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D E C I S I O N
of 21 January 2002

Case Number: T 0089/99 - 3.3.5

Application Number: 91117860.6

Publication Number: 0482535

IPC: C03C 3/087

Language of the proceedings: EN

Title of invention:

Dark gray, infrared absorbing glass composition and product

Patentee:

PPG Industries Ohio, Inc.

Opponent:

SAINT-GOBAIN VITRAGE

Headword:

Gray glass/PPG

Relevant legal provisions:

EPC Art. 123(2), 56

Keyword:

"Main request amendments not allowable - first auxiliary request inventive step (yes)"

Decisions cited:

-

Catchword:

-



Case Number: T 0089/99 - 3.3.5

D E C I S I O N
of the Technical Board of Appeal 3.3.5
of 21 January 2002

Appellant:
(Proprietor of the patent)

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Respondent:
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Decision under appeal:

Decision of the Opposition Division of the
European Patent Office posted 5 November 1998
revoking European patent No. 0 482 535 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: R. K. Spangenberg
Members: M. M. Eberhard
M. B. Günzel

Summary of Facts and Submissions

I. European patent No. 482 535 based on application No. 91 117 860.6 was granted with 23 claims. The respondent (opponent) filed a notice of opposition requesting revocation of the patent on the grounds of lack of novelty and inventive step and extension beyond the content of the application as filed. The respondent relied inter alia upon the following documents:

D1: US-A-4 873 206

D2: US-A-3 296 004

D3: The Handbook of Glass Manufacture, Faye Tooley, vol. II, 1984, pages 976-992

D4: US-A-4 104 076

D5: US-A-4 792 536

II. The opposition division decided to revoke the patent. It held that the subject-matter of claim 1 of both requests did not involve an inventive step. Starting from D1 as the closest prior art, the problem to be solved was to achieve a glass exhibiting a neutral grey colour and simultaneously a lower luminous-, infrared (IR)- and total solar transmittance. The skilled person knew from D3 and D4 that it was essential to increase the FeO content in order to lower the IR-transmittance. This suggested that at a fixed redox ratio, the total iron oxide content had to be increased. The interrelation of the colorants and their influence on the desired properties were known from D1, D3 and D4. It would have been obvious to slightly increase the total iron content to above 1% while using medium reduction conditions of about 30% as suggested in D1,

in combination with the preferred CoO amounts of D1, to achieve the desired transmittance values. The amount of Se necessary to obtain a grey colour would have been easily determined by the skilled person on the basis of the teaching of the cited documents.

III. The appellant (proprietor of the patent) lodged an appeal against this decision. He submitted amended claims with the grounds of appeal and in reply to a communication from the board. Second and third auxiliary requests were filed on 18 January 2002. Oral proceedings took place on 21 January 2002. At the oral proceedings the appellant submitted amended claims as the main request and the first auxiliary request, each of these requests comprising two sets of 17 claims for different Contracting States. Claim 1 of the main request for the Contracting States CH, LI, DE, FR, GB, IT, SE reads as follows:

"1. A neutral gray colored glass composition having a base glass portion comprising:

SiO ₂	66-75 percent by weight	
Na ₂ O	10-20	"
CaO	5-15	"
MgO	0-5	"
Al ₂ O ₃	0-5	"
K ₂ O	0-5	"

and a colorant portion consisting essentially of:

Fe ₂ O ₃ (total iron)	greater than 1.00 and up to 1.3% by weight
FeO	at least 0.35% by weight
Se	0.002 up to 0.005 % by weight
CoO	0.01-0.02% by weight

the glass having a redox ratio of 0.3 to 0.5 obtained by controlling the process conditions during the glassmaking process either during melting so that the conditions are relatively reducing or during homogenization by stirring whereby the glass in the

stirring chamber integrated with a float forming chamber rests on a layer of molten metal being continuous with the molten metal constituting the support in the forming chamber and the glass having a luminous transmittance of no more than 32 percent, and a total solar infrared transmittance of less than 13 percent at a thickness of 3.9 millimeters."

Claim 1 for Spain differs from this claim only by the words "A process for preparing" at the beginning of the claim.

Claim 1 of the first auxiliary request for CH, LI, DE, FR, GB, IT, SE and claim 1 for ES differ from those of the main request only by the omission of the alternative involving the control of the process conditions during homogenization by stirring. Accordingly the word "either" and the phrase "or during homogenization by stirring whereby the glass in the stirring chamber integrated with a float forming chamber rests on a layer of molten metal being continuous with the molten metal constituting the support in the forming chamber" have been deleted in these claims. Independent claim 5 of the first auxiliary request for all Contracting States is directed to "an article of manufacture comprising a neutral gray colored glass sheet" which is defined by the same features as the glass composition of claim 1 except for the upper limit of the Se content which is "less than 0.005% by weight" instead of 0.005 wt%.

- IV. The appellant requested that the decision under appeal be set aside and that the patent be maintained with the claims and the description according to the main request filed at the oral proceedings, alternatively (first auxiliary request) with the claims and the description of the first auxiliary request also submitted at the oral proceedings, or (second auxiliary

request) on the basis of the claims of the third auxiliary request filed on 18 January 2002. The respondent requested that the appeal be dismissed.

- V. The appellant presented inter alia the following arguments:

The amendments in claim 1 of the main request met the requirement of Article 123(2) EPC. The adjustment of the redox ratio to values of 0.3-0.5 during homogenization by stirring was supported by the application as filed, in particular by the passage on page 6, first paragraph, when read in combination with the disclosure on page 12, lines 8 to 15. Concerning inventive step, the problem to be solved was not only to achieve a glass exhibiting the desired dark neutral gray colour and a lower IR-transmittance but also being compatible with commercial float glass manufacturing techniques. A very low total solar infrared transmittance was necessary for automotive privacy glazing. It was not derivable from D1 to further increase the amount of total iron to the range specified in claim 1 and to use reducing conditions leading to a glass with a redox ratio of 0.3 to 0.5 in order to solve this problem. Melting of glass batch material with large amounts of iron components was difficult and thus contrary to the performance of the commercial glass making process. D1 taught that by using high reducing conditions of 30 to 50% Se might be lost. The skilled person would have expected a low Se content to destroy the balance of the colouring effects of the components. D3 did not assist the skilled person in modifying the composition of D1 in a direction contrary to the teaching of D1 as regards the Se content and the redox ratio. D3 concerned the production of a green glass and recommended to avoid reducing conditions in the presence of Se which gave a brown colour with small amounts of iron. D2 concerned a

neutral brown glass and D5 a completely different glass. D4 included chromium oxide and/or uranium oxide as further colorants. Its teaching could not be transferred to D1 in view of the different colorant constituents. The combination of D2, D4 and D5 with the teaching of D1 was based on an hindsight approach. The present case was not a "one-way street situation" since the grey colour could be achieved by adding further colorants such as in D4, and D5 disclosed examples having an IR-transmittance lying within the claimed range although the total iron content was lower than 1wt%.

VI. The respondent's arguments can be summarised as follows:

Claim 1 of the main request contravened the requirements of Article 123(2) EPC. The original application disclosed on pages 6 and 12 that it was mandatory to control the redox conditions during melting. The alternative involving homogenization by stirring was not associated with a redox ratio of 0.3-0.5. Starting from D1, the problem to be solved was to provide a neutral grey glass with a lower IR-transmittance which was suitable as privacy glazing for vehicles. D3, D4 and D5 taught that the FeO content of the glass had to be increased in order to decrease the IR-transmittance. This increase could be attained either by taking a redox value as disclosed in D1 and increasing the amount of total iron above the limit stated therein or by increasing the redox ratio to values greater than 0.5. The skilled person would have chosen the first alternative since D1 recommended not to use too high reducing conditions. He would not have chosen a redox ratio at the lower end of the range disclosed in D1 in view of Example 13 thereof which was said to be difficult to produce on a commercial scale. It was therefore obvious to choose a redox ratio of 0.3

to 0.5 all the more so because D5 encouraged the skilled person to use high redox ratios within this range (see the examples). After having chosen this range of redox ratios, the sole possibility left to the skilled person faced with the problem of decreasing the IR-transmittance was to increase the total iron content above the 1% limit stated in D1 but not too much to avoid difficulties during the melting step. The teaching of D5, D1, and D2 gave him an incentive to increase the total iron in order to decrease the IR-transmittance. As the skilled person normally proceeded step by step and the first step was the achievement of a low IR-transmittance (increase of the FeO content was the essential feature), he would first of all have tried to increase the FeO content by using a higher total iron content in combination with redox conditions in the range 0.3 to 0.5. The teaching of D1 was not very clear as regards the amounts of CoO and Se. The skilled person would have tried the amounts of CoO and Se disclosed in D1 for obtaining the desired neutral grey colour. He would have adapted the Se content by trial and error experimentation so as to obtain a neutral grey glass. From Examples 12 and 13 of D1 it could be derived that the Se content should be decreased when increasing the FeO content.

Reasons for the Decision

1. The appeal is admissible.

Main request

2. Concerning claim 1 of the main request for the Contracting States CH, LI, DE, FR, GB, IT, SE, and claim 1 for Spain the question arises whether or not the second alternative of claim 1, ie the obtention of a redox

ratio of 0.3 to 0.5 by controlling the process conditions during homogenization by stirring, meets the requirements of Article 123(2) EPC. It is stated on page 6, lines 1 to 14, of the application as filed that attaining the ferrous iron levels of the invention requires controlling the redox conditions during melting so that conditions are relatively reducing. In this context it is further disclosed that the redox ratio may be maintained at about 0.3 to about 0.4. A redox ratio of 0.5 or higher can be attained but the use of higher redox ratios is preferably avoided to prevent excessive volatilization of Se during melting. The obtention of a redox ratio of 0.3 to 0.5 by controlling the process conditions during melting is thus directly derivable from page 6; however no reference is made in this passage to the second alternative of claim 1. Homogenization by stirring is described on page 11, line 25 to page 12, line 15, of the original application. According to page 12, lines 8 to 15, "the contact with molten metal in the stirring chamber tends to have a reducing effect on the glass, which is advantageous for attaining the redox conditions of the present invention. The reducing effect of stirring the glass while in contact with molten metal can be sufficient to eliminate the need to provide any particular redox conditions in the combustion sources in upstream stages of the process". With regard to "the redox conditions of the present invention" referred to in the first sentence, the board observes that the redox ratios disclosed in the application as filed are not restricted to the values of 0.3 to 0.4 or 0.5 disclosed on page 6, but also include redox ratios lower than 0.3 as shown by the examples on page 13 of the original application and also confirmed by the appellant at the oral proceedings: see original claims 1 and 7 and the Table on page 13, in particular Example 2 involving a redox ratio of 0.194. Therefore, both low and high redox

ratios are covered by the application as filed. The disclosure that the reducing effect in the stirring chamber **can be sufficient** to eliminate the need of redox conditions in the combustion sources in the upstream stages of the process does not imply that both low redox ratios as well as high redox ratios can be attained when relying only on this reducing effect in the stirring chamber. In other words, it is not directly and unambiguously derivable from the passage on page 12, lines 8 to 15, when read in the context of the original disclosure and in combination with the statement on page 6, lines 1 to 10, that the reducing effect of stirring the glass while in contact with the molten metal would alone be sufficient to obtain the higher redox ratios now claimed, in particular 0.4 or 0.5. Therefore, the features of the said second alternative of claim 1 do not meet the requirements of Article 123(2)EPC.

It follows therefrom that the main request cannot be granted.

First auxiliary request

3. The amendments in the claims of the first auxiliary request for Spain and the other designated Contracting States and in the description meet the requirements of Article 123(2) and (3) EPC. This was not disputed by the respondent at the oral proceedings. In particular the content of at least 0.35 wt% for FeO and the total solar infrared transmittance of less than 13% (thickness 3.9 mm) stated in independent claims 1 and 5 are disclosed in original claims 4 and 5 respectively (granted claims 3 and 4). Furthermore, it is directly and unambiguously derivable from page 6, lines 1 to 14, of the application as filed that the glass has a redox ratio of 0.3 to 0.5 obtained by controlling the process

conditions during melting so that the conditions are relatively reducing. The scope of protection of amended claims 1 and 5 is clearly restricted with respect to that of granted claims 1 and 8.

4. The composition and the article of claims 1 and 5 for CH, LI, DE, FR, GB, IT, SE, as well as the process and the article of claims 1 and 5 for Spain are new over the disclosure of the cited prior art. As this was no longer in dispute at the appeal stage, detailed reasons for this finding are not necessary.

5. The board considers in agreement with the parties and the opposition division that D1 represents the closest prior art. D1 discloses a neutral gray coloured glass composition and an article comprising a neutral gray coloured glass sheet. Both the glass composition and the glass sheet have a standard soda-lime-silica flat glass base composition falling within the claimed ranges. They further contain a colorant portion consisting essentially of (in wt% of total glass):

Fe ₂ O ₃ (total iron)	0.55-1.0	preferably	0.6-0.8
FeO	0.09-0.3	"	0.10-0.2
Se	0.003-0.02	"	0.005-0.01
CoO	0.005-0.2	"	0.01-0.02.

15% to 50% of the total iron may be in the ferrous state, preferably no more than about 30%. The neutral gray glass of D1 exhibits a luminous transmittance (C.I.E. illuminant C) of 5% to 20% and a total solar energy transmittance of less than 40% at a thickness of 5.56 mm. The preferred embodiments have a total solar IR-transmittance of less than 40%. The glass composition of D1 can be manufactured using commercial manufacturing processes, in particular the float

process (see claims 1 to 6, 9 and 10; column 2, lines 41 to 68; column 4, lines 17 to 19; column 5, lines 62 to 65).

According to the respondent the values of the IR-transmittance reported in the examples of D1 at a thickness of 5.56 mm (see Table, columns 5 and 6, Examples 1 to 13) correspond to IR-transmittance values varying from 35% (Example 7) to 51% (Example 6) at a thickness of 3.9 mm (see declaration with the fax of 21 December 2001). It further derives from this declaration that the values of luminous transmittance reported in Table 1 of D1 correspond to values from 22 to 30% at a thickness of 3.9 mm. This was not contested by the appellant.

5.1 Starting from D1 as the closest prior art, the technical problem underlying the patent in suit can be seen in the provision of a glass suitable in particular for use as privacy glazing, which has a lower IR-transmittance and a low luminous transmittance while still exhibiting the neutral gray colour and being compatible with commercial flat glass manufacturing techniques.

It is proposed to solve this problem by the glass composition as defined in claim 1. This glass differs from the glass compositions of D1 in particular by the higher FeO and total iron contents. The redox ratio of the claimed glass is selected in the upper part of the range disclosed in D1, while the claimed Se content overlaps with the lower portion of the much broader range stated in D1. The claimed glass exhibits a total solar IR-transmittance of less than 13% at 3.9 mm, ie a much lower IR-transmittance than the glasses of D1 (lowest value 35% at 3.9 mm according to the respondent). In view of the disclosure in the patent in suit and of Examples 6 and 8, it is credible in the

absence of evidence to the contrary that the technical problem stated above has actually been solved by the glass as defined in claim 1. This was not disputed by the respondent.

- 5.2 D1 itself does not suggest increasing the total iron content and the FeO content beyond the upper limits disclosed therein while selecting redox ratios in the range of 0.3 to 0.5 and a relatively low Se concentration in order to solve the technical problem stated above.

As argued by the respondent, it can be inferred from D3 that the IR-transmittance of a green glass containing 1.3% Fe₂O₃ can be decreased by melting the glass under more reducing conditions and thus by increasing the FeO content thereof (see Figure 10 and page 978, right-hand column). However D3 neither discloses the redox ratio nor the FeO content of the reduced glass nor the presence of other colorants in this glass. D4, which concerns the manufacture of grey and bronze glasses, also teaches that Fe^{II} absorbs in the infrared region of the spectrum (see column 3, lines 38 to 39) and thus confirms the teaching of D3 in this respect. Redox ratios or FeO contents are not reported in D4. As pointed out by the respondent, D2 and D5 further disclose that increasing the total iron content of the glasses described therein results in a lowering of the IR-transmittance (see D2, column 6, lines 51 to 55; D5, column 15, lines 47 to 50, and Example 13). The skilled person would therefore have derived from these documents that the IR-transmittance of the glasses of D1 might be decreased either by increasing the FeO content above the upper limit of 0.3wt%, or by increasing the total iron content above the upper limit of 1 wt%, or by increasing both the total iron content and the FeO content above the said limits. It was also immediately apparent to the skilled person that an

increase of the FeO content above the upper limit of 0.3 wt% could be achieved in different ways, for example by employing a total iron content within the range indicated in D1, for Example 0.8 to 1 wt% and choosing a redox ratio in the range > 0.3 to 0.5% (ie the upper part of the range disclosed in D1). Such a possibility is suggested in Example 13 of D5 which discloses a glass having a very low IR-transmittance of 3.4 at a thickness of 5 mm and containing 0.952 wt% Fe₂O₃, 0.386 wt% FeO and 0.25 CeO₂, the redox ratio being 0.405. Therefore, the respondent's argument that the sole possibility left to the skilled person after having chosen a redox ratio of 0.3-0.5 was to increase the total iron content to above 1 wt% cannot be accepted. The board observes that it would also have been possible to increase the FeO content to values above the upper limit given in D1 by selecting a greater total iron content (for Example 1.3 wt%) and a redox ratio within the range recommended in D1 (for Example 0.25). The addition of a constituent which absorbs in the infrared region would also have been a possible alternative for decreasing the IR-transmittance. It follows from the preceding considerations that several possibilities existed for obtaining the desired decrease in the IR-transmittance of the glass of D1.

- 5.3 The respondent's argument that the skilled person would have chosen a redox ratio of 0.3 to 0.5, especially in view of the examples of D5 is not convincing for the following reasons. D5 aims at obtaining low IR-transmittance and indeed discloses redox ratios of from about 0.3 to 0.55 in Examples 5 to 19 of Table III. However the glass of D5 does not contain selenium so that loss of Se by volatilization cannot occur. D1 teaches that high reducing conditions during melting (>30% to 50% of the total iron in the ferrous state) enhance the Se loss by volatilization and accordingly

it recommends to employ moderate reducing conditions (ie a redox ratio no more than 0.3) in order to conserve Se (see column 4, lines 8 to 28). It can further be inferred from D1 (column 3, lines 25 to 42) that Se plays an important role in a glass with low transmittance in the absence of nickel. According to this passage the absorption pattern of "high" Se concentration (ie the Se content indicated in column 2, lines 55 to 59) produces a neutral gray colour that is virtually indiscernible by the human eye from nickel-containing gray glass. This effect is theoretically enhanced by the presence of substantial amounts of FeO which is believed to produce formation of ferrous selenite colouration sites in the glass. The board has doubts that the skilled person faced with the problem stated above, which includes the requirement of achieving a neutral gray colour, would have chosen redox conditions of 30% to 50% in view of the warning in D1 about the loss of Se by volatilization in the range >30-50% and of the role of Se in achieving the neutral gray colour.

- 5.4 The respondent further argued that the skilled person would first of all have tried to increase the FeO content in the glass of D1 by using a higher total iron content with a redox ratio of 0.3-0.5 and would have chosen the CoO and Se contents disclosed in D1 or would have adapted the Se content by trial and error experimentation. The board is not convinced by these arguments since the skilled person would normally have tried to increase the FeO content only if he had expected this modification to solve the existing technical problem, ie only if he had a reasonable expectation of success. However, the problem the skilled person was faced with in the present case was not only to decrease the total solar IR-transmittance of the glasses of D1 but also to produce a glass still

exhibiting a neutral gray colour. The skilled person was aware that these two requirements are closely interrelated since the influence of iron on the glass colour was well-known. Under these circumstances he would have contemplated trying to use a higher iron content in combination with redox conditions of 30-50% only if he had simultaneously expected these measures to fulfill the second requirement, ie the obtention of a neutral gray colour. D1 teaches that the Se concentration should vary proportionally to the total of CoO and FeO concentration in order to maintain a neutral colour (see column 4, lines 28 to 30) and recommends not to use reducing conditions above 30% because of the loss of Se by volatilization. In view of the teaching of D1 about the important function of Se in achieving a neutral gray colour and the said recommendation (see also point 5.3 above), the skilled person would not have expected that a neutral gray colour might still be obtained with a higher iron content and a redox ratio of 0.3-0.5. He would rather have feared that a low Se concentration resulting from Se volatilization might hinder the obtention of the proper balance of the colouring effects. According to the respondent it could be inferred from Examples 12 and 13 of D1 that the Se content should be decreased when increasing the FeO content. In the board's judgment, a proper comparison of these two examples involves comparing not only the FeO and Se contents but also the resulting optical properties, in particular the dominant wavelength and the excitation purity. The values reported for Examples 12 and 13 show that in Example 12 (with the lower Se content) the dominant wavelength has been shifted towards the green and the excitation purity is higher. It is not clear to the board how it could be derived therefrom that with a much higher FeO content and total iron content than in these examples a neutral gray colour might still be

obtained even with a lower Se content. The board observes in this context that the claimed Se content (0.002-0.005%) is lower than in both the Examples 12 and 13.

5.5 D2 to D5 contain further information about the influence of the colorant constituents on the glass colour. D2, which relates to a neutral brown (bronze) coloured glass containing Fe_2O_3 , CoO and Se as the colorant constituents, discloses that if too much Fe_2O_3 is employed to make a glass of a given thickness, the colour is more green than desired and the luminous transmittance will be reduced. If too little Fe_2O_3 is used, the heat absorption properties of the glass are diminished (see column 6, lines 37 to 55). The upper limit of the Fe_2O_3 content is 1wt% (see claim 1).

D3 discloses the effect of a number of constituents on the glass colour. It teaches that melting a green glass containing 1.3% Fe_2O_3 under more reducing conditions shifts the colour towards blue and darkens the glass (see page 978, right-hand column). It further discloses that the greenish tint imparted to glass by iron as an impurity can be minimized by compensation with Se, Mn, Ni, Co, Nd and combinations (see page 978, right-hand column, 2nd and 4th paragraphs). Cobalt gives a blue tint even in small amounts in conventional glasses. Very small amounts are used in the decolorization of glasses to compensate for yellow tints. Cobalt glasses have some absorption in the infrared region (see page 980, left-hand column). Elemental Se, in equilibrium with selenides as well as selenite groups, is believed responsible for selenium pink glass. Reducing conditions favour the colourless alkali selenide or the equally undesirable brown iron selenide, for the formation of which small iron

impurities suffice (see page 983, left-hand column). D3 does not disclose any glass composition containing iron, cobalt and Se in combination.

D4 discloses grey glasses containing Fe_2O_3 , CoO , and at least one of Cr_2O_3 and UO_2 as the coloring agents, Se being optional. The total iron content is 0.2 to 1 wt%. D4 further disclose glasses containing Fe_2O_3 , CoO , Se and at least one of Cr_2O_3 and UO_2 as the coloring agents in which the Fe_2O_3 content is from 0.2 to 1.5wt%, ie higher than 1wt%. However these glasses are not grey but bronze (see column 4, lines 5 to 25). According to D4, Fe^{III} absorbs in the ultraviolet region and has only a negligible effect on colour, CoO introduces a blue-violet hue and strongly absorbs in the visible spectrum, Se forms a chromophore with ferrous oxide which produces an orangey hue and absorbs in the visible spectrum, chromium oxide introduces a green hue and absorbs in the midpart of the visible region, and uranium oxide produces a yellow-green hue (see column 3, lines 38 to 54). D5 discloses glasses containing no CoO and no Se and does not contain relevant information about the effect of colorant constituents on the glass colour except that providing reduction in a soda-lime-silica glass including iron and sulphur creates an amber coloration (see column 2, lines 15 to 19). The glass of D5 has a maximum content of total iron of 1 wt%.

The teaching of these documents shows that the adjustment of the desired transmittance values while maintaining a neutral gray colour is far from being straightforward. D2 to D5 contain no further information suggesting that an increase of the iron content (total iron and FeO) above the limits stated in D1 in combination with a redox ratio of 0.3-0.5 and a relatively low amount of Se would still make it

possible to obtain a neutral gray glass. The respondent's line of argument and conclusions concerning the lack of inventive step are, in the board's judgment, based on an ex-post facto analysis.

- 5.6 The remaining documents cited during the opposition proceedings were no longer relied upon at the appeal stage. The board has checked that they contain no information, which in combination with the teaching of D1 to D5 would point towards the claimed subject-matter.
6. It follows from the above that claim 1 of the first auxiliary request for CH, LI, DE, FR, GB, IT, SE meets the requirement of inventive step set out in Articles 52(1) and 56 EPC. As the preceding considerations concerning inventive step apply mutatis mutandis to independent claim 5 of the said request and to claims 1 and 5 of the first auxiliary request for Spain, the subject-matter of these claims is also considered to involve an inventive step.
7. Claims 1 and 5 being allowable, the same applies to dependent claims 2 to 4 and 6 to 17, whose patentability is supported by that of claims 1 and 5.

Order

For these reasons it is decided that:

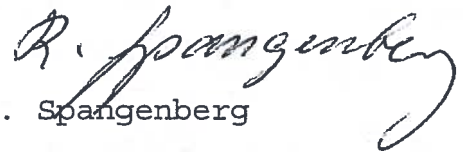
1. The decision under appeal is set aside.
2. The case is remitted to the opposition division with the order to maintain the patent with the claims and description of the first auxiliary request filed during the oral proceedings before the board.

The Registrar:



U. Bultmann

The Chairman:



R. Spangenberg

