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(54) System for the fixing by mechanical seal of glass slabs or the like, particularly usable in the making of panelling of continuous façades

(57) System for the fixing by mechanical seal of glass slabs or the like, particularly usable in the making of panelings of continuous façades according to which, on a tongue (22) obtained on the external part (21) of a first section (2) it is applied a second section (3) constituted by a longitudinal flat strip (31) a lateral edge of which generates an external lip (32) engaging itself on the chamfered edge (B) of the slab (1) of a paneling (P1-P2) from the other edge resulting instead departing at right angles an internal lip (33) able to engage itself on the tongue (22) on which it is fixed by screws (4) fixing so said second section (3) and the slab (1). The tongue (22) will result slanting in a way so that the end of the shank (5) of a screwdriver inserted in the space resulting between two paneling (P1-P2) impacts itself at right angles on the heads of the screws (4) permitting so to replace one or more slabs (1) directly on the entirely assembled façade.

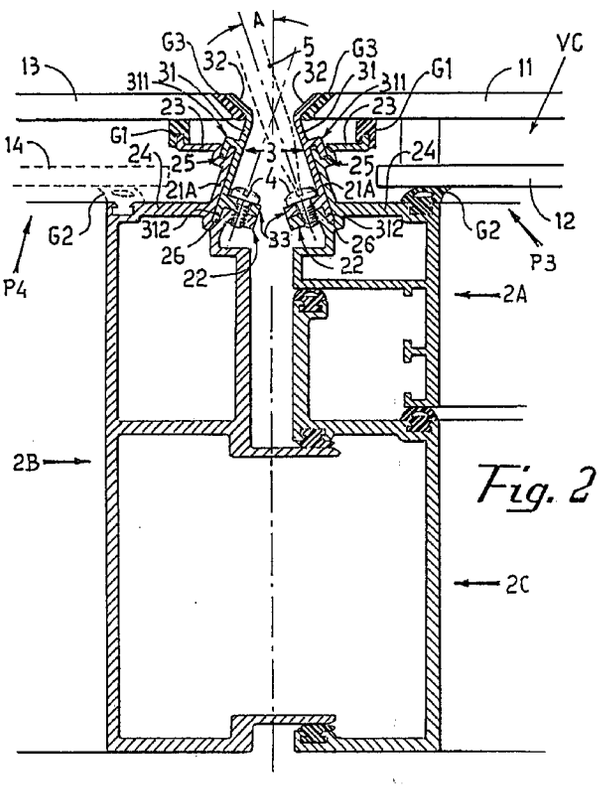

Fig. 2

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Description

The present invention relates to a particular system for the fissing by mechanical seal of glass slabs or the like particularly usable in the making of panelings of facades of edifices commonly said continuous façades.

It is known as in the making of façades of edifices it is now widespread the application of coverings effected by means of fairly thin plates, as glass sheets or also slabs of other materials, which are fixed in various ways and by various means to a relevant structures of application that in theirs turn are fixed to the building structure of a relevant adifice.

As it is also known, the various systems for making such coverings present drawbacks as well as difficulties in their making and application, such as to need often the employ of skilled personnel.

According to one of these systems, the fixing of the slabs on the relative structure of application is obtained by mere sizing of their perimetric edge by suitable silicone mastics. This system nevertheless results scantily reliable because the mastics that are utilized, with the passing of the time and for the effect of atmospheric agents, of pollutants, and so on, may deteriorate till to the point to permit the disjunction of the slabs with consequent remarkable dangers.

For this reason, systems has been studied and realized, which permit the clamping of the slabs by meachanical seal that usually is obtained by means of frames that are made by metallic sections provided with lips extending more or less on the perimetrical edges of the external surface of a slab so to obtain a real coupling of it on the relevant frame.

The various solutions realizing the mechanical seal, normally require the application of the slabs, or directly on frameworks each comprising a relevant group of slabs that commonly are said "cells", which suitably hooked to the building structure form on it the structure of application of the same, or on relative frames obtained by suitable sections so to constitute corresponding panelings in their turn applicable on relevant structures of application.

Particularly in the case in which, for various reasons, as breakages of the slabs or others, it was necessary to replace on a façade one or more slabs, normally it is necessary to take away or the entire framework of one or more cells, or the paneling or the panelings applied on relevant cells. Clearly this always entails notably difficult and delicate interventions with employment of skilled personnel.

To obviate to these drawbacks various systems have been realized by which the mechanical seal is obtained by parts of suitably shaped sections that placed along the perimetrical sides of a slab sharf it with a lip protruding from them that engages itself on the exterior surface of this last, being moreover fixed in various ways and with various means on corresponding parts of the sections used to form the framework of a relative cell or of a relative paneling.

According to one of this systems, the fixing of the parts of section used to obtain the mechanical seal of the slab on the corresponding cell or on the corresponding frame, is obtained by simple coupling of a "L" shaped flange which engage itself with its terminal part in a corresponding hollow obtained on the sections of the structure on which are applyed, this clamping being obtained exploiting the compressibility of suitable elastic gaskets.

This system, even though resulting simple presents the drawbak to generate a seal lip which extends along a remarkable part of the perimetrical edges of the slab on which it is applied protruding moreover fairly from the external surface of this for the necessary interposition of an elastic gasket that presents a rather remarkable tickness.

The slabs fixed by this system consequently will result surrounded by a frame that presenting a fair estension and moreover protruding fairly from theirs surface, interrupts the flatness continuity of the resulting façade so that does not permit to obtain the aesthetical effect deriving from such continuity.

Other systems, for instance the one described in the Patent Application n. PN93A000058 filed in Italy on 29/07/1993, permit to obtain the flatness continuity of the façade but the fixing of the section for the mechanical seal on the relevant sections of the relative cells or panelings is obtained by the use of screws that will be accessible with difficulty.

Consequently, in the case and for the reasons already expounded it was necessary to make the disjunction of one or more slabs from the structure of a whole façade entirely assembled, this operation pratically results considerably difficult. In fact it is possible, penetrating into the spaces that usually result between contiguous panelings to reach the screws to unscrew but these being placed at right angles relatively to the penetration direction it will be necessary to use a proper tool that has to be carefully placed onto each single screw that, nevertheless does not results neither easily traceable nor easy unscrewing and even less retightening.

The global operation to dissassemble and even more to reassemble the various parts besides to result difficult requires a great precision, remarkable operational times and shilled personnel.

The purpose of the present invention is to obviate to the drawbacks and limitations above mentioned and this is obtained by the system referred to that in order to better understand the characteristics and the advantages attainable by it solely by way of a nor limitative example, is hereinafter described doing reference to the enclosed drawings in which:

- the fig. 1 shows schematically by a transverse cross view drawn correspondingly to the edges of the glass slabs of two contiguous panelings, their fixation obtained by the system forming object of the present invention;
- the fig. 2 shows by a transverse cross section of two contiguous panelings, a possible variation that per-

mits an improvement of the solution illustrated in fig. 1 in a possible real application.

In these figures the common parts are indicated by the same references.

The basic principle of the fixing system constituting the object of the present invention results clearly illustrated in fig. 1 in which it is possible to note the adjacent parts of two contiguous panelings P1-P2 each of them comprising: a slab 1 of glass or of other material used to form the external surface of a continuous façade; a generic part of a first section 2 used to constitute the framework of a paneling; a second section 3 used to fix mechanically the said slab 1 on the said first section 2.

For clearness in such fig. 1 only the part of a paneling P1 is indicated by a marked line and only on it are indicated the references that are necessary to the description, while the part of the adjacent paneling P2 is indicated by a thin line and serves only to describe the admittance system of a tool 5 that is indicated by a thin dashed line, into the space lying behind to the slot that normally results between the contiguous edges of two adjacent panelings (P1-P2) and then, the utilization of this tool (5) according to the present invention.

As it is possible to note clearly from such fig. 1, the second section 3 results constituted by a longitudinal flat strip 31 in which, a short part of one lateral edge of its results suitably folded to a part of the same to form a first external lip 32 able to engage itself on a relevant chamfered edge B of the slab 1 and a short part of the other edge instead results folded at right angles to the same let alone to the opposite part of the previous external lip 32 so to form a second internal lip 33.

From the surface of the wall 21 of the said first section 2 that in the execution of the framework of a relevant paneling (P1-P2) results directed outwards to the same, it departs a tongue 22 slanting towards the internal part of the resulting façade so as to result substantially at right angles to the angle A that, as below expounded, corresponds to the penetration angle of a suitable tool 5 when is inserted in the space resulting between two contiguous panelings (P1-P2) such tongue 22 resulting moreover extends towards the exterior with a width equal to the width of the said internal lip 33 however in a way that the free end of this may result fairly detached from the free end of another lip 33 of an adjacent paneling.

Obviously the slab 1 will result suitably supported in its internal part by suitable parts of the section 2 variously placed and shaped in known way, and that consequently are not illustrated.

On the said second lip 33 of the section 3 will be made some holes suitably detached between themselves that will result able to permit the passage of corresponding screws 4 and correspondingly to every one of them, relevant holes will be made on the tongue 22 of the section 2 into which the said screws 4 may engage themselves.

From what explained, it is obvious the fixing way of the slabs 1 on the frameworks made by the section 2 obtained by means of the section 3.

The cells then will be executed assembling, at first their frameworks. The assembling of these frameworks will be obtained using suitable parts of section 2 that will be placed in such a way to surround the quares of relevant slabs 1 which will go in support on the relevant supporting parts that protrude from the wall 21 of said section 2 directed inwards of the resulting paneling while the said tongues 22 will protrude outwards of the perimeter of the same. Moreover the said supporting parts of the slabs 1 and the said tongues 22 that are obtained on said wall 21 will result placed in proximity to the edges of such walls 21 that will result directed outwards of the façade on which said cells will be put on.

Then the slabs 1 will be inserted into the relevant application quares going in support on gaskets placed in the relative supporting parts. On every side of each quare, a relevant part of section 3 will then be applied which will be placed in such a way that its internal lip 33 goes in support on the corresponding tongue 22 of the section 2 and that the relevant external lip 32 goes in support, after interposition of a suitable gasket G3, on the corresponding chamfered edge B of the slab 1. In the end, in the holes made on the internal lips 33, relevant screws 4 will be inserted that moreover will engage themselves in the corresponding holes made on the tongues 22 so that screwing them, the internal lips 33 will result fixed on the tongues 22 and then the relevant parts of section 3 will result fixed on the corresponding part of section 2 so that the relevant slab 1 will result fixed along his perimeter by the said external lip 32.

At this point if it was necessary to replace a slab 1 of a continuous façade so realized, it will be possible to effect the removal of the slab 1 and successively to effect the application of a new slab 1, working directly on the façade in the way here below described.

To make such replacement it will be sufficient, to penetrate through the space that normally results between the adjacent edges of two contiguous panelings (P1-P2), with the shank 5 of a common screwdriver that will be inserted suitably laterally slanting of an angle A whith respect to the perpendicular lines to the plane of the surface of the façade going in impact at right angles on the heads of the screws 4 of a paneling (P1 or P2) and to unscrew these last releasing so the relative parts of section 3 which then can be take away permitting consequently to take away also the slab 1, then to apply in the place of this, a new slab 1, to apply again along his perimeter the parts of section 3 fixing them, in the end, on the section 2 applying again and retinghtening the screwes 4. The entire operation will result feasible in a very simple, safe and swift way and will not require the use of special tools and neither the intervention of skilled personnel.

After have described the basic principle of the system that is object of the present invention we pass to describe here below an its possible ameliorating varia-

tion doing reference to the fig. 2 in which, for greater clarity on its right it is illustrated the application of a moving type paneling P3 provided of a glass-chamber VC comprising an external slab 11 and an internal slab 12 while on its left it is illustrated the application of a fixed type paneling P4 that may comprise a single external slab 13 or a glass-chamber comprising in such case also an internal slab 14. The paneling P3 will be executed on a frame made by a section 2A that will result applied in a relative square of a framework constituted by a suitable section 2C and the paneling P4 will be executed on an unique section 2B, the section 2C and 2B resulting to constitute the corresponding structures of application.

Referring then to such fig. 2 it is possible to note as according to such further solution, the terminal external part 21A of the section 2A or 2B that extends outward from the point from which departs the tongue 22, results slanting in a parallel way to the angle A and always in correspondence of the point of connection of said tongue 22 in the body of the relevant section 2A or 2B it is obtained an hollow 26 able to receive, as following described, the part 312 of the longitudinal flat strip 31 of the section 3.

The longitudinal flat strip 31 of the section 3 extends then in its internal end with a part 312 and on the opposite side to the one from which extends the said tongue 22 and in proximity to its external end is provided of a coupling element 311 substantially "L" shaped the free end of which is directed inwards of the façade so that this free end may be then inserted in the resulting hollow 25 of the said terminal eternal part 21A.

As it is clearly possible to note always from fig. 2, in proximity of the free end of the part 21A both of the section 2A and of the section 2B, a flat slip 23 departs inwards to the relative paneling P3-P4 as well as in a parallel way to the plane of the relevant glass sheets (11-12-13-14) in whose end a suitable gasket G1 is applied and in correspondence of the opposite end, always of the part 21A that is the one from which the tongue 22 departs outwards, this part 21A joins itself to a relevant wall 24 that forms a part of the section 2A or of the section 2B in which end an ulterior gasket G2 is applied.

The making of the paneling P3 or P4 will happen inserting at first the glass-chamber 11-12 or 13-14 or the only slab 13 into the relevant squares made by the sections 2A or 2B.

The eternal slab 11 and 13 will go so in support on the relative gaskets G1 and the internal slab 12 and eventually also the internal slab 14 will go in support on the relative gaskets G2.

At this point it is possible to effect the fixing of said slabs 11-12-13-14 applying, as previously described in the basic solution illustrated in fig. 1, the fixing section 3.

In the variation illustrated in fig. 2, the application of such section 3, will result facilitated with respect to the basic solution illustrated in fig. 1 infact it will be possible to lean at first the part of the new section 3 on the external surfaces of the relevant parts 21A of the corresponding sections 2A or 2B that will result so exactly positioned, then it will be possible to slide them inwards the relevant structures so that their parts 312 will be inserted in the corresponding hollows 26 and their coupling elements 311 will engage themselves on corresponding free end of the said external terminal parts 21A.

The fixing of the section 3 on the relative section 2A or 2B, as well as also the fixing by mechanical seal of the slabs 11-12-13-14 on the relative structures of application, will be obtained, as previously described, inserting the screws 4 in the holes made on the lips 33 and them screwing them in the corresponding holes made on the tongues 22.

The possible variation described, clearly results more advantageus infact by it the assembling operation of the sections 3 on the relative sections 2A or 2B may happen more easily and swiftly moreover the engagement of the part 312 of said section 3 in the relative hollow 26 of the section 2A or 2B and of the free end of the external terminal part 21A of the section 2A or 2B in the hollow of the coupling element 311 obtained on the section 3, generates a real coupling of the section 3 on the relative section 2A or 2B that improves notably the reciprocal fixing.

Obviously the disassembly and the reassembly of the section 3 in a façade already made and then the replacement of the slabs 11-12-13-14 will happen pratically in the same way previously described.

It is pointed out that it will be possible to substitute the screws 4 with rivets or other equivalent means moreover it will be possible to interpose between the sections 2 and 3 an element suitably shaped that made in a material having a high thermal resistivity permits to obtain a corresponding advantageous thermic cut.

It is well understood that it will be possible to bring several further variations to the system that is object of the present invention without however to go out of the context of what described and hereinafter claimed with reference to the enclosed drawings and thence from the protection field of the present industrial invention.

Claims

1. System for the fixing by mechanical seal of glass slabs or the like, particularly usable in the making of paneling of continuous façades, the panelings that can be obtained by such system being basically constituted in a per se known manner by framework swhich can be applied on the building structure of edfifices to make relative façades, said frameworks being made by parts of suitable metallic sections reciprocally interconnected so to made suitable squares in which relative fairly thin slabs of glas or of other suitable materials can be fixed, the system which is object of the present invention being basically characterized in that from the surface of the external part of a wall (21) of a first section (2) that in the execution of the framework makes the frame of a paneling (P1-P2), it extends outwards the same paneling (P1-P2), as well as suitably slanting

inwardly the resulting façade, a tongue (22), on which it is fixed by suitable fixing elements as screews (4) or rivets or equivalents, the internal lip (33) of a second section (3) basically constituted by a longitudinal flat strip (31) from a lateral edge of which the said internal lip (33) departs at right angles, the other lateral edge resulting instead suitably folded towards the opposite part so to make an ulterior external lip (32) able to engage itself, after interposition of a suitable gasket (G3), on the corresponding chamfered edge (B) of a relative slab (1) that being internally supported by suitable supporting parts (23-G1, 24-G2) results so fixed in said first section (2) said internal lip (33) having a sufficient width able to permit to apply said screws (4) and such as to permit that the free ends of the internal lips (33) fixed on respective tongues (22) of two contiguous paneling (P1-P2) result suitably spaced between them, the comprehensive structure obtained by the fixing of the said section (3) on the tongue (22) resulting to permit the insertion, through the space normally resulting between the perimetric adjacent edges of two contiguous panelings (P1-P2), of the shank (5) of a screwdriver that moreover will be disposed lanting of a suitable angle (A) with respect to the perpendicular line to the plane of the slabs (1), so that its end may engage itself at right angles on the head of the screws (4) this permitting to work directly on the ended façade to execute on it the substitution of one or more slab (1).

2. System according to the claim 1 characterized in that the part of the wall (21) of the said section (2) that extends outwards from the point from which departs the relative tongue (22) is preferably slanting outwardly producing a corresponding terminal exterior part (21A) of a relative section (2A-2B) against whose external surface the internal surface of its longitudinal flat strip (31) of the said second section (3) will go in support.

3. System according to the claims 1 and 2 characterized in that the longitudinal flat strip (31) of said section (3) from the point from which the internal lip (33) departs, it extends with a part (312) able to engage itself in a corresponding hollow (26) obtained in the body of a corresponding section (2A-2B) moreover from its surface resulting directed inwards the relevant paneling (P3-P4) as well as, in proximity of said external lip (32), it departs a coupling element (311) "L" shaped having its free end directed inwards of the façade, in the resulting hollow of which the free end of said terminal exterior part (21A) of the section (2A-2B) may engage itself.

4. System according to the previous claims, characterized in that between the said first section (2) and the said second section (3) may be inserted a suitably shaped element realized in a material having a hight thermal resistivity so to obtain between them an advantageous thermic cut.

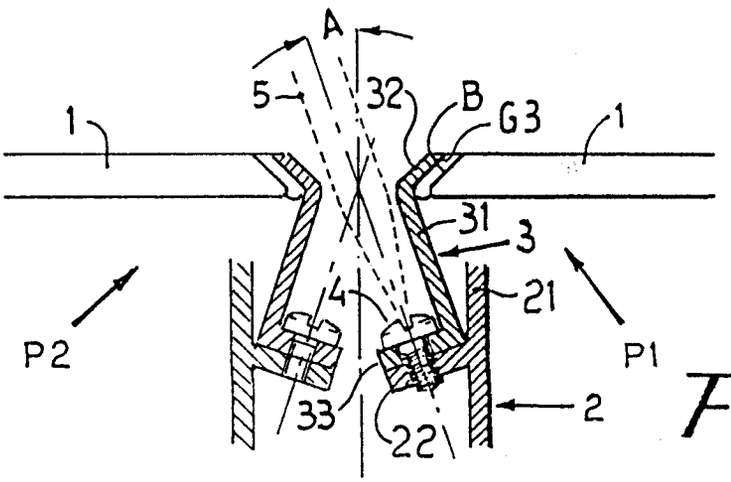
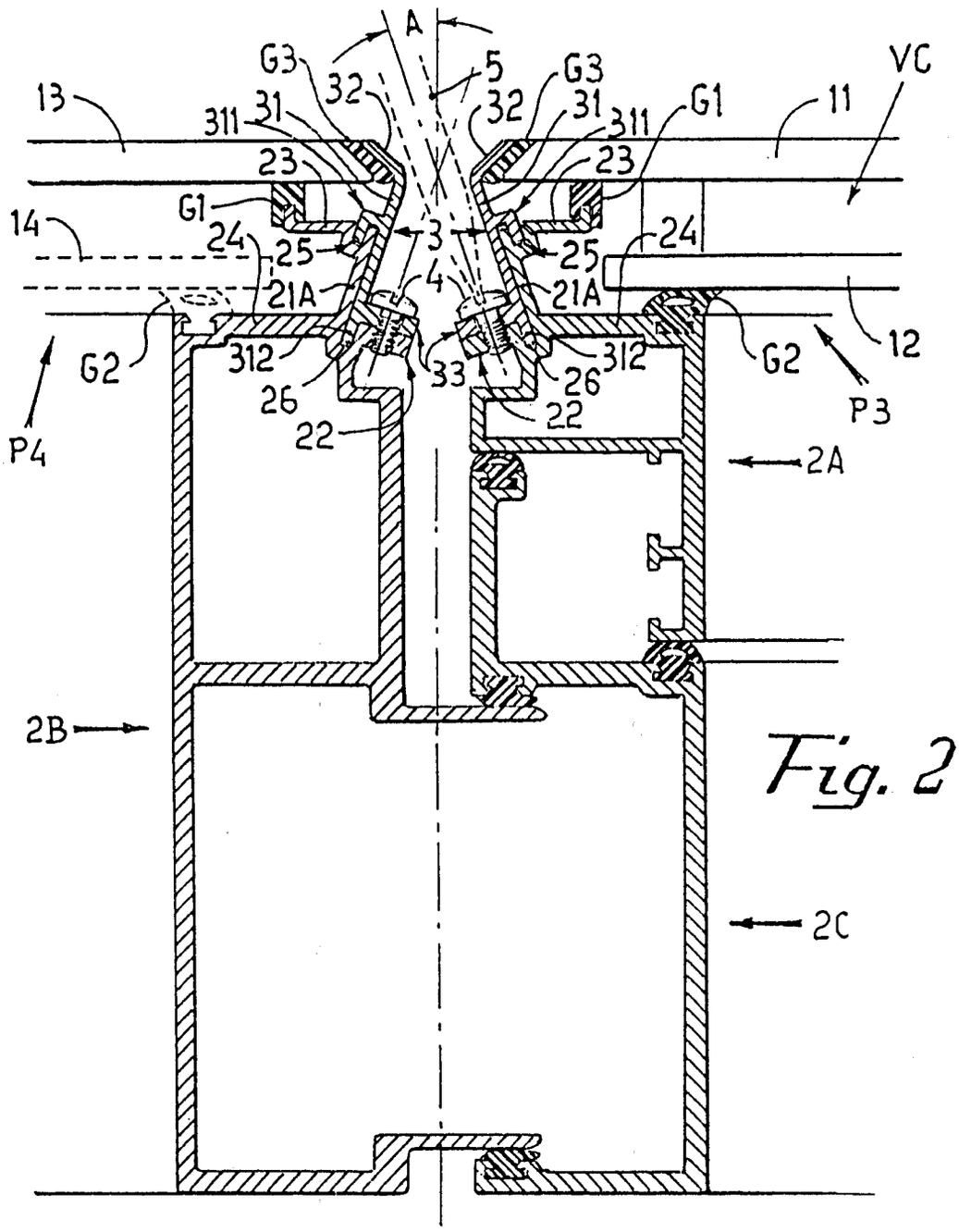

A
5
32
B
G3
1
1
31
3
21
4
P2
P1
33
22
2

Fig. 1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32
G1
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31
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311
23
23
G1
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3
25
24
21A
4
21A
G2
312
33
312
G2
12
26
26
P3
P4
22
22
2A
2B
2C

Fig. 2