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**Datasheet for the decision
of 29 November 2017**

Case Number: T 1025/15 - 3.2.01

Application Number: 10193941.1

Publication Number: 2340982

IPC: B62D65/12, B62D65/18, B23P21/00

Language of the proceedings: EN

Title of invention:
Plant for assembling mechanical parts on bodies of motor-
vehicles

Patent Proprietor:
COMAU SpA

Opponent:
Siemens Aktiengesellschaft

Headword:

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - (yes)

Decisions cited:

Catchword:



Beschwerdekammern
Boards of Appeal
Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 1025/15 - 3.2.01

D E C I S I O N
of Technical Board of Appeal 3.2.01
of 29 November 2017

Appellant: Siemens Aktiengesellschaft
(Opponent) Werner-von-Siemens-Straße 1
80333 München (DE)

Representative: Siemens AG
Postfach 22 16 34
80506 München (DE)

Respondent: COMAU SpA
(Patent Proprietor) Via Rivalta 30
10095 Grugliasco (Torino) (IT)

Representative: Notaro, Giancarlo
Buzzi, Notaro & Antonielli d'Oulx
Via Maria Vittoria 18
10123 Torino (IT)

Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 18 March 2015
rejecting the opposition filed against European
patent No. 2340982 pursuant to Article 101(2)
EPC.**

Composition of the Board:

Chairman G. Pricolo
Members: W. Marx
O. Loizou

Summary of Facts and Submissions

- I. The appeal is directed against the decision rejecting the opposition against European patent No. 2 340 982.
- II. The appellant relied on the following evidence filed during the opposition procedure:
- D1: GB 2 136 330 A;
 - D2: DE 101 21 053 A1.
- III. At oral proceedings held on 29 November 2017 the appellant (opponent) requested that the decision under appeal be set aside and that the European patent be revoked. The respondent (patent proprietor) requested that the appeal be dismissed, or in the alternative, that the patent be maintained in amended form on the basis of one of the first to seventh auxiliary requests filed with its reply dated 26 November 2015.
- IV. Claim 1 of the patent as granted reads as follows (broken into a feature analysis adopted by the parties):
- (a) Plant for assembling mechanical parts on motor-vehicle bodies, comprising:
 - (b) - an endless conveying line (1),
 - (c) - a plurality of pallets (P) movable along the conveying line (1), each receiving a number of mechanical parts of the motor-vehicle along a first section (1L) of the conveying line (1),
 - (d) - means (MX1) for loading a respective motor-vehicle body (B) on a respective pallet (P) at a loading station (MX), located in proximity of the

beginning of a second section (1U) of the conveying line (1), downstream of said first section (1L) with reference to the direction of movement of the pallets (P),

- (e) - at least one bolting station (S) arranged in said second section (1U) of the conveying line (1) and provided with means (D) for bolting said mechanical parts to said body (B),
- (f) - means (DX1) for unloading the respective body (B) with the mechanical parts bolted thereon in proximity of the end of said second section (1U) of the conveying line (1),

said plant being **characterized in that:**

- (g) - said second section (1U) of the conveying line (1) is superimposed and spaced apart above said first section (1L), and aligned therewith, so that the pallets (P) move along a closed loop arranged in a vertical plane, said pallets (P) being moved along said upper second section (1U) in a direction opposite to their direction of movement along said lower first section (1L),
- (h) - said plant comprises a lifting station (V1) for lifting a respective pallet (P) from the end of the lower first section (1L) to the beginning of the upper second section (1U) and a lowering station (V2) for lowering a respective pallet (P) from the terminal end of the upper second section (1U) to the beginning of the first lower section (1L), and

(i) - said bolting means (D) are provided along said lower first section (1L) of the line (1), below said at least one bolting station (S) provided along said upper second section (1U), for bolting said mechanical parts to the respective motor-vehicle body (B).

V. The appellant's submissions in as far as they are relevant to this decision may be summarised as follows:

It was not disputed that the features (a)-(f) of the preamble of claim 1 were known from D1 and that features (g) and (h) were not disclosed in D1. As regards feature (i), D1 already showed (Figure 4) screwing means (17-20) provided below at least one screwing station (7, 8) along a second section (5) for bolting mechanical parts to a motor-vehicle body (see page 2, lines 96-107: "... Each of these screwing robots [17-20] includes a head 21 movable in a horizontal plane beneath the conveying plane of the palletisable platforms 3."). The second section (5) "extended at a short distance in parallel" to a first section (4), see Figure 1 in D1, so the bolting means were also provided "along" said first section. Claim 1 did not require that the bolting means were used in the first section. In fact, robots were only used in the upper section when mounting the drive train to the vehicle body. Therefore, only two elements of feature (i) were not directly disclosed in D1, namely the attributes "lower" and "upper" with regard to the first and second sections. However, a lower first section and an upper second section were already introduced in features (g) and (h), so the terms "lower first section" and "upper second section" in feature (i) only repeated what was already defined in feature (g), i.e. feature (i) was seen in the context of feature (g).

Feature (i) was a direct consequence when changing from an arrangement in a horizontal plane to a vertical arrangement. The term "bolting station" was rather abstract and included places where workers were working manually.

Starting from D1 the skilled person was confronted with the objective technical problem of reducing the ground space occupied by the plant.

It was already obvious in view of the skilled person's knowledge and his spatial imagination to change from a horizontal to a vertical plane for circulating the pallets and thus replace the lateral transfer between the two lines in D1 by providing lifting and lowering stations. Since there were only two options when changing to a vertical circulation plane and drive trains were screwed from below to the vehicle body, the skilled person recognised that it was expedient to superimpose the second section of the conveying line, in which mechanical parts were bolted to the body (feature (e)), above the first section.

Irrespective of the fact that D2 also showed an alternative embodiment in which both sections were arranged side by side in one plane, the skilled person was also prompted by D2 to provide a conveyor system with a return section arranged above or below a forward running section, which reduced the ground space as explicitly stated in D2. Again, the only reasonable solution when mounting a drive train to the motor-vehicle body from below was the claimed arrangement.

VI. The respondent countered essentially as follows:

The subject-matter of claim 1 differed from D1 by all the features of the characterising portion of the claim including feature (i), which specifically claimed the allocation of the bolting means along the lower first section whilst serving the upper second section. In D1 bolting means 17-20 were provided along the same section 5 on which they operated (bolting stations 7 and 8). There was no motivation and even no teaching to arrive at the claimed solution.

The appellant's argument that features (g) to (i) would be derived by the man skilled in the art exercising his common general knowledge was not corroborated by any evidence. The 27-year time that was needed for filing the subject patent constituted evidence of the inventive step residing in the claimed solution.

The man skilled in the art would not have combined D1 with D2. However, even assuming that the man skilled in the art would have changed the horizontal loop of D1 into the vertical loop of D2, feature (i) - which related to the allocation of the bolting means along the lower first section whilst serving the upper second section - was not disclosed neither suggested in any of D1 and D2.

Specifically, in D1 the bolting devices were robots of Cartesian type which had a reduced vertical bulk and were arranged within the floor structure of the line at the bolting station. In D2 there were no means arranged along the lower line and operating onto the upper line. Therefore, merely changing the horizontal loop of D1 into a vertical loop would have eventually resulted in an upper line including either the bolting station and the bolting Cartesian-type robots. Differently from this, the present invention exploited the vertical loop arrangement not only to save floor space, but also to

arrange the bolting devices at an operating station located along the lower line, below the upper line onto which they operated. As a result of this arrangement, more space became available for the bolting devices.

Reasons for the Decision

1. The subject-matter of claim 1 as granted involves an inventive step (Article 56 EPC).
2. Undisputedly, D1 represents the closest prior art document and discloses features (a) to (f) of the pre-characterising portion of granted claim 1. Features (g) and (h), which specify an endless conveying line having a vertical loop arrangement, are not known from D1.

D1 shows (Figure 1) first and second sections (4, 5) arranged in a horizontal plane and at least one bolting station (7, 8) provided along the second section (5). Bolting means (17-20) are provided (see Figure 4) below the bolting station in said second section (5) and might also be considered to be arranged along a first section (4), depending on how the term "along" is construed. Therefore, part of feature (i) might be known from D1, but not the elements which are specified in connection with the vertical arrangement of the conveying line, i.e. no "lower first section" or "upper second section" as specified already in features (g) and (h), as agreed also by the appellant.

The distinguishing concept over D1 of providing a vertical loop for the assembly of mechanical parts on motor-vehicle bodies has the effect that less ground space is required in the assembly plant. The objective

technical problem can therefore be seen in reducing the ground space occupied by the assembly plant.

Even assuming that the person skilled in the art would contemplate changing the horizontal arrangement known from D1 into a vertical loop as defined by features (g) and (h), either in view of his common general knowledge or the disclosure of D2, the board finds that he would still not arrive at the subject-matter of claim 1. In particular, the board cannot follow the appellant's argument that feature (i) was a direct consequence when modifying the conveying line from the horizontal plane to a vertical loop.

As clearly expressed by features (e) and (i), the bolting station is "arranged in said second section" and "provided along said upper second section", in which section mechanical parts are bolted to the vehicle body. The term "bolting station" might be rather abstract, but it clearly refers to a place where a bolting operation is performed. However, the skilled person starting from D1 has no incentive or motivation to modify the known plant for assembling mechanical parts on motor-vehicle bodies such as to provide the bolting means along the lower first section whilst serving the upper second section in which bolting operation is performed, as required by feature (i). Such modification of the assembly plant of D1 is neither obvious in view of the common general knowledge, nor taught in the cited prior art.

Document D2 only shows a conveying system for transporting vehicle bodysHELLS through a paint bath and cannot provide any teaching on how bolting means and bolting stations might be arranged. Moreover, D2 does not show any means arranged along the lower line

and operating onto the upper line. The bolting means in document D1 are robots of Cartesian type which have a reduced vertical bulk and are arranged within the floor structure of the line at the bolting station, i.e. the bolting means are provided along the same section on which they operate. Therefore, the teaching of D1 would only result in an upper second section including the bolting station as well as Cartesian-type robots arranged within the floor structure of the upper second section.

3. It follows from the above considerations that the subject-matter of claim 1 involves an inventive step (Article 56 EPC). Therefore, the board confirms the decision of the opposition division.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



N. Schneider

G. Pricolo

Decision electronically authenticated