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Datasheet for the decision of 6 September 2018

Case Number: T 1281/16 - 3.2.05

Application Number: 07716240.2

Publication Number: 2099581

IPC: F16L58/10, F16L55/164

Language of the proceedings: EN

Title of invention:
Methods and systems for coating and sealing inside piping systems

Patent Proprietor:
Pipe Restoration Technologies, LLC

Opponent:
Ecomadrifso, S.L./Green Plumber, S.L.

Relevant legal provisions:
EPC 1973 Art. 100(c), 111(1)
EPC Art. 123(2)

Keyword:
Added matter (no)
Remittal to the department of first instance (yes)

Decisions cited:
T 0240/95

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Beschwerdekammern

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Case Number: T 1281/16 - 3.2.05

D E C I S I O N
of Technical Board of Appeal 3.2.05
of 6 September 2018

Appellant: (Patent Proprietor)	Pipe Restoration Technologies, LLC 7477 W. Lake Mead Boulevard Suite 170 Las Vegas, NV 89128 (US)
Representative:	MacLachlan & Donaldson 2b Clonskeagh Square Clonskeagh Road Dublin 14 (IE)
Respondent: (Opponent)	Ecomadrifso, S.L./Green Plumber, S.L. Paseo de la Habana 9-11 / C/Artesiano, S/N, P-91 Polígono industrial (Margen Derecha)/ 28036 Madrid/ 24010 Trobajo del Camino, León (ES)
Representative:	Ignacio Temiño Ceniceros Abril Abogados Amador de los Rios 1-1° 28010 Madrid (ES)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 31 March 2016 revoking European patent No. 2099581 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman M. Poock
Members: O. Randl
D. Rogers

Summary of Facts and Submissions

I. The patent proprietor filed an appeal against the decision of the opposition division revoking European patent No. 2 099 581 (hereinafter "the patent").

The opposition division was of the opinion that the subject-matter of the main request and the two auxiliary requests before it contained subject-matter extending beyond the content of the application as filed.

II. The oral proceedings before the board took place on 6 September 2018.

III. The appellant (patent proprietor) requested that the decision under appeal be set aside and that the patent be maintained upon the basis of the claims of a main request, or alternatively upon the basis of one of auxiliary requests I to II, all filed under cover of a letter dated 25 July 2016.

The respondent (opponent) requested that the appeal be dismissed.

IV. Claim 1 of the main request read (the feature numbering used by the opposition division is given in brackets):

"1. [**1.1**] A method of applying a barrier coating leak sealant to pipes [**1.2**] to fix openings and cracks in the pipes, comprising the steps of:
[**1.3**] generating and supplying compressed air up to approximately 0.755 m^3/s (1600 CFM) [**1.3.1**] and up to approximately 1379 kPa (200 psi) [**1.3.3**] into one end [**1.3.4**] of the building piping system,

[**1.3.5**] for drying and [**1.3.6**] cleaning pipe interior walls of the building piping system;
[**1.4**] generating a vacuum drawing air up to approximately 0.519 m^3/s (1100 CFM),
[**1.4.1**] in a second end of the building piping system,
[**1.5**] wherein the generating of compressed air and the generating of the vacuum are operating simultaneously with each other while the interior walls of the building piping system are cleaned and dried in a single pass run;
[**1.6**] mixing an epoxy material to form a barrier coating leak sealant;
[**1.7**] applying the barrier coating leak sealant with the generated compressed air to the interior walls of the pipes without having to section off the piping sections in the piping system, wherein the generating of the compressed air and the generating of the vacuum are operating simultaneously with each other while the liquid barrier coating is applied to all of the cleaned interior walls of all of the pipes in the building piping system in another single pass run;
[**1.7.1**] protecting the interior walls of the pipes and sealing leak openings up to approximately 3.175 mm (125 mils) in diameter; and
[**1.8**] restoring the pipes of the existing piping system to service in less than approximately ninety six hours, characterised in that
[**1.9**] the epoxy material has a viscosity range of approximately 1.2 to approximately 60 Pa/s (1,200 to 60,000 cps) measured at room temperature; and
[**1.10**] the step of applying the barrier coating leak sealant includes the step of:
providing and maintaining positive air pressure throughout the piping system at a pressure level of at least approximately 10.34 kPa (1.5 psi) over the

internal surface of the piping system to achieve the initial set of the barrier coating leak sealant."

V. The appellant argued as follows:

(a) Claim interpretation

The feature "up to approximately 0.755 m^3/s (1600 CFM)" is to be understood such that compressed air is generated at any value between 0 and about 1600 CFM. It can be seen from Figure 3 that the air generated by the air generator 100 reaches the manifold with pressure regulator 200. This allows the operator to adjust the pressure to what is appropriate in the particular situation. The respondent's assertion that the full force of the air is always used is wrong. In this context, the appellant referred to Figure 2B and the reference therein to "varying quantities of air and varying air pressures".

When asked whether this excluded the use of several discrete values of air flow and pressure, the appellant explained that "varying" did not mean discrete values because the intention was to have a positive pressure throughout the pipe.

(b) Added matter

Features 1.3, 1.3.1, 1.3.3 and 1.3.4 are disclosed in combination in Figure 3 and the corresponding description of the patent (pages 19-21). The subject-matter of claim 1 does not extend beyond the content of the original application.

(i) Feature 1.3

The skilled person would understand the nomenclature used for compressors, i.e. that 395 CFM expresses the maximum flow volume the compressor can provide and is not to be understood as a single non-adjustable air flow value. Thus the skilled person is clearly taught by Figure 3 and its description that the compressors provide compressed air up to approximately 1600 CFM. It is clearly disclosed that the header can manage air capacities "ranging to approximately 1600 CFM and approximately 200 psi".

The appellant also referred to the disclosure at page 20, lines 12 to 14 ("... various quantities ..."), and page 21, lines 6 to 11 ("... ranging to approximately 1600 CFM ...").

The actual pressure is determined by the compressor and the dimensions of the tube. The header is provided for safety purposes, so that the pressure does not exceed certain values. The header does not generate any pressure; its purpose is merely to regulate the pressure. The skilled person would regulate the pressure so that it is adapted to the process step that is being performed. In the application the skilled person is directly and unambiguously taught that it is not possible to go beyond 200 psi with the compressor. The skilled person would not misunderstand that just because the compressor specification only mentions the CFM values.

Claim 1 includes the step of generating and supplying compressed air up to approximately 1600 CFM and up to approximately 200 psi for drying and cleaning. The epoxy application step is completely irrelevant for

those ranges. The skilled person would look for any teaching concerning the maximum value, and that is the disclosure of 200 psi.

(ii) Feature 1.3.1

The respondent's argument is unpersuasive because neither the air filter vacuum 600 nor the epoxy dispenser provides compressed air to the main header 200. Instead, as stated at page 21, lines 8 to 11, the main header 200 can easily and quickly manage air capacities ranging to approximately 1600 CFM and 200 psi and vary the operating airflows reaching each of the other units associated with the invention. Therefore, the skilled person would not look to airflow values associated with the air filter or epoxy dispenser when considering the range of flow volumes provided by the compressor. The skilled person would clearly derive from the application that it is the upper value that can be managed by the main header which is important in this regard. The board's provisional opinion that the value of 1600 CFM is of particular importance is thus well founded.

In respect of the pressure range, the respondent appears to have wilfully misread the passage at page 21, lines 3 to 4.

(iii) Features 1.3.3 and 1.3.4

The skilled person, who does not try to misinterpret the disclosed invention, would understand that, regardless of where the components of Figure 3 are located in a building, compressed air must be supplied at one end of the piping system in order to ensure the piping system is dried and cleaned.

(iv) Features 1.3.5 and 1.3.6

The skilled person needs to know what is the maximum amount of air that can be used for drying. It is completely irrelevant what amount is actually used for the cleaning step and the application of epoxy, as long as it falls within that maximum amount. The claimed range is suitable for the entire set. The respondent's argument is misleading.

VI. The respondent argued as follows:

(a) Added matter

The opposition division was right to revoke the patent: the combination of features 1.3, 1.3.1, 1.3.3 and 1.3.4 is not directly and unambiguously disclosed in the original application.

(i) Feature 1.3

The disclosure of various flow volumes (395, 850, 1100 and 1600 CFM) at page 19, line 22, of the original application does not constitute a disclosure of a range between 0 and 1600 CFM. Industrial compressors always work at a single given output airflow and cannot be regulated. When a 1600 CFM compressor is switched on, it supplies that air flow at a certain pressure, and nothing else. Therefore, the original application only discloses the use of a set of four different specific air flow values. The skilled person would not necessarily understand this to be an implicit disclosure of the feature "up to 1600 CFM". It is surprising that in its provisional opinion, the board found 1600 CFM to be "the highest value" without

pointing out that 395 CFM was the lowest value disclosed. It is totally unjustified to assume the four values to constitute an implicit disclosure of the range from 0 to 1600 CFM. There is no disclosure of an air volume flow of up to 1600 CFM. The board's reference to decision T 240/95 is surprising because the board appears to assume that a range of values has been disclosed.

When asked by the board whether there were adjustable compressors, the respondent stated that there might be, but that the original application did not disclose the use of such compressors.

When asked by the board whether there was any evidence for the assertion that industrial compressors always work at a single given output airflow and cannot be regulated, the respondent declared that it was prepared to file such evidence if requested to do so.
The respondent explained that it had not filed this evidence earlier because it had considered this fact to be known.

The only reference to 200 psi in the original application is made in the context of the header, which is not even an essential part of the invention. The application does not disclose what the header is used for.

(ii) Feature 1.3.1

The board erred in its provisional opinion: 1600 CFM could only be considered "of particular importance" if there were no further references to other airflow values in the original application, or if that value was presented as special in the description. This is

not the case. For instance, the air filter is described as being "capable of filtering air in volumes up to approximately 1100 CFM" (page 27, line 8) and the epoxy dispenser works at 9 CFM (page 28, line 12). Thus the examples provide several operational values of essential components of the invention that differ from each other. The question arises why 1600 CFM should be considered an unambiguous and direct disclosure of operation in a 0 to 1600 CFM range, considering that the application discloses more restrictive values.

It is crucial to assess the pressure that the skilled person would necessarily use in the method. The only reference to 200 psi in the application is related to the header capacity and does not necessarily teach the expert to apply 200 psi. On page 24, lines 22 to 26, of the original application, the sander parameters are discussed and a limit of 125 psi is disclosed. Thus there is no unambiguous disclosure teaching the skilled person to use 200 psi. The same argument applies to the coating step, where the application discloses operation at approximately 90 to 130 psi.

Using the sander at a pressure of 200 psi, which is an option covered by claim 1, might lead to the explosion of the system. The addition of new matter is highlighted by this inconsistency.

(iii) Feature 1.3.3

The disclosure at page 19, lines 33 and 34, of the original application means that the In/Out points of application in Figure 3 do not inherently refer to the generation of compressed air into one end of a building piping system.

The disclosure at page 22, lines 4 to 8, clearly states that the compressed air can be applied to points of connection in the piping system, and not to its ends.

(iv) Feature 1.3.4

The passage bridging pages 20 and 21 does not directly and unambiguously teach the skilled person to apply a pressure if up to 1600 CFM and 200 psi into one end of the building piping system.

(v) Features 1.3.5 and 1.3.6

Claim 1 is drafted such that the ranges up to approximately 1600 CFM and 200 psi, respectively, are applied to all steps, including the cleaning step (feature 1.3.6), where the sander is needed, and the step where epoxy is applied (feature 1.7). However, there is no disclosure in the original application that the whole ranges can be applied to the cleaning and epoxy application steps. Those steps have their own regimes and cannot be carried out over the whole ranges; they are incompatible with the header ranges.

It is doubtful that anyone would use the ranges disclosed in connection with the header (which is not an essential part) rather than the values disclosed in connection with essential elements (such as the sander). The skilled person has several possible choices, which means that the choice expressed in claim 1 is not directly and unambiguously disclosed.

Reasons for the Decision

1. Applicable law

The application on which the patent is based was filed on 4 January 2007. In accordance with Article 7 of the Act revising the EPC of 29 November 2000 (Special edition No. 4, OJ EPO, 217) and the Decision of the Administrative Council of 28 June 2001 on the transitional provisions under Article 7 of the Act revising the EPC of 29 November 2000 (Special edition No. 4, OJ EPO, 219), Articles 100 and 111 EPC 1973 and Article 123 EPC [2000] apply in the present case.

2. Claim interpretation: feature 1.3

There was general agreement that this feature, according to which the claimed method comprises the step of "generating and supplying compressed air up to approximately 0.755 m^3/s (1600 CFM)" is to be understood such that the method allows compressed air to be generated and supplied at virtually any value between 0 and about 1600 CFM (Cubic Feet per Minute).

3. Added matter (Article 123(2) EPC)

The question before the board is whether the features of claim 1 are disclosed in combination in the original application on the basis of which the patent was granted.

3.1 Findings of the opposition division

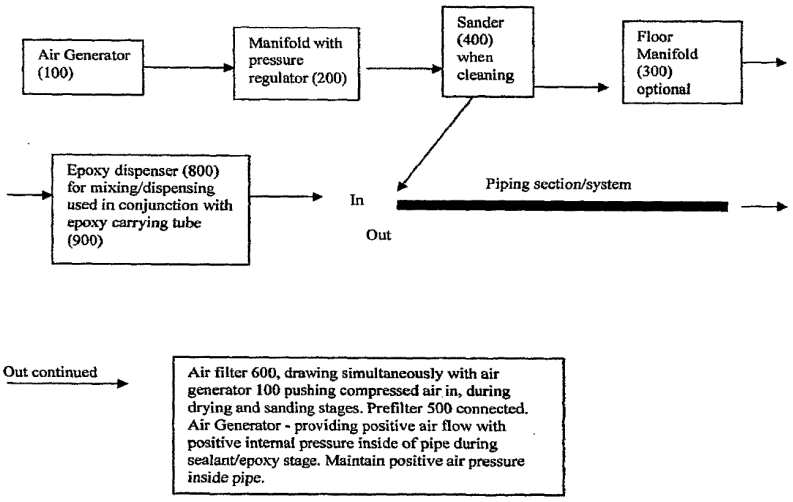
The opposition division revoked the patent because it reached the conclusion that the combination of features 1.3, 1.3.1, 1.3.3 and 1.3.4 in claim 1 of all

the requests before it had no basis in the original application. These features require that the method comprise a step in which compressed air up to approximately 0.755 m^3/s (1600 CFM) and up to approximately 1379 kPa (200 psi) is generated and supplied into one end of the building piping system.

Figure 3 shows a flow chart of the set-up of the invention (see page 15, line 16). This set-up comprises an air generator 100 made up of "395, 850, 1100, 1600 CFM Compressors Outfitted with Aftercooler, Water separator, Fine Filter and Reheater (if required)" (see page 19, lines 22-23). A volume flow of 1600 CFM is equivalent to 0.755116 m^3/s, which is approximately 0.755 m^3/s. Therefore, the original application discloses that a maximum volume flow of approximately 0.755 m^3/s (1600 CFM) can be generated. The passage at page 20, lines 12-15, discloses that the compressed air is employed for drying and cleaning the pipe system.

Figure 3

SYSTEM SET UP



The parties disagreed on whether the indication of a CFM value for a given compressor (for instance, "1600 CFM Compressor") meant that the compressor supplied only and exactly that air flow or whether the value was to be understood as the maximum air flow that the compressor could provide. The parties made contradictory statements in this respect but did not provide any supporting evidence whatsoever during the written proceedings.

The board has reached the conclusion that it does not need to decide on this matter, for the following reason:

If the CFM value characterising the compressor expresses the upper limit of the air flows that the compressor can provide, then the disclosure of page 19, lines 22-23 provides a sufficient basis for claiming that the method comprises the step of generating and supplying compressed air at virtually any value between 0 and about 1600 CFM.

If, however, each compressor can only supply one air flow, this does not mean that the method does not allow compressed air to be generated and supplied at virtually any value between 0 and about 1600 CFM, because the application discloses that there is a main header providing safe air management for regulated air distribution (page 20, lines 25 and 26). Regulator adjustment allows the operating airflows to be varied (page 21, lines 8 to 11). Therefore, even in a configuration with single flow value compressors, compressed air can be generated at virtually any flow value between 0 and about 1600 CFM.

Figure 3 shows that the compressed air is supplied via the header and distributor 200 to one end of the piping system. The header "can manage air capacities ranging to approximately 1600 CFM and approximately 200 psi" (page 21, lines 3-4); the pressure of 200 psi is equivalent to 1378.95 kPa.

As a consequence, the board is satisfied that the original application provides a sufficient basis for claiming a method comprising a step in which compressed air up to approximately 0.755 m^3/s (1600 CFM) and up to approximately 1379 kPa (200 psi) is generated and supplied into one end of the building piping system.

3.2 Counter-arguments

The opposition division's and the respondent's counter-arguments set out below have not convinced the board:

3.2.1 Effective values

The opposition division's core argument was that the original application only disclosed the capacities of the main header but not the flows and pressures effectively handled by the main header when the method is carried out, let alone those supplied into one end of the building pipe system. The board understands this to mean that - in the eyes of the opposition division - the disclosure of the limits of the system is not tantamount to the disclosure that the system is actually being used at its limits.

The board finds this reasoning unpersuasive.
The disclosure of the use of compressors capable of generating volume flows of up to 1600 CFM provides a sufficient basis for claiming the generation and use of

compressed air up to 1600 CFM. The original application also discloses that the compressed air is then supplied to one end of the building pipe system via the main header and distributor, which is said to be capable of managing air capacities ranging to approximately 1600 CFM and approximately 200 psi.

The opposition division's argument - as understood by the board - is at variance with the established jurisprudence of the boards of appeal according to which the disclosure of a range of values explicitly discloses the end points of the range (see, for instance, T 240/95, point 2.4 of the reasons: " ... the disclosure of a range [is] an explicit disclosure of the end values"). Accordingly, the disclosure that a device can be used up to a certain limit is a disclosure of the use of the device at that limit.

The respondent expressed its surprise that the board would refer to decision T 240/95 and criticised the underlying assumption that a range of values was described. As has been explained above, the board has reached the conclusion that the compressor/header/distributor arrangement disclosed in the original application provides a whole range of possible air flow values. Therefore, the underlying assumption is justified.

3.2.2 1600 CFM

It is correct that the application discloses upper air flow limits other than 1600 CFM. In particular, it is disclosed that "the filter 600 can be capable of filtering air in volumes up to approximately 1100 CFM" (page 27, line 8), and that the epoxy metering and

dispensing unit 700 "can operate at ... approximately 9 cubic feet (CFM) at 90 to 130 pounds per square inch" (page 28, lines 10 and 11).

However, these statements are not relevant for defining the limits at which compressed air is generated and supplied for drying and cleaning the pipe interior walls. The skilled person would realise that in method steps for which an air filter or the epoxy metering and dispensing unit is to be used, the air flow and/or the air pressure would have to be reduced, but would not conclude that the drying and cleaning steps would necessarily have to be carried out at those reduced air flows and pressures.

3.2.3 Lowest CFM value

As has been explained above, the board is of the opinion that the original application provides a basis for claiming that virtually any air flow between 0 and 1600 can be generated and supplied. In this respect, the highest of the four CFM values disclosed (i.e. 1600 CFM) is of particular importance because it defines the upper air flow limit. The lowest value disclosed (i.e. 395 CFM) has no equivalent relevance because it does not define the lowest air flow that can be obtained: the header allows further reductions in the air flow. As a consequence, there is no need to incorporate the 395 CFM value as a lower limit into claim 1.

3.2.4 200 psi

The original application discloses that "the main header 200 can manage air capacities ranging to approximately 1600 CFM and approximately 200 psi"

(page 21, lines 3 to 4). As correctly observed by the respondent, those limits concern the header and not the compressors as such, but it is clear that they also limit the air flow and pressures that can be generated and supplied into the piping system.

The fact that the header is not an essential part of the invention is not decisive in this context. The embodiment disclosed in the application comprises a header, which is a passive element in so far as it cannot generate the air capacities that it has to manage. Therefore, the specification of the limits of the header was also meant to be a disclosure of the potential of the compressors, which is also apparent from the fact that the upper limit for the air flow (1600 CFM) corresponds to the greatest air flow the set of generators can provide; in other words, the capacities of the header are adapted to what the compressors can provide.

Incidentally, the board cannot endorse the argument that the purpose of the header is not disclosed in the original application: there is a clear disclosure that the header is a component that "provides safe air management capability from the air compressor ... to the various other equipment components ..." (page 20, lines 25 to 27.

It is correct that the application discloses pressure limits other than 200 psi. In particular, when the sander is to be used, "air pressures up to approximately 125 psi" can be applied (page 24, lines 25 and 26).

However, as has been said in the context of air flows (see point 3.2.2) this is not relevant for defining the

limits at which compressed air is generated and supplied for drying the pipe interior walls. The skilled person would realise that in method steps in which the sander is to be used, the air pressure would have to be adapted, but would not conclude that the drying would necessarily have to be carried out at reduced pressure.

The fact that claim 1, which does not claim the use of a sander, does not contain a corresponding limitation and, consequently, in principle, also encompasses a method that would lead to the destruction of the device, cannot be construed as a violation of Article 123 EPC. According to the established jurisprudence of the boards, of appeal, a claim must be construed by a mind willing to understand; the skilled person, when considering a claim, should rule out interpretations which are illogical or which do not make technical sense (see "Case Law of the Boards of Appeal of the EPO", 8th edition, 2016, point II-E, 2.3.3). As a rule, an interpretation that would make the claim encompass methods that would lead to the destruction of the device to be used cannot be said to be technically meaningful.

The same argument applies, *mutatis mutandis*, to the respondent's objection in respect of the epoxy dispensing unit 700.

3.2.5 End of the building piping system

The board is unable to see any bearing of the passage at page 19, lines 33-34 of the original application ("Referring to Fig. 3, components 100-900 can be located and used at different locations in or around a building.") on features 1.3.3 and 1.3.4, according to

which the compressed air is supplied to one end of the piping system.

The board has reached the conclusion that those features are not based on this particular disclosure but self-evident: it is clear that a method of applying a barrier coating leak sealant to pipes requires the injection of the compressed air at one point of the piping system. Whatever point of the piping system is chosen for the injection to take place defines an end of the piping system within the meaning of claim 1.

The precise location of the components 100 to 900 within the building in which the pipe is installed is irrelevant in this context. The disclosure of Figure 3, where there is an "In" and an "Out" end of the piping section/system does not lead to a different conclusion.

The board finds the objection based on embodiments comprising floor manifolds 300 equally unpersuasive. These manifolds are presented as optional (see Figure 3) and the subject-matter of claim 1 does not refer to such manifolds either. Moreover, the application as filed appears not to disclose that the connections to the piping system mentioned at page 22, lines 4-8, are situated at positions that are distinct from an end of the building piping system. The skilled person wishing to dry and clean pipe interior walls would have good reasons to supply the compressed air in such a way that the entire piping system and not just part of it would be in contact with the flowing air without there being any dead ends.

3.3 Additional objections raised by the respondent

It is clear from what has been said above that the board cannot endorse the assertion that claim 1 requires air flows and pressures of up to approximately 1600 CFM and 200 psi, respectively, to be used in all method steps.

Those values are given only for the first method step, in which the piping system is dried and cleaned.

The cleaning step (feature 1.3.6) does not necessarily involve a sander; there is no reference to a sander in claim 1.

Moreover, as has already been explained above (see points 3.2.2 and 3.2.4), the skilled person contemplating the disclosure of the original application would understand that there are particular limits to be observed when the cleaning involves a sander and when the epoxy dispensing unit are used (feature 1.7).

The disclosure of the original application is not such that the skilled person is faced with several possible choices. Rather, the original application discloses upper limits for the air flows and pressures that are used in the drying step, as well as lower limits that apply in particular circumstances (in particular, when a sander and an epoxy dispensing unit are used).

Therefore, the board has no doubt that the claimed ranges are directly and unambiguously disclosed in the original application.

3.4 Overall conclusion

As a consequence of the above, the board has reached the conclusion that the finding of the opposition division that claim 1 contains subject-matter that extends beyond the content of the original application is unfounded.

4. Remittal to the department of first instance

In view of the fact that the opposition division has based its decision only on the grounds for opposition according to Article 100(c) EPC and has not examined the other grounds for opposition, it is appropriate to remit the case to the department of first instance for further prosecution on the basis of the main request, in accordance with Article 111(1) EPC 1973.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside

2. The case is remitted to the department of first instance for further prosecution upon the basis of the main request.

The Registrar: The Chairman:

N. Schneider M. Poock

Decision electronically authenticated