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File Number: T 40/90 - 3.2.3

Application No.: 82 201 140.9

Publication No.: 0 075 364

Title of invention: Supporting and running device for sliding doors,
particularly for furniture

Classification: E05D 15/10, E06B 3/50

D E C I S I O N
of 30 April 1992

Proprietor of the patent: KAIROS S.N.C. DI M. BONETTI,
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Opponent: Huwil-Werke GmbH

Headword:

EPC Articles 54, 56

Keyword: "Novelty (yes)" - "Inventive step (yes)"
"Technically necessitated features"

Headnote



Case Number : T 40/90 - 3.2.3

D E C I S I O N
of the Technical Board of Appeal 3.2.3
of 30 April 1992

Appellant :
(Opponent)

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Decision under appeal :

Decision of Opposition Division of the European
Patent Office dated 21 September 1989, issued
8 November 1989 rejecting the opposition filed
against European patent No. 0 075 364 pursuant to
Article 102(2) EPC.

Composition of the Board :

Chairman : C.T. Wilson
Members : K.W. Stamm
W.M. Schar

Summary of Facts and Submissions

- I. European patent No. 75 364 was granted on 16 December 1987 with seven claims in response to the European patent application No. 82 201 140.9, filed on 15 September 1982.

Claim 1 of the granted patent reads:

"1. Supporting and running device for sliding doors, particularly for furniture, having a first (1, 3) and a second type (2) of door, which are coplanar when closed and superimposed when open, carriages connected to said doors and running on guide rails, and means allowing the resilient displacement of each second type of door (2) out of its position coplanar with the others, characterized in that it comprises:

at least a first pair of longitudinal carriages (4, 5) connected to the upper part, resp. to the lower part, of each first type of door (1, 3) and guided by means of rollers (7, 11) along corresponding guide rails (8, 12) parallelly placed out of the plane containing said door (1, 3) near to the closure surface of the furniture, at least a second pair of longitudinal carriages (13, 14) guided by means of rollers (16, 28) along corresponding guide rails (17, 29) placed out of the plane containing each second type of door (2), parallelly to the first ones but more distant from the closure surface of the furniture, and connected to the upper part, resp. to the lower part, of said second type of door (2), said second longitudinal carriages (13, 14) comprising an overall bridge-shaped support extending over said first type of door (1, 3) and/or its longitudinal carriages (4, 5), during their mutual movements, and at least an upper transverse carriage applied to each upper longitudinal carriage of said second type of door to allow the resilient displacement of the door outwardly of the furniture, said

transverse carriage comprising at least a bracket (15), applied to the door (2) and transversely extending over the guide rails (8, 17), at least a transversal rod (21) cooperating with rolling supports (18, 19) having horizontal rotation axes located at different distances from the plane of the door (2) to produce a moment opposing the moment due to the weight of the door (2), as well as at least one spring (23) interposed between said bracket (15) and the roller (16)."

II. An opposition was filed on 8 September 1988. Revocation was requested on the grounds of lack of patentability according to Articles 52 - 57 EPC (Art. 100a)). The opposition was based in particular on the following documents:

- (D1) DE-U-1 916 708;
- (D2) Prospektblatt "Finetta S1";
- (D3) UA-A-3 510 983.

The Opposition Division rejected the opposition at the end of oral proceedings held on 21 September 1989.

III. The Appellant (Opponent) filed a Notice of Appeal against this decision received on 4 January 1990 with the payment of the fee and submitted a Statement of Grounds on 8 March 1990. The Appellant referred to documents D2, D3 and

- (D7) GB-A-1 439 940.

He is of the opinion that the subject-matter of Claim 1 lacks novelty and is obvious having regard to these documents, and that the statements in Claim 1 in respect of the function of the rolls (18, 19) as opposing the moment due to the weight of the door (2) are technically wrong. In his view this moment can only be opposed by supporting structures at the lower edge of the door. The

Appellant submits also that document D7 was wrongly disregarded in the contested decision.

- IV. In his answer dated 11 July 1990 the Respondent (Proprietor) argues that the subject-matter of Claim 1 is novel and inventive. He stresses the different fields of furniture and railway carriages and that document D7 would, therefore, not have been regarded by the skilled man in question. If he would have studied D7 closer, notwithstanding such differences, he would not have achieved the result of Claim 1.

As regards the question of the mentioned moment due to the weight of the door, he is of the opinion that Claim 1 is correct. He mentions "in D7 that moment is opposed externally to the door by the structure of the vehicle, through the two tracks 8 and 9, the roller 10 and the trolley 6. ... In fact according to Kairos' invention that moment is opposed internally to the door by an equilibrium of moments which solves the problem without requiring any intervention on the structure of the wardrobe" (page 9).

- V. In a letter dated 22 November 1990 the Appellant submits further that the teaching of Claim 1 is not complete. He puts forward that an opposing moment could be exerted by a second roll below rod 21 as depicted in Figure 1. The statements in Claim 1 are not regarded to be sufficient in this respect. He also states that Claim 4 presents features sufficient for building such a counter-moment.

- VI. The Respondent argues in his letter dated 18 February 1991 that Claim 1 comprises all the necessary information; anyone who needs more information would not be a skilled person, in particular in respect of the mutual position of the rolls 18 and 19. Claim 4 does not describe features

essential to the invention, but only a particular embodiment thereof.

VII. In a communication according to Article 110(2) EPC the Board referred to the static situation, as disclosed by the patent specification, which was not sufficiently interpreted by the Respondent in his letters mentioned above under points IV and VI. The Board expressed its view that the subject-matter of granted Claim 1 of necessity required additional features as a precondition for the assessment of inventive step and that, consequentially, Claim 1 was to be regarded as an incomplete definition.

VIII. With letter of 13 December 1991 the Respondent submitted amended Claims 1 to 6.

The Appellant alleges in his letters of 6 December 1991 and 10 January 1992 that Claim 1 should refer to the fact that the end of the transversal rod (21) is connected with the roller (16) in such a way that the free end of the rod points away from the plane of the doors in their closed position.

IX. With letter of 23 April 1992 the Respondent submitted an amended Claim 1 and an accordingly amended description.

In amended Claim 1, the phrase "produce a moment opposing and the roller (16)." at the end of the granted claim is replaced by:

"transfer the weight of the door on said rod (21) and to produce a moment opposing the moment due to said transfer of weight, as well as at least one spring (23) interposed between said bracket (15) and said roller (16), and, at least a member (24, 27) interposed between each second type of door (2) and the respective lower guide rail (29)

and supporting a roller (28) elastically keeping said second type of door (2) coplanar with said first type of door (1, 3)."

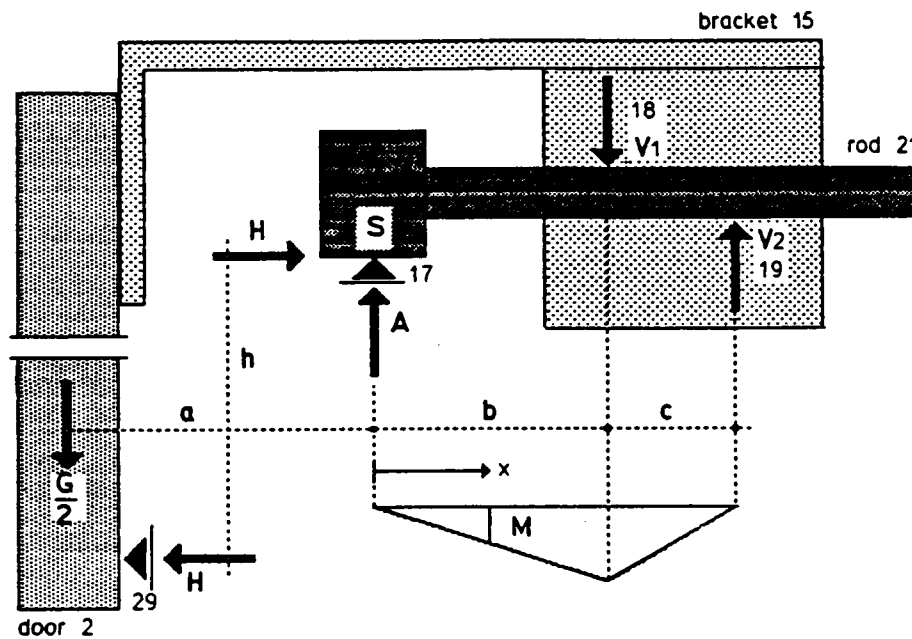
- X. The Appellant requests to set aside the decision under appeal and to revoke the patent.

The Respondent requests to maintain the patent with the amendments according to his letter of 23 April 1992 as mentioned under IX above.

Reasons for the Decision

- 1. The Appeal is admissible.
- 2. Technical interpretation of Claim 1
 - 2.1 The interpretation of Claim 1, as supported by the description (and drawings) in compliance with Article 84 EPC, necessitates reference to the statical system which is considered to be as follows:

Statical system:



$$\frac{G}{2} a - H h = 0 :$$

$$H = \frac{G}{2} a/h$$

$$A - \frac{G}{2} = 0 :$$

$$A = \frac{G}{2}$$

$$A (b + c) - V_1 c = 0 :$$

$$V_1 = \frac{G}{2} (1 + b/c)$$

$$A b = V_2 c :$$

$$V_2 = \frac{G}{2} b/c$$

(a) The door (2) as a whole, having a vertical position is kept in equilibrium under the application of three reaction forces neutralising the weight G of the door (in respect of a pair of carriages):

- at the upper guide rail (17) (point S):

a vertical reaction force A ,

a horizontal reaction force H ,

- at the lower guide rail (29):

a horizontal reaction force H .

(b) The rod (21) is fixed in the bracket (15) by means of the rolling supports (18) and (19) to oppose the moment $M = A.x$ due to the vertical reaction A in S. The rolling supports (18) and (19) apply interior forces V_1 and V_2 resisting the moment $A.x$ of the rod 21 which are not to be confused with exterior reaction forces. V_1 and V_2 fix the rod only and cannot neutralise the moment $G.a$ of the door.

(c) This moment $A.x$ is not to be confused with the moment $G.a$ which necessitates the counter-moment $H.h$ for vertical equilibrium of the door.

(d) The disclosure of the application leaves no doubt that this horizontal reaction force H is to be applied by means of the lower guide rail 29.

2.2 The above findings may be summarised by the statement that the equilibrium of the door which remains in vertical parallel position during its longitudinal and transversal movement is made possible by an especially fixed rod. This rod is rigidly fixed in the bracket as regards bending moments but is nevertheless transversely movable and thus

allows transversal movement of the door. The door is guided along its lower edge for transferring the equilibrating horizontal reaction force.

3. Amendments

The amendments in Claim 1 are supported by the description and define with necessitated precision the technically interacting elements. The requirements of Article 123 EPC are met.

4. Novelty

None of the mentioned documents discloses all the features of Claim 1. In particular no disclosure is anticipating a rod carrying a door which is rigidly fixed as regards bending moments but is nevertheless transversally movable along the rod according to the features of Claim 1.

5. Nearest prior art, problem and solution

Document D3 mentioned in the description of the granted patent appears, among the cited documents, as closest to the invention. Such doors do not completely cover the furniture frame and keep in view upper guide rails. The known door is movable inwardly and thus reduces the usable volume inside the furniture. An overstanding structure strip is required. Such drawbacks are to be overcome by the invention.

The subject-matter of Claim 1 meets all these conditions, in particular by the construction of longitudinal carriages which combine longitudinal and transversal movement outwardly of the furniture and using a rod which at the same time is clamped and transversally movable.

6. Inventive step

6.1 The Opposition Division regarded Document D7 as not admissible since it was filed late and not relevant to the question of novelty and inventive step. The Board agrees that this document is not relevant to this question, but accepts to take account of this document - which relates to sliding door mechanisms "not exclusively for use on rail vehicles" - because it is closer to the invention than the other citations, and because it clarifies the static situation of the invention which apparently caused some confusion in the interpretation of the parties.

The skilled man, looking for improving the solution known from D3 could find some suggestions in D7, however not ending in the solution as defined in Claim 1. In the first place, document D7 does not deal with several sliding doors, but with one single door only. It is suggested to use two longitudinally guiding rails and one third transverse guiding rail. Even if the combination of longitudinal and transverse carriages disclosed in D7 had been recognised as a useful possibility in itself - the necessity of three guide rails would have discouraged the skilled person: a solution, already complicated enough for one single door, would hardly appear favourable when two and more doors were to be used in aligned and in parallel position. In particular it would appear necessary to use also two rails for reasons of the stable equilibrium of the carriage -and nothing in D7 could invite to replace the two rolls by only one.

But even assuming that the skilled person concentrated his attention on the way by which the door in D7 was supported, he would have seen there a rod (in D7 called "supporting track" 2, Figure 1) clamped and fixed at the door, supporting the door and being carried by two rolls of a carriage enabling longitudinal and transversal

movement of the door. However, this rod is fixed as a console and not movable with respect to the door. Therefore, the skilled person could not find here any suggestion resulting in a rod being transversely movable with respect to the door - an idea which would require severing the direct support between door and rod, without any reason, however, as long as the knowledge of the invention is not used as a hidden presupposition.

Therefore, it appears not founded that the skilled person would have arrived at the subject-matter defined in Claim 1 when following the teaching of D7 in addition to D3.

- 6.2 The remarks of the Appellant concerning the necessity of additional features in Claim 1 (cf. above under VIII) appear not justified and to confirm the presence of further unexpected difficulties in the comprehension of the functional principle of the claimed invention - supporting the non-obviousness character of it.

The cited letter of the Respondent gives further clarification for the interpretation of the static situation as shown in the diagram under 2.1. These remarks in Respondents letter express the condition of equilibrium for the bending moment in point S in full accord with moment M shown in in the mentioned diagram:

$$V1.b - V2(b+c) = 0;$$

and thus $V2 = V1.b/(b+c).$

This explains clearly that rod 21 is longitudinally movable and at the same time clamped by rolls 18 and 19 with respect to bending moments M due to the reaction force A.

Statically seen, there is no reason for the alleged restriction: the rod may be arranged on the opposite side, its end pointing to the plane of the closed doors. As follows from the above and 2.1, the equilibrium of the door results definitely from the horizontal reaction force H and the vertical reaction force A - be the rod on the left side of the roll 16 or on its right side. The two rolls 18 and 19 will clamp the rod also if arranged on the left side (its end showing to the closure surface). As regards the statical functionality, therefore, no reason for the above-mentioned restriction can be seen.

6.3 The other cited documents do not suggest using a longitudinally movable rod which is transversally clamped in a bracket and likewise allows relative transversal movement of that bracket and the door carried by the bracket as claimed.

7. It follows from the above that the subject-matter of Claim 1 involves an inventive step. Claim 1 is patentable having regard to Article 52(1) EPC. The appendent Claims 2 to 7 are valid also.

Order

For these reasons, it is decided:

1. The decision under appeal is set aside.
2. The case is remitted to the first instance with the order to maintain the patent based on the amendments according to Respondents letter filed 24 April 1992 as mentioned under IX above.

The Registrar:



S. Fabiani

The Chairman:



C.T. Wilson

See

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