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File No.: T 0718/92 - 3.2.1

Application No.: 86 305 890.5

Publication No.: 0 213 754

Classification: F16L 37/12, A01M 7/00, B05B 3/10

Title of invention: A connector for conveying fluid.

**D E C I S I O N**  
of 16 November 1993

Applicant: -  
Proprietor of the patent: Nomix-Chipman Ltd.  
Opponent: Amazonen-Werke H. Dreyer GmbH & Co. KG

Headword:

**EPC:** Article 56

Keyword: "Inventive step (no)"

**Headnote**  
**Catchwords**



**Case Number:** T 0718/92 - 3.2.1

**D E C I S I O N**  
**of the Technical Board of Appeal 3.2.1**  
**of 16 November 1993**

**Appellant:** Amazonen-Werke H. Dreyer GmbH & Co. KG  
(Opponent) D - 49202 Hasbergen-Gaste (DE)

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**Respondent:** Nomix-Chipman Limited  
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**Representative:** Cheyne, John Robert Alexander Mackenzie  
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**Decision under appeal**Decision of the Opposition Division of the European Patent Office given on 6 May 1992, and issued in writing on 2 June 1992, rejecting the opposition filed against European patent No. 0 213 754 pursuant to Article 102(2) EPC.

**Composition of the Board:**

**Chairman:** F. Gumbel  
**Members:** S. Crane  
B. Schachenmann



## Summary of Facts and Submissions

- I. European patent No. 0 213 754 was granted on 13 June 1990 on the basis of European patent application No. 86 305 890.5 filed on 31 July 1986.

Claim 1 of the granted patent reads as follows:

"A releasable connector for conveying fluids, comprising first and second elements (A,B) which are interconnectable to provide a flow path through the connector, the first and second elements (A,B) being provided with respective integral flanges (10,34) which are positioned for face-to-face contact with each other when the elements (A,B) are interconnected, characterised in that a flexible lug (12) is provided on the flange (10) of the first element (A), the lug (12) projecting beyond the peripheral edge of the flange (34) of the second element (B) when the elements are interconnected and being provided with a latching element which is resiliently displaceable by flexure of the lug (12) between a latching position and release position, the flange (34) of the second element (B) being sized for engagement of its peripheral edge by the latching element to retain the first and second elements together."

Dependent Claims 2 to 5 relate to preferred embodiments of the releasable connector according to Claim 1.

Claim 6 is directed to apparatus for spraying herbicides whereby a releasable connector according to one of Claims 1 to 5 is used to connect a container for the herbicide to the spraying equipment. Claim 7

relates to a preferred embodiment of the apparatus according to Claim 6.

II. The patent was opposed by the Appellants on the grounds that its subject-matter lacked novelty and/or inventive step with respect to the state of the art shown in the following documents:

- (D1) GB-A-2 136 321
- (D2) GB-A-2 091 365
- (D3) DE-B-2 921 607
- (D4) DE-U-8 428 077.

III. By its decision taken at oral proceedings on 6 May 1992, and issued in written form on 2 June 1992, the Opposition Division rejected the opposition.

IV. An appeal against this decision was filed on 4 August 1992 and the appeal fee paid on the same day. The Appellants requested that the patent be revoked in its entirety. The Statement of Grounds of Appeal was received on 20 August 1992. In this Statement, the Appellants referred to two further state of the art documents, *viz.*

- (D5) GB-A-1 193 759
- (D6) DD-A-98 566.

V. Oral proceedings were held on 16 November 1993.

VI. The arguments put forward by the Appellants in support of their request can be summarised as follows:

In order to simplify the manufacture and use of the releasable connector shown in document D1 it would be obvious to replace the separate C-shaped clip by snap-acting fastening means, these being well known in the relevant field from for example documents D2 to D6. The structure of these means shown in document D6 corresponded exactly to what was defined in the characterising clause of granted Claim 1, i.e. a flange on one element of the connector was provided with resiliently displaceable lugs which projected beyond a flange on the other element and were equipped with a respective latching element. The application of this teaching to the connector of document D1 led directly to the claimed subject-matter. The skilled person would have no interest in modifying the known connector elements beyond the degree necessary to achieve the improved releasable connection function, such as by dispensing with the flanges on the connector elements, especially as a flange provided a convenient abutment for the latching means and if not present would have to be replaced by some other abutment-forming means.

VII. The arguments presented by the Respondents (Proprietors of the patent) in support of their request that the appeal be dismissed and the patent maintained unamended were substantially as follows:

It was not denied that snap-acting fastening means for releasable connectors were known. Granted Claim 1 was not however directed to the application of this general principle *per se* but instead defined a very particular arrangement of the fastening means that had no counterpart in the state of the art. Thus, Claim 1

required that the elements of the connector each have an integral flange positioned for face-to-face contact, and that a flexible lug provided with a latching element be provided on one flange to extend over the edge of the other flange. The only prior art which showed the required flanges was document D1 and there it was clear that the flanges were provided solely for the purpose of engagement by the releasable C-shaped clip. Even if the skilled person were to contemplate replacing the fastening means disclosed in document D1 by snap-acting fastening means then there would accordingly be no need to retain the flanges and these would be dispensed with. In any case there were simpler ways of avoiding the problems associated with the separate clip shown in document D1 rather than a complete re-design of the fastening means. Thus the clip could for example be attached to one of the connector elements by an integrally moulded flexible band or the like.

As for document D6 it was apparent that the connector elements shown there were not provided with flanges as required by Claim 1.

### **Reasons for the Decision**

1. The appeal complies with the requirements of Articles 106 to 108 and Rules 1(1) and 64 EPC; it is therefore admissible.
  
2. *State of the art*

- 2.1 Document D1, on which the preamble of Claim 1 is based, describes with reference to Figures 6 to 8 a releasable connector for conveying fluids and comprising a socket element and a plug element each of which is provided with an integral circumferential flange. When the plug element is inserted into the socket element the flanges come into face-to-face contact in which position they may be secured by a separate substantially C-shaped clip having a circumferential wall which subtends an angle of slightly greater than  $180^\circ$  and radially extending walls spaced apart a suitable distance for engaging the opposite sides of the abutting flanges.
- 2.2 Document D2 discloses a three-part tube coupling comprising male and female coupling elements and an intermediate ring which is secured in a groove on the female element and is provided with flexible latching arms for engaging behind a ridge on the male element (Figures 1 to 3).
- 2.3 In the tube coupling shown in document D3 the female element is provided with an integrally formed, flexible, longitudinally extending latching arm the forward end of which extends over and engages behind a flange formed on the male element, this flange in the assembled position of the coupling abutting against the end of the female element.
- 2.4 Document D4 relates to an accessory to assist in emptying pull-ring cans, the accessory being releasably attached to the rim of the can by snap-acting latches.

2.5 According to document D5 a pair of snap-acting latches are integrally formed on the female element of a releasable tube connector, each latch having a projection at its forward end which engages behind a shoulder on the male element. The midpoint of the latch and its rearward end are connected via flanges to the body of the female element whereby the rearward portion of the latch forms a flexible bridge. Depression of this bridge raises the forward end of the latch to release the projection from the shoulder on the male element.

2.6 In the tube connector shown in document D6 the end of one tube is provided with a ring member from which axially extend a plurality of flexible fingers each of which has a latching projection at its free end for engagement behind a ring member provided on the end of the other tube. A sealing element may be arranged between the end faces of the tubes.

3. *Novelty*

Since the releasable connector according to document D1 is the only one of those cited which corresponds to the preamble of Claim 1 and that connector does not have the features specified in the characterising clause of the claim, it is apparent that the subject-matter of this claim is novel. With respect to document D6, which at least according to their written submissions the Appellants saw as anticipating granted Claim 1, it is pointed out that the ring members provided on the ends of the tubes do not constitute flanges within the meaning of the preamble of granted

Claim 1 since, even if the sealing element disposed between the ends of the tubes were removed and the ends of the tube brought into direct engagement, then these ring members would not come into face-to-face contact with each other as they are spaced somewhat from the ends of the tubes.

4. *Inventive step*

As set out in the introductory description of the patent specification the connector according to document D1 is disadvantageous in that three separate components must be manufactured, one of which (the C-shaped clip) may be easily mislaid. Starting from this state of the art the technical problem to be solved by the invention therefore lies in the provision of a releasable connector which is simple to manufacture and can be used in a reliable way without the risk of mislaying component parts.

It is apparent from documents D3, D5 and D6 that two-element releasable connectors for conveying fluids, wherein one element is provided with at least flexible latch having latching means for engaging behind a flange or shoulder on the other element, were well known to the person skilled in the art. The adoption of this arrangement of snap-acting fastening means for solving the above stated problem has therefore to be seen as an option that was freely available to him so that the choice of this option in appropriate circumstances cannot be seen as involving an inventive step.

In this respect the Respondents have argued that the skilled person had many other possibilities open to him the most obvious of which would be to attach the C-shaped clip of document D1 to one of the connector elements via an integral band or the like. It is not clear to the Board on what objective basis this contention is made particularly as no evidence has been presented to the effect that this was a well-known and practicable way of attaching a fastening clip or that this way of proceeding would have been associated with manufacturing or other benefits which would have recommended it to the skilled person before all others. However, even if the contention of the Respondents were to be grounded in fact this could not detract from the above finding that the choice of snap-acting fastening means for the solution of the problem involved was something which did not go beyond the normal design considerations of the skilled person.

Once this obvious choice has been made then the skilled person will recognise immediately that the flange on one of the elements of the connector according to document D1 can provide the necessary abutment surface for engagement by the latching element of the connector so that there will be no need to make any constructional change whatsoever to that one element in order to allow it to become one half of a two-element connector. This is clearly from a practical manufacturing point of view of considerable advantage. The skilled person will further recognise in this context that the minimum degree of redesign of the other element of the known connector can be achieved if the flexible lug which, in the manner known *per se* from

documents D3, D5 and D6, carries the latching element, is provided on the flange of that element of the connector. These routine considerations lead to a releasable connector as defined in granted Claim 1.

The Respondents have argued that once it had been decided to replace the C-shaped ring of the connector according to document D1 by snap-acting fastening means then the flanges on the connector elements would lose all purpose and the skilled person would accordingly dispense with them before giving further consideration as to how the fastening means should be arranged. Thus the particular structure defined in Claim 1 could not be seen as being obvious since it does not result from what in practice the skilled person would do.

However, this argument overlooks the general interest from a manufacturing view point in keeping to a minimum the modifications to an existing product to achieve the desired technical improvement. As already stated above the use of the existing flange on one of the connector elements as the abutment surface for the latching element enables the retention of that connector element in identical form, and the use of the existing flange on the other connector element to carry the flexible lug and latching element enables the changes in that connector element to be minimised.

The Board therefore comes to the conclusion that the subject-matter of granted Claim 1 is derivable in an obvious manner from the state of the art and accordingly lacks the inventive step required by Article 52(1) EPC.

Since the Board is bound by the single request of the Respondents it is not necessary to consider the dependent claims.

**Order**

**For these reasons, it is decided that:**

1. The contested decision is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:

S. Fabiani

F. Gumbel