a neoprene gasket, which also may be of synthetical rubber or similar material.

6. A new enclosure fire-resistive for a predetermined time, according to claim 5, characterized in that on the noble wood strip (21), another balancing strip (22) will be glued, being made of conventional wood, agglomerate, plywood, fibers, etc., which glued to a third strip (23) will constitute a profile adopting a reverse "T", being screwed, at its upper side, by means of a fixing system (24-25).

7. A new enclosure fire-resistive for a predetermined time, according to-claim 1, characterized in that the door is formed by panel or leaf, having a wood board (41) insulated from the exterior by an incom-

bustible material plates (51), which, in turn, are insulated by fire-retardant elements (52), covered by a decorative sheet, treated in a conventional way, presenting a perimetric edge made of wood, fitted with intumescent tapes (43), one of them being coplanar to the external edge surface, and the other being housed in said edge, the intumescent tapes (43) being located between the inner portion of the edge and the rims of the incombustible plates (51), the rim of the door leaf having a continuous plate made of wood (45), protecting the intumescent tape (43).

8. A new enclosure fire-resistive for a predetermined time, according to claims 1 and 7, characterized in that the door has a frame which may be composed of a conventional wooden core, including incombustible plates and intumescent tapes.

9. A new enclosure fire-resistive for a predetermined time, according to claim 1, characterized in that, optionally, it can relay on a door (61) formed by a frame which is configured starting from four wooden supports (62), amongs which, and arranged two to two, an incombustible board (63) is incorporated, presenting, at its ends, intumescent tape (64), a joint cover (65) being joined to same, externally and optionally, having inside three mortises, inside of which intumescent tapes (64) are incorporated, and later, wooden strips or plates (66), acting as a protection for the intumescent tape.

10. A new enclosure fire-resistive for a predetermined time, according to claim 1 and 9, characterized in that the door, in its second embodiment, has a frame fitted with a lateral wooden support (67), - formed by two coupled bodies, the external board having two mortises in its major faces, in which an intumescent tape (69) is incorporated and later, they are externally covered by a wooden sheet or plate (70), acting as a protection of the intumescent tape (69), being internally coupled in the frame, an indeterminate number of wooden parts (71), made of a resinous or leafy wood, which have, on their major external faces, a steel plate (74), acting as an armour, the assembly formed by the steel plates (74), and the side parts (71) being covered with an incombustible board (63), preferably formed by a silicate or gypsum, which, at the ends of the major areas, has an intumescent tape (69) incorporated into a mortise made in one - of the bodies (67), being externally covered by the major faces, the center core by a fire-resistant board (63), and later by a natural or synthetical wood (68), acting as exposed face.

11. A new enclosure fire-resistive for a predetermined time, according to claim 1, 9 and 10, characterized

in that in the second embodiment of the door, in the case that mouldings (75) are incorporated, these will have, at their inner face, two mortises, in which intumescent tapes are internally included (64), and later, wooden strips or plates (66) are inserted, which act as a protection for - the intumescent tapes (64).

12. A new enclosure fire-resistive for a predetermined time, according to claim 1, characterized in that the enclosure may be fitted with a door (81), which constitutes a third embodiment, in which, the frame is configured starting from five wooden supports (82), amongst which, and located two to two, an incombustible board (83) is located, presenting, at its ends, an intumescent tape (84), a joint covering (85) being joined to the exterior of same, in an optional way, having at its rear face three mortises, inside which, intumescent tapes (84) are incorporated, and later, wooden strips or plates (86), acting as protections for the intumescent tape (84), there appearing on the board (82), of larger size, a mortise at one of the minor branches, specifically, at that faced at the door area in which an intumescent tape (84) is incorporated, and the corresponding protecting strip (90).

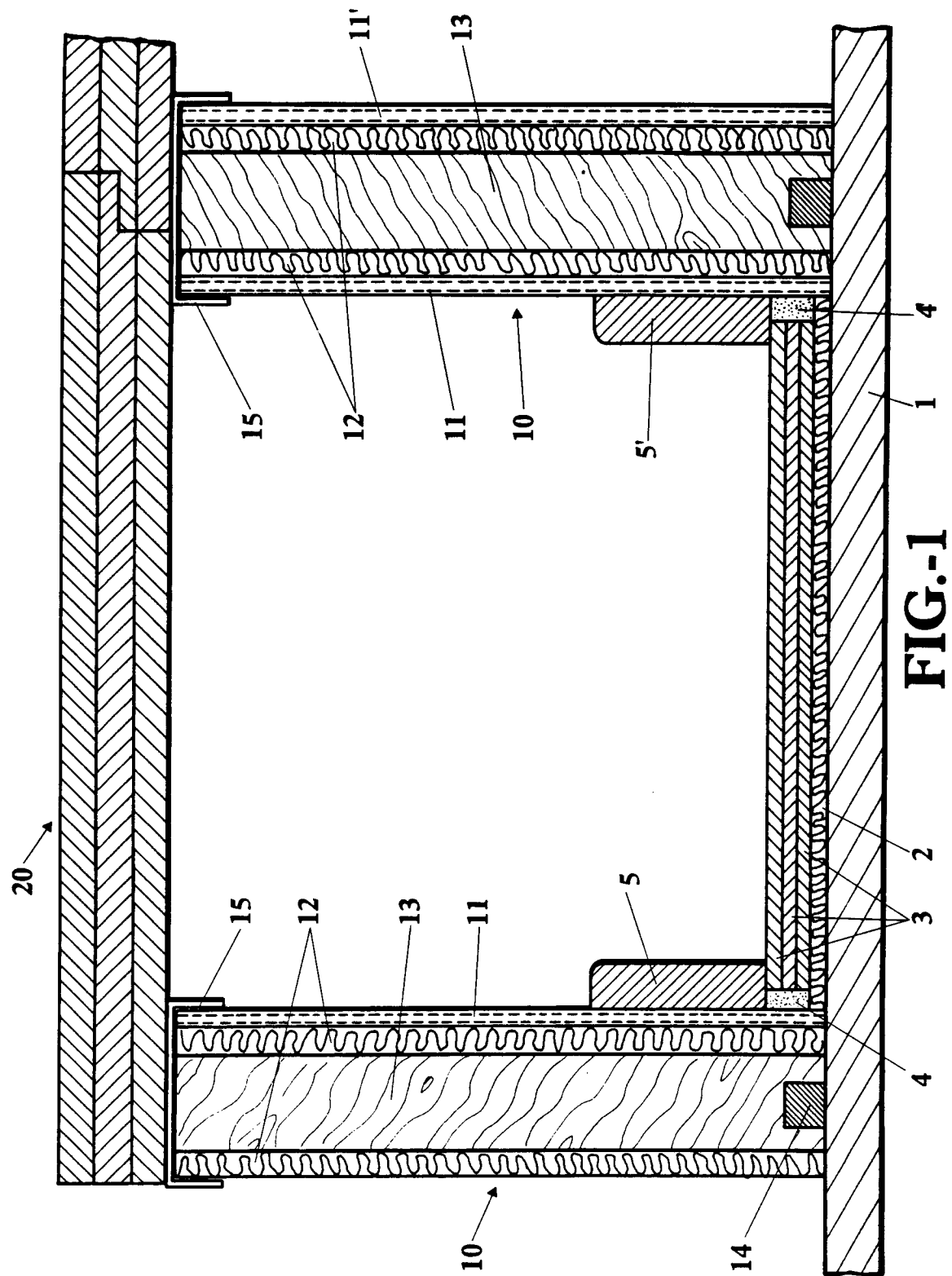
13. A new enclosure fire-resistive for a predetermined time, according to claim 1 and 12, characterized in that the door frame (81) has a side wooden support (87), formed by two coupled bodies there being, in the external board and occupying a part of the inner board or body, four mortises in which intumescent tapes (89) are incorporated, and later, they are externally covered with a wooden sheet or strip (90), acting as a protection for the intumescent tape (89), being internally coupled in the frame an indeterminate number of wooden parts (91), made of a resinous or leafy wood, having, at their external major faces a steel plate as an armour (94), the assembly formed by the steel plates (94), and the lateral parts (91) being covered by an incombustible board (83), - preferably formed by a silicate and gypsum, having, at the ends of its major areas, intumescent tapes (89) incorporated in mortises made in the inner body (87), the center core being externally, at the major faces, covered by a fire-resistant board (93), and later, by a natural or synthetical wood plate (88), acting as exposed face.

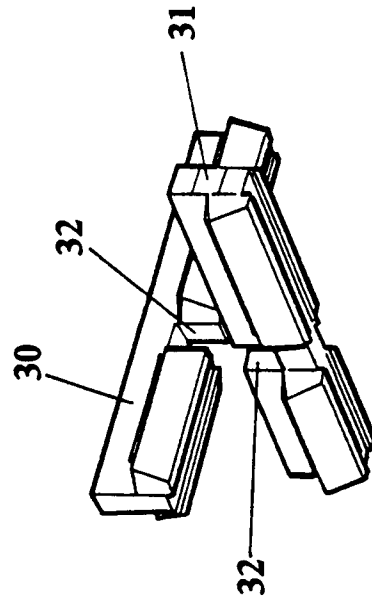
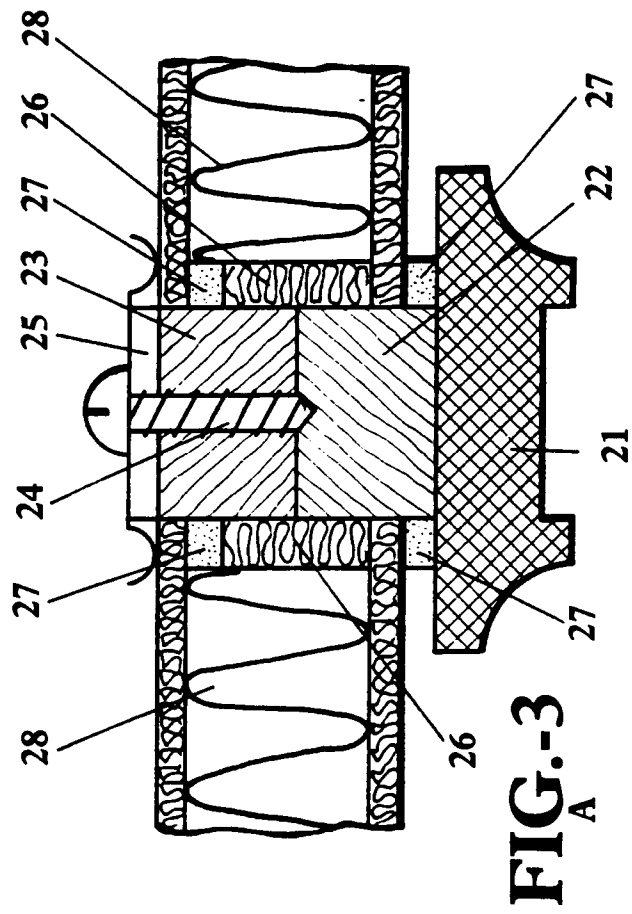
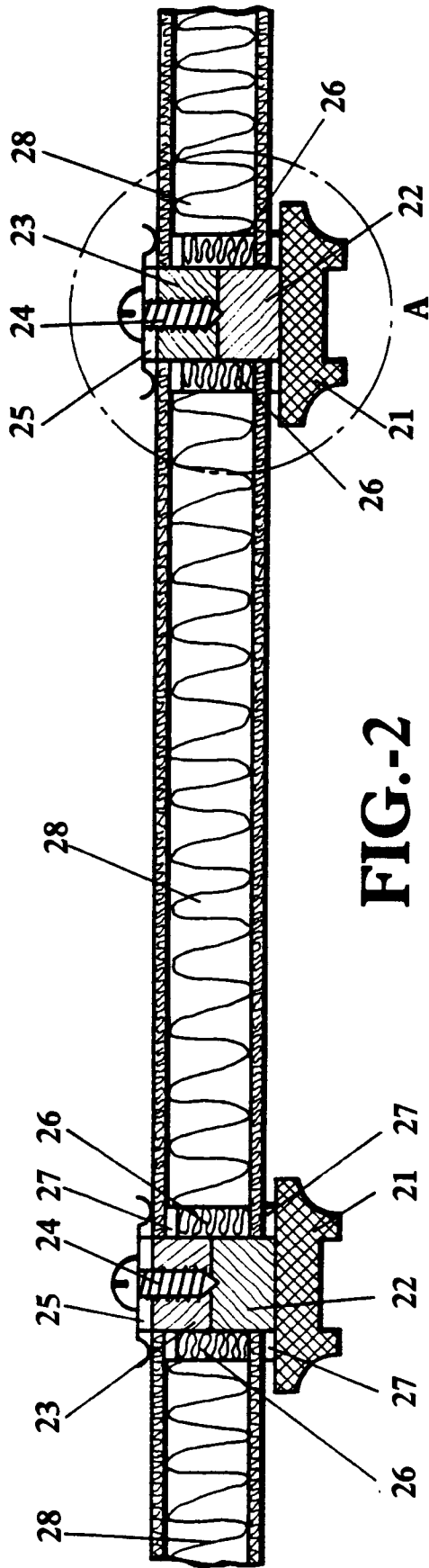
14. A new enclosure fire-resistive for a predetermined time, according to claim 1, 12, and 13, characterized in that, whether mouldings (98) are optionally incorporated, these will have, at their inner face, two mortises, in which intumescent tapes (84) will be inserted, and later, wooden plates or strips (86), for protecting the intumescent plates (84).

15. A new enclosure fire-resistive for a predetermined

time, according to claim 1, characterized in that, in a fourth embodiment, the door (101) is configured starting from a frame formed by five wooden bodies or supports (102), amongst which, and located two to two, three incombustible board (103) are incorporated, presenting, at the ends, intumescent tapes (104), a joint covering (105) being joined externally to same, in an optional way, which relies internally on three mortises, inside of which intumescent tapes (104) are incorporated, and later, wooden plates or strips (106), acting for protecting the intumescent tape, while the frame has a side wood support (107), formed by two bodies bonded one other, there being, in the external board, four mortises at the major and minor faces, in which intumescent tapes (109) are incorporated, there being, at the external laterals, a wooden plate or strip (110), acting as a protection of the intumescent tape (109), externally viewed, an indeterminate number of wooden parts being coupled inside the frame (111), made of a resinous or leafy wood, which have, at their major external faces, a steel plate or armour (114), the assembly formed by the steel plate (114), and the lateral parts (111) being covered by an incombustible board (103), preferably formed by a silicate or gypsum, which has, at the ends of its major areas, an intumescent tape (109), incorporating a mortise effected in one of the bodies (107), specifically in the inner one, the center core being covered, at the major faces, by a fire-retardant board (113), and later by a wooden plate, natural or synthetical (108), acting as exposed face.

16. A new enclosure fire-resistive for a predetermined time, according claim 1 and 15, characterized in that whether optionally moulding (115) are incorporated in the door (101), these will have, at their inner face, two mortises in which intumescent tapes (104) will be internally inserted, and later wooden plates or strips (106), acting as a protection of the intumescent tapes (104).





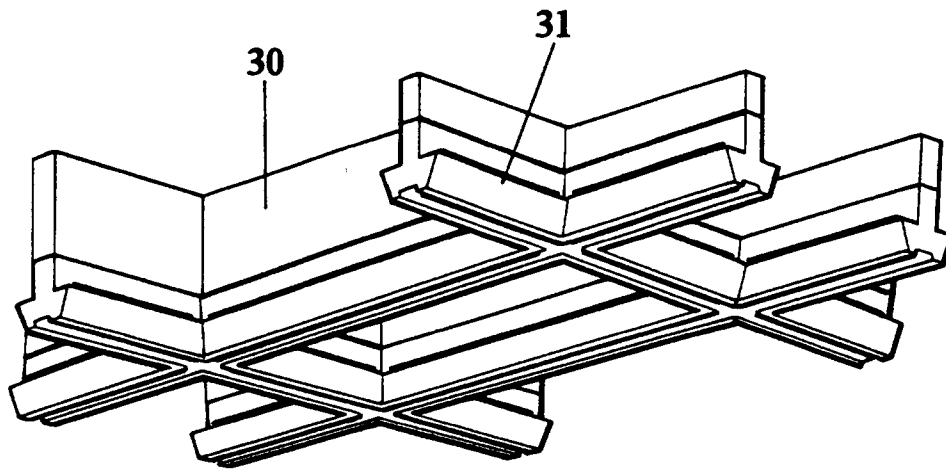


FIG.-5

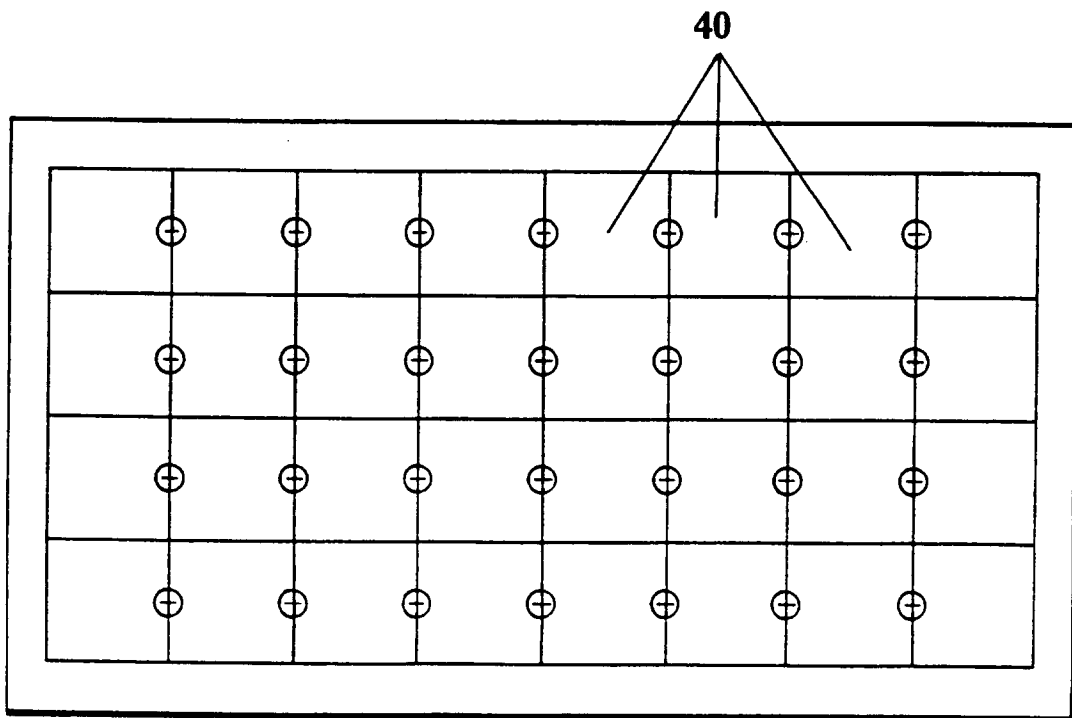
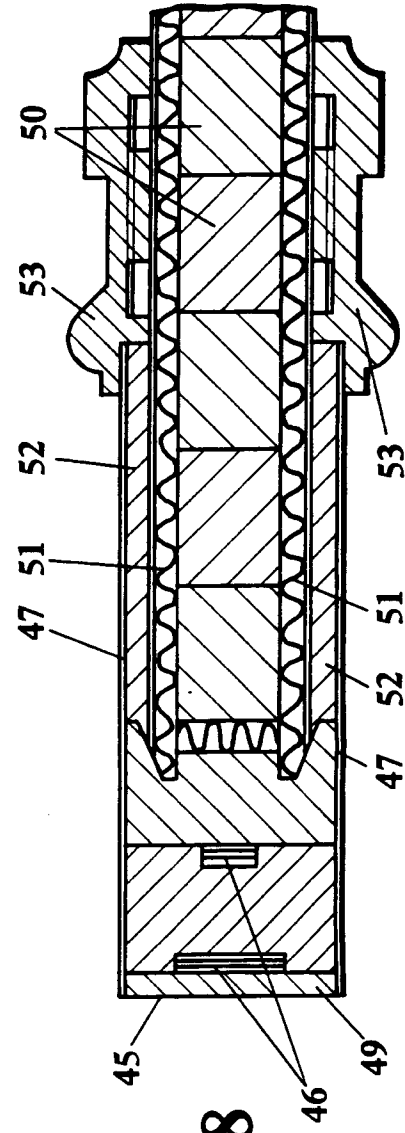
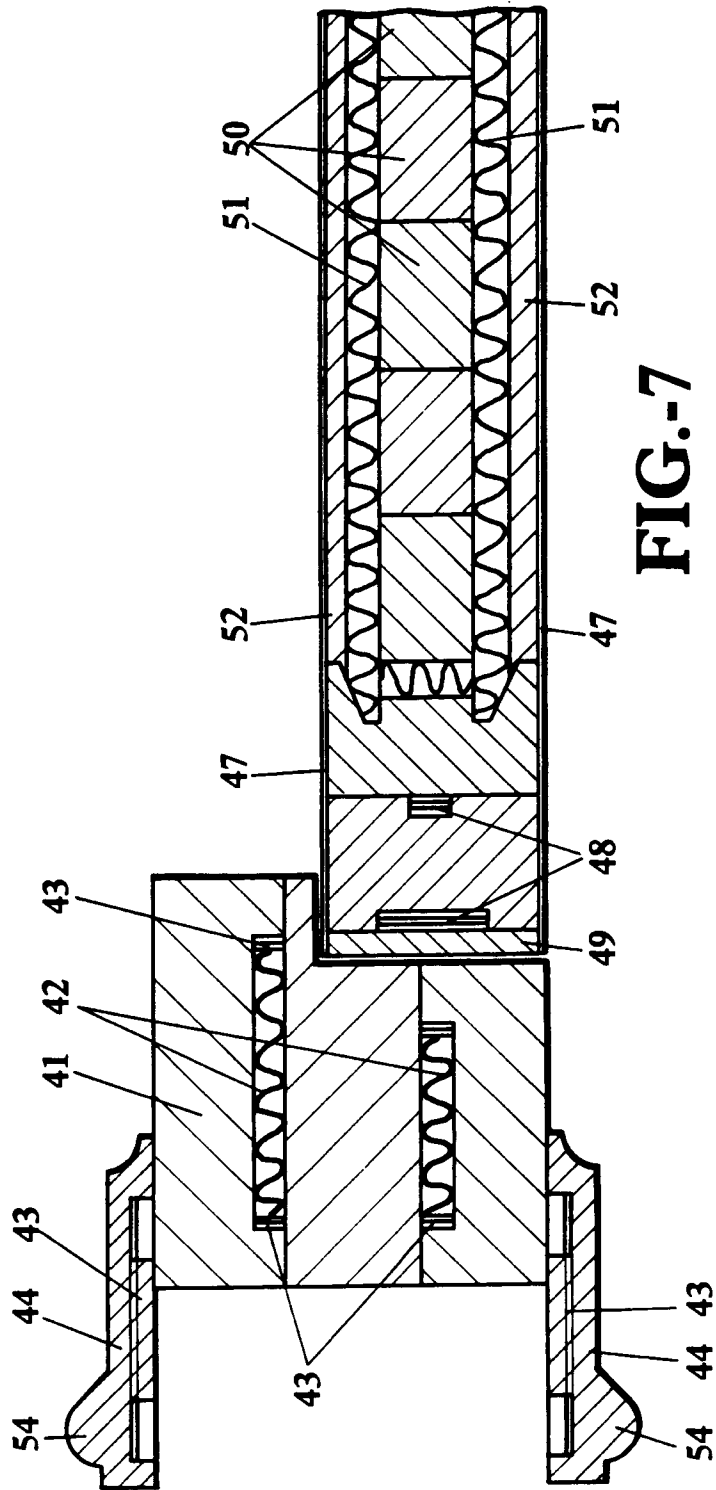


FIG.-6



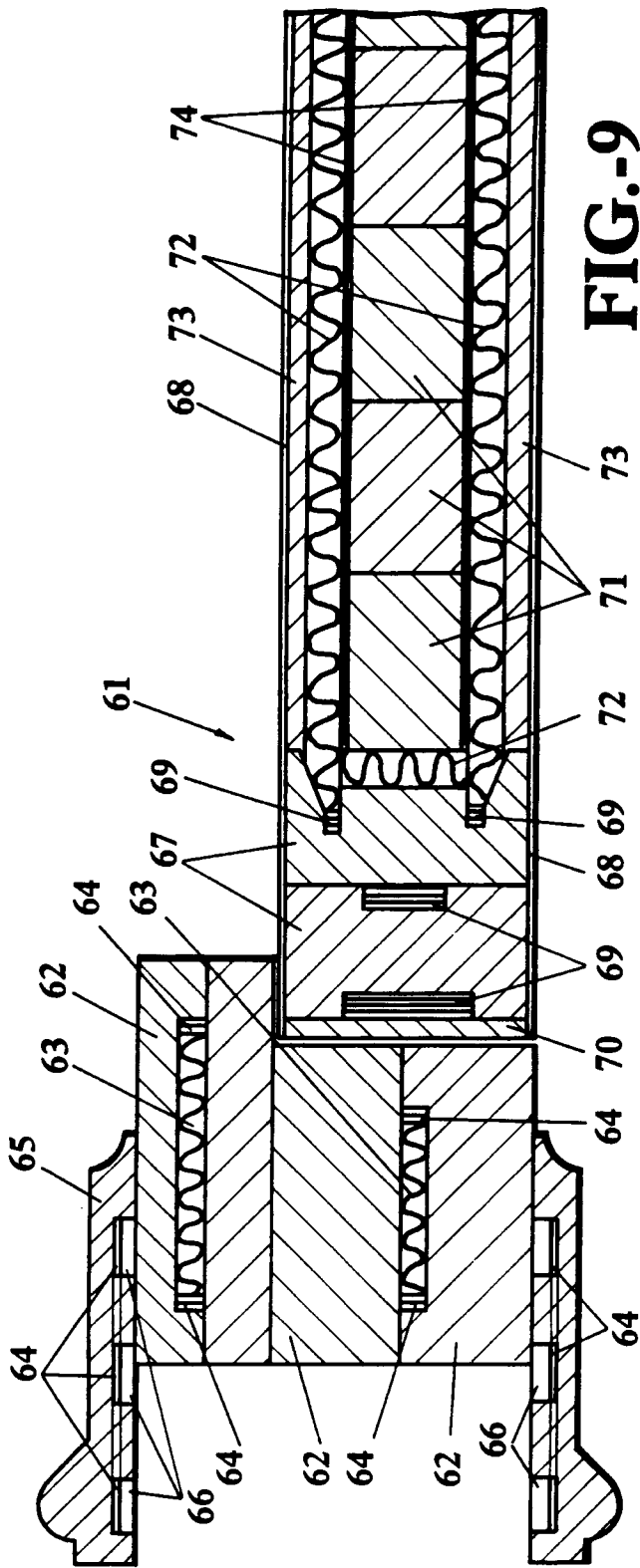


FIG.-9

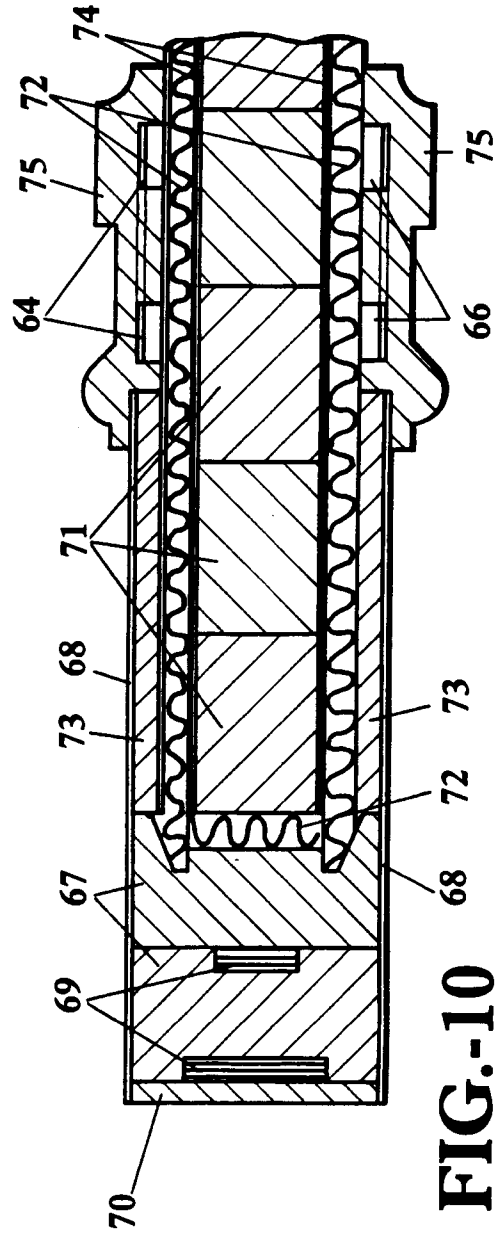
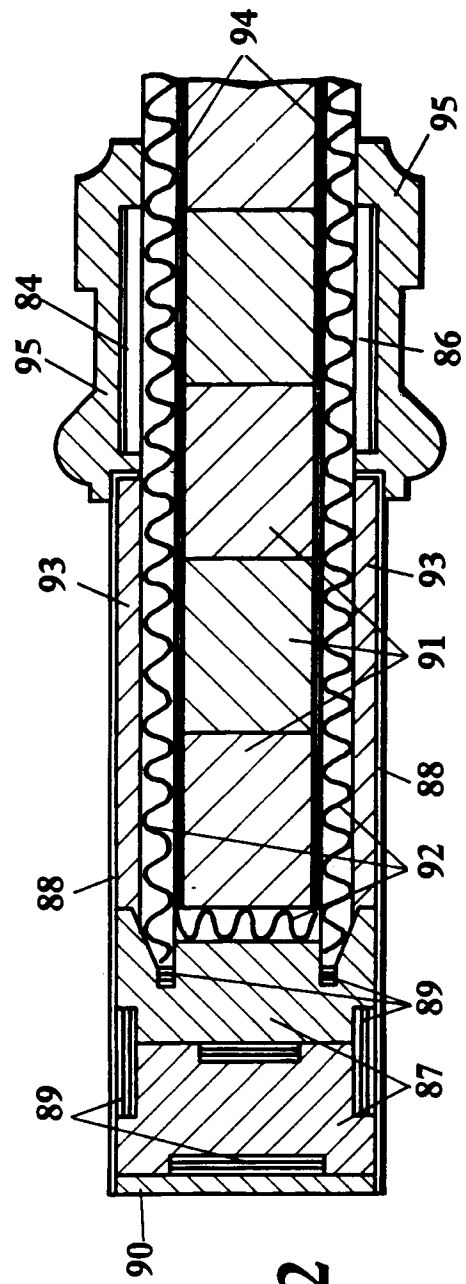
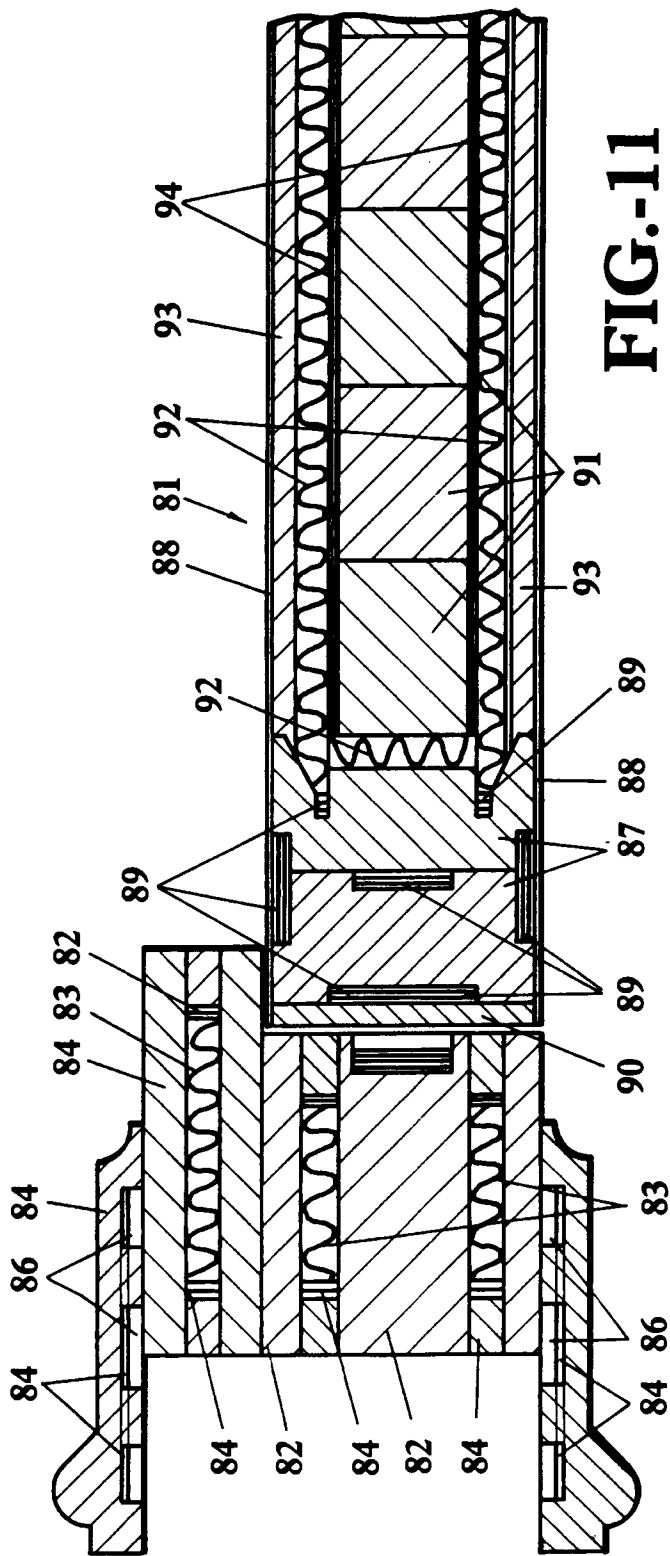
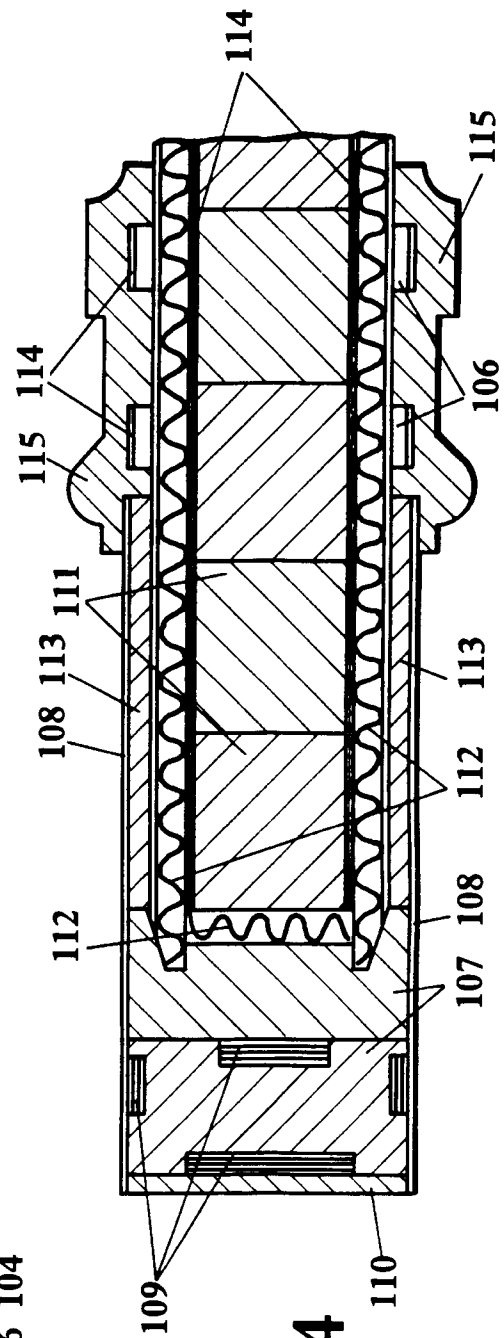
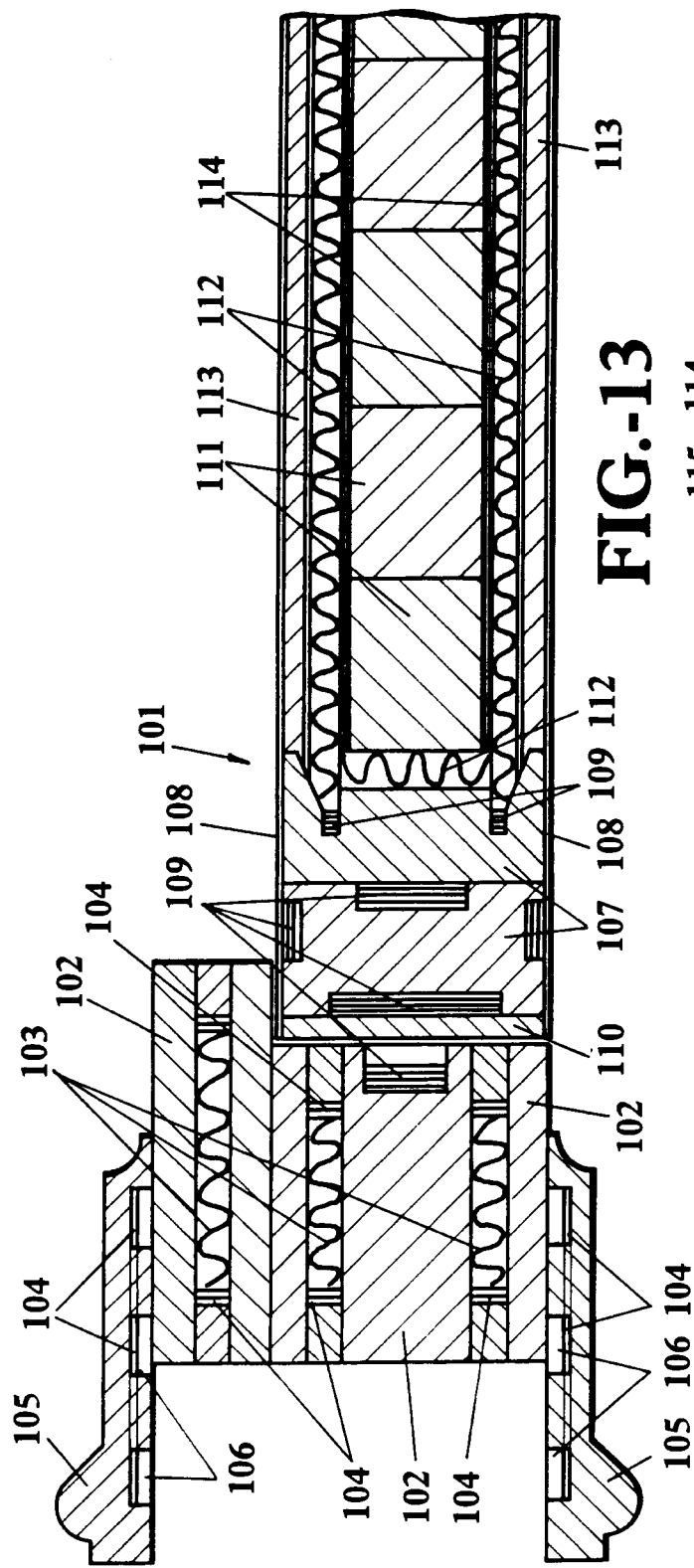


FIG.-10





INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES 96/00011

A. CLASSIFICATION OF SUBJECT MATTER		
IPC ⁶ : E04B 1/94 E04F 5/18 E06B 5/16		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols)		
IPC ⁶ : E04B E04F E06B		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
CIBEPAT, EPODOC, US ABSTRACT PATENT SEARCHING, PAJ, WPI		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CA 1284571 A (KAYNE) 04.06.91 Page 10, line 26 - page 11, line 16 Page 14, line 15 - page 15, line 19 Page 20, line 15 - page 21, line 18; figures 1, 5, 6, 17	1, 2
A	GB 847818 A (BAUWERK AG) 14.09.60 Page 1, line 59 - line 77; figure 1	1
A	FR 359371 A (OGET) 24.03.06 Page 1, line 24 - page 2, line 16; figures 1, 4	1
A	DE 1509644 A (MAJER Y AL) 22.05.69 Page 5, line 8 - page 6, line 4; figures 3, 4	1
A	FR 2577591 A (ENAUULT Y AL) 22.08.86 Page 2, line 26 - line 32 Page 3, line 2 - line 19; figures 10, 13	2
☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 30 May 1996 (30.05.96)		Date of mailing of the international search report 31 May 1996 (31.05.96)
Name and mailing address of the ISA/ SPT0		Authorized officer
Facsimile No.		Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES 96/00011

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2110279 A (LONGDEN DOORS LTD) 15.06.83 See the whole document	3,4
A	ES 1026584 U (MATEU GIL Y AL) 01.05.94 Claims 1,2; figure	7-16

Form PCT/ISA/210 (continuation of second sheet) (July 1992)