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D E C I S I O N
of 5 February 1998

Case Number: T 0992/96 - 3.5.2

Application Number: 92305453.0

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Title of invention:
Wire installation device

Applicant:
Horii, Kiyoshi, et al

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step (yes)"

Decisions cited:
-

Catchword:
-



Case Number: T 0992/96 - 3.5.2

D E C I S I O N
of the Technical Board of Appeal 3.5.2
of 5 February 1998

Appellant:

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Decision under appeal:

Decision of the Examining Division of the
European Patent Office posted 24 June 1996
refusing European patent application
No. 92 305 453.0 pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: W. J. L. Wheeler
Members: M. R. J. Villemin
A. C. G. Lindqvist

Summary of Facts and Submissions

I. The Appellant contests the decision of the Examining Division to refuse European patent application No. 92 305 453.0. The reason given for the refusal was that the subject-matter of the claims, which were those as originally filed, did not involve an inventive step, having regard to the following prior art documents:

D1: EP-A-0 457 986,

D2: FR-A-2 102 198, and

D3: US-A-3 927 866.

II. The present application has not been amended. Claims 1 to 4 are still in their originally filed form. Claim 1 reads as follows:

"A device for feeding a wire through a tube, comprising a Coanda spiral flow unit (14) having an inlet port (6) and an outlet port (8) with a Coanda slit (4) therebetween, characterised in that said unit is mounted on a manually grippable handle (12) provided with a manually operable control valve (13) for the supply of compressed fluid to said unit, whereby the device is readily portable."

Claims 2 to 4 are dependent on claim 1.

III. The Appellant argued essentially as follows:

The device disclosed in D1 corresponded to the preamble of claim 1 and operated by generating Coanda spiral flow in the tube, which flow entrained the wire and carried it along with very little wall contact so that the device could be used for directly feeding

relatively fragile items, such as optical fibres, through the tube. It was vital that the tube was not blocked, as otherwise Coanda flow would not be established. It was true that D2 disclosed a hand-held device for passing a cord through a tube, in which a manually grippable handle was provided with a manually operable control valve for the supply of compressed gas. However, the functioning of the D2 device was different: one end of the cord was attached to a driving member which was fitted into the end of the tube and forced along the tube by compressed gas, dragging the cord behind it from a bobbin. It was important that the driving member blocked the tube, so that compressed gas did not leak past it. Once the driving member emerged from the other end of the tube, it was removed from the cord and an electrical conductor was attached to the end of the cord, which was then wound back on to the bobbin, drawing the conductor through the tube. There was no reason for a person skilled in the art, wishing to improve the device of D1 by making it easier to use, to consider combining the disclosures of D1 and D2, because of the different ways in which the devices functioned.

IV. The Appellant requested that the decision under appeal be set aside and a patent granted on the basis of the application as originally filed, namely:

Description: pages 1 to 5, as originally filed,

Claims: claims 1 to 4, as originally filed,

Drawings: sheets 1/4 to 4/4, as originally filed.

Reasons for the Decision

1. The appeal is admissible.
2. *Prior art and novelty*
 - 2.1 D1 describes a method and device for feeding a wire 7 through a tube 1, the device comprising a Coanda spiral flow unit 3 having an inlet port 6 and an outlet port 8 with a Coanda slit 4 therebetween, in accordance with the preamble of claim 1 of the present application. D1 discloses none of the features in the characterising part of claim 1.
 - 2.2 The use of a Coanda spiral flow unit is not mentioned in D2 or D3. It is therefore concluded that the subject-matter of claim 1 is novel within the meaning of Article 54 EPC.
3. *Inventive step*
 - 3.1 The Board agrees with the Appellant and the Examining Division that document D1 describes the prior art closest to the device defined in claim 1 of the present application.
 - 3.2 The prior art device described in D1 operates in the same manner as that of the claimed device, namely by generating Coanda spiral flow in a tube in order to entrain the wire to be installed in it, which flow carries the wire along the tube with very little wall contact. As pointed out by the Appellant, in order for Coanda flow to be generated, it is vital that the tube is not blocked. A pressure release port must be provided somewhere, conveniently between the Coanda spiral flow unit and the tube through which the wire is to be fed, to control back flow of compressed gas. As

described with reference to Figures 1 and 6 of D1, compressed air or nitrogen is supplied through a pressure gauge and a closing valve (and maybe an air filter, see Figure 6) attached to the Coanda spiral flow unit. The wire is sucked in through the open end of the Coanda spiral flow unit. It is stated in the present application that the D1 device works well and can feed an optical fibre through a tube having a length of 500 metres or more, but it is difficult to use where space is restricted.

- 3.3 Starting from this prior art, the problem to be solved is to develop a device using a Coanda spiral flow unit for feeding a wire through a tube, which allows an easy and efficient feeding of the wire even at locations where space is restricted.
- 3.4 It is clear that any solution of the problem underlying the present application has to be carefully adapted to the Coanda flow unit so as not to impair its operation.
- 3.5 In accordance with the characterising part of claim 1, this problem is solved by mounting the Coanda spiral flow unit on a manually grippable handle provided with a manually operable control valve for the supply of compressed fluid to said unit, whereby the device is readily portable. Although not explicitly recited in the claim, this entails removing the pressure gauge and the air filter (if present) from the prior art device and replacing the stop valve by a control valve. As explained at lines 26 to 34 of column 3 of the published application, the grippable handle and control valve allow the device to be held in the hand and the supply of compressed fluid to the Coanda flow unit can be adjusted, in addition to be turned on and off, with a finger.

3.6 As pointed out by the Appellant (see paragraph III above), the functioning of the device known from D2 is entirely different from that of the D1 device. The compressed gas is used only to propel the driving member along the tube, dragging the cord behind it from the bobbin, which is mounted atop the hand held device. Since no Coanda spiral flow means, nor indeed any type of pneumatic means, are used in this device for feeding a wire (without a driving member attached to its end) through a tube, it follows that, unlike the grippable handle of the device claimed in the present application, the grippable handle and valve of the D2 device are not designed to be suitable for controlling the supply of compressed fluid for this purpose.

3.7 The association in D2 of, on the one hand, a grippable handle and an elongate barrel, together forming a pneumatic pistol, with a bobbin mounted atop the pistol is a sensible combination in the context of the device disclosed in D2, because this arrangement facilitates the operation of passing the cord 1 through the tube and then rewinding it onto the bobbin 18. Such an arrangement bears a resemblance to a fishing-rod held in one hand, with a reel mounted on the rod, being operated with the other hand. However, such an arrangement does not help in solving the problem underlying the present application since there is no reason for a skilled person to combine a grippable handle not designed for co-operation with a Coanda spiral flow unit with such a unit for feeding a wire along a tube. In addition to this, it appears that the D2 device, with its elongate barrel, would not be convenient to use in locations where space is restricted.

3.8 The Examining Division took the view that it would be an obvious step for the skilled person, seeking to make the device of D1 more convenient to use, to modify the

D1 device using those features of D2 which make the D2 device convenient to use, namely the handle and control valve. This view appears to be based on an ex post facto analysis, since, as explained above, several steps would in fact be involved. An insight is required to see that the D1 device could be adapted so as to be held in the hand and that the handle of the D2 device could be adapted for use with the D1 device.

3.9 For the above reasons, the subject-matter of claim 1 involves an inventive step with regard to a combination of the teachings of D1 and D2.

3.10 The pneumatic blow gun disclosed in D3 is not provided with a control valve. In use, a wire to be fed through a tube is attached to a piston which is forced along the tube by means of compressed fluid from the gun. There is no mention of a Coanda spiral flow unit. Thus D3 would not render it obvious to the skilled person to form a Coanda spiral flow device in the barrel of a hand held pneumatic pistol.

4. Hence, the Board concludes that the device defined in claim 1 is not derivable in an obvious way from a combined consideration of documents D1, D2 and D3. Therefore the subject-matter of this claim, and that of dependent claims 2 to 4, involves an inventive step within the meaning of Article 56 EPC.

5. It follows from the above that a patent could be granted according to the Applicant's request mentioned in section IV above, provided that the other requirements of the EPC are met. In particular, it is noted that in order to comply with Rule 27(1)(b) EPC, documents D1 and D2 should be indicated in the description. Rather than attend to this itself, the Board makes use of its power under Article 111(1) EPC to remit the case to the department of first instance.

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 with the order to grant a patent according to the Appellant's request (see section IV above) with the description to be amended as indicated in section 5 above.

The Registrar:



M. Kiehl

The Chairman:



W. J. L. Wheeler

