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**Datasheet for the decision
of 17 June 2014**

Case Number: T 0798/12 - 3.2.07

Application Number: 04769021.9

Publication Number: 1685045

IPC: B65G47/90

Language of the proceedings: EN

Title of invention:
IMPROVED PICK AND PLACE GRIPPER

Patent Proprietor:
AEW Delford Systems Limited

Opponent:
Weber Maschinenbau GmbH Breidenbach

Headword:

Relevant legal provisions:

EPC Art. 56
RPBA Art. 13(1)

Keyword:

Understanding of claims 1 (main request, third auxiliary request); inventive step - yes (third auxiliary request)

Decisions cited:

Catchword:



**Beschwerdekammern
Boards of Appeal
Chambres de recours**

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Case Number: T 0798/12 - 3.2.07

D E C I S I O N
of Technical Board of Appeal 3.2.07
of 17 June 2014

Appellant: Weber Maschinenbau GmbH Breidenbach
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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
23 January 2012 concerning maintenance of the
European Patent No. 1685045 in amended form.**

Composition of the Board:

Chairman I. Beckedorf
Members: H.-P. Felgenhauer
H. Hahn

Summary of Facts and Submissions

- I. The opponent (appellant) filed an appeal against the decision of the opposition division maintaining European patent No. 1 685 045 as amended.
- II. It requested that the decision under appeal be set aside and that the patent be revoked.
- III. The patent proprietor (respondent) requested that the appeal be dismissed, or, alternatively, that in setting aside the decision under appeal the patent be maintained in amended form on the basis of one of the sets of claims filed as first and second auxiliary requests with letter of 30 April 2014 and as first to third auxiliary requests with letter of 12 October 2012, the latter being renumbered as third to fifth auxiliary requests.

Both parties had filed an auxiliary request for oral proceedings.

IV. *Claims 1*

Claim 1 according to the main request reads as follows:

Tooling for picking up portions of foodstuff from a conveyor belt, by which in use articles can be picked up from one position and lowered into a second position, which tooling comprises: two blades (54, 56) each having a leading edge and trailing edge, and both being movable between a first position in which their leading edges are separated by a large gap and a second position in which the leading edges overlap, or are in contact or are separated by a smaller gap; and drive means (60, 62) for effecting relative movement between

the two blades (54, 56) for moving them between the first and second positions, whereby in use with the blades (54, 56) in the first position the tooling can be lowered so that the undersides of the two blades just make contact with a surface on which an article is resting with the two leading edges of the blades on opposite sides of the article and the latter can be picked up by the blades by operating the drive means (60, 62) so as to move the blades (54, 56) into their second position below the article; and further comprising a movement restraining mechanism (80, 90) including article engaging means, whereby the engagement between the article engaging means and the article will resist movement of the article relative to the article engaging means as a result of the blades sliding below the article, and the article engaging means is in use adapted to remain stationary while the blades move relatively thereto from their first to their second positions, characterised in that:

(a) the tooling is adapted to be secured to the moveable end of a computer-controlled robotic arm (12, 14, 16) enabling the articles to be rotated in transit from said one position to the second position; and

(b) the movement restraining mechanism comprises at least one resiliently deformable member (98) located above the plane containing the two blades (54, 56), and spaced therefrom by a distance which is less than the thickness of each article to be picked up by the tooling, so that in use as the tooling is lowered onto an article, the underside of the deformable member (98) engages the upper surface of the article and becomes deformed in order to accommodate the thickness of the article before the blades make contact with a surface on which the article rests, the resulting downward

force on the article, and frictional resistance to movement between the deformable member (98) and the article, serving to restrain the latter from moving under the influence of subsequent blade movement therebelow, either to pick up or to release the article.

Claim 1 according to the first auxiliary request reads as follows:

Tooling for picking up portions of foodstuff from a conveyor belt, by which in use articles can be picked up from one position and lowered into a second position, which tooling comprises: two blades (54, 56) each having a leading edge and trailing edge, and both being movable between a first position in which their leading edges are separated by a large gap and a second position in which the leading edges overlap, or are in contact or are separated by a smaller gap; and drive means (60, 62) for effecting relative movement between the two blades (54, 56) for moving them between the first and second positions, whereby in use with the blades (54, 56) in the first position the tooling can be lowered so that the undersides of the two blades just make contact with a surface on which an article is resting with the two leading edges of the blades on opposite sides of the article and the latter can be picked up by the blades by operating the drive means (60, 62) so as to move the blades (54, 56) into their second position below the article; and further comprising a movement restraining mechanism (80, 90) including article engaging means, whereby the engagement between the article engaging means and the article will resist movement of the article relative to the article engaging means as a result of the blades sliding below the article, and the article engaging

means is in use adapted to remain stationary while the blades move relatively thereto from their first to their second positions, characterised in that:

(a) the tooling is adapted to be secured to the moveable end of a computer-controlled robotic arm (12, 14, 16) enabling the articles to be rotated in transit from said one position to the second position; and

(b) the movement restraining mechanism comprises at least one resiliently deformable member (98) located above the plane containing the two blades (54, 56), and spaced therefrom by a distance which is less than the thickness of each article to be picked up by the tooling, so that in use as the tooling is lowered onto an article, the underside of the deformable member (98) engages the upper surface of the article and the member (98) becomes deformed, including deformation of its underside, in order to accommodate the thickness of the article before the blades make contact with a surface on which the article rests, the resulting downward force on the article, and frictional resistance to movement between the deformable member (98) and the article, serving to restrain the latter from moving under the influence of subsequent blade movement therebelow, either to pick up or to release the article.

Claim 1 according to the second auxiliary request reads as follows:

Tooling for picking up portions of foodstuff from a conveyor belt, by which in use articles can be picked up from one position and lowered into a second position, which tooling comprises: two blades (54, 56) each having a leading edge and trailing edge, and both

being movable between a first position in which their leading edges are separated by a large gap and a second position in which the leading edges overlap, or are in contact or are separated by a smaller gap; and drive means (60, 62) for effecting relative movement between the two blades (54, 56) for moving them between the first and second positions, whereby in use with the blades (54, 56) in the first position the tooling can be lowered so that the undersides of the two blades just make contact with a surface on which an article is resting with the two leading edges of the blades on opposite sides of the article and the latter can be picked up by the blades by operating the drive means (60, 62) so as to move the blades (54, 56) into their second position below the article; and further comprising a movement restraining mechanism (80, 90) including article engaging means, whereby the engagement between the article engaging means and the article will resist movement of the article relative to the article engaging means as a result of the blades sliding below the article, and the article engaging means is in use adapted to remain stationary while the blades move relatively thereto from their first to their second positions, characterised in that:

(a) the tooling is adapted to be secured to the moveable end of a computer-controlled robotic arm (12, 14, 16) enabling the articles to be rotated in transit from said one position to the second position; and

(b) the movement restraining mechanism comprises at least one resiliently deformable member (98) formed of resiliently deformable material, located above the plane containing the two blades (54, 56), and spaced therefrom by a distance which is less than the thickness of each article to be picked up by the

tooling, so that in use as the tooling is lowered onto an article, the underside of the deformable member (98) engages the upper surface of the article and the member (98) becomes deformed in order to accommodate the thickness of the article before the blades make contact with a surface on which the article rests, the resulting downward force on the article, and frictional resistance to movement between the deformable member (98) and the article, serving to restrain the latter from moving under the influence of subsequent blade movement therebelow, either to pick up or to release the article.

Claim 1 according to the third auxiliary request reads as follows:

Tooling for picking up portions of foodstuff from a conveyor belt, by which in use articles can be picked up from one position and lowered into a second position, which tooling comprises: two blades (54, 56) each having a leading edge and trailing edge, and both being movable between a first position in which their leading edges are separated by a large gap and a second position in which the leading edges overlap, or are in contact or are separated by a smaller gap; and drive means (60, 62) for effecting relative movement between the two blades (54, 56) for moving them between the first and second positions, whereby in use with the blades (54, 56) in the first position the tooling can be lowered so that the undersides of the two blades just make contact with a surface on which an article is resting with the two leading edges of the blades on opposite sides of the article and the latter can be picked up by the blades by operating the drive means (60, 62) so as to move the blades (54, 56) into their second position below the article; and further

comprising a movement restraining mechanism (80, 90) including article engaging means, whereby the engagement between the article engaging means and the article will resist movement of the article relative to the article engaging means as a result of the blades sliding below the article, and the article engaging means is in use adapted to remain stationary while the blades move relatively thereto from their first to their second positions, characterised in that:

(a) the tooling is adapted to be secured to the moveable end of a computer-controlled robotic arm (12, 14, 16) enabling the articles to be rotated in transit from said one position to the second position; and

(b) the movement restraining mechanism comprises at least one resiliently deformable member located above the plane containing the two blades (54, 56), spaced therefrom by a distance which is less than the thickness of each article to be picked up by the tooling, and comprising a dished plate of spring steel or the like, so that in use as the tooling is lowered onto an article, the underside of the deformable member engages the upper surface of the article and the member becomes deformed in order to accommodate the thickness of the article before the blades make contact with a surface on which the article rests, the resulting downward force on the article, and frictional resistance to movement between the deformable member and the article, serving to restrain the latter from moving under the influence of subsequent blade movement therebelow, either to pick up or to release the article.

V. The following documents referred to in the decision under appeal are taken into account:

D1 WO-A-99/00306

D2 DE-U-202 03 818.

Furthermore the following documents filed by the appellant with the grounds of appeal are referred to:

D5 EP-A-0 569 674

MFP1 SCHUNK Spann- und Greiftechnik, 2-Finger-Winkelgreifer Type SGB, pneumatisch, Kleiner Kunststoff-Winkelgreifer

MFP2 Firmenprospekt, ALLES SCHUNK1, der Fa. SCHUNK Spann- und Greiftechnik

MFP3 SGB Pneumatisch, 2-Finger-Winkelgreifer, Kleinteile-Winkelgreifer der Fa. SCHUNK

MFP4 Ludwig Seegräber, Greifsysteme für Montage, Handhabung und Industrieroboter, expert verlag 1993, Seiten 8, 115 - 117 und 136

MFP5 Jörg Bartenschlager et al, Handhabungstechnik mit Robotertechnik, Viewegs Fachbücher der Technik, 1998, Seite 101

MFP6 Stefan Hesse, Grundlagen der Handhabungstechnik, Carl Hanser Verlag 2006, Seite 204

VI. *Impugned decision*

According to the impugned decision starting from the tooling of D1 as closest prior art further consideration of general technical knowledge and of the teaching of D2 or of D5 (reasons, points 5.1 to 5.3) does not lead to the tooling of claim 1 of the patent in suit in an obvious manner.

VII. The submissions of the appellant relevant for the present decision are as follows.

The features of claim 1 relating to the resiliently deformable member need to be understood taking into account the proper function of this member due to its resilient deformability.

Consequently, the range of thicknesses for articles which can be picked by the tooling according to claim 1 is limited inherently in view of the resilient deformability being limited based on the properties of the resilient deformable member in that respect.

Considerations concerning the range of thicknesses thus have to be considered in the examination of inventive step starting from D1 as closest prior art, since the movement restraining mechanism of the tooling according to D1 makes use of a cylinder/piston unit which does not underlie such limitations.

Although D1 does not give an indication for a modification of the tooling disclosed by this document by replacing the pneumatic cylinder/piston unit it is apparent that the skilled person, in an attempt to simplify the structure and the use of this tooling, would consider replacement of the cylinder/piston unit in view of the less complicated movement restraining mechanism in the form of a resiliently deformable

member encompassed by the general technical knowledge or known from either D2, D5 or MFP1 to MFP6. The tooling according to claim 1 of the main request thus cannot be considered as involving inventive step.

Amended claims 1 according to the first and second auxiliary requests are *prima facie* not allowable, i.a. since they do not have a proper basis in the application as originally filed. Therefore, they should not be admitted into the proceedings.

The movement restraining mechanism of the tooling according to claim 1 of the third auxiliary request is further defined by reference to a dished plate of spring steel. This definition leaves the movement restraining mechanism to a large extent undefined. Moreover, since it comes within the general technical knowledge that a disc spring can be used as the movement restraining mechanism of the tooling of D1 or that within the movement restraining mechanism according to MFP1 to MFP6 a disc spring can be used as the resiliently deformable member, the tooling of claim 1 does not involve an inventive step.

VIII. The submissions of the respondent relevant for the present decision are as follows.

Claim 1 and the expressions used therein should be given their proper meaning based on the normal meaning of the expressions concerned as well as the technical context to which they relate.

The range of thicknesses for articles which can be picked by the tooling of D1 is limited due to the cylinder/piston unit used as movement restraining

mechanism like it is the case for the tooling according to claim 1 of the main request.

Considerations concerning the range of thicknesses can thus not be considered in the examination of inventive step starting from D1 as closest prior art.

Moreover, it needs to be taken into account that D1 does not give any indication for a modification of the tooling disclosed by this document by replacing the pneumatic cylinder/piston unit.

Neither one of the documents MFP1 to MFP6 qualifies as further prior art since these documents, for which it is questionable whether they have been available to the public before the earliest priority date of the patent in suit, do, unlike D1, not concern the field of tooling relating to foodstuff. Likewise the tooling of claim 1 of the main request is not rendered obvious considering, next to D1 as closest prior art, general technical knowledge, for which no evidence has been provided, or the teaching of D2 or of D5.

Amended claims 1 according to the first and second auxiliary requests are *prima facie* allowable and should thus be admitted into the proceedings.

The tooling according to claim 1 according to the third auxiliary request is equipped with a resiliently deformable member as movement restraining mechanism which comprises a dished plate of spring steel of a particular type. The dished plate is particularly well suited to constrain articles. Since neither the well known disk spring nor the movement restraining mechanism according to MFP1 to MFP6 give an indication concerning the utilisation of such a particular spring

in the tooling according to D1 the tooling of claim 1 is not rendered obvious.

IX. In the annex to the summons to oral proceedings the Board i.a. gave its preliminary opinion with respect to the subject-matter of claim 1, the disclosure of document D1, obviousness in view of D1 and general technical knowledge and the admissibility of documents MFP1 to MFP6.

X. Oral proceedings before the Board took place 17 June 2014.

Reasons for the Decision

1. *Subject-matter of claim 1 of the main request*

1.1 Claim 1 is directed to a tooling for picking up portions of foodstuff from a conveyor belt.

According to features of the entering clause of claim 1 the tooling comprises two blades, which can be brought in contact with a surface on which an article is resting and moved below the article, and a movement restraining mechanism.

1.2 The movement restraining mechanism includes article engaging means, whereby the engagement between the article engaging means and the article will resist movement of the article relative to the article engaging means as a result of the blades sliding below the article, and the article engaging means is in use adapted to remain stationary while the blades move relatively thereto from a first to a second position.

- 1.3 According to characterising feature (b) the movement restraining mechanism comprises:
 - 1.3.1 (b1) at least one resiliently deformable member located above the plane containing the two blades, and spaced therefrom by a distance which is less than the thickness of each article to be picked up by the tooling,
so that
 - 1.3.2 (b2) in use as the tooling is lowered onto an article, the underside of the deformable member engages the upper surface of the article and the member becomes deformed in order to accommodate the thickness of the article before the blades make contact with a surface on which the article rests,
 - 1.3.3 (b3) the resulting downward force on the article, and frictional resistance to movement between the deformable member and the article, serving to restrain the latter from moving under the influence of subsequent blade movement therebelow, either to pick up or to release the article.
- 1.4 Expressions encompassed by feature (b) of the characterising portion of claim 1 according to the main request have been considered as having the meaning, indicated by the Board during the oral proceedings:
 - 1.4.1 The expression "resiliently deformable member" is understood as relating to a member which is determined by the function attributed to said member, i.e. that it is resiliently deformable.

- 1.4.2 The article engagement means formed by "the underside of the deformable member" is understood as that by itself it does not need to be resiliently deformable.
- 1.4.3 The expression "the thickness of each article to be picked up by the tooling" is understood as a reference to a range of thicknesses for articles which can be picked up depending on the property of the particular "resiliently deformable member" concerned to resiliently deform.
- 1.4.4 The above understanding has been arrived at considering, as referred to by the respondent, the normal meaning of the expressions concerned as well as the technical context to which they relate. Concerning the range of thicknesses according to point 1.4.3 above the Board considered the correlation between the degree of deformation and the thicknesses of different articles referred to in the description of the patent in suit (cf. paragraph [0029]) next to the argument of the appellant that such a correlation needs to be understood as being part of the general technical knowledge or understanding of the skilled person.

2. *Document D1*

- 2.1 It is undisputed that corresponding to the impugned decision the tooling of D1 represents the closest prior art.
- 2.2 As indicated in the Board's annex to the summons to oral proceedings (cf. points 7.2.2 - 7.2.3) and discussed at the oral proceedings D1 discloses a tooling for picking up portions of foodstuff from a conveyor belt with a base plate 50 which is lowered towards a work surface 21 on which articles rest to

bring front edges 32 and bevel surfaces 34 of spatula elements 22 and 24, which correspond to the two blades of the tooling of the patent in suit, in contact with the work surface (page 15, lines 9 - 12; figures 2A, 2B).

In a following step a **piston 76 lowers a restraining mechanism in the form of a stabilising bar 84** to the article and presses it firmly to the work surface 21 (page 15, lines 12 - 14; figures 2B, 2C).

The **spatula elements are then ready to be moved underneath the article**, which is held in a fixed position by the stabilizing bar (page 15, lines 14 - 25; figures 2C, 2D).

2.3 The **actuation of the restraining mechanism via a piston** enables, as indicated by the Board during the oral proceedings, contrary to the resiliently deformable member of claim 1 of the patent in suit (cf. point 1.4.3 above), that the **articles need not be within a range of thicknesses for articles** which can be picked up **depending on the property of the particular "resiliently deformable member" concerned to resiliently deform**, since differences in height can be compensated by variations of the length of the stroke of the piston.

2.4 It is true that, as argued by the respondent, the range of thicknesses for articles which can be picked by the tooling of D1 is limited. This limitation is however one resulting from dimensions of a given cylinder/piston unit. Dependent on that the range of article thicknesses which can be handled by such a cylinder/piston unit is only limited by the extent of the maximum stroke of the piston of that unit.

Such an extent of the range of thicknesses of the articles to be handled can not be reached in case the movement restraining mechanism depends on the material property of the at least one resiliently deformable member according to feature (b). As referred to by the appellant such a limitation, inherent to the use of resiliently deformable members, is much more stringent taking into consideration that over the whole range of possible thicknesses for articles handled by a tooling comprising a particular resiliently deformable member downward forces of approx. the same magnitude should be applied to the article.

3. *Features distinguishing the tooling of claim 1 of the main request from the one of D1, effect of these features and problem to be solved*

3.1 As indicated in the annex (cf. point 7.3) apart from feature (a) which according to the impugned decision does not contribute to inventive step being involved (cf. reasons, point 5.1), a finding which has not been disputed by the respondent, **feature (b)** is, as it is also the case according to the impugned decision, to be considered with respect to the examination of inventive step as the **distinguishing feature**. Consequently with the distinction made above (cf. points 1.3.1 - 1.3.3) **features (b1), (b2) and (b3)** are considered as **distinguishing features**.

3.2 It has been common ground that, as indicated in point 7.3 of the annex, the **effect of these distinguishing features** can be seen in simplifying the structure and the use of the tooling (making a separate actuation of the movement restraining mechanism via its own piston 76 superfluous).

3.3 As indicated in the annex (cf. points 7.1.5 and 7.3), derivable from the above point 1.4.3 and as referred to by the Board during the oral proceedings, this **effect can only be obtained in case the range of thicknesses of the articles is limited** to that range within which articles of different thickness can be picked up depending on the property of the particular "resiliently deformable member" concerned to resiliently deform.

3.4 Based on the effect of the distinguishing features referred to above the **problem** solved in view of the tooling according to D1 by the one according to the tooling of claim 1 of the main request can thus be seen as indicated in the annex (point 7.3.1) and by the Board during the oral proceedings as

- providing a tooling having a simplified structure which also simplifies its use under

- the provision that articles are handled which are within a range of thicknesses which can be handled by a particular resiliently deformable member considering its inherent resilient property.

3.4.1 As indicated in point 7.3.2 of the annex, in contrast to this problem the one referred to in the impugned decision (cf. reasons, point 5.1: "a handling of the food product wherein damage to the product is avoided") is based on an incorrect and unproven assumption concerning the effect of the distinguishing features as compared to the handling of the tooling according to D1.

4. *Disclosure concerning the "Schunk-gripper" according to MFP1 to MFP6*

4.1 Documents MFP1 to MFP6 filed with the grounds of appeal have been considered together since they all relate to a type of gripper with a movement restraining mechanism referred to during the oral proceedings as well as in the following as "Schunk-gripper". As indicated by the Board during the oral proceedings, these documents have been admitted having regard to their *prima facie* relevance, as can be derived from the following.

4.2 The Board considers in this respect i.a. the company **prospectus MFP2** with imprinted date 10/2001 as evidence for the public availability of at least this prospectus before the earliest priority date of the patent in suit.

4.2.1 The prospectus discloses by the figure and the text given on page 2 a gripper with an frame on which two opposed gripper arms with holes for the attachment of gripper elements are mounted. The gripper arms are rotatably mounted. Furthermore a movement restraining mechanism comprising at least one resiliently deformable member (cf. the figure: a coil spring extending from the frame and acting against a U-shaped portion) is provided which is mounted in a fixed, spaced positional relationship with respect to the longitudinal extent of the gripper arms. The article engaging means is formed by the underside of a U-shaped member connected with the coil spring. It is evidently provided to engage the upper side of an article gripped by the gripper. The article engaging means is moreover, corresponding in so far with the one of the movement restraining means according to claim 1 of the main request (cf. point 1.4.2 above), not resiliently

deformable. Concerning the disclosure of MFP2 see particularly the text on page 2: advantages: simple working spring biased angle gripper; high gripping forces; interrogation of end forces by means of proximity switches ("Vorteile: einfach wirkender Winkelgreifer mit Federrückstellung; hohe Greifkräfte; Abfrage der Endkräfte über Näherungsschalter") and technical basis data: working principle: single acting cylinder with lever gear and and spring bias; spring biased engaging ledge; scope of delivery: attachment for proximity switch, spring biased engaging ledge, operation and maintenance manual, declaration of manufacturer ("Technische Basisdaten: "Wirkprinzip: einfach wirkender Zylinder mit Hebelgetriebe und Federrückstellung; Lieferumfang: Halter für Näherungsschalter, federnde Andrückleiste, Betriebs- und Wartungsanleitung, Herstellererklärung").

4.2.2 The Schunk-gripper according to this prospectus comprises thus, in the wording of claim 1 of the main request, besides gripper arms to which gripper elements can be mounted a movement restraining mechanism including article engaging means (the U-shaped, spring biased member) which comprises corresponding to a part of feature (b1) at least one resiliently deformable member (the coil spring).

4.2.3 In view of the disclosure given by MFP2 as indicated above it can be left open whether, as challenged by the respondent, this disclosure can be seen as one pertaining to the general technical knowledge in the technical field concerned or to the prior art to be considered. It can also be left open to what extent the remaining documents MFP1 and MFP3 - MFP4 can be considered as having been available to the public before the priority dates of the patent in suit.

4.2.4 Concerning the argument of the respondent that the skilled person in the field of tooling relating to foodstuff, as it is the case for the tooling according to claim 1, is not held to consider the Schunk-gripper, the respondent, upon questioning by the Board, could not give a reason why the skilled person should disregard information like the one given by MFP2 which relates to a gripper which evidently does not have any technical limitation which would make it necessary to exclude it from a use in the field of handling of foodstuff.

This holds true all the more considering that, starting from the tooling of D1 as the closest prior art in order to solve the problem, the skilled person needs to consider the Schunk-gripper only to the extent the structure and functioning of the movement of the restraining mechanism is concerned.

5. *Obviousness*

5.1 According to one line of arguments of the appellant, the tooling of claim 1 of the main request results in an obvious manner when starting from the tooling according to D1 (cf. points 2.2 and 2.3 above) and considering, in order to solve the problem (cf. point 4.1 above), the Schunk-gripper (cf. points 4.2.1 and 4.2.2 above).

5.2 It is, as indicated above, apparent that the restraining member according to D1 in the form of a cylinder/piston unit allows handling of articles of a range of thicknesses, which is only limited by the dimensions of the cylinder/piston unit.

5.2.1 It is likewise apparent that in case articles of a range of thicknesses are to be handled for which the range of thicknesses which can be taken care of by a resilient deformable member is sufficient (cf. point 2.3 above) the structure and the use of the tooling of D1 can be simplified by replacing the movement restraining mechanism in the form of a cylinder/piston unit by one which comprises a resiliently deformable member as it is the case for the Schunk-gripper.

The above holds true considering the argument of the respondent that concerning the examination of inventive step it needs to be taken into account that D1 does not give any indication for a modification of the tooling disclosed by it by replacing the pneumatic cylinder/piston unit.

5.3 The Board considers, as indicated during the oral proceedings, the argument of the appellant to be more convincing. Starting from the tooling of D1 it is immediately apparent for the skilled person that a solution of the problem requires no more than a replacement of the cylinder/piston unit as the movement restraining mechanism of the tooling of D1 by the one according to the Schunk-gripper. This modification concerns essentially only the replacement of one type of movement restraining mechanism with another one. It requires only constructional modifications on the side of the remainder of the tooling coming within regular design practice. Considering the Schunk-gripper it is immediately evident that in case it is mounted replacing the cylinder/piston unit of D1 it serves, within the limitation on the range of thicknesses of articles which can be restrained in motion imposed by features (b1) and (b2), the same purpose as the latter and, since no active control elements are required to

control the movement of the piston, not only the structure of the tooling according to D1 is greatly simplified but also its use.

5.4 In other words, as argued by the appellant, replacement of the movement restraining mechanism in the form of a cylinder/piston unit according to D1 by one comprising at least one resiliently deformable member as known from the Schunk-gripper amounts to a replacement of an *active* movement restraining mechanism by a *passive* one.

5.5 Such a replacement leads, in order to properly apply the at least one deformable member known from the Schunk-gripper to a tooling within which, corresponding to feature (b1,) the at least one resiliently deformable member is located above the plane containing the two spatula elements, and spaced therefrom by a distance which is less than the thickness of each article to be picked up by the tooling.

5.5.1 Corresponding to feature (b2) it follows that in use as the tooling is lowered onto an article, the underside of the deformable member engages the upper surface of the article and the member becomes deformed in order to accommodate the thickness of the article before the spatula elements make contact with a surface on which the article rests.

5.5.2 Thus, the effect defined by feature (b3) is obtained in that the resulting downward force on the article, and frictional resistance to movement between the deformable member and the article serve to restrain the latter from moving under the influence of subsequent movement of the spatula elements therebelow, either to pick up or to release the article.

5.6 The tooling of claim 1 of the main request thus does not involve inventive step (Article 56 EPC) starting from the tooling of D1 as the closest prior art and taking into account the Schunk-gripper as further prior art.

In view of this result it can be left open whether the tooling of claim 1 of the main request is likewise obvious in view of D1 considered in combination with general technical knowledge (i.a. derivable from the Schunk-gripper) or the teaching of D2 or D5 as argued by the appellant.

6. *Admissibility of the first and the second auxiliary requests.*

The first and the second auxiliary requests have been late filed, namely after the summons to the oral proceedings by the Board. Their late filing is, contrary to the arguments of the respondent, not justified by the annex to the summons to oral proceedings since this annex referred only to issues raised already in writing by both parties and no new issues have been added .

6.1 Claim 1 according to the first auxiliary request differs from claim 1 according to the main request in that the part of feature (b2) according to which "the member becomes deformed" has been amended to "the member becomes deformed, including deformation of its underside".

6.1.1 This amendment infringes, as indicated during the oral proceedings, the requirement of Article 123(2) EPC since it implies that, irrespective of its type, **any resiliently deformable member is such that its**

underside can undergo deformation when the member becomes deformed.

This is however not the case as indicated above (cf. point 1.4.2).

The only basis referred to by the respondent as basis for the amendment has been claim 26 of the application as originally filed. According to this claim the deformable means comprises a block of resiliently deformable material, a sprung plate or block, or a dished plate of spring steel or the like.

- 6.1.2 It is true that, as argued by the respondent, the deformable means referred to in claim 26 are such that, as defined by amended claim 1, when the member becomes deformed deformation of its underside is included.

The respondent was, however, not able to refer to a basis for the amendment of claim 1 which, like the amendment, does not relate to a particular type of deformable member but to deformable members in general.

The amendment of claim 1 of the first auxiliary request is thus the result of an inadmissible generalisation. Consequently, the subject-matter of claim 1 is not *prima facie* allowable. For that reason the Board exercised its discretion not to admit the set of claims of the first auxiliary request into the proceedings (Article 13(1) RPBA).

- 6.2 Claim 1 according to the second auxiliary request differs from claim 1 according to the main request in that the part of feature (b1) referring to "at least one resiliently deformable member (98)" has been

amended to "at least one resiliently deformable member (98) formed of resiliently deformable material".

As indicated during the oral proceedings this amendment infringes the requirement of Article 123(2) EPC. From the deformable means referred to in claim 26 of the application as originally filed (cf. point 6.1.1 above) the qualification of the resiliently deformable member as being formed of resiliently deformable material may be justified, as referred to by the respondent, concerning the block of resiliently material. It is however, e.g. not justified in view of the dished plate of spring steel or the like referred to in claim 26 as a further alternative for the deformable means.

The amendment, for which no other basis in the application as filed has been given, is thus the result of a generalisation which lacks a basis in the application as filed.

Consequently the subject-matter of claim 1 of the second auxiliary request is not *prima facie* allowable. For that reason, the Board exercised its discretion not to admit the set of claims of the second auxiliary request into the proceedings (Article 13(1) RPBA).

7. *Third auxiliary request*

7.1 Claim 1 of the third auxiliary request differs from claim 1 of the main request in that between features (b1) and (b2) feature

(c) and comprising a dished plate of spring steel or the like has been added.

By the features (b1) and (c) it is defined that the resiliently deformable member comprises a dished plate of spring steel or the like.

7.2 This amendment leads to a limitation of claim 1 according to the main request which is based on a selection of an alternative given for the deformable means in claim 26 of the application as filed. The amendment thus satisfies the requirements of Article 123(2) and (3) EPC.

7.3 According to the amendment the resiliently deformable member is defined in two ways concerning

(i) the material it is made of, namely spring steel or the like and

(ii) the shape it has, namely the one of a dished plate.

7.3.2 It is thus evident that the resiliently deformable member is, compared to the one referred to in claim 1 of the main request, a particular one.

7.3.3 While the appellant expressed the view that the term "dished plate" does not give a clear definition concerning the shape and orientation of the resiliently deformable member the respondent argued that this is not the case if, as required, the context of the description of the patent in suit is properly taken into account.

Doing so it is evident that the expression "dished plate" cannot be considered as reference to a spring having a toroidal shape as it would be the case for a disk spring as suggested by the appellant since such a

spring made of spring steel would be far too stiff to serve the purpose intended for in the movement restraining mechanism according to claim 1.

Instead the shape referred to by the term "dished plate" has to be understood as being as defined by its wording. The expression dished plate thus defining a concave shaped platelike element. The material from which the dished plate gets its resilient deformability is spring steel or the like. The expression or the like referring to material having corresponding properties in that respect as the spring steel explicitly mentioned.

According to the respondent it is further evident that the "dished plate" used as resiliently deformable member has to be oriented in the tooling such that, corresponding to feature (b2), its downwardly dished portion forms the underside of the deformable member which engages the upper surface of the article and thus constitutes the article engaging means.

The Board considered, as referred to in the oral proceedings, the opinion of the appellant as being more convincing. This consideration is based on the fact that the normal meaning of the expression dishing encompasses the one of a concave shape and that in the description of the patent in suit (paragraph [0028]) it is referred to "a dished plate of spring steel or the like, or one or more fingers of spring steel or the like, having a lateral stiffness but being adapted to deflect resiliently in an upward direction, relative to the blades". The Board considered, as referred to in the oral proceedings, this portion of the description as relating to the two alternatives of springs being made of spring steel referred to. This portion of the

description thus clearly describes how the resiliently deformable member in the form of a dished plate functions and thus contributes to the definition of its structure as well as its orientation as referred to above.

- 7.4 According to the appellant the provision of a resiliently deformable member in the form of a dished plate does not contribute to the tooling of claim 1 involving inventive step. In its view the tooling of claim 1 of the third auxiliary request is, like the one according to the main request, obvious in view of the tooling according to D1 considered in combination with the movement restraining mechanism according to the Schunk-gripper. Additionally, in its view, it is evident for the skilled person to replace the movement restraining mechanism according to the Schunk-gripper by one comprising a dished plate of spring steel or the like. The appellant argued in that respect that a disk spring is a well known spring element which can be easily employed as resiliently deformable member in the movement restraining mechanism of the Schunk-gripper.

The Board considers the argumentation of the respondent as being more convincing according to which no motivation can be seen for the skilled person to replace the helical spring of the Schunk-gripper by a disk spring, considering e.g. the increased stiffness of a disk spring as indicated above, which would be detrimental to the use of the resiliently deformable member in the tooling of D1. Moreover and more importantly, even if one would replace the helical spring of the Schunk-gripper cooperating with the U-shaped article engaging means with a disk spring - likewise cooperating with this article engaging means - one would not arrive at the resiliently deformable

member according to claim 1 which, without any additional article engaging means being provided, comprises a dished plate of spring steel or the like, so that in use as the tooling is lowered onto an article, the underside of the deformable member engages the upper surface of the article and the member becomes deformed in order to accommodate the thickness of the article.

The tooling according to claim 1 of the third auxiliary request thus involves an inventive step (Article 56 EPC) in view of the prior art referred to by the appellant

- 7.5 A clarity objection raised by the appellant at the end of the oral proceedings with respect to claim 10 of the third auxiliary request has been objected to by the respondent as being too late.

The Board considered this objection of the respondent to be justified in view of the fact that the references to "the robotic arms" in this claim which according to the appellant lead to an unclarity taking into consideration that in claim 1, to which claim 10 refers, the tooling is only adapted to be secured to a robotic arm, which thus does not form part of the tooling, have been already present in claim 12 of the patent as granted, which corresponds to present claim 10. This clarity objection has thus been dismissed.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the opposition division with the order to maintain the patent on the basis of the following documents:

claims: 1 to 13 filed as first auxiliary request with letter of 12 October 2012 (renumbered as third auxiliary request)

description: columns 1 to 17 filed during the oral proceedings

drawings: 1 to 17B of the patent specification as granted.

The Registrar:

The Chairman:



G. Nachtigall

I. Beckedorf

Decision electronically authenticated