DE C I S I O N
of 12 December 2000

Case Number: T 0359/99 - 3.2.4
Application Number: 92900412.5
Publication Number: 0560851
IPC: A63H 33/10

Language of the proceedings: EN

Title of invention:
A coupling mechanism for a toy building set

Applicant:
LEGO A/S, et al

Opponent:
K'Nex International U.K.

Headword:
-

Relevant legal provisions:
EPC Art. 54, 56, 123
EPC R. 27, 67

Keyword:
"Novelty (yes)"
"Inventive step (yes)"

Decisions cited:
G 0009/92, T 0450/89, T 0677/91, T 0511/92, T 0056/87

Catchword:
-
Case Number: T 0359/99 - 3.2.4

DECISION
of the Technical Board of Appeal 3.2.4
of 12 December 2000

Appellant: K'Nex International U.K.
(Opponent) Century House, Station Way
Cheam, Surrey SM3 8SW (GB)

Representative: Leeming, John Gerard
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Respondent: LEGO A/S
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Representative: Wittrup, Flemming
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Decision under appeal: Interlocutory decision of the Opposition Division
of the European Patent Office posted 1 February
1999 concerning maintenance of European patent
No. 0 560 851 in amended form.

Composition of the Board:
Chairman: C. A. J. Andries
Members: R. E. Gryc
C. Holtz
Summary of Facts and Submissions

I. The appellant (opponent) lodged an appeal, received at the EPO on 1 April 1999, against the interlocutory decision of the Opposition Division, dispatched on 1 February 1999, which maintained the European patent No. 0 560 851 in an amended form. The appeal fee was paid simultaneously and the statement setting out the grounds of appeal was received at the EPO on 10 June 1999.

II. Opposition was filed against the patent as a whole and based on Article 100(a), (b) and (c) EPC. The Opposition Division held that the grounds for opposition did not prejudice the maintenance of the patent in the amended version submitted as an auxiliary request during the oral proceedings held before it, having regard in particular to documents:

K3: US-A-3 570 324 and


During the opposition proceedings, the following documents were also cited:

K1: Booklet (six pages) giving ideas for models which can be built from Lego Technical Sets.

K15A: JP-U-63-11911 with a translation into English,

K15B: JP-U-63-126606 with a translation into English,

K15C: JP-U-63-198810 with a translation into English and
K16: "Statement regarding availability of Teleflex parts and drawings" with four annexed drawings from James W. Hughes of Triumph Controls Inc.

III. With his statement setting out the grounds of appeal, the appellant filed in particular the following additional documents:

K19: US-A-4 124 320 and

Declarations of Mr D. Carley and Mr C. McElhaney.

In his statement the appellant contended that the sole reference in Claim 1 to the toy aspect of the coupling mechanism did not impart any effective limitation to the scope of said claim and that each of documents K17 to 19 disclosed all the features of Claim 1, therefore depriving it of novelty.

As regards inventive step, the appellant alleged that the very nature of toys was to mimic the real world and that, when developing new toys, toy designers routinely looked at the mechanisms of other arts and adopted coupling mechanisms known from one application in another application involving similar forces.

He contended in particular that K3 disclosed a coupling distinguishing from the subject-matter of Claim 1 only in that the rod-shaped object was provided with an enlarged end rather than a constriction and that such a small change from an enlargement to a constriction
would have led inevitably the skilled person starting from K3 to a coupling mechanism as defined by claim 1. He argued further that the skilled reader would have rapidly appreciated that a simple and obvious combination of the embodiments of Figures 5 and 20 of K5 would lead directly to a coupling mechanism as defined in claim 1. The appellant also pointed out that K5 disclosed the alternatives of providing a projection on a rod-shaped object and a recess in the receiving channel of a coupling head or a projection in the channel and a constriction on the rod-shaped object. Referring to Figure 21 of K5, the appellant also alleged that, in the represented coupling mechanism, the lateral and axial retention could be adjusted separately in precisely the same manner as in the embodiments of the patent in suit.

Moreover, he considered that the decision to provide a constriction on the rod-shaped object would be forced upon the designer if the rod-shaped object should be closely received in a tubular envelope, as is shown by the Teleflex coupling disclosed in K16 and he took the view that a combination of the teachings of K3 and K16 would also lead to a construction falling within the terms of claim 1.

The appellant contended further that the equivalence of providing, on the one hand, projections on the rod and recesses in the coupling head and, on the other, constrictions on the rod and projections in the coupling head was also demonstrated in K19 and that choosing from such a limited selection could not involve an inventive step.

Furthermore, he pointed out that K15C referred to K15A
and K15B so that the skilled person would consider the teachings of the three documents as a whole and, according to the appellant, it would not involve an inventive step to combine components from these different documents. In particular, a minor adaptation of the struts of K15B to engage the space frame joints of K15C would have been carried out by the skilled person without inventive effort and would have resulted in a coupling mechanism according to claim 1.

IV. Oral proceedings took place on 12 December 2000.

The respondent (patentee) filed during the oral proceedings a new set of eight claims as a basis for a new single request.

The appellant repeated his argumentation already submitted in writing and contended in particular that the qualification of the coupling means as a toy in Claim 1 did not imply an effective technical limitation and that neither the description nor the drawings were reliable enough to allow an unambiguous interpretation of the claimed subject-matter.

The appellant also took the view that a combination of the teachings of either K3 and K16 or Figures 5 and 20 of K5 would automatically lead the skilled person to a construction falling within the terms of claim 1.

The appellant also argued that the connecting means disclosed by K17 and K18 did not differ from the toy coupling mechanism of Claim 1 and that the sole use of such connectors as toys did not imply any technical difference. In his opinion, there was no reason for the skilled person not to use the connectors disclosed by
K17, K18 and K19 as toy coupling mechanisms.

Additionally he pointed out that K19 disclosed a quick-connect fastener particularly well adapted to be used in a construction set and that nothing in K19 suggested that this connector be unsuitable for such a use.

V. At the end of the oral proceedings the appellant requested that the decision under appeal be set aside, that the European patent be revoked and that the appeal fee be reimbursed.

The respondent requested that the decision under appeal be set aside and that the patent be maintained on the basis of claims 1 to 8 as filed in the oral proceedings, page 2 of the description as filed in the oral proceedings and pages 3 to 5 of the description and Figures 1 to 10 as maintained by the opposition division.

VI. Claim 1 reads as follows:

"1. A toy coupling mechanism in combination with a toy building set containing various building elements having other types of coupling means, eg bushings or ball heads, the coupling mechanism comprising a coupling head (20, 30) and a rod-shaped object (10), wherein the coupling head (20), has a pair of resilient walls (27, 37), and further has secondary coupling means (21, 31) for connection with other parts belonging to the toy building set, and the rod-shaped object (10) has a terminal part (12 - 15) adapted to be received and retained in a releasable engagement between the two walls (27, 37) of the coupling head (20)"
characterized in that

at least one of the walls (27, 37) of the coupling head has a projecting collar (28, 38) transverse to the axial direction of the rod-shaped object when mounted in the coupling head, the terminal part of the rod-shaped object has a constriction (15) spaced apart from its end for cooperating with the collar (28, 38), the rod-shaped object (10) near the constriction and spaced axially further from the end than the constriction (15) is adapted to co-operate with surfaces on the walls (27, 37) so as to resiliently urge the walls apart as the rod-shaped object is urged laterally between the walls, and that the walls (27, 37) accommodate the rod-shaped object (10) in a snap action upon lateral insertion of the rod-shaped object therebetween with the collar seated within the constriction and thereby counteracting axial movement of the rod-shaped object relative to the coupling head."

Reasons for the Decision

1. Admissibility of the appeal

The appeal is admissible.

2. Admissibility of the respondent's last request

In his last written submission the appellant referred to decision G 9/92 and contended that the opponent being the sole appellant, the respondent was restricted during the appeal proceedings to defending the patent in the form in which it was maintained by the
opposition division and that the amendments he proposed were neither appropriate nor necessary and should be rejected as inadmissible.

According to the cited decision, a patent proprietor who did not appeal is restricted during the appeal proceedings to "primarily" defending the patent in the form in which it was maintained. This would mean that he cannot as a rule return to the granted version of the patent. The cited decision makes it also clear that amendments proposed by the patent proprietor as a party to the proceedings may be rejected as inadmissible by the Board of Appeal if they are neither appropriate nor necessary, i.e. that amendments which are considered by the Board as appropriate or necessary may be admitted. This is the case where amendments to Claim 1 are made, which limit the protection conferred. Such limiting amendments should, according to the Board, normally be allowed, since they would normally also be in the interest of the opponents.

In the present case, the modifications made in the new Claim 1 submitted as the last single request in the oral proceedings before the Board restrict the protection in comparison to that conferred by Claim 1 as admitted by the opposition division. Therefore, even taking into account the conditions specified in decision G 9/92 cited by the appellant, this request is admissible.

3. Modifications to Claim 1 and to the description (Article 123 EPC)

In the precharacterising portion, the following initial statement indicating the designation of the subject-
matter of the invention:

"A coupling mechanism . . . adapted to be used in a toy building set"

has been modified to read:

"A toy coupling mechanism in combination with a toy building set"

This modification is supported by the description and the drawings of WO-A-92/10262 and limits the scope of the claim to a combination of building elements, a coupling mechanism inclusive, all pertaining to the technical field of toys.

The rest of the precharacterising portion of the new Claim 1 corresponds to the whole content of Claim 1 as granted and the characterising part of Claim 1 is composed of a combination of features which are described on pages 5 and 6 and represented on Figures 1 to 5 of WO-A-92/10262.

As regards the description, the introductory part disclosing the invention has been adapted to the new designation of the subject-matter of the invention as claimed in the new submitted Claim 1 in application to Rule 27(1)(c) EPC.

The modifications being supported by WO-A-92/10262 and the addition of features reducing the protection conferred by the patent, they fulfill all the requirements of Article 123 EPC and are allowable.

4. Interpretation of claim 1
In view of the description and the drawings, the following expressions of claim 1 should be interpreted accordingly:

- **Rod-shaped object**: this expression should be interpreted as referring to a long and slender elongated element, which is an element on its own.

- **A pair of resilient walls**: in view of Figures 2, 3 and 7, this expression should be interpreted as designating two facing walls defining therebetween an elongated cavity adapted to receive completely the terminal part of the rod-shaped object.

- **Terminal part**: this should be considered as a general statement for designating the end portion of the rod-shaped object comprising not only the extreme end of the rod and the adjacent constriction but also an adjacent portion of the main body extending, from the constriction in the direction away from the extreme rod end, upon a length corresponding to the longitudinal length of the resilient walls between the projecting collar and the extremity of the coupling head. This can be seen on figure 7 of the patent, in the coupling head (150), and is clearly implied by the whole disclosure for a person skilled in the art since the outer part of the cavity formed by the two resilient walls is hopper-shaped in order that, upon mounting of the rod-shaped object, the resilient walls 37 be forced apart in this area by the main body and not by the constriction part.

- **To be received**: this should be interpreted as signifying "plainly received" since, as it can be
easily understood from the figures, when mounted in the coupling head (20), the terminal part is completely lodged in the channel 33 of said head. This interpretation is supported by the wording of the claim itself, which indicates that the terminal part is adapted to be received between the two walls of the coupling head.

5. **Novelty (Article 54 EPC)**

The appellant brought forward lack of novelty of the subject-matter of Claim 1 based solely against the state of the art disclosed in K17, K18 and K19.

When examining novelty it should be borne in mind that a claimed subject-matter would lack novelty only if it were derivable as a whole directly and unambiguously from one document (see for example the unpublished decisions T 450/89, T 677/91 and T 511/92).

In the present case, the subject-matter claimed in Claim 1 does not consist solely of a general coupling mechanism suitable for any application but of a combination of a toy coupling mechanism with building elements of a toy building set.

K17 to K19 disclose specifically designed coupling mechanisms combined with components of respectively wiper systems (K17, K18) or automotive equipments (K19) and none of these documents described or even suggested that the disclosed mechanisms could be combined with building components of a toy building set. The toy combination claimed in Claim 1 cannot thus be considered as "directly and unambiguously" derivable from one of said publications.
Therefore, in comparison with the state of the art described in K17, K18 and K19, the subject-matter of Claim 1 is new in the meaning of Article 54 EPC.

6. **The closest state of the art**

6.1 During the proceedings, the appellant expressed some doubts concerning toy building sets to be an art of its own and contended that the term "toy", used in Claim 1 in relation with the coupling mechanism and the building set, does not impart an effective limitation. In his opinion, whether or not a thing is a toy is wholly a matter of the intentions of the user toward that thing which can be treated as a toy or used for some serious purpose. Moreover the appellant considers that use of a connector in a toy construction set does not necessarily imply any change of scale.

6.2 The Board cannot agree with this argumentation for the following reasons:

- A toy is a thing specifically designed and made to be used normally for the amusement of children. Whether or not someone is using a toy for another purpose is irrelevant.

- Since a toy is specifically designed for children, it is usually constructed at a smaller scale than the corresponding object used by the adults. Even if some toys may exceptionally reproduce an object of the real world without a change of scale, it is a fact that most of the toys are miniaturised otherwise the parents could be faced with big problems with some toy models created by their children (for example models of the London bridge
or the Eiffel tower).

- It is true that a toy generally seeks to mimic the external appearance of a thing of the real world but, even if a toy designer looks around to find out what is possible, usually that toy does not mimic all the details of the real thing, particularly if the toy has been built with components of a building set. For example, a toy car made with a building set would mimic the very general shape of the body of a real car and may also mimic the doors, hood, wheels, seats, steering wheel and may be the motor, but it would certainly not mimic in details the small equipments such as, for example, the whole wiper system, the door locks or the seat adjuster mechanisms.

- Since, in the specific technical field of the toy building sets, the building components are multifunctional i.e. suitable to construct different models having the general appearance of different constructions of the real world, the resemblance between the models and the corresponding real constructions can only be approximative (see for example the car, motorbike, tractor or bridge represented in K1). Furthermore, since building sets as such do not occur to exist in the world of adults, toy building sets cannot be said to mimic building sets of the real world which do not even exist.

6.3 Consequently, the Board is of the opinion that toy building sets should be regarded as an art of its own implying specific features in relation with the
miniaturisation of the building elements and their use by children. In particular, toy building components should be simple, light, easy to assemble and to disassemble, of bright colors, made of a neutral material etc...

6.4 Under these conditions, the Board considers that the state of the art closest to the invention can only be a toy building set as such comprising toy connectors as disclosed in either K1 or K5 or K15A to C. Only an ex-post facto analysis would make it possible to start from a motion transmitting remote control assembly as such and arrive at a toy building set (in that respect see Case Law of the Boards of Appeal of the EPO, 3rd edition, 1998, english version, section 3.2, pages 112 and 113).

7. Problem and solution

Starting from one of the toy building sets disclosed in the aforementioned documents (see section 6.4), the problem to be solved is to provide an alternative to the coupling mechanism of the existing building set which would be easy to mount and to dismount and connectible with the various building components of the existing set (see WO-A-92/10262: page 2, lines 5 to 14).

The Board is satisfied that the combination claimed in Claim 1 does solve this problem.

8. Inventive step (Article 56 EPC)

8.1 It should be recalled that the technical teaching in a prior art document should be considered in its entirety...
and that it is not justified arbitrarily to isolate parts of such document from their context in order to derive therefrom technical information which would differ from or even be in contradiction with the integral teaching of that document (see decision T 56/87, OJ EPO 1990, 188).

8.2 The appellant contended that a small change from the enlargement of the end of the rod-shaped object disclosed in K3 to a constriction in that end would led the skilled person to the coupling mechanism claimed in Claim 1.

The Board cannot share this opinion due to the fact that K3 discloses an assembly which is an improvement of the assembly "for use in marine, automotive and aircraft vehicles" as described in US-A-3 424 027 (see K3: column 1, lines 34 to 49) and that there is no indication at all in K3 that the disclosed assembly could be used in a toy building set, let alone in a toy building set according to K1, K5 or K15 A to C, there is a priori no reason for the skilled person to consult this document.

On the contrary, the improvement according to K3 with respect to US-A-3 424 027 increases the force necessary to separate the core element (14) (i.e. the rod-shaped element) from the terminal means (16) (i.e. the coupling head) between five and eight times (see K3: column 1, lines 43 to 49) so that an extremely large force is necessary to separate the core element from said terminal means once they are assembled (see K3: column 3, lines 55 to 58) whereas a toy connector of a toy building set should be built such, that it is for young children using small forces, very easy not only
to assemble it, but also to disassemble it.

Assuming nevertheless that the skilled person would consult K3, the Board also cannot see any reason why, without any hint, he would additionally envisage to modify the terminal means (i.e. the coupling head) in order to adapt it to the terminal part of the push-pull cable shown in K16 and why, after having modified the existing components so that they can be combined, he would decide to use the new connector in combination with components of a toy building set, and this all the more, since in their declarations, Mr D. Carley and Mr C. McElhaney specify that they looked around for "readily" adaptable products. Modifying a product which has already been chosen among a lot of other products can only be the result of an ex-post facto analysis of the claimed solution.

Since, in order to arrive at a combination according to Claim 1, the skilled person starting from the building set of K1 (or K5, or K15 A to C) would need to make at least three operations and combine the teachings of three documents (i.e. consulting K3, adapting the coupling head of K3 to the terminal-part of the rod-shaped object of K16 and adapting the new connector to the building components of K1), it cannot be considered that the combination claimed in Clam 1 follows directly and plainly from the state of the art.

8.3 The appellant also contended that, by combining the teachings of Figures 5 and 20 of K5, the skilled person would arrive obviously at the subject-matter of Claim 1.

K5 discloses several embodiments of swivel couplings
for constructional toy systems i.e. toy coupling mechanisms in combination with toy building sets as claimed in Claim 1. The embodiment shown on Figure 5 of K5 consists of two substantially cylindrical components of the same general form and size having complementary axial male and female coupling means composed respectively of a cylindrical protuberance with a rounded outward lip or rim and a recess with a restricted mouth region. A lateral access slot in the lateral wall of the recess allows radial lateral insertion of the protuberance therein.

However, the male component of this known embodiment is not rod-shaped whereas the female component comprises no pair of walls in the meaning of the invention.

The embodiment shown on Figure 20 also comprises complementary axial male and female coupling means composed respectively of a cylindrical protuberance having axially a succession of constrictions and of a recess with successive internal radial projecting collars. The lateral wall of the recess of the female coupling means does not comprise any lateral access slot so that the protuberance can only be inserted axially in the recess. The structural conceptions of the connectors of Figures 5 and 20 are different as regards the manner their respective components can be assembled together (radially or axially) and, without any hint, there is a priori no reason for the skilled person for arbitrarily transforming the embodiment of Figure 20 so that the coupling means is assembled radially (or laterally) instead of axially as it was conceived originally. A skilled person searching for a radial (lateral) assembly and consulting K5 would directly adopt the embodiment of Figure 5 and would
certainly not try to transform the axial assembly of Figure 20 in a radial (lateral) assembly, such an approach being merely the result of an ex-post-facto analysis. Moreover, even if the teachings corresponding to the embodiments of Figures 5 and 20 were combined, the resulting connector would still not be identical to the mechanism claimed in Claim 1 since it would still comprise neither a rod-shaped object nor a pair of walls in the meaning of the invention.

8.4 Also the Board cannot agree with the appellant's contention that it would be obvious for the skilled person to modify the connector of Figure 21 of K5 in order to arrive at the invention because he would have a priori no reason for adding a superfluous projecting collar inside the cavity of the coupling portion (78) and also no reason to adapt the portion of the rod-shaped object "near the constriction and spaced axially further from the end than the constriction" in order that said portion urges the walls of the head (coupling portion 78) apart as said object is urged laterally between the walls since a snap action already takes place on the reduced diameter of the constriction (see K5: Column 6, lines 25 to 29).

Moreover, the structure of the embodiment of Figure 21 of K5 is such that the terminal part of the rod-shaped object (75) cannot be received in the meaning of the invention (see section 4 above) between the walls of the coupling portion (78). Here again, in the absence of any hint, the transformations needed for rendering the connector of Figure 21 of K5 similar to the mechanism of Claim 1 can only be considered as the result of an ex-post-facto analysis knowing the present invention.
8.5 The appellant also contended that the skilled person would consider the teachings of K15 A, B and C as a whole and that the adaptation of the rod-shaped struts (5) of K15B to engage the arms (3) of the space frame joints (1, 2) of K15C would have resulted in a coupling mechanism according to claim 1 without inventive effort of the skilled person.

The documents K 15 A to C concern space frame joints with arms in particular for constructional toys (see the translation in English of K15A: page 6, line 28; of K15B: page 5, line 23 and of K15C: page 8, line 23) and K15C refers explicitly to K15A and K15B (see the traduction of K15C: page 2, line 37). Therefore, as contended by the appellant, the skilled person would actually consider the teachings of K15 A, B and C as a whole.

However, although the linkage arms of the frame joints disclosed by these documents have an elongated form, each arm is not an entity by itself but is integrally formed with the frame joint (see for example the english translation of K15A: page 3, lines 24 to 25). Therefore, each arm cannot be considered as a rod-shaped object in the meaning of the invention. In fact, if the rod-shaped struts (see K15B: page 3, line 38) are considered as coupling heads as suggested by the appellant, the toy coupling mechanisms disclosed by the documents K15 would consist of complementary coupling means of two coupling heads and not of a rod-shaped object and a coupling head as according to Claim 1.

Moreover, the coupling means as disclosed in K15A (Figure 6) and K15B (Figures 3 and 4) being of the lateral or radial insertion type whereas the coupling
means of K15C is of the longitudinal or axial insertion type i.e. of different conceptions, there is a priori no reason why, as suggested by the appellant, the skilled person would, without any hint, firstly isolate the constricted arms of the frame joint of K15C from their associated joints (see for example Figure 1) and secondly adapt the slots of the rod-shaped struts of K15B in order that they would be able to receive the terminal part of said arms, particularly since the embodiment of K15C is already an improvement of the connection between the arms (3, 4) and the solid formation element (12, 13), solving thereby fixing problems existing in the embodiments of K15 A and K15 B.

Again, such an intellectual reasoning does not seem to be realistic, but rather to be the result of an ex-post facto analysis of the invention.

8.6 As regards documents K17 and K18, the Board considers that they concern very specific embodiments in very specific technical fields remote from the field of toys. Moreover, nothing in K17 and K18 suggests a possible use of the disclosed connectors in relation with toys. For these reasons and also for the reasons already stated in section 6.2 above, the Board has some doubt that, without any hint, a toy designer starting from an existing toy building set such as that disclosed from example in K1 or K5 or K15A to C would take his inspiration from a detail component of a very specific wiper system entity described in documents concerning the field of automotive equipment.

8.7 The same argumentation remains valid with respect to K19 which concerns a quick-connect fastener having a
structure quite different from the coupling mechanism of Claim 1 since the terminal part of the rod-shaped object of K19 is not adapted to be received between the two walls of the head in the meaning of the invention but is free to be assembled at any of a predetermined number of points along the axis of the rod and since said walls are not resilient themselves as according to the invention but supported at the extremities of a shank forming a resilient hinge. Therefore, even if the skilled person would consult K19, although it rather seems complicated to be handled by a child, he would not arrive at the invention by a mere transposition of the disclosed fastener to the starting building set but some adaptations of both the coupling head and the rod-shaped object would be necessary so that it cannot be considered that the combination claimed in Claim 1 follows plainly and logically from the state of the art disclosed in K19.

9. For the foregoing reasons, the Board considers that the invention as claimed in Claim 1 involves an inventive step in the meaning of Article 56 EPC and that the reasons given by the appellant do not prejudice the maintenance of the patent in its amended version submitted by the respondent at the oral proceedings.

10. **Reimbursement of the appeal fee (Rule 67 EPC)**

According to Rule 67 EPC, the reimbursement of appeal fees can be ordered solely in the event of interlocutory revision or where the Board of Appeal deems an appeal to be allowable. Since this is not the case in the present proceedings, the appellant's request for reimbursement of the appeal fee must be refused.
Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance with the order to maintain the patent on the basis of the following documents:

   **Claims:**  Claims 1 to 8 as filed in the oral proceedings,

   **Description:**  Columns 1 and 2 as submitted in the oral proceedings and columns 3 to 7 as maintained by the opposition division and

   **Drawings:**  Figures 1 to 10 as maintained by the opposition division.

The Registrar:  The Chairman:

G. Magouliotis  C. Andries