(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 454 806 B1

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
10.04.1996 Bulletin 1996/15

(21) Application number: **90916066.5**

(22) Date of filing: **31.10.1990**

(51) Int Cl.[6]: **E06B 3/54**, E06B 7/24, E06B 7/23, E06B 3/30, E06B 1/62

(86) International application number:
PCT/IT90/00090

(87) International publication number:
WO 91/07563 (30.05.1991 Gazette 1991/12)

(54) WINDOW, DOOR OR LIKE CLOSURES

FENSTER, TÜR ODER ÄHNLICHE ABSCHLÜSSE

FENETRE, PORTE OU FERMETURES ANALOGUES

(84) Designated Contracting States:
AT BE CH DE DK ES FR GB GR LI LU NL SE

(30) Priority: **22.11.1989 IT 8351489**
05.07.1990 IT 8342190
05.07.1990 IT 8342290

(43) Date of publication of application:
06.11.1991 Bulletin 1991/45

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Remarks:

The file contains technical information submitted after the application was filed and not included in this specification

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EP 0 454 806 B1

Printed by Jouve, 75001 PARIS (FR)

Description

The invention regards a window or door and other glass closures (glazing assemblies). The frames and profiles to realize said windows and doors of glass closures are a further object of the invention. This solution is conveniently applicable in the manufacturing of frames which profiles are realized in aluminium having internal surfaces covered with wood.

In the prior art frames in aluminium internally covered with wood are known.

The assembly techniques provide to connect the two profiles by means of two opposite longitudinal undercut grooves, one in the aluminium profile and one in the wooden profile, the connection being made by use of:

- an intermediate plastic binder material or
- a number of sliding hooking means inserted from the respective head of the profiles;
- a number of rotatable key hooking means in order that in one oriented position their transverse insertion is possible, and with successive rotation of 90° they realize the respective locking of the opposed profiles one against the other, aluminium and wooden profiles respectively.

This invention is directed particularly to this last solution. Rotatable key hooking means of the above-mentioned type, is disclosed in FR-A-2516122 and in Italian Industrial Utility Model Application No. 60447B/88 in the name of EUREKA srl concerning a "Dovetail fitting with rotating pivot for hooking and coupling elements in wood and elements in aluminium or other material". In the Italian solution No. 60447B/88 the connection system between the aluminium profiles and wooden profiles is made by interposition of an intermediate profile that is inserted on dovetailed grooves in the wooden profile on one side while on the other side it presents a groove substantially "C" shaped.

The connection is realized by key means of the type involving on one side a broader discoidal flange to be inserted into the head of the respective profile and sliding it along the groove of the aluminium profile, whereas the other side has a similar flange but with shrinkage on an orthogonal guideline for forming a hooking key by means of an intermediate key neck, in order that said head can be inserted orthogonally into the "C" shaped groove of the plastic profile of the wooden part and then rotated for 90° for the respective hooking or lockage.

The drawbacks of this solution consist in the fact that we are obliged to use an intermediate profile which affects the cost of the complex of the frame.

In the French solution (FR-A-2516122), the respective key hooking means has two opposed rotational key hooking heads can be inserted directly transversely into the respective opposed profiles, but it still has the problem of the Italian solution No. 60447B/88 of not being easy to insert into the respective wooden groove and then being rotated.

In fact FR-A-2516122 obviates free sliding inside the respective grooves by using two oposed protruding wedges, one on each side of the respective central key-shaped spacer.

Furthermore the opposed key hooking heads of the rotational key of FR-A-2516122 are realized in a rectangular shape and are aligned on the same plane, so it is not possible to lock first one profile and then the second, one being obliged to lock both at the same moment (rotatory action).

This inconvenience makes assembly difficult.

In the prior art to seal a glass pane into a metallic profile of a frame with sealing products or materials such as stuccoes or silicon materials is further known .

It is also known that this sealing if placed externally is subjected to environmental degradation.

Water infiltrations cannot be avoided also because the product hardens, and cracks where the water passes.

Furthermore the cracks have an unaesthetic aspect.

On the other hand, the use of sealing profiles alone gives unreliable results against water infiltrations.

EP-A-0255808 discloses a glazing assembly having external glass panes glued onto a metal frame in which said metal frame is made with profiles in waterproof abutment with a respective glass pane wherein, at said abutment, the frame profile comprises:

- internal hooking means for receiving an internal sealing profile abutting against the glass to form a recess for receiving an injection of intermediate sealing waterproof material; and
- external hooking means for receiving an external sealing profile abutting against the external border of said glass panel,
- said two sealing profiles being combined "to create a cavity for reception of the adhesive, denoted 19, by means of which each of the external panes 15 is fixed to the frame 32".

This solution does not regard essentially the scope of this invention because said two sealing profiles have been conceived to close in a spontaneous and natural way and constrain said fluid glue to stay in position for glueing, namely to attach said glass pane into the frame. In other words utilizing this teaching we cannot solve the raised problem, nevertheless this teaching suggests a solution to the raised problem, because:

- first of all the external sealing profile is not able to protect the internal filling (glue) against water penetration, so cracking can happen;
- secondly the internal filling is a glue, essentially conceived to attach the glass pane to said frame, so
- cracking of the glue can maintain attached the glass pane but allows infiltration of water, so
- main watersealing is done by the internal sealing

profile.

In the prior art the problem of sealing particularly between door and fixed abutment frame is further known.

An hermetic waterproofing causes condensation and rusting inside the profiles.

In order to obviate these drawbacks, aeration openings that make possible a certain circulation of air have been provided in the profiles and between the waterproof seals.

But these openings have the drawback to facilitate water infiltrations.

CH-A-303193 discloses a movable door profile with an edge turned up toward the external side with a rear spout, namely a "C" shape, that forms a "S" loop shaped fissure with an external fixed "Y" shaped profile, by interpenetration of one leg of said movable "C" shaped profile between the two legs of said fixed "Y" shaped profile. The main drawback of said external "Y" shaped profile is that it cannot obviate water infiltration and the base of said upside-down "Y" external fixed profile, is obliged to be endowed with a series of hollows (8) to allow water to discharge outside (guttering).

This is a problem of further cost and the water staying between the two profiles causes dust accumulation between the legs of said "Y" shaped fixed external profile.

Furthermore this solution does not disclose use of sealing between said two frames.

DE-A-3046884 discloses the use of an intermediate sealing profile (reference 34 fig.1b), but this solution being a well known normal solution does not allow absolute sealing when the contact between the edge (36) of said sealing profile is damaged.

Scope of the present invention is to obviate said drawbacks.

This and other scopes are reached with the present invention as claimed, by means of a glazing assembly for windows or doors and other glass closures in metallic profiles to realize a metallic external frame internally covered by wooden profiles of the type in which a glass pane is enclosed and clamped between at least one of said metallic profiles and at least one of said internal wooden profiles, said wooden profile being keyed to said metallic profile with rotational key means, wherein said rotational key means has two opposed key hooking heads divided by a neck, having a central spacer shaped so as to allow rotation of the rotational key means after having inserted the respective opposed key hooking heads into respective grooves realized in said metallic profile and in said wooden profile,
characterized in that:

- at one end of the rotational key means there is a disc-shaped flange to hook the metallic profile and at the other end there is a key hooking head;
- the disc-shaped flange has a discoidal shape having a diameter larger than said neck;
- said key hooking head has a disc shape with a tapered border, said disc having two opposed cut-off sections in order to form a rotational key portion.

With this solution an easier assembly and disassembly is achieved due to the tapered design of the key hooking head which allows it to hook into the groove of the wooden profile to give a sure and efficient hooking without breaking the wings of the wooden profile. Furthermore the disc shape of the opposed disc-shaped flange allows pre-insertion of each rotating disc-shaped flange into the metallic profile, allowing easier deplacement along it for good positioning and then frontal insertion of the wooden profile, finally rotating each rotational key means, to fix the whole in place.

Advantageously said external profile provides:

- internal hooking means for receiving an internal sealing profile abutting against the glass to realize a recess for receiving an injection of intermediate sealing waterproof material;
- external hooking means for an external watertight sealing profile abutting against the glass to cover said intermediate sealing waterproof material.

With this solution waterproofing is realized for a very long time and cracking of the sealing waterproof material is not visible as it is covered by said external sealing profile.

Advantageously said movable door profile provides an edge turned up toward the external side with a rear spout that forms a fissure with a loop with a fixed profile edge "L" folded as a spout.

With this solution allowing aeration inside the profiles ensemble, condensation is avoided.

Advantageously the interior of the groove of the wooden profile is coated with a strengthening material for example with a plastic material profile or an aluminium one having the same shape.

In such a way we obtain the dual advantage to maintain straight the wooden profile and to reinforce its hooking zone thus distributing the lockage force in a more extended area.

The invention can be better understood with the attached description and drawings supplied for example only, in which:

Figure 1 represents a schematic view in section of a profiled ensemble according to the invention.

Figure 1A represents a schematic view in transverse section of the connection system of an aluminium profile to a wooden profile.

Figure 2 represents a schematic view of the profiles ensemble of Figure 1A, detached with a connection system to be inserted and rotated for 90° with respect to the position of the previous Figure (hooking position) in order that it can be inserted transversely.

Figure 3 represents a plane view of a hooking means.

Figures 1A to 3 disclose a method and lockage device for connection of two profiles (5, 8) particularly for frames by means of rotational key means (11) of the type involving:

- a disc-shaped flange (924) broader with respect to a neck (923) that bears it, in order to be inserted longitudinally within a corresponding groove "C" shaped (931) of a first metallic profile (5)on one side,
- a key hooking head to hookup (921), broader with respect to a neck (922) that bears it, tapered (r) on opposite sides for forming substantially a hooking key for orthogonal rotation, by the opposite side and to be inserted orthogonally in rotation axis direction on the second profile;
- centrally connected by said rotation key neck (922), wherein:
- the groove of the second profile (911) is also of the type "C" shaped with internal draft tilted planes for sliding in undercut (s), intermediate profiles eliminated for this connection .

Said tilted undercut plane (s) terminates with annular peak "p" and this will facilitate the wooden profile engagement with the aluminium profile, as well as the hooking means in rotation even if there is not exact coincidence in the respective profiles to be joined, for example for absence of linearity of the wooden profile with respect to the aluminium profile.

The aluminium profile (5) is associated to another aluminium profile (10) but it is evident that these profiles can be different in number and of any desired form and this is obviously so even for the directly interested profile (5) with the scope to realize some window and door frames with the desired characteristics.

The neck key in the hooking means is square shaped but could obviously be even otherwise polygonal.

The assembly with particular reference to Figure 2 is made by first inserting the rotational key means (11) with the disc-shaped flange (924) within the "C" shaped groove (931) of the aluminium profile (5) and then the respective wooden profile (8) is inserted by meansof orthogonal insertion of the key hooking head (921-r) of the rotational key means (11) within the corresponding groove (911) and then we will carry out a rotation for 90° of the rotational key means (11). In such a way the wedge form of the key hooking head (921) will force the wooden profile (8,12) to clamp, thus stopping the aluminium profile.

The disassembly can be made in an inverse way. And so the wood profiles of the frame can be changed at any moment.

The number of rotational key means used in a determined length can obviously be different depending on the specific exigencies.

The rotational key means presents a narrow neck (923) of diameter "n" for cogging in the groove (931), said shrinkage being not necessary for cogging the wooden profile (8) because this is obtained by means of the broader key hooking head on two opposite sides (921) for a width (D) > (d) being (d) the restricted amplitude of entry to the groove of the wood profile.

Figure 1 discloses an ensemble of profiles for window and door frames comprising:

- at least a metallic profile (5) of a movable door for a waterproof abutment against a glass (4) that provides:
  - internal means (55-56) to allow in glass abutment (4) clamping of an internal sealing profile (2);
  - a containing means (56) for receiving a waterproof sealing material (3) between said metallic profile (5), said internal sealing (2) and said glass (4);
  - external means (56-57) for allowing in glass abutment (4) the clamping of an external sealing profile (1) to cover said waterproof sealing material (3).
  - said movable door profile (5) provides also an edge turned up toward the external side with a rear spout (52) that forms a fissure with a loop (f) with a fixed metallic profile edge (10), L folded as a spout (101);

- a back intermediate profiling (53) in adjacent alignment with an embedding seat (i) of said fixed metallic profile (10) for an internal sealing profile (9) with a double lip (91-92), being the extreme abutment (91-53) realized with a protruding dent (53);
- an internal forehead abutment (54) for respective sealing (7) of a covering wooden profile (8) clamped by means of rotational key means (11).

Said internal sealing (7) extending in abutment even on the edge of a corresponding abutment profile in wood (12).

Said wooden profile (8) on a movable door involving on the opposite side internal abutment glass, respective closure sealing (6) of the abutment to the other side of the glass panel (4).

Said fixed metallic profile (10) involving similarly rotational key means (11) to connect the wooden profile (12).

Said wooden profile (12) comprising a back "V" shaped groove (121) that cooperates with a toothed wing (131) of a back square (13) and determines an elastic cog seat for a longitudinal cog catch (141) of a wooden strap (14).

Advantageously the cog of the external profile of glass sealing (1) is produced by means of a hookup sys-

tem substantially "G" shaped (57-56).

Advantageously said fissure (f) is protected by a recess (51) that prevents furthermore the water from entering in a tangential sense.

Claims

1. A glazing assembly for windows or doors and other glass closures in metallic profiles to realize a metallic external frame (5,10) internally covered by wooden profiles (8,12) of the type in which a glass pane (4) is enclosed and clamped between at least one of said metallic profiles (5) and at least one of said internal wooden profiles (8), said wooden profile being keyed to said metallic profile with rotational key means (11), of the type in which said rotational key means has two opposed key hooking heads, divided by a neck (923), having a central spacer (922) shaped so as to allow rotation of the rotational key means after having inserted the respective opposed key hooking heads into respective grooves realized in said metallic profile and in said wooden profile, characterized in that:

   - at one end of the rotational key means there is a disc-shaped flange (924) to hook the metallic profile (5) and at the other end there is a key hooking head (921);
   - said disc-shaped flange (924) has a discoidal shape having a diameter larger than said neck;
   - said key hooking head (921) has a disc shape with a tapered border (921), said disc having two opposed cut-off sections in order to form a rotational key portion that can be inserted transversely into the groove of the wooden profile;
   - the groove of the wooden profile (911), is provided with undercut tilted planes "s", which co-operate by slippage with the tapered border (921) of the key hooking head during the keying action.

2. A glazing assembly according to any of the previous claims characterized in that said groove of the wood profile (911) and respective key hooking head (921,r) of the respective rotational key means (11) are covered on their internal surface "s" by a profile of analogous shape functioning as strengthener and apportionner of effort in lockage over a more extended area.

Patentansprüche

1. Eine Verglasung für Fenster oder Türen und andere Glasverschlüsse in Metallprofilen zur Schaffung eines äußeren Metallrahmens (5,10), innen abgedeckt durch Holzprofile (8,12), wobei eine Glasscheibe (4) zwischen mindestens einem der besagten Metallprofile (5) und mindestens einem der besagten inneren Holzprofile (8) eingespannt ist, wobei das genannte Holzprofil durch einen Drehkeil (11) mit dem Metallprofil verkeilt wird, welcher zwei einander gegenüberliegende Keil-Hakenköpfe aufweist, die durch einen Hals (923) getrennt sind und ein zentrales Distanzstück (922) aufweisen, das so geformt ist, daß der Drehkeil rotieren kann, nachdem man die einander gegenüberliegenden Keil-Hakenköpfe in Rillen in dem Metallprofil und in dem Holzprofil eingesetzt hat,
gekennzeichnet dadurch, daß:

   - an einem Ende des Drehkeils eine scheibenförmige Flansch (924) vorhanden ist, um das Metallprofil (5) aufzuhaken, und sich an dem anderen Ende ein Keil-Hakenkopf (921) befindet;
   - die besagte scheibenförmige Flansch (924) hat Scheibenform mit einem Durchmesser, der breiter als besagter Hals ist;
   - besagter Keil-Hakenkopf (921) Scheibenform mit sich verjüngendem Rand (921) hat, und die Scheibe zwei einander gegenüberliegende abgeschnittene Abschnitte besitzt , so daß ein Drehkeilteil entsteht, den man quer in die Rille des Holzprofils einschieben kann;
   - die Rille des Holzprofils (911) mit unterschnittenen geneigten Ebenen "s" versehen ist, die durch Schlupf mit dem sich verjüngenden Rand (921) Schlüssels des Keil-Hakenkopfs während der Verkeilung zusammenwirken.

2. Verglasung nach den vorherigen Patentansprüchen, gekennzeichnet dadurch, daß Rille des Holzprofils (911) und besagter Keil-Hakenkopf (921,r) des Drehkeils (11)) auf ihrer Innenfläche "s" durch ein Profil von analoger Form abgedeckt werden, die als Verstärker und Kraftzuteiler beim Spannen über einen weiteren Bereich wirken.

Revendications

1. Un ensemble pour poser les vitres des fenêtres ou des portes et d'autres fermetures pour vitres en profils métalliques pour réaliser un cadre externe métallique (5,10) couvert à l'intérieur par des profils en bois (8,12) du type où une glace (4) est renfermée et serrée entre au moins un desdits profils métalliques (5) et au moins un desdits profils internes en bois (8), ledit profil en bois étant claveté audit profil métallique par un moyen de clavetage rotatif (11), du type où ledit moyen de clavetage rotatif comprend deux têtes d'accrochage de la clavette opposées et divisées par un collet (923), ayant une pièce d'écartement centrale (922) dont la forme permet la rotation du moyen de clavetage rotatif après avoir

inséré les respectives têtes d'accrochage de la clavette opposées dans les respectives rainures réalisées dans ledit profil métallique et dans ledit profil en bois, caractérisé par le fait que:

- à l'une des extrémités du moyen de clavetage rotatif il y a une flasque en forme de disque (924) pour accrocher le profil métallique (5) et à l'autre extrémité il y a une tête d'accrochage de la clavette (921);
- ladite flasque en forme de disque (924) a une forme discoïde ayant un diamètre plus large que ledit collet;
- ladite tête d'accrochage de la clavette (921) a la forme d'un disque avec une couronne effilée (921), ledit disque ayant deux sections de coupure opposées afin de former une portion de clavette rotative qui peut être insérée transversalement dans la rainure du profil en bois;
- la rainure du profil en bois (911), est pourvue de plans inclinés évidés "s", qui coopèrent par glissement avec la couronne effilée (921) de la tête d'accrochage de la clavette pendant l'action de clavetage.

2. Un ensemble pour poser les vitres selon les revendications précédentes caractérisé par le fait que ladite rainure du profil en bois (911) et la respective tête d'accrochage de la clavette (921,r) du respectif moyen de clavetage rotatif (11) sont couverts le long de leur surface interne "s" par un profil de forme analogue fonctionnant comme élément de renforcement et de distribution de l'effort de fermeture sur une zone plus étendue.

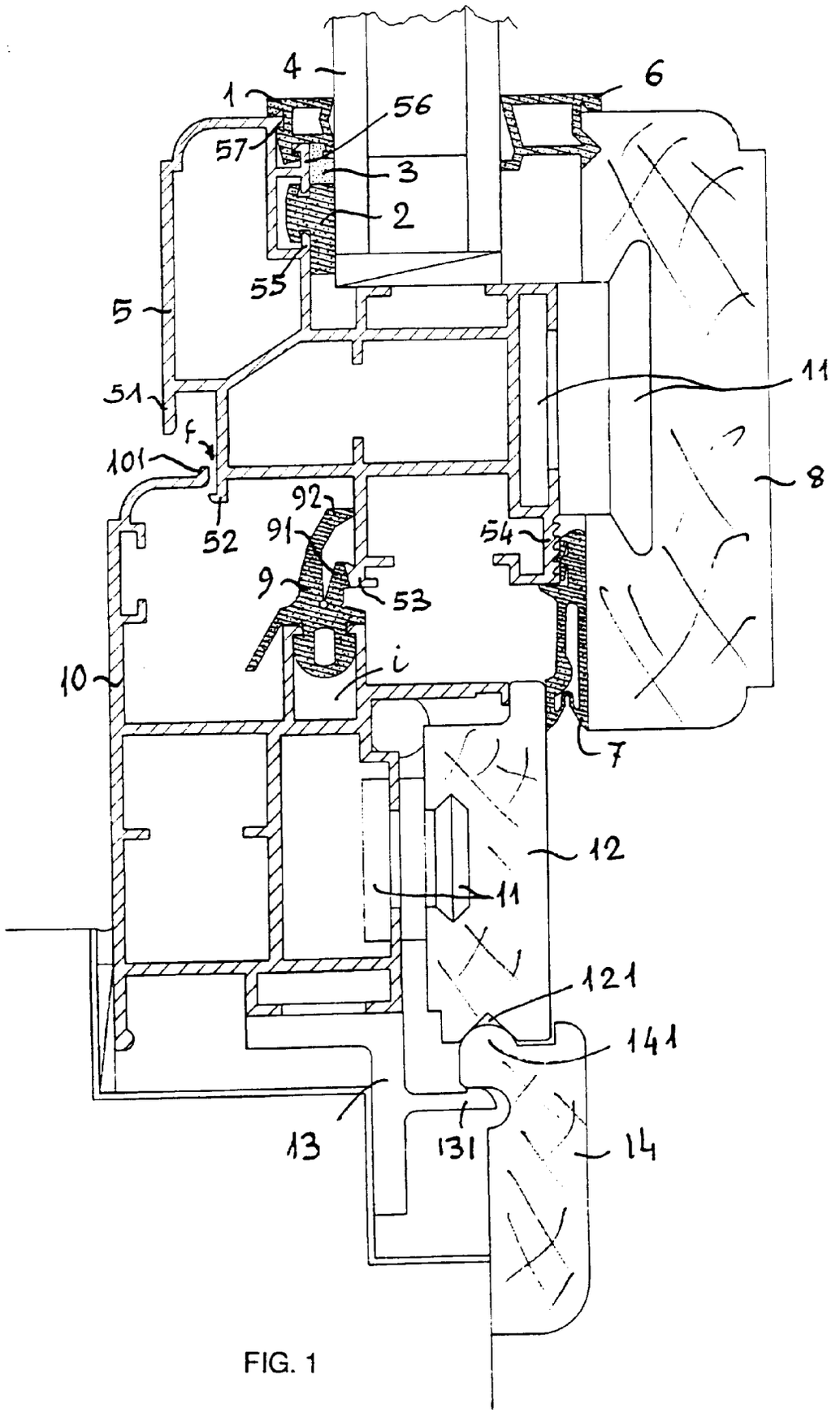

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FIG. 1

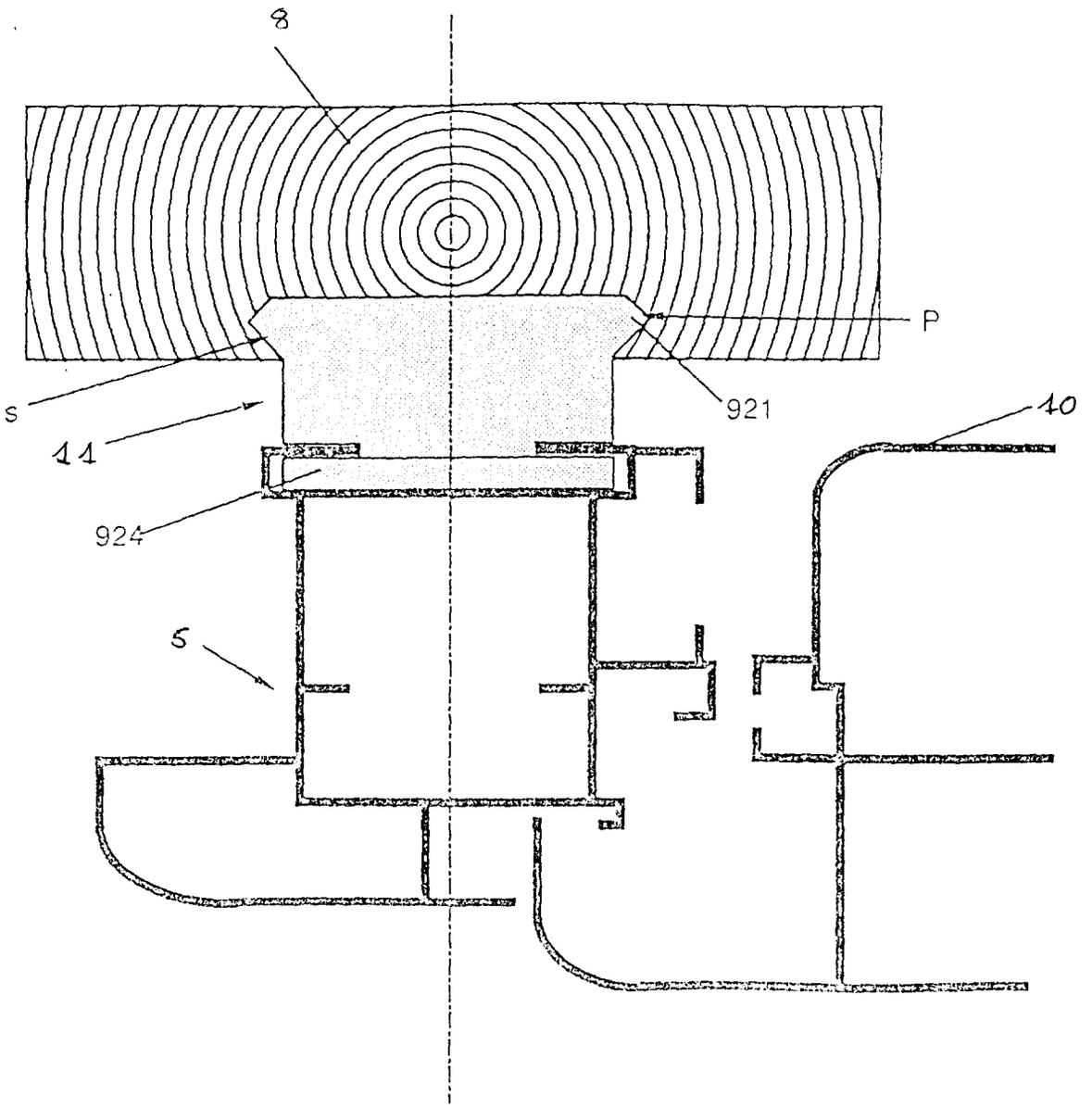


FIG. 1A

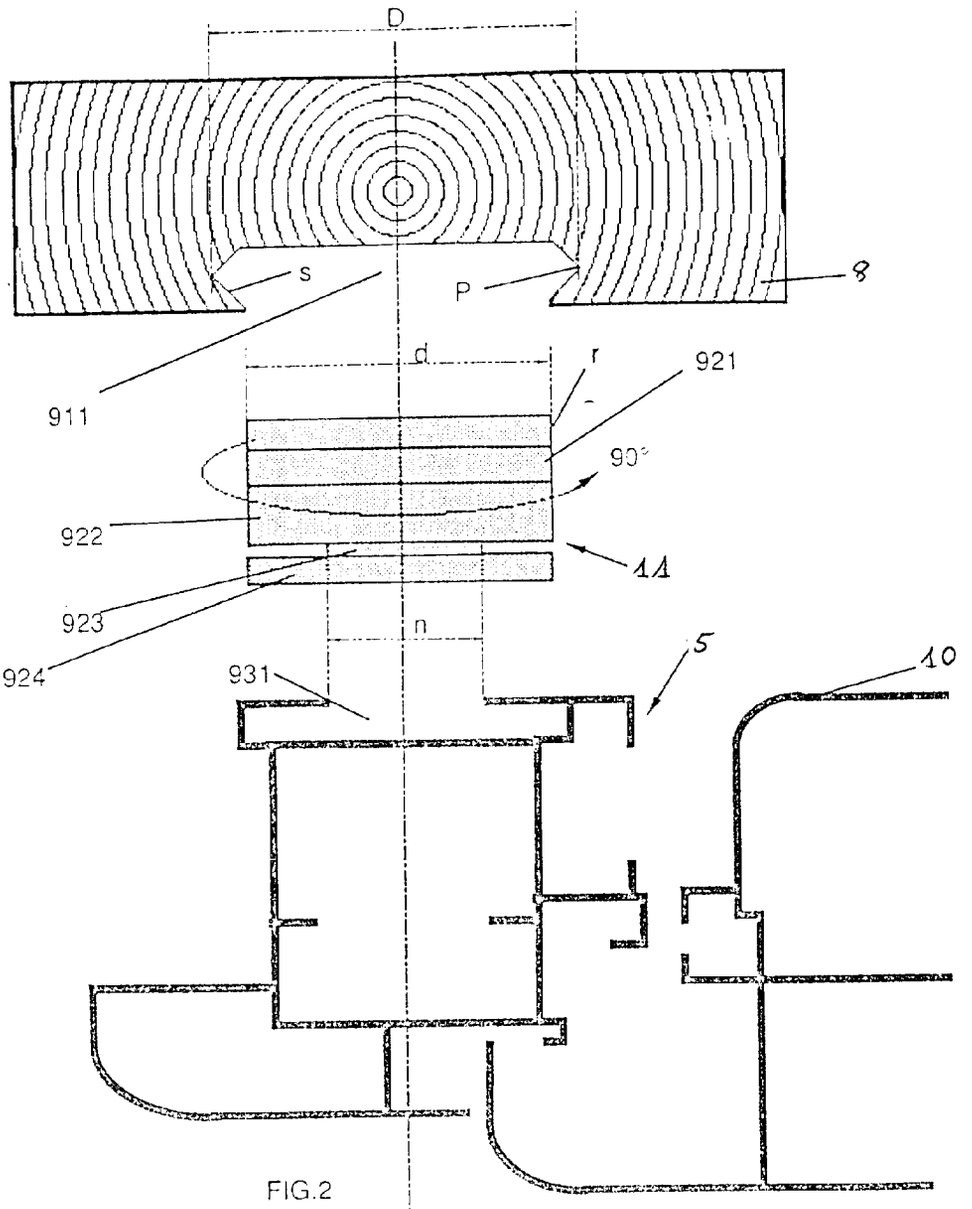


FIG.2

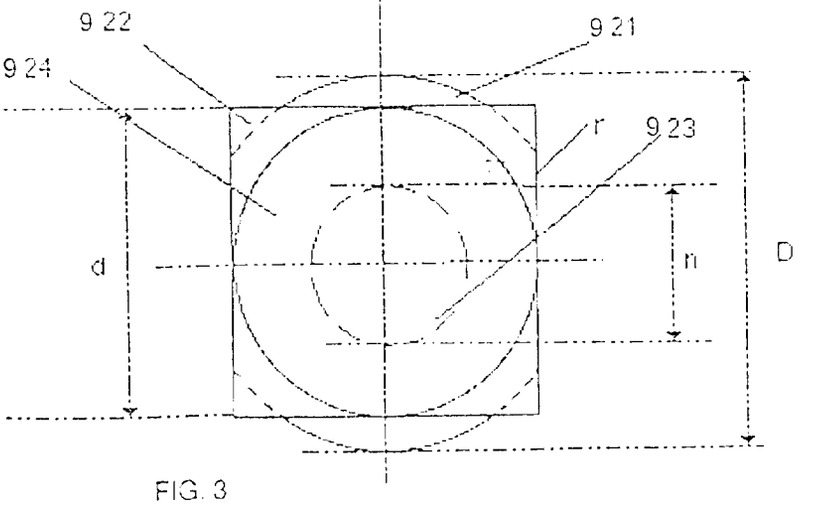


FIG. 3