Datasheet for the decision
of 16 May 2017

Case Number: T 0498/14 - 3.2.01
Application Number: 06005915.1
Publication Number: 1714807
IPC: B60C25/138
Language of the proceedings: EN

Title of invention:
Tool for automatically assembling or disassembling a tyre to/from a wheel rim

Patent Proprietor:
Butler Engineering & Marketing S.p.A.

Opponent:
Snap-On Equipment GmbH

Headword:

Relevant legal provisions:
EPC Art. 54, 56, 83, 123(2)
RPBA Art. 13(1)
Keyword:
Added subject-matter (no)
Sufficiency of disclosure (yes)
Inventive step (yes)
Admission of new request (yes)

Decisions cited:

Catchword:
Case Number: T 0498/14 - 3.2.01

DECISION of Technical Board of Appeal 3.2.01 of 16 May 2017

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Composition of the Board:
Chairman G. Pricolo
Members: C. Narcisi
P. Guntz
Summary of Facts and Submissions

I. European patent No. 1 714 807 was maintained in amended form by the decision of the Opposition Division posted on 20 December 2013. An appeal against this decision was lodged by the Opponent on 27 February 2014 and by the Patentee on 28 February 2014 and the respective appeal fees were paid. The statement of grounds of appeal was filed by both the Opponent and the Patentee on 30 April 2014.

II. Oral proceedings were held on 16 May 2017. Appellant I (Opponent) requested that the decision be set aside and that the patent be revoked. Appellant II (Patentee) requested that the decision be set aside and that the patent be maintained according to the main request (as filed during the oral proceedings).

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

"A tyre assembling-disassembling machine comprising a support base (10a) arranged to support a tyred wheel or wheel rim and to cause its rotation about an axis of rotation (y-y), at least one guide member (13a) extending substantially parallel to said axis of rotation (y-y) upwards from said support, a tool-carrying arm (2) which is slidably mounted on said guide member (13a), and a plate-like tool member (3) having one free end (3a) thereof, being provided with a back facing said wheel rim, said machine being characterized in that it comprises constrain means (2a, 2b, 4, 6, 7, 7a, 8, 9) designed to articulate one end of said plate-like tool member (3) to said tool carrying arm (2), thereby allowing rotational and translational movements of said tool member (3) with respect to said tool carrying arm (2) as a function of
a force applied to said tool member (3) when in contact with said wheel rim and tyre on it, said force being generated by the contact of said tool member (3) with said wheel rim and tyre on it and caused by lowering or pushing upwards of said tool carrying arm (2), and in that said constrain means comprises resiliently yielding contrast means (7, 7a) between said tool carrying arm (2) and said tool member (3)."

Claim 2 of the main request reads as follows:

"A tyre assembling-disassembling machine comprising a support base (10a) arranged to support a tyred wheel or wheel rim and to cause its rotation about an axis of rotation (y-y), at least one guide member (13a) extending substantially parallel to said axis of rotation (y-y) upwards from said support, a tool-carrying arm (2) which is slidably mounted on said guide member (13a), and a plate-like tool member (3) having one free end (3a) thereof, being provided with a back facing said wheel rim, said machine being characterized in that it comprises constrain means (2a, 2b, 4, 6, 7, 7a, 8, 9) designed to articulate one end of said plate-like tool member (3) to said tool carrying arm (2), thereby allowing rotational and translational movements of said tool member (3) with respect to said tool carrying arm (2) as a function of a force applied to said tool member (3) when in contact with said wheel rim and tyre on it, said force being generated by the contact of said tool member (3) with said wheel rim and tyre on it and caused by lowering or pushing upwards of said tool carrying arm (2), and in that said tool member (3) is articulated at said first end thereof within at least one recess or slot (8) formed in said tool carrying arm (2)."
IV. The Opponent's arguments may be summarized as follows:

The main request (amended version of former auxiliary request 3, forming the basis for maintenance of the patent according to the impugned decision) should not be admitted to the appeal proceedings since it was filed late (during oral proceedings). This request was submitted in response to an objection of the Opponent (based on Article 123(3) EPC) filed much earlier (on 18 September 2014 in appeal proceedings), no valid reason having been given justifying this delay. In addition, in the notice of appeal and in the statement of grounds of appeal the Patentee did not even explicitly request to maintain the patent according to former auxiliary request 3 (in accordance with the impugned decision).

The subject-matter of claim 1 (and claim 2) does not comply with Article 123(2) EPC since the feature reading "as a function of a force applied to said tool member (3) when in contact with said wheel rim and tyre on it, said force being generated by the contact of said tool member (3) with said wheel rim and tyre on it and caused by lowering or pushing upwards of said tool carrying arm (2)" (hereinafter designated as feature (i)) extends beyond the content of the application as filed. This feature constitutes an intermediate generalization, for the translational or rotational movement of the tool member is not described in the application as filed (hereinafter designated as EP-A) as being a "function" of said "force applied to said tool", no such "function" being mentioned in EP-A. In particular, this feature cannot be construed as implying that no actuator is operated during assembling-disassembling of the tyre (see EP-A, description, [0041]). Likewise, no specific indication
is given in EP-A about the forces acting on the tool member. Further, it can be inferred from EP-A and from the patent specification (hereinafter designated as EP-B) that the specific shape of said tool member (i.e. outer groove 3c, inner recess 3b; see EP-B, e.g. [0024], [0029],[0038], [0039]) and the presence of abutments means (e.g. wheel rim, tyre or other abutment) form an essential part of the assembling-disassembling machine which is inextricably linked to the operation and movement of the tool member. Such features cannot be omitted.

The subject-matter of claim 1 (and claim 2) does not meet the requirements of Article 83 EPC since the invention is not described in a manner sufficiently clear and complete for the skilled person to carry it out. First, EP-B is silent about any "force" acting on the tool member and does not disclose any force generated by the contact of the tool member 3 with the wheel rim and the tyre (according to aforesaid feature (i)), the resulting rotational and translational movement of the tool member 3 (with respect to the tool carrying arm 2) being thus not disclosed. Second, EP-B does not explain how the tool member 3 is held in its position relatively to the tool carrying arm 2 while extracting the tyre bead (disassembling process), particularly in the situations depicted in figures 5 and 6. In effect, concerning any abutments needed to hold the tool member 3 in the illustrated positions, or concerning the specific action and function of said "resilient contrast means" (claim 1) or of said "recess or slot" (claim 2), no elucidations can be found in EP-B. Third, the assembling process of the tyre on the wheel rim is similarly not sufficiently clearly disclosed in EP-B, for the specific shape of the tool member 3 does
not allow to move it from a position as shown in figure 4 to a position as shown in figure 3, the tool member being clamped between the wheel rim and the tyre and no extraction being possible without damaging the wheel rim or the tyre.
Finally, the wording "arranged to support a tyred wheel or wheel rim", and "one free end" as well as "one end" do not give sufficient indication for the skilled person to put into effect the claimed subject-matter.

The subject-matter of claim 1 is not new over E3 and E1, all claimed features being known from E1 and E3. E1 discloses in particular the disputed feature reading "it comprises constrain means designed to articulate one end of said plate-like tool member to said tool carrying arm, thereby allowing rotational and translational movements of said tool member with respect to said tool carrying arm" (hereinafter designated as feature (ii)), for it shows constrain means 12, 14, 16, 17, 19 designed to articulate one end of the plate-like tool member 15 (figures 3, 4) to the tool carrying arm 11, thereby allowing rotational and translational movements of said tool member 15 with respect to said tool carrying arm 11.

E3 likewise discloses said disputed feature (ii), implying constrain means 14, 17, 18, 171 designed to articulate one end of the plate-like tool member 25 (figures 2, 3, 4) to the tool carrying arm 12, thereby allowing rotational and translational movements of said tool member 25 with respect to said tool carrying arm 12.

The subject-matter of claim 2 is not new over E2, all claimed features being known from E2. E2 discloses in particular said disputed feature (ii), implying
constrain means 7, 11, 12, 14 designed to articulate one end of the plate-like tool member 15 (figures 2, 3, 4) to the tool carrying arm 6, thereby allowing rotational and translational movements of said tool member 15 with respect to said tool carrying arm 6 (see E2, figures 1 to 3).

The subject-matter of claim 2 is not new over E3, all claimed features being known therefrom. In particular, E3 discloses the feature reading "said tool member is articulated at said first end thereof within at least one recess or slot formed in said tool carrying arm" (hereinafter designated as feature (iii)) is illustrated in figure 12 (see first end of tool 25, nearby reference sign 30).

The subject-matter of claim 1 is not inventive over E1 or E3 in view of the skilled person's common general knowledge. Assuming that the feature reading "it comprises constrain means designed to articulate one end of said plate-like tool member to said tool carrying arm" (hereinafter designated as feature (iv)) is not known from E1, it would nevertheless be obvious for the skilled person to provide the mounting or articulation axis of the tool member 15 (on the tool carrying arm 11) at an end of the same and not at an intermediate position. The same applies to the machine known from E3 on the basis of entirely analogous and similar arguments.

The subject-matter of claims 1 and 2 is not inventive over E2. Indeed, aforementioned feature (ii) (in claims 1 and 2) would be anyway obvious for the skilled person starting from E2. In order to simplify the structure of the machine, it would be obvious to dispense with the slide 11 and to let the articulation axis and pin 14
(figures 1 to 3) directly be guided in the guide 7. Thereby the subject-matter of claim 2 would be arrived at without exercising an inventive activity. Concerning claim 1 "resiliently yielding contrast means between said tool carrying arm and said tool member", such means only serve the purpose of resetting the tool member to an initial given position and would be conveniently and appropriately arranged by the skilled person in the machine of E2 to reset the tool member.

V.

The Patentee's arguments may be summarized as follows:

The subject-matter of claim 1 (and 2) does not extend beyond the content of the application as filed (EP-A) since providing the tool member with an appropriate shape and with abutments lies within the customary practice of the skilled person and is not described as essential in EP-A. Also, above mentioned feature (i) adds no further information with regard to the content of EP-A.

The invention is sufficiently clearly and completely disclosed for the skilled person being able to carry it out. The implementation of said feature (i) would not confront the skilled person with difficulties, for ample and exhaustive disclosure is provided in the description and figures of EP-B. Likewise, the shape of the tool member and the abutments (e.g. wheel rim or tyre) are detailed in the figures (e.g. 1 to 6) and the description. Similarly, for a person skilled in the art the indications given in EP-B relating to the assembling-disassembling process (see figures 1 to 6 and related parts of the description, [0024] to [0039]) would be entirely sufficient and clear.
The Opponent's new line of arguments based on E2 against claims 1 and 2 should not be admitted to the appeal proceedings since it was submitted only during oral proceedings.

The subject-matter of claims 1 and 2 is new over E1, E3, E2, for none of these documents discloses aforementioned feature (ii). In effect, all of these documents merely disclose that the tool member performs a rotational movement with respect to the tool carrying arm.

The subject-matter of claims 1 and 2 involves an inventive step over anyone of documents E1, E2 and E3 since said feature (ii) is not suggested by the prior art documents and it would not be obvious for the skilled person. The Opponent's arguments are merely based on hindsight.

**Reasons for the Decision**

1. The appeals are admissible.

2. The Board decided to exercise its discretion pursuant to Article 13(1) RPBA (Rules of Procedure of the Boards of Appeal) to admit to the appeal proceedings the Patentee's new main request (filed during oral proceedings). This request was filed in reply to an objection (based on Article 123(3) EPC) of the Opponent (see letter dated 18 September 2014, page 3) and its admission does not add to the complexity of the case and complies with procedural economy, due account being taken of the state of the proceedings. The parties were clearly informed (see communication to the parties pursuant to Article 15(1) RPBA dated 17 February 2017) that auxiliary request 3 of the impugned decision was
going to be discussed during oral proceedings before the Board, for the patent was upheld in this form by the Opposition Division and the Patenteen never disagreed with maintaining the patent in this form. The new main request was derived from said previous auxiliary request 3 by a single amendment (reintroducing "assembling-disassembling machine" (see granted claim 1) instead of "disassembling machine"), and was submitted in reply to the aforesaid objection after auxiliary request 3 had been discussed and failed (due to said objection). Thereby the Opponent was not taken by surprise and the discussion during oral proceedings was not substantially affected, given that corresponding and similar objections were raised under the same Articles of the EPC against claims 1 and 2 of both requests.

3. The subject-matter of claims 1 and 2 meets the requirements of Article 123(2) EPC. The Board considers that feature (i), though not literally disclosed in EP-A, does not provide any additional information extending beyond the content of EP-A. Indeed, feature (i) (i.e. "as a function of a force applied to said tool member (3) when in contact with said wheel rim and tyre on it, said force being generated by the contact of said tool member (3) with said wheel rim and tyre on it and caused by lowering or pushing upwards of said tool carrying arm (2)"") evidently merely implies that during assembling-disassembling the tool member 3 is moved only as a result of the upward and downward movement of the tool carrying arm 2 (see EP-A, e.g. [0038]) and of the resulting contact with the tyre and wheel rim (see EP-A, e.g. [0039]), it being not "necessary to control the inclination of plate-like member 3 during the various disassembling steps" (EP-A, [0039]). Thus, radial (with respect to the wheel rim or
tyre) positioning and control of the tool member (by the machine or operator) occurs only at the start or end of an assembling-disassembling process, e.g. to adapt to different wheel rim or tyre diameters (EP-A, [0041]). This results likewise from the overall disclosure of EP-A, no other automated control of the tool member 3 being mentioned (during assembling-disassembling) except for vertical control through the tool carrying arm 2. Notably, claims 1 and 2 imply no disclaimer excluding the presence of any actuator, which would possibly contradict paragraph [0041] in EP-B (or EP-A).

The features relating to the explicit shape of the tool member 3 (see inner recess 3b, outer groove 3c) cannot be inferred from EP-A (or EP-B) as being inextricably linked to the claimed features of the assembling-disassembling process. Indeed, the core of the invention and its inventive concept (as implied by independent claims 1 and 2) resides in the tool member being able to perform rotational and translational movement relatively to the carrying arm 2, thus bearing no close relation to the specific shape and form of the tool member, it any way being known (see e.g. figures in E1, E2, E3) that an appropriate shape is necessary in order to properly engage the bead of the tyre and to contact the wheel rim.

Finally, abutments are at least partly already included in said claims 1 and 2 (e.g. see the wording "in contact with said wheel rim and tyre") and no further specific abutments are explicitly mentioned in EP-B.

4. The subject-matter of claims 1 and 2 (in conjunction with the description in EP-B) complies with Article 83 EPC in that it discloses the invention in a manner sufficiently clear and complete for the skilled person
being able to put it into effect. First, in relation to contested feature (i) the Board notes that no difficulties arise if said feature is construed as laid out above (see point 3) and that no other reasonable interpretation is possible. In essence, the skilled person would unambiguously derive from claims 1 and 2 (in conjunction with the description of EP-A) that relative motion (translation and rotation) between the tool member 3 and the tool carrying arm 2 (after initial adjustments) is not controlled by the machine (see point 3 above) but results instead from the upward and downward motion of the tool carrying arm 2, from the contact of the tool member with the wheel rim and tyre, and from the specific form of the constrain means (see e.g. paragraphs [0024] to [0027] in EP-B.

As to the assembling-disassembling process of the tyre (as shown in figures 2 to 6) the Board takes the view that, although the tool member is shown in more detail only in figure 1, the skilled person would have no difficulties in producing such a tool member on the basis of figure 1 and figures 2-6 and the corresponding parts of the description. Indeed, the balance or equilibrium position of the tool member 3 (as shown in figures 1, 2, 6 and 11) can be obviously obtained e.g. by internal abutments (or any equivalent means) located within the tool member and delimiting the extreme positions (e.g. the balance position) of the relative rotational motion of the constructional part 3 in relation to part 4 (caused by the biasing force of spring 7), as well as by abutments limiting the relative rotation (caused by the biasing force of spring 7a) of constructional part 4 in relation to parts 2, 2a, 2b. In particular (as visible from figures 1 to 6), said relative rotations are in opposite directions, due to the mounting of the springs as
depicted in figure 1, implying that the tool member 3 and the shackle member 4 are biased in opposite rotational directions.

Hence, during the disassembling steps as shown on figures 5 and 6, it is evident that upward motion of the tool (from figure 5 to 6) will merely lead to rotation of the tool member 3, leaving the shackle member 4 in a balance position, for said upward movement does not act against the bias of spring 7a (only downward movement does, see e.g. figures 1 to 3).

As to the assembling process, it is stated clearly in EP-B (see [0037]) that "it is carried out in a similar way, partly acting in reverse order". Thus, the skilled person (e.g. after mounting on the wheel rim the lower part of the tyre, essentially e.g. by obliquely moving said lower side tyre bead over the wheel rim's upper circular edge and pressing and positioning the upper tyre bead underneath the wheels rim's (circumferential) upper edge at a specific initial circumferential position) will start from a situation as shown e.g. in figure 5 or 4. Then, after rotating the wheel rim in order to press the entire upper tyre bead (by means of the tool member) below the circumferential wheel rim's upper edge, the tool member 3 is extracted as shown in figures 3 and 2, with the manual intervention of the operator if necessary, in order to exert downward pressure on the tyre flange or upper bead (at specific positions) while extracting the tool member. Manual intervention of the operator, particularly at the start and at the end of the assembling-disassembling process (e.g. to exert pressure on the upper tyre bead at given circumferential locations during the assembling process), is not excluded by the claims or by the description in EP-B (see e.g. [0011], [0012]).
In conclusion the Board considers that in view of its common general knowledge a person skilled in the art would not face any difficulties in carrying out the invention and performing the assembling-disassembling process. The burden of proof for demonstrating the insufficiency of the disclosure lies on the Opponent and the arguments as presented were not convincing.

5. The subject-matter of claims 1 and 2 is new over E1, E2 and E3, for none of these documents discloses feature (ii) (i.e. "it comprises constrain means designed to articulate one end of said plate-like tool member to said tool carrying arm, thereby allowing rotational and translational movements of said tool member with respect to said tool carrying arm") (Article 54 EPC).

First, in the device of E1 (see figure 4) the constructional part 11 cannot be regarded as being the tool carrying arm, since it does not directly operate or directly impart any motion to the tool member 15 during the disassembling procedure (see E1, figures 5 to 10 and related description) and it is not directly connected (as implied by the term "articulated", see hereinafter) to the tool member 15. Second, according to feature (ii) said "constrain means" form (or constitute) a joint or an articulation by means of which the tool member is articulated to the tool carrying arm (e.g. by at least one rotational axis), the verb "articulate" (similarly to a joint) implying a direct connection at least in the sense of immediate vicinity (e.g. a joint between two bones of the human body). Clearly, such a joint or articulation is not provided by the parts 12, 14 in E1, supposedly representing constrain means (as alleged by the Opponent), which parts only form a telescopic and
indirect connection between the tool member 15 and said part 11. Finally, considering that the actual tool carrying arm in E1 is constituted by part 14 (not by part 11), it is evident that tool member 15 is articulated to the end portion of tool carrying arm 14 by means of a pin or hinge (see figure 4, description [0027]). Thus, only rotational and no translational movement is allowed. In addition, the tool member 15 is not articulated at one of its ends to the tool carrying arm 14 (since the articulation joint or point is located at an intermediate position). Hence, E1 does not anticipate the subject-matter of claims 1 and 2.

Similarly (for the same reasons as stated above in relation to E1), in the device of E3 (see figures 3 to 5) the tool member 25 is not articulated to the constructional part 8 (or 12), which part also cannot be regarded as being the tool carrying arm within the meaning of claims 1 and 2. Indeed, tool member 25 is articulated to the end portion 16 of the actual tool carrying arm 14 by means of a pin or hinge (see figures 3 to 5, description [0030]). Thus, only rotational and no translational motion is allowed. In addition, the tool member 25 is not articulated at one of its ends to the tool carrying arm 14 (since the articulation point is located at an intermediate position). Hence, E3 does not anticipate the subject-matter of claims 1 and 2.

As to E2 (invoked by the Opponent only against claim 2; see above, point IV), the device disclosed therein shows a tool member 15 which (for reasons entirely similar to those concerning E1, E3) is not articulated to the tool carrying arm 6 (see figures 1 to 3), for it is hinged on a slide 11, which is further guided in guiding means 7. Moreover, the articulation point (or hinge) is not located at the end of the tool member 15,
but at an intermediate position of the tool member. Further, even if the slide 11 were regarded as being part of the tool member 15, the claimed subject-matter would still be new over E2, for said feature (ii) in combination with the further feature "said tool member is articulated at said first end thereof within at least one recess or slot formed in said tool carrying arm" would not be disclosed in E2. In effect, the "slot" or guide 7 only provides for rotational motion (of the tool member) with respect to the tool carrying arm 6 and not for translational motion as well, as required by both claimed features defining in combination the "slot's" functional features. Therefore the tool member (regarded as constituted by components 11 and 15) and its articulation to the arm 6 (by means of the guide or slot 7) would still not fulfil the requirements of aforesaid features. In addition, the articulation point of the tool member would also not be formed at one of its ends (see claim 2).

6. The subject-matter of claim 1 involves an inventive step over E1 and E3 (Article 56 EPC). None of documents E1 or E3 (or E2) suggests articulating the tool member to the tool carrying arm such as to obtain a rotational and translation motion of the tool member relatively to the tool carrying arm (by means of said constrain means comprising "resiliently yielding contrast means" or a "recess or slot"). Likewise no suggestion is made to move said articulation point from an intermediate position to an end position of the tool member. There is simply no incentive and no motivation for the skilled person to modify the known devices in this way. The modifications would also involve major constructional changes and the skilled person would not find any hint in the prior art, or on the basis of common general knowledge, concerning the specific
technical measures to be implemented in order to arrive at the claimed subject-matter.

7. The subject of claims 1 and 2 is inventive over E2 (Article 56 EPC). Starting from E2, the skilled person would not have any motivation to implement the modifications suggested by the Opponent (see above, point IV), and this for several reasons. First, it is not really clear how the slide 11 should be eliminated while still keeping the (essential) rotational function provided by pin 14 hinged on slide 11 (for instance, without a slide having two (not merely one) rollers 12 in the guide 7, no stable and reliable operation of the lever 13 appears to be possible). Even if this were possible, by eliminating the slide the arm of operating lever 13 (see figures 1 to 3) would get considerably shorter, while the other lever arm constituting tool 15 (forming the other arm of the lever whose fulcrum is pin 14) would get longer, thus more cumbersome and difficult to operate. In addition, there is no hint or suggestion in the prior art for such a modification, which moreover would not bring about any simplification, contrary to the opinion of the Opponent. Finally, for the reasons stated above, even with the mentioned modifications in the device of E2, the subject matter of claim 1 or 2 would not be arrived at. Indeed, tool 15, 13 would still not be articulated at one of its ends to tool carrying arm 6, and, as far as claim 2 is concerned, no rotational and translational motion is provided by mere articulation of the tool member 15 to the guide 7. Concerning claim 1, no hint or suggestion is given to the skilled person to provide resiliently yielding contrast mean, let alone any indication about where to install or arrange such means in the device of E2. For all these reasons
the subject-matter of claim 1 and 2 is not obvious over E2.

8. In view of the above, there is no need to discuss the issue of admissibility of the line of arguments based on E2 raised by the Patente during oral proceedings.

9. The Board decided to remit the case to the department of first instance to adapt the description to the set of claims (Article 84 EPC), as agreed by both parties during the oral proceedings.

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 in amended form based on the claims of the new request as filed during the oral proceedings and a description to be adapted accordingly.

The Registrar: The Chairman:

A. Vottner G. Pricolo

Decision electronically authenticated