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File Number: T 38/90 - 3.2.2

Application No.: 83 200 606.8

Publication No.: 0 093 473

Title of invention: Process and apparatus for the preparation of mortars

Classification: B28C 7/04

D E C I S I O N  
of 12 November 1991

Applicant: Framix B.V.

Opponent: Maschinen- und Apparatebau A. Tepe GmbH

Headword:

EPC Article 56

Keyword: "Closest prior art"  
"Inventive step (denied)"

Headnote



Case Number : T 38/90 - 3.2.2

**D E C I S I O N**  
of the Technical Board of Appeal 3.2.2  
of 12 November 1991

**Appellant :**  
(Proprietor of the patent)

Framix B.V.  
Mauritskade 5  
NL - 2514 HC Den Haag (NL)

**Representative :**

de Boer, Hindrik Geert Jan  
de Boer & Wigman  
PO BOX 5265  
De Lairesestraat 131-135  
NL - 1007 AG Amsterdam (NL)

**Respondent :**  
(Opponent)

Maschinen- und Apparatebau A. Tepe GmbH  
Kopernikusstrasse 6  
W - 2848 Vechta (DE)

**Representative :**

Rabus, Werner W., Dipl.-Ing.  
Eisenführ, Speiser & Strasse  
Martinistrasse 24  
W - 2800 Bremen 1 (DE)

**Decision under appeal :**

Decision of Opposition Division of the European  
Patent Office dated 19 October 1989 revoking  
European patent No. 0 093 473 pursuant to  
Article 102(1) EPC.

**Composition of the Board :**

**Chairman :** G.S.A. Szabo  
**Members :** J. du Pouget de Nadaillac  
W. Schar-Schuppiser

## Summary of Facts and Requests

I. The appeal is directed against the decision of the Opposition Division dated 19 October 1989 revoking the European patent No. 0 093 473 (patent application No. 83 200 606.8) on the ground that the subject-matter of the claims do not involve an inventive step as required by Articles 52 and 56 EPC in view of the following patent publications:

- (1) : DE-C-2 148 048,
- (2) : US-A-4 298 288 and
- (3) : DE-A-3 004 890,

hereinafter referred to as document (1), (2) and (3), respectively.

II. The Appellant (Proprietor of the patent) lodged an appeal on 18 December 1989 and filed his Statement of Grounds on 21 February 1990, in which he defended two set of claims (main request and first auxiliary request) corresponding to the claims refused by the Opposition Division. Moreover, in his view, the patent publication FR-A-2 357 400 (hereinafter referred to as document (4)) should be regarded as the closest prior art for the present invention. He also filed several sworn declarations.

III: In response to a Board's communication issued together with summons to oral proceedings, the Appellant filed another set of claims as a second auxiliary request.

IV. Oral proceedings were held on 12 November 1991. To avoid any doubt as to the submitted sets of claims, the Appellant filed three new sets of claims, replacing those already on file, as main request, and first and second

auxiliary requests, respectively. Each set comprises two claims, a method Claim 1 and an apparatus Claim 2.

V. Claim 1 of the main request reads as follows:

1."Process for the preparation of mortar, using a mobile silo (1) for aggregate and binder, which are contained in separate compartments (5, 6) within the silo (1) equipped with discharge and mixing means (9, 10, 12), wherein the volumetric flows of aggregate and binder are mutually adjusted, whereupon the aggregate and the binder are mixed together with the addition of water, characterized in that, while the silo (1) is located in a storage yard or in a storage space for aggregate and binder, the containers (5, 6) of the silo (1) are filled, the silo (1) is loaded onto a truck and transported to the building site, where it is unloaded from the truck and in a vertical position stood up on legs of an undercarriage (3) rigidly attached to the silo (1), and that at the building site, the volumetric flows of aggregate and binder are adjusted, whereupon aggregate and binder are mixed together with water, yielding the mortar ready for use at the building site."

2." Apparatus for the preparation of mortar according to the process of claim 1, comprising a silo (1) which is provided at the bottom with a funnel shaped section (2) and which is rigidly attached to an undercarriage (3) with legs, such that the silo can stand upright, wherein the silo (1) is equipped with fittings and accessories that facilitate loading, transport and unloading of the apparatus on and from container-transporting trucks in a vertical position, wherein the silo has at least one partition (4) for the separate storage of aggregate and binder in individual compartments (5, 6), each compartment having an outlet, the outlets leading to a mixer in a

mixing chamber (10), the outlet for the aggregate being provided with a conveyor screw (9), the axle of which also forms the axle of the mixer in the mixing chamber (10), whilst the outlet of the binder compartment is provided with another conveyor screw (12) at a distance from the first conveyor screw, in such a way that the two conveyor screws (9, 12) discharge into the mixing chamber (10) and that the speeds of the conveyor screws (9, 12) for the binder and for the aggregate are adjustable relative to one another."

In the first auxiliary request, the words "in a horizontal position" were added to read "...loaded onto a truck in a horizontal position.." in line 11 of the process claim and "...transport in a horizontal position.." in line 7 of the apparatus claim.

In the second auxiliary request, the wording of the process Claim 1 is nearly the same as that of the first auxiliary request, the main difference being the two-part form of the claim. Whilst Claims 1 of the main request and auxiliary request I are based upon document (4), Claim 1 of auxiliary request II is based upon document (3) as far as the preamble is concerned. The consequential amendments in the last claim have therefore been as follows:

- In the preamble, the word "truck" is replaced by "mobil system", and the feature " and stood up on legs of an undercarriage (3) rigidly attached to the silo (1)" is moved to the other portion.
- The characterising portion reads as follows: .." characterised in that the silo (1) is loaded onto a container-transporting truck forming partly the mobile system in a horizontal position and unloaded from the truck in a vertical position, whereby it can

be stood up on legs of an carriage (3) rigidly attached to the silo (1)."

The apparatus Claim 2 of this request is identical with the corresponding one of the first auxiliary request.

VI. The Appellant's arguments submitted during the appeal proceedings can be summarised as follows:

Document (3) should be dismissed as being the nearest prior art, since it does not relate to mobile systems and describes only a silo with the mixing means underneath. The other necessary parts, like at least the frame for supporting the described device, are not shown. Also it concerns another problem, namely the precise dosing of the mortar components. Furthermore, the description is so broad and so obscure, that the isolation of a single sentence of page 9, suggesting some mobility, is insufficient to justify the choice of this document as closest prior art, especially when the rest of the citation says nothing about mobility. The sentence could be applied as well for silos, which are parts of cumbersome systems transported by trucks, like, for example, those shown by documents (4) and (2). Hence, it is more justified to choose document (4) as being the closest prior art, especially as it is directed to a complete mobile system and aims to provide an independent system. This art shows two main disadvantages: the system described therein is complex and clumsy and must most of time remain at the building site, since its mobility is limited. The complex arrangement of the compartments of this known device does not even suggest a silo in the right meaning of this word, which expresses the property of being moved from one point to the another, and the pivotal fitting means shown in this prior art for attaching the compartments part to the mixing and

discharging part cannot be considered as fitting means for loading a silo onto a truck. Therefore, this document gives no suggestion for such a kind of transport.

In view of turning to another problem to be solved, only a part of this known prior art device is taken and transported on a truck, once filled with the aggregate and binder. Several new steps beyond the teaching of this document have been made according to the present invention.

Document (1) shows that, until the filing date of the contested invention, only containers, provided with one compartment and with legs, had been made transportable on a truck in an horizontal way. These containers are not apparatuses for preparing mortar. Moreover, this document gives no idea of filling the silo at the storage stage. Hence, no reason appears which would led the man skilled in the art to combine this document either with document (4) or with document (3). The other documents prove a general trend in the building industry to use complex and cumbersome mobile plants for the preparation of mortar and the man skilled in the art would not therefore have combined a document relating to one of these complex plants with a document concerning a one compartment container for storing a component at the building site.

VII. The Respondent (Opponent) argued as follows:

Even if document (4) is the starting point, it describes a mobile system, so that it cannot be denied that the problem of mobility is part of the teaching of this prior art. Moreover, it teaches a mobile system using a truck, so that it can be brought to a building site. What remains new in Claim 1 of the main request is then the step of

filling in the aggregate and the binder at the storage site. Such a step is clearly taught by document (1), which moreover shows all the other features, even those of the auxiliary requests. Concerning the apparatus, document (4) discloses also fitting means for loading and unloading the silo, so that the sole new feature is to be seen in the different screws. Having at least two compartments, it is obvious to use a screw for each one.

Moreover, this feature is itself disclosed in document (3), which is, in his view, the closest prior art, since it concerns also a process for preparing mortar and clearly suggests to fill the silo at the storage site and to transport it, once filled, to the building site, where it necessarily has to be placed in a vertical position. The skilled person faced with the teaching of this document saw that the transport means for doing so are not specifically disclosed in this document and he would have looked for one as a solution. Document (1) gave him an immediate answer, which moreover corresponded to the usual way of transporting these silos, namely in an horizontal position on a truck.

VIII. The Appellant requests that the decision under appeal be set aside and that the patent be maintained on the basis of the main, first or second request as filed during the oral proceedings. The Respondent request the appeal to be dismissed.

## Reasons for the Decision

1. The appeal is admissible.
2. Admissibility of amendments (Article 123(2) EPC)

The inclusion of the feature "in a horizontal position" in the claims of the auxiliary request I ("loaded in a horizontal position onto a truck") had been contested by the Respondent. However, the description of the contested patent, as filed, discloses that "the silo may be designed such that it can, with fittings and accessories, be loaded on a truck and conveyed as a container". The figures moreover show girders extending along the length (height) of the silo. Their use, although not expressly disclosed, could only be seen in supporting the silo in the horizontal way. It is also well-known that these silos cannot be transported with their undercarriage in a vertical position because of their height (length), which exceeds the limit allowable on streets. Thus, the transport of these silos on a truck in a horizontal position is a mere question of common sense. The Respondent also agreed to this during the oral proceedings.

The amended claims do not broaden the scope of the granted Claim 1. The Board is, therefore, of the opinion that there are no objections under Article 123(2) or (3) EPC to these claims.

3. Novelty of the subject-matter of the claims was never disputed. Since none of the available prior art documents shows all the features of the claims of all the requests, the subject-matter of these claims is therefore to be considered as novel within the meaning of Article 54 EPC.

As seen above, the differences between the different requests are slight. All these requests will consequently be considered simultaneously for the inventive step.

4. Closest state of the art

4.1 Document (4), considered by the Appellant to be the closest prior art, discloses a complete mobil system for the preparation of mortar comprising two wheeled parts attached one to another, so that the whole system can be trailed. A first wheeled part is the undercarriage, which comprises the discharge and mixing means and also an horizontal axis as attachment means for support arms of the second wheeled part, the silo itself. By means of the support arm pivoting on this axis, the silo can swing from a vertical operative position just above the undercarriage to an horizontal trailing position behind the undercarriage. The silo itself is of a complicated structural form with several hoppers or compartments surrounding a centrally located vertical delivery tube of an upper compartment. The funnel shaped bottom of the silo contains all the outlets of these compartments. When transport occurs, the external halves of the peripheral compartment need to be demounted. This very cumbersome system cannot therefore be moved with having either the aggregate or binder, or both, already inside the compartments. The silo has to be filled at the building site after transport. The mixing means are mentioned, but not described.

4.2 Document (3), on the other hand, concerns a process and an apparatus for the preparation of mortar. A hopper divided in two compartments for the separate storage of the aggregate and the binder is fixedly mounted on and above a discharge and mixing unit. This prior art document deals mainly with the problem of providing adjustable mixing means and teaches the following solution:

Each compartment has an outlet leading to the mixer and the outlet for the aggregate is provided with a conveyor screw, the axle of which also forms the axle of the mixer in the mixing chamber, whilst the outlet of the binder compartment is equipped with another conveyor screw at a distance from the first conveyor screw, in such a way that the two conveyor screws discharge into the mixing chamber and that the speeds of the conveyor screws for the binder and for the aggregate are adjustable relative to one another.

On page 9, lines 23 to 29 of the description of this prior art, it is suggested to rationalize the work by transporting the silo to the building site with its compartment already filled, so that only water is to be added at the site.

- 4.3 As far as the technical problem vis-à-vis the closest state of the art is concerned, the patent specification suggests that the aim was to provide an improved process, in which the silo is filled at the storage site, then conveyed to the building site, where the volumetric flows of the mortar components are adjusted. Two aspects were therefore considered as important, namely the mobility of the whole system together and the adjustment of the composition by the mixing means.

In document (4), the first aspect, i.e. mobility is only incompletely conveyed, while in document (3) it is clearly suggested as a further possibility. However, document (3) deals also completely with the second aspect, that is to say with the adjustable mixing means, showing exactly the same characteristics as in the present invention. No difference is seen between the mixing means of this prior art and those of the present invention. Contrary to the view of the Appellant, the expression "at a distance from

the other screw" brings no difference. When two screws are provided, they are necessarily at a distance from one another.

4.4 The Board therefore disagrees with the Appellant's statement that document (3) refers to other problems. The Appellant made this statement after having reformulated the problem in relation to the disclosure of the other -in his view closest - prior art, namely document (4), and having limited said problem to the sole mobile aspect of the system. However, by doing this, he neglects the group of features of the claims relating to the mixing means, which solves the other problem and which is not disclosed in document (4). It has already been established through a number of decisions of the Board of Appeal that the statement of the problem should be determined on the basis of objective criteria, namely on what is actually achieved vis-à-vis the state of the closest art. By choosing the wrong document, the Appellant arbitrarily increased his relative achievements and the distance from the state of the art. For this reason the Board cannot follow the argument.

In view of the objects of the present invention as disclosed, document (3) appears to be the nearest prior art, since this already solves one possible object of the present invention and makes a suggestion in respect of the other one.

4.5 The silo according to document (3) has only two compartments, as it is the case with the present invention, whereas the cumbersome silo according to document (4) is provided with eight compartments. The Board does not see why, as alleged by the Appellant, the device according to document (3) should necessarily be part of a complicated system such as those described in

documents (4) and (2). Other documents, see for example US-A-2 031 326, contradict this assertion. Furthermore, document (3), in the above-mentioned passage of page 9, indicates expressly that the device as described in this document, and not as a part of a whole system, can be transported. The skilled person, reading this document, receives this teaching without conditions attached to it.

A comparison between the main request and the second auxiliary request also shows clearly that this last request, which is based upon document (3), leads to substantially reduced characterising portions of the claims.

- 4.6 For all these reasons, the Board considers document (3) as the state of the art closest to the invention.
5. Document (3), in the above-mentioned passage of page 9 of its description, states expressly that the silo is previously filled ("... dem mit allen Komponenten gefüllten Behälter auf die Baustelle gebracht wird ..."). The filling takes presumably place at the storage site or at the previous building site. Moreover, the device according to this prior art obviously can only be used when placed in a vertical position, so that the step of unloading the apparatus in a vertical position is inherent to the known apparatus. With document (3), however, the skilled person has no teaching yet as to the means for transporting the silo.
6. Starting from this prior art, the only problem to be solved is to provide an improved process, which allows the silo, once filled, to be transported. The present invention solves this problem by providing the silo with an undercarriage and by loading it onto a truck ("in a horizontal position" for the auxiliary requests),

transporting it to the building site and unloading it from the truck in a vertical position, all this with the materials already loaded into the silo. The present invention also provides for the same object an apparatus, in which the silo is rigidly attached to an undercarriage having legs and is equipped with fittings and accessories that facilitates loading, transport (in a horizontal position) and unloading of the apparatus on or from container-transporting trucks in a vertical position.

7. Document (1) concerns a silo for storing one fluid or grain material at the building site and deals with the problem of avoiding the usual emptying of this silo before moving it from one place to another. The solution proposed is the same as in document (3), namely to transport the silo filled. The man skilled in the art has consequently a direct link between documents (3) and (1). The Board cannot consequently follow the view of the Appellant that it is not obvious to combine these two documents. Indeed, the silo according to document (1) has only one compartment and no mixing means, but these differences have nothing to do with the problem to be solved, so that they neither lead the skilled person to disregard this document, nor prevent him from using a truck for the purposes.

8. This document (1) teaches to provide a silo with an undercarriage having legs and with fittings and accessories, so that the silo can be loaded, transported in a horizontal position and unloaded in a vertical position on and from a container-transporting truck. Hence, the man skilled in the art by applying directly this solution to the apparatus according to document (3) comes to the present subject-matter, as claimed in any one of the requests. The additional feature in the auxiliary sets, i.e. the necessity to transport in a horizontal

position represents, as explained, no inventive contribution either.

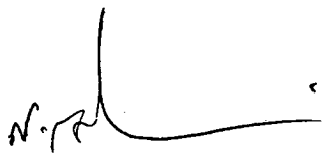
9. Therefore, the subject-matter of all the claims lacks inventive step (Article 56 EPC) and, thus, these claims are not patentable (Article 52(1) EPC).

**Order**

For these reasons, it is decided that:

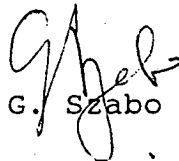
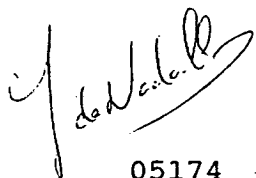
The appeal is dismissed.

The Registrar:



N. Maslin

The Chairman:

  
G. Szabo

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