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Datasheet for the decision
of 23 June 2017

Case Number: T 2438/13 - 3.2.01

Application Number: 05753441.4

Publication Number: 1759887

IPC: B60C11/00, B60C11/01, B60C11/04

Language of the proceedings: EN

Title of invention:
PNEUMATIC TIRE

Patent Proprietor:
Bridgestone Corporation

Opponent:
MICHELIN Recherche et Technique S.A.

Headword:

Relevant legal provisions:
RPBA Art. 12(4)
EPC Art. 54(3), 56, 100(b)

Keyword:

Correct exercise of discretion by the first instance not to admit late-filed documents - (yes)
Late-filed documents - admitted (no)
Novelty - main request (no)
Inventive step - first auxiliary request (yes)
Sufficiency of disclosure - (yes)

Decisions cited:

T 0198/84, T 0068/85, T 0279/89, T 0175/97, T 1063/06, T 0480/11

Catchword:

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Case Number: T 2438/13 - 3.2.01

D E C I S I O N
of Technical Board of Appeal 3.2.01
of 23 June 2017

Appellant: (Opponent)	MICHELIN Recherche et Technique S.A. Route Louis Braille 10 1763 Granges-Paccot (CH)
Representative:	Diernaz, Christian M. F. P. Michelin, 23, place des Carmes Dechaux, DGD/PI-F35-Ladoux 63040 Clermont-Ferrand Cedex 09 (FR)
Respondent: (Patent Proprietor)	Bridgestone Corporation 10-1, Kyobashi 1-chome, Chuo-ku Tokyo 104-8340 (JP)
Representative:	Oxley, Robin John George Marks & Clerk LLP 90 Long Acre London WC2E 9RA (GB)

Decision under appeal: Decision of the Opposition Division of the European Patent Office posted on 2 December 2013 rejecting the opposition filed against European patent No. 1759887 pursuant to Article 101(2) EPC.

Composition of the Board:

Chairman   G. Pricolo
Members: W. Marx
                S. Fernández de Córdoba

Summary of Facts and Submissions

I.   The appeal of the opponent is directed against the
        decision of the opposition division rejecting the
        opposition against European patent No. 1 759 887.

II.   In its decision the opposition division held that the
        patent disclosed the invention in a manner sufficiently
        clear and complete for it to be carried out by a person
        skilled in the art and that the subject-matter of
        claims 1 and 2 as granted was novel and involved an
        inventive step in view the following documents:
        E4:   EP 1 437 236 A1;
        E5:   EP 1 529 658 A1 (prior art under Art. 54(3) EPC).

        Moreover, the opposition division disregarded late-
        filed documents for not being relevant to the subject-
        matter of granted claims 1 and 2, in particular:
        E17:   Tire analysis 2002-2 Emerging growth markets,
                Smithers;
        E18:   EP 0 536 705 A2.

III.   Together with its grounds of appeal the appellant filed
        the following documents:
        E19:   Photocopies of E17 of improved quality;
        E20:   Footprint of tire 295/75R22.5 R283 Ecopia under
                load 5618 lbs 120 psi;
        E21:   Footprint of tire 295/75R22.5 R283 Ecopia under
                load 6005 lbs 120 psi;
        E22:   Footprint of tire 295/75R22.5 R283 Ecopia under
                load 6610 lbs 120 psi;
        E23:   Footprint Analysis of tire Bridgestone at 110
                and 120 psi for different loads, Smithers.

IV.   In response to the board's communication of 17 May 2017
         the respondent (patent proprietor) filed a first and a
         second auxiliary request.

V.   Oral proceedings before the board took place on
         23 June 2017.

         The appellant (opponent) requested that the decision
         under appeal be set aside and that the patent be
         revoked.

         The respondent (patent proprietor) requested that the
         appeal be dismissed (main request) or, in the
         alternative, that the patent be maintained in amended
         form on the basis of the claims of the first or second
         auxiliary requests, both as filed with the letter of
         8 June 2017.

VI.   Independent claim 1 as granted reads as follows:

         "1. A pneumatic tire (10) provided with a tread (12)
         including a plurality of ribs separated by at least two
         circumferential direction grooves (14, 16) extending in
         a circumferential direction, **characterised in that,**
         when looking at the tread ground contact shape (12F)
         under conditions that the pneumatic tire is mounted
         onto a rim with maximum loading, and with an air
         pressure corresponding to maximum loading, the ground
         contact shape (12F) has a gradually decreasing
         circumferential direction length (L) from the tire
         width direction center (CL) to the portion
         corresponding towards the tire width direction
         outermost circumferential groove (16), followed by the
         ground contact shape (12F) having a gradually
         increasing circumferential direction length towards the
         tire width direction outside,

and in the ground contact shape (12F), the following relationships are satisfied:

$$0.02 \leq (A-B)/L \leq 0.1, \text{ and } 0.02 \leq (C-B)/L \leq 0.1,$$

wherein

L is the circumferential direction length of the tire width direction center,
A is the maximum length in the circumferential direction of the portion corresponding to the tire width direction outermost rib (18),
Ws is the width of the portion corresponding to the tire width direction outermost rib (18),
W2 is the width of the portion corresponding to the second rib (20) from the outside in the tire width direction,
B is the distance in the tire circumferential direction between two points (Psa, Psb) that are intersections of border lines (18F) of circumferential direction sides of the portion corresponding to the outermost rib (18), intersecting with a first virtual line (FLs) extending in the tire circumferential direction and at a distance of 0.076Ws in the tire width direction to the outside from a border line (18F) of the portion corresponding to the outermost rib (18), the border line corresponding to an edge of a circumferential direction groove (16) on the inside of the outermost rib (18) in the tire width direction, and
C is the distance in the tire circumferential direction between two points (P_2a, P_2b) that are the intersections of border lines (20F) of circumferential direction sides of the portion corresponding to the second rib (20) from the outside in the tire width direction, intersecting with a second virtual line (FL_2) that extends in the tire circumferential

direction and is a distance of $0.112W_2$ to the inside in the tire width direction from a border line (20F) corresponding to the tire width direction outside circumferential direction groove edge of the portion corresponding to the second rib (20) from the outside in the tire width direction."

Independent claim 2 as granted reads as follows (differences with respect to granted claim 1 are marked in strike-through for deletions and in bold for additions):

"2. A pneumatic tire (10) provided with a tread (12) including a plurality of ribs separated by at least two circumferential direction grooves (14, 16) extending in a circumferential direction, wherein: R1 is less than R2, where, when looking at a cross-section of the tire along the rotational axis, R1 is a radius of curvature of a first running surface (12A) of the tread located on the tire equatorial plane (CL) side of a tire width direction outermost circumferential groove, and R2 is a radius of curvature of a second running surface (12) of the tread located to the shoulder side of a tire width direction outermost circumferential main groove (16), and the second running surface (12B) being located to the inside in the tire diameter direction of a virtual extension line (12Af) of the first running surface (12A); and further db is less than da, where da is a step height between the first running surface (12A) and a virtual extension line (12Bf) of the second running surface (12B), and db is a step height at the edge of the ground contact of the tread between the second running surface (12B) and the virtual extension line (12Af) of the first running surface (12A); **characterised in that,**

~~when looking at~~ the ~~tread~~ ground contact shape (12F) <u>of</u>
<u>the tread</u> under conditions that the pneumatic tire is
mounted onto a rim with maximum loading, and with an
air pressure corresponding to maximum loading, ~~the~~
~~ground contact shape (12F)~~ has a gradually decreasing
circumferential direction length (L) from the tire
width direction center (CL) to the portion
corresponding towards the tire width direction
outermost circumferential groove (16), followed by the
ground contact shape (12F) having a gradually
increasing circumferential direction length <u>(L)</u> towards
the tire width direction outside,
and in the ground contact shape (12F), the following
relationships are satisfied:

0.02<=(A-B)/L<=0.1, and 0.02<=(C-B)/L<=0.1,

wherein

L is the circumferential direction length of the tire
width direction center,
A is the maximum length in the circumferential
direction of the portion corresponding to the tire
width direction outermost rib (18),
Ws is the width of the portion corresponding to the
tire width direction outermost rib (18),
W2 is the width of the portion corresponding to the
second rib (20) from the outside in the tire width
direction,
B is the distance in the tire circumferential direction
between two points (Psa, Psb) that are intersections of
border lines (18F) of circumferential direction sides
of the portion corresponding to the outermost rib (18),
intersecting with a first virtual line (FLs) extending
in the tire circumferential direction and at a distance
of 0.076Ws in the tire width direction to the outside

from a border line (18F) of the portion corresponding
to the outermost rib (18), the border line (18F)
corresponding to an edge of a circumferential direction
groove (16) on the inside of the outermost rib (18) in
the tire width direction, and
C is the distance in the tire circumferential direction
between two points (P_2a, P_2b) that are the
intersections of border lines (20F) of circumferential
direction sides of the portion corresponding to the
second rib (20) from the outside in the tire width
direction, intersecting with a second virtual line
(FL_2) that extends in the tire circumferential
direction and is a distance of $0.112W_2$ to the inside in
the tire width direction from a border line (20F)
corresponding to the tire width direction outside
circumferential direction groove edge of the portion
corresponding to the second rib (20) from the outside
in the tire width direction."

The claims of the first auxiliary request differ from
those of the main request only in that independent
claim 1 is deleted.

VII.   The appellant (opponent) essentially argued as follows:

        (a) Admission of late-filed documents

            Document E18 was filed in first-instance
            proceedings to show the difficulties in working
            with real tire footprints (e.g. measuring length)
            and that a post-treatment to obtain smooth contours
            (as shown in Figure 1 of the patent) was required,
            which was not described in the contested patent.
            Since it only reflected the knowledge of the
            skilled person in this respect, E18 could be
            introduced at any stage of the proceedings.

E17 was filed late due to the negative opinion of the opposition division with regard to the prior uses submitted in the notice of opposition. This document, newly filed in better quality as E19, was available to the public. E17/E19 showed that the value of maximum load for heavy-vehicle tires was different in single-mounted and dual-mounted configuration. Moreover, it showed the evaluation of (e.g. non-symmetric) real footprints and the interpretation needed, e.g. the necessity of measuring at an offset to the rib's edges, which was not disclosed in the patent. E17/E19 was relevant with regard to novelty, in particular in view of the vague definition of "maximum load" and the specification to be applied (e.g. JATMA or ETRTO). The opposition division had exercised its discretion in an unreasonable way when denying the relevance of E17, which showed contact patterns closer to the ones claimed than E4, for tires tested at 96% of the maximum load in a dual-mounted configuration. E19 should therefore be admitted into the proceedings.

E20 to E23 were filed in response to the contested decision for supporting the pertinence of E19.

(b) *Article 100(b) EPC*

Claim 1 relating to a pneumatic tire in general was not limited to the specific use in heavily loaded vehicles or any mounting position such as the steered axle. Moreover, the maximum load was not a single value for a given tire dimension but was different in a single-mounted and a dual-mounted configuration (see standards ETRTO, JATMA, TRA).

The comparative tests in the contested patent were not specific in this respect.

The expression "when looking at the tread ground contact shape" did not indicate how a tire footprint had to be interpreted in order to determine length dimensions A, B, C, L. It was evident that Figure 1 of the patent was a schematic representation resulting from a post-treatment ("smoothing") of a real tire contact pattern to allow for measurement of these dimensions, in particular dimensions B and C. Measurements on a real tire contact pattern were difficult to realise, and the post-treatment necessary had a non-negligible influence on the values A, B, C and L. Since the contested patent was silent on this essential issue, the invention was insufficiently disclosed.

The offsets for measurement of B and C (0.076 x Ws and 0.112 x W2) contained values expressed to three decimal places, which made physically sense only when using rounded values (calculation of offsets for tires 295/75R22.5 provided values for C and B of 4.0 mm and 3.5 mmm) and working on a smoothed contact pattern with a comparable precision. The patent was silent on this issue and also on the values to be considered for a tire having (usually) ribs on both sides of the equatorial plane, so the invention was insufficiently disclosed.

The last digit of numerical values indicated the precision of measurement. The maximum error resulted from the rounding convention for the last digit of the numerical values specified for the differences (A-B)/L and (C-B)/L in claim 1, i.e. 2%

to 10% covered a range of 1.5% to 10.4% (see
T 175/97). Assuming a tire as recited in the
contested patent having a length L of 240 mm, the
skilled person therefore obtained a minimum value
of 3.6 mm for the claimed differences. The
conditions for obtaining the tire contact pattern
and its post-treatment were therefore essential.

The subject-matter of granted claim 2 resembled
more a method claim than a product claim and should
have been formulated differently in order to be
sufficiently described and supported by the
description. The objections of insufficiency of
disclosure raised with regard to claim 1 also
applied to claim 2.

Sufficiency of disclosure of the invention required
it to be reproducible by the skilled person in the
whole range claimed, based on the information of
the patent specification and taking into account
the knowledge of the skilled person, without undue
burden. Many parameters of the tire (its materials,
reinforcements and elements forming the tread) had
an influence on the footprint of a tire and its
dimensions for a predetermined load and pressure,
so it was not a matter of a reasonable amount of
trial and error (based on adequate information
leading the skilled person towards success through
the evaluation of initial failures) to arrive at a
tire according to claim 1 (see T 480/11). The
contested patent only taught one way to carry out
the invention, and it was not a matter of routine
experimentation to find other ways to carry out the
invention by trial and error. In particular, the
desired result was achieved by the external profile
of the sectional shape of the tread of the tire.

The contested decision referred to paragraphs
[0045] and [0046] of the patent, but if this way
(see Figure 2 and claim 2) was not chosen, there
was no other information given to the skilled
person to lead him directly to obtain a form of a
footprint as specified in claim 1. Claim 1 was
therefore an invitation to perform a research
programme (see T 1063/06) in order to identify the
structures of the tire which permitted to achieve
the form of the claimed footprint, different from
those described in claim 2 or any general concept
emanating therefrom. The last sentence in
paragraph [0018] of the patent specification made
clear that the internal structure had an influence
on the ground contact shape, in particular under
the condition of maximum load and pressure, but the
patent was silent on the internal structure.

Since the contested patent was silent on how to
proceed in cases in which prescribed conditions
(maximum pressure and load) were not quoted in
reference standards for a given tire dimension, the
invention was insufficiently disclosed. Values
derived by interpolation of neighbouring values
e.g. according to the JATMA standard for tires
295/70R22.5 and 295/80R22.5 at a pressure of
825 kPa deviated by more than 10% from the values
found in the TRA standard for a tire 295/75R22.5 in
single-mounted or dual-mounted configuration.

(c) *Main request - novelty over E5 (Article 54(3) EPC)*

Figure 2 in E5 was schematic only and not a real
ground contact shape, but - except for the corners
not being rounded - fairly similar to those shown
in the patent having a "W"-shape, also obtained

under maximum load conditions. The general form of
the contours of the contact zones in Figure 2 in E5
and two dimensions (A, B) chosen were identical to
the corresponding ones (L, A) in the patent. A
graphical representation of calculations of ratios
(C-B)/L and (A-B)/L based on document E5, submitted
already before the first instance, showed that the
pneumatic tires known from E5 had ground contact
shapes satisfying the requirements specified in
claim 1. The example tires 1 to 4 in E5 (Table 1)
provided a ratio (A-B)/L falling in the claimed
range. Numerical values for quantities C and B were
not given, but E5 showed relationships (page 4:
D>C, D<A) which equated to B<C and C<L for the
dimensions specified in the contested patent and
provided lower and upper values for ratio (C-B)/L.
Contrary to the respondent's assertion, these
values were not derived from the figures in E5. The
claimed range for (C-B)/L was a selection from the
broader range between 0 and 0.28 disclosed in E5
for the example tires (for tire 2 in particular, a
range 0...0.145 was disclosed in E5). According to
the contested patent dimensions B and C were
measured at an offset from the edges of the rib's
imprint, which led to even smaller ranges based on
the ground contact shape disclosed in E5. In this
case, the criteria established in the jurisprudence
(see T 279/89) had to be applied, which were not
satisfied, so the selection of the range for the
values of (C-B)/L was not new.

(d) *First auxiliary request – admission, inventive step*

The first auxiliary request should not be admitted
into the proceedings because it was filed too late,
four days prior to the date of oral proceedings.

The preamble of claim 1 according to the first
auxiliary request specified structural features
(radii of curvature R1, R2; step heights da, db)
for a cross-section of the tire shown in Figure 2
of the contested patent. Starting from E1 as the
closest prior art, these pre-characterising
features of claim 1 were known from Figure 1 of E1.
The problem of uneven tire wear according to E1 was
also addressed in document E4. Figure 2 in E4 also
showed a step height of the outer rib, but in a
direction exterior to a virtual line that was an
extension to the second outer rib. Calculation
based on the values Lm/Lc disclosed in E4 (Table 1:
ratio Lm/Lc=0.85 between the shortest and longest
grounding length at maximum load and pressure;
Figure 4) led to ranges similar to the ranges
claimed (as represented on page 24 of the grounds
of appeal). A "selection from two lists" which were
not independent but established from the same
contact pattern was not considered new with regard
to E4. Determining the length of the longitudinal
edge of a rib's imprint was difficult as implicitly
recognised in E4 (Figure 4 showed rounded corners
in the outer rib's imprint), so dimension Le - like
dimension A in the patent - was measured in E4 at
an axial offset from the edge of the rib's imprint.
Similarly, dimensions corresponding to B and C were
to be measured in the same way, so that taking
measurements at an offset from the edge of the
rib's imprint was not inventive. This was even
suggested by E1 showing a shoulder rib side end
portion being chamfered to R3 (paragraph [0035]),
in contrast to the sharp rib edges in E4. E4
described in paragraph [0018] how to realise a tire
having a "W"-shaped footprint.

Starting from E4 as the closest prior art, E4 disclosed the characterising portion of claim 1, except for measuring the length dimensions B and C in the tire footprint at an offset from the rib's edge. As argued above, E4 already suggested that a rounded corner had to be observed when determining dimension Le, so it was obvious to measure B and C correspondingly. Length Lm in E4 corresponded to B in claim 1, and values for the ratio Lm/Lc (Lc corresponding to L) were given in E4. As argued in opposition, it was possible to calculate length C and the ranges for (A-B)/L and (C-B)/L. Consulting E1 which also dealt with the problem of tire wear, the cross-sectional view in a tire transverse direction of Figure 1 showed the features of the preamble of claim 1 at maximum load.

VIII.   The respondent's arguments relevant to the present decision may be summarised as follows:

(a) *Admissibility of documents*

Documents E17 (re-submitted as "digitized print" E19), E18 and E20 to E23 should not be admitted into the proceedings for the following reasons:
- E17 contained tire tread contact prints, but there was no evidence that the tires in question were available to the public before the priority date. Moreover, there was a question about the tire load (the contact imprints were obtained under different conditions from those recited in claims 1 and 2) and therefore much ambiguity, which also applied to the newly filed document E19.

- E18 concerned a digital imaging measurement
  system, i.e. was of marginal relevance. It could
  not fairly be said that other methods of
  measuring dimensions on contact patterns from
  tire treads were unreliable.
- E20 to E23 were no documents of prior art and
  used tires different from those referred to in
  E17/E19 in determining (A-B)/L and (C-B)/L, so
  these documents were not relevant to what might
  be deduced from E17/E19.

(b) *Sufficiency of disclosure*

There was nothing in the patent to suggest that the
conditions for determining measurements on contact
patterns should be other than those specified for
single mounting. The patent sought to reduce uneven
wear of tires mounted on the steering axle of a
heavily loaded vehicle, and paragraph [0054]
discussed inflation and loading to the maximum
permissible level (the single mounted configuration
had higher values). Uneven wear was no significant
problem in case of dual-mounted configuration.

The directions given in the patent were illustrated
by means of schematic contact patterns, but the
patentee had no difficulty in determining values of
L, A, B and C for real contact patterns. Tire
companies understood the concept and methods of
contact pattern measurement (see e.g. E4, E5).

Expressing the offset values for measurement of B
and C to three decimal places was not beyond the
capability of the skilled person. The applicant
applied this method in its own calculations, so the
invention was sufficiently disclosed. As concerns

patterns with an asymmetric rib geometry, an averaging method could be applied.

Rounding of measurement values was not prescribed in the patent, and it was difficult to see how this point related to Article 100(b) EPC.

The additional features of claim 2 reciting the circumferential axial cross-sectional geometry were structural/spatial limitations and did not relate to a method step.

Parameters based on tire tread contact patterns had become common and accepted by tire manufacturers in framing of their patent application (see E4, E5), and defining the ground contact shape using the parameters A, B, C and L was adequate in the context of the present invention. Paragraphs [0045] and [0046] explained the structural parameters to be modified, which did not place an undue burden on the skilled person, who also knew other ways (see E4, E5) of obtaining a given ground contact shape. The fact that the skilled person might have to perform some iterative trials in order to reach specific target values of A, B, C and L did not mean that the overall disclosure was insufficient. Paragraph [0018] of the contested patent described one way of making the tire, instructing the skilled person what to do to tweak the tire starting from the tire of E1, i.e. a ground contact shape as claimed was achieved by changing the running surface cross-section, without necessarily changing the internal structure of the tire. This did not mean that the internal structure had no influence on the tire footprint.

Prescribed conditions (pressure and maximum load)
were not always quoted in reference standards for
each and every tire, but in such a case values
could be derived by interpolation between figures
quoted for the closest tires for which values were
quoted. In the event that dual mounting was
possible, the conditions for single mounting were
the ones to be used.

(c) *Novelty*

E5 did not disclose the ranges (A-B)/L and (C-B)/L
as defined in claim 1 directly and unambiguously,
since it did not disclose the parameters B and C as
claimed. E5 only showed a schematic drawing of a
"W"-shaped ground contact shape which could not be
used to derive any value or offset. In determining
the parameters B and C, the appellant did not take
into account the offset that was highly dependent
on the degree of tapering at either end of a rib
imprint, which determined how measured values B and
C differed from the length of the imprint at the
very edge. Applying the three tests defined in
T 279/89 was not appropriate, because E5 did not
contain information about a real contact pattern of
a real tire and assumptions and deviations (even
using a schematic diagram) had been inappropriately
applied.

(d) *First auxiliary request – admission, inventive step*

The first auxiliary request removed original
claim 1, so its subject-matter was not complex and
it could reasonably be expected to be dealt with.

The combination of two relationships given in the
preamble of claim 1 of the first auxiliary request
(radius of curvature R1 < R2, a step height db <
da) were shown in E1, also a negative step height
db. In E4, the outer rib was standing upwardly for
a tire not charged with internal pressure (see
Figure 2 and paragraph [0020]). Even if the skilled
person were to combine E1 with E4, not all the
parameters claimed were disclosed in E4. E4 was
only concerned with setting the minimum tread
length to measure the wear of a tire, as shown in
Figure 5. It was not discussed in E4 to measure a
value C, also no measurement at an offset from the
rib's edge. Moreover, it was not inherent from the
schematic drawings what was the parameter C.

When starting from E4 as the closest prior art, E4
was totally silent about the relevance of the
claimed contact shape dimensions. There was no hint
at the relevance or advantageous result of amending
the teaching of E4 in this way which would motivate
the skilled person to do so, still less at arriving
at the advantageous parameters claimed in the
patent. Neither the parameter C nor the ranges
claimed could be deduced from the schematic
drawings, and there was no teaching in E4 that
these ranges were beneficial. Figures 4 and 5 in E4
were only about measuring the minimum contact
length Lm which could be anywhere, so the claimed
values C or B were not necessarily shown. Figure 1
of E1 showed the radius R3 of the second outer rib
of an actual tire and possibly a distance from the
edge of the groove, whereas the subject-matter of
claim 1 concerned a footprint and a distance or
offset to be considered from the edge of a contact
profile.

Reasons for the Decision

1.   Late-filed documents

1.1   The opposition division, in the exercise of their
          discretion under Article 114(2) EPC, did not admit
          documents E17 and E18 into the opposition proceedings.

1.1.1   According to established case law, a board of appeal
          should only overrule the way in which a first-instance
          department has exercised its discretion if it comes to
          the conclusion either that the first-instance
          department in its decision has not exercised its
          discretion in accordance with the right principles, or
          that it has exercised its discretion in an unreasonable
          way, and has thus exceeded the proper limits of its
          discretion.

1.1.2   E17 represents evidence of an alleged prior use, which
          was filed supplementarily by the opponent after the
          opposition division had expressed a negative
          preliminary opinion in its communication annexed to the
          summons of oral proceedings as regards the alleged
          prior uses filed in the notice of opposition. However,
          receiving a preliminary opinion does not necessarily
          justify the filing of new evidence, unless this is in
          reaction to new aspects raised in the communication.
          Such new aspects have not been substantiated by the
          appellant. Therefore, E17 must be considered late-
          filed, which was not contested by the appellant.
          According to the consistent case law of the boards of
          appeal, late-filed facts, evidence and related
          arguments should only exceptionally be admitted into
          the proceedings if, *prima facie*, there are clear

reasons to suspect that such late-filed material would
prejudice the maintenance of the patent.

According to the contested decision (see point 2 of the
Reasons), the original document E17 was provided by the
opponent during the oral proceedings, in reaction to an
objection to the poor quality of the photocopies of E17
filed on 25 September 2013 (one month prior to the date
of oral proceedings), which did not show the entire
ground contact shapes. Even taking into account this
original document, the opposition division found that
the pressure and load conditions used to make the
ground contact shapes in E17 were different from the
ones claimed in claims 1 and 2 ("not at 100% load and
pressure"). This was acknowledged in the appellant's
grounds of appeal (see page 17: the test conditions in
E17 deviated by 4% from the maximum load conditions
specified in E17 for a dual mounting configuration).
For lack of any evidence that at these conditions the
ground contact shapes of E17 would not change, E17 was
disregarded by the opposition division.

The board cannot follow the appellant's allegation that
the division has exercised its discretion in an
unreasonable way when denying the relevance of E17. The
argument that the contact patterns shown in E17 might
be closer to the claimed ones than those shown in E4
was not supported by further evidence in opposition
proceedings as regards e.g. the influence of the
maximum load conditions as set out above.
Therefore, the board finds that the opposition division
took into consideration the right criterion of *prima
facie* relevance and exercised its discretion under
Article 114(2) EPC in the right way in accordance with
the right principle when not admitting late-filed
document E17.

1.1.3   The opposition division disregarded late-filed document
         E18 for not disclosing any parameter of the ground
         contact shape. By judging that E18 did not disclose the
         features specifying the claimed invention according to
         claim 1, the opposition division again applied the
         right criterion of *prima facie* relevance. Therefore,
         the board sees no reason why the decision not to admit
         E18 into the proceedings should be overturned.

         The appellant's asserted that E18 showed nothing else
         but the knowledge of the skilled person regarding the
         post-treatment in the evaluation of real tire
         footprints and could therefore be introduced at any
         stage of the proceedings. However, this has to be
         refuted, because E18 is a patent specification and as
         such is not immediately recognisable as representative
         of common general knowledge (see Case Law of the Boards
         of Appeal, 8th edition 2016, I.C.2, 2.8.2)).

1.2   Document E19, filed for the first time in appeal
         proceedings, is identical to E17 except for showing a
         better quality. For the reasons already given with
         regard to E17, the board sees no reason for admitting
         document E19 either.

1.3   The further evidence E20 to E23 was provided for the
         first time in appeal proceedings, allegedly in response
         to the contested decision to support the pertinence of
         document E19. However, the tire tested in E20 to E23 is
         of a different brand (BRIDGESTONE) than the ones on
         which the appellant's arguments with regard to E17/19
         (MICHELIN, PIRELLI) were based, so the board cannot see
         that these tests are relevant to what might be deduced
         from E17/E19. What is more, such evidence could and
         should have been provided already in first-instance

proceedings, since the issue of the influence of
deviations from a maximal tire load on the claimed
ratios (A-B)/L and (C-B)/L was decisive in support of
the alleged prior use E17/E19 - see above reasoning of
the opposition division as regards the relevance of
E17/E19 - when arguing on lack of novelty.
Accordingly, in application of its discretionary power
pursuant to Article 12(4) of the Rules of Procedure of
the Boards of Appeal (RPBA, OJ EPO 2007, 536) to hold
inadmissible evidence which could have been presented
in first-instance proceedings, the board decided not to
admit documents E20 to E23 into the appeal proceedings.

2.   *Novelty of claim 1 as granted (Article 54(3) EPC)*

2.1   Document E5 constitutes state of the art under
        Article 54(3) EPC and is prejudicial to the novelty of
        the subject-matter of claim 1 as granted.

2.2   E5 shows (Figure 1) a pneumatic tire provided with a
        tread (1) including a plurality of ribs (3) separated
        by at least two circumferential direction grooves (2A,
        2B) extending in a circumferential direction according
        to the preamble of claim 1, which was not contested.

        Moreover, Figure 2 in E5 illustrates schematically a
        ground contact shape of the tread surface of the
        invention according to E5 having a gradually decreasing
        circumferential direction length (A; corresponding to L
        in granted claim 1) from the tire width direction
        center (CL) to the portion corresponding towards the
        tire width direction outermost circumferential groove
        (2A), followed by the ground contact shape having a
        gradually increasing circumferential direction length
        towards the tire width direction outside. Such form of
        the tire footprint is also explicitly mentioned in the

example described in E5 (paragraph [0025] and Table 1:
C/B<1 for "Present Invention Tires 2 to 4" defines a
tapered shape of the imprint of the outermost rib as
claimed; paragraph [0026]: D<E defines a tapered shape
of the imprint of the second rib from the outside as
claimed). The contested patent also relies on a
schematic footprint (Figure 1) when defining the
parameters specified in claim 1 (see paragraph [0040]
describing the first embodiment according to Figure 1),
and since claim 1 does not include any further
limitation or specification, the subject-matter of
claim 1 is not limited to measurement of dimensions
taken on a real footprint or after post-treatment
according to any specific procedure. As explicitly
stated in E5 (paragraph [0014]), an air pressure and a
load corresponding to the maximum loadability described
in JATMA are applied, i.e. the conditions specified in
claim 1 are also fulfilled.

2.3   Therefore, novelty of the subject-matter of granted
        claim 1 depends solely on whether the claimed ranges
        for the ratios (A-B)/L and (C-B/)L are novel over E5.

        In this respect, the following correspondence of the
        dimensions according to claim 1 and E5 has to be
        observed:
            L (claim 1) corresponds to A (in E5)
            A (claim 1) corresponds to B (in E5)

        Moreover, claim 1 requires dimensions B respectively C
        to be measured at an offset (distance of 0.076Ws
        respectively 0.112W2 in the tire width direction to the
        outside respectively inside, i.e. amounting to about
        10% of the width Ws or W2 of the corresponding rib) in
        the tire width direction to the outside respectively
        inside from a border line of the corresponding portion

of the respective rib in the tire footprint, whereas similar dimensions C and D in E5 are taken at the edge of the respective rib imprint. Therefore, due to the tapered shape of the respective rib imprints in E5 (see above), the following correspondence applies:

B' (<B in claim 1) corresponds to C (in E5)
C' (<C in claim 1) corresponds to D (in E5)

Note: In the following, the corresponding characters according to claim 1 will be used when referring to E5.

It is noted that for a rib imprint having a tapered shape (viewed in the tire width direction) linear relationships apply. Therefore, when measuring a longitudinal length of a rib imprint at a distance of e.g. 10% of the rib's width viewed from the shorter border line in the rib's imprint, the measured length will be increased by a value which is 10% of the difference between the longitudinal lengths of the two longitudinal border lines in the rib's imprint.

2.4   The board agrees with the respondent that the drawings in E5 cannot be used to measure any of the dimensions as specified in granted claim 1. However, as argued by the appellant, E5 also shows numerical values of ratios A/L and B'/A (< B/A) for examples of inventive tires (Table 1, paragraph [0025] and [0026]).

Moreover, it is observed that the two ratios A/L and B'/A given in E5 can be combined to form a term corresponding to the first relationship specified in claim 1 for a difference between relative length dimensions A/L and B'/L, namely:

$$(A-B')/L = A/L*(1-B'/A)$$

The two numerical values disclosed in E5 can therefore be combined to describe a single quantity as specified in claim 1.

Taking e.g. the "Present Invention Tire 2" from Table 1 in E5 (A/L=0.90, B'/A=0.95), the appellant showed that the following value resulted for (A-B')/L:

$$(A-B')/L = 0.045$$

Moreover, it argued that, taking into account the claimed offset, a smaller value resulted for the term (A-B)/L specified in claim 1, based on the ground contact shape disclosed in E5. In fact, taking into account that claim 1 requires a length B to be measured at a distance of 0.076Ws (i.e. 7.6% of the rib's width) from the respective border line (B') of the respective rib's imprint (having a length B > B'), the value of A-B/L will be smaller by 7.6% (i.e. derivable by using a factor 1-0.076=0.924) compared to (A-B')/L as calculated from the values disclosed in E5, due to the tapered shape of the rib's imprint as noted above, i.e. still provides a value falling in the claimed range.

Expressed mathematically, the first relationship specified in claim 1 equates to the following when taking the length dimensions as specified in E5:

$$(A-B)/L = 0.924*(A-B')/L = 0.924*A/L*(1-B'/A)$$

Taking e.g. "Present Invention Tire 2" from Table 1 in E5, the following value is obtained:
$$(A-B)/L = 0.924*0.90*(1-0.95) = 0.4158$$
This clearly shows that the "Present Invention Tire 2" known from E5 shows a value for the first claimed ratio (A-B)/L which falls within the claimed range, so the

first range specified in claim 1 as granted for the ratio (A-B)/L cannot establish novelty over E5.

2.5   It is noted that novelty of a pneumatic tire which is specified - as in the present case - by a range of values for a ratio of dimensions must be denied when a pneumatic tire known in the prior art shows a value for the same ratio of dimensions which falls within the claimed range, irrespective of how this ratio is presented via mathematic formula. In this respect, the board finds that neither an arbitrary change in alphabetic characters describing the same dimension (e.g. L in claim 1, corresponding to A in E5), nor a dimension arbitrarily measured differently in a claim (B in claim 1 measured at a distance from the border line, B'<B in E5 measured at the border line) albeit clearly related to a dimension as specified in the prior art (a fixed geometrical relationship exists between B' and B due to the tapered shape of the footprint), nor the combination of two ratio values into a single value (values for A/L and B'/A given in E5 can be combined to provide a value (A-B')/L) in comparison to the known prior art can justify that novelty of a claimed product be acknowledged.

The board even finds that the present case can be compared to so-called product-by-process claims. Claim 1 tries to specify a pneumatic tire by features relating to the evaluation of dimensions in the tire's footprint, i.e. defines a product by specifying an evaluation method with regard to the tire's footprint and deriving a characteristic value therefrom. According to the established jurisprudence for product-by-process claims, process features not previously described can only establish novelty of the claimed product if they cause it to have different properties

from the products previously described. As demonstrated
above, the product known from E5 shows properties, i.e.
values for the claimed ratio (A-B)/L as claimed.

2.6   The main argument of the respondent with regard to
        novelty was that E5 did not disclose the parameters B
        and C as claimed, in particular no measurement at an
        offset from the edge of a rib's imprint. As shown
        above, it is not the evaluation method (i.e. measuring
        at an offset from the border line or edge of a rib's
        imprint instead of taking the measurement at the very
        edge) for deriving a value of a geometrical
        relationship of dimensions in a tire footprint which
        can establish novelty of the claimed product, but
        whether the claimed value or range of values is new
        over the prior art.

        As admitted by the appellant, E5 did not show numerical
        values for length dimensions B and C. However, the
        board follows the appellant in that E5 implicitly
        discloses upper and lower limit values for the claimed
        relationship (C-B)/L on the basis of relationships
        between dimensions given in E5 (see page 4), without
        deriving values from the schematic drawings. In
        particular, taking into account offsets from the edge
        of the imprints of the respective ribs, E5 discloses a
        range for (C-B)/L which is broader than the range
        specified in claim 1, but which does not satisfy the
        criteria for novelty of a selection from a broader
        range, as demonstrated in the following.

2.6.1   E5 discloses (page 4) relationships which also apply to
        the example tires of Table 1, reading in the language
        of claim 1 (dimension E is only specified in E5):

        $C'>B'$; $C'<E$ and $E<L$, i.e. $C'<L$

Dimension E, which is not specified in claim 1, describes the length of the longer longitudinal border line of the second outer rib and the relation C'<E characterises a tapered shape of the rib's imprint.

2.6.2   Based on the above relationships, C' can assume values between B' and L, which immediately provides lower and upper limit values for the ratio(C'-B')/L, by setting C'=B' (lower limit) and C'=L (upper limit):

        0 < (C'-B')/L < 1-B'/L

        Taking e.g. again "Present Invention Tire 2" from Table 1 in E5 (A/L=0.90, B'/A=0.95), the value of B'/L is implicitly given (A=0.90*L => B'/L=0.95*0.90=0.855) so that the following range results, as argued by the appellant:

        0 < (C'-B')/L < 1-0.855=0.145

2.6.3   The board also agrees with the appellant that taking into account the claimed measurement specification ("offsets"), an even smaller range results for the second relationship (C-B)/L as specified in claim 1, i.e. the following inequality still applies:

        0 < (C-B)/L < 0.145

        In particular, when measuring the lengths at an offset from the longitudinal edge of the rib's imprint, higher values of C>C' and B>B' result due to the tapered shape of the rib imprint. Therefore, C=L and B=B' still provides an upper limit value for (C-B)/L as shown above. Moreover, C'=B' can still be assumed to estimate a lower limit value for (C-B)/L. [This ratio is still

positive for the following reason: The length
difference of the longitudinal border lines in the
imprint of the respective ribs is larger for the second
rib from the outside (see third inequality in E5: E>A,
i.e. E-C'> A-B'), for which also a higher offset value
(0.112W2 to determine C; 0.076Ws to determine B) is
defined, i.e. the relative increase of C/L versus C'/L
is higher than for B/L versus B'/L.]
Note: In assessing novelty, it is not necessary to
provide more precise upper and lower limit values, as
derivable from a value for B/L>B'/L, based on the given
offset and the tapered form of the rib's imprint.

2.6.4 E5 therefore shows for the example tire 2 a range for
ratio (C-B)/L smaller than 0 to 0.145 which is only
slightly larger than the range claimed (0.02 to 0.1).

According to the established case law of the boards of
appeal, a definition of a (sub-)range can render the
subject-matter of a claim novel only if it meets the
three criteria defined in the decisions T198/84 and
T279/89, namely that:
(a) the selected sub-range should be narrow,
(b) the selected sub-range should be sufficiently far
    removed from the known range illustrated by means
    of examples, and
(c) the selected area should not provide an arbitrary
    specimen from the prior art, i.e. not a mere
    embodiment of the prior description, but another
    invention (purposive selection).
In the present case, already the first two criteria are
not fulfilled. Therefore, also the second range defined
in claim 1 for the second relationship (C-B)/L cannot
establish novelty over E5.

2.7   The board therefore comes to the conclusion that the
        subject-matter of claim 1 as granted is not new over
        the "Present Invention Tire 2" disclosed in E5.

3.   *First auxiliary request*

3.1   *Admissibility*

3.1.1   The board sees no reason why the first auxiliary
        request should not be admitted into the proceedings. It
        may be seen as a reaction to the communication of the
        board of 17 May 2017 and the preliminary opinion
        expressed therein with regard to novelty of claim 1
        over E5. Moreover, the first auxiliary request was
        derived from the granted claims by merely deleting the
        first independent claim, and the appellant had already
        alleged lack of inventive step of the second
        independent claim 2 as granted in its grounds of
        appeal. Therefore, the fact that this request was filed
        only four days prior to the date of oral proceedings
        did not confront the appellant with new subject-matter
        he could not be expected to deal with during the oral
        proceedings.

3.1.2   Since the first auxiliary request represents a subset
        of granted claims together with a description which was
        adapted accordingly, the requirements of Article 84 and
        123(2) EPC are fulfilled, which was not contested.

3.2   *Inventive step (Article 56 EPC)*

3.2.1   The subject-matter of claim 1 involves an inventive
        step over the cited prior art (Article 56 EPC). Two
        lines of argument were presented by the appellant,
        either starting from document E1 or from document E4 as
        the closest prior art.

3.2.2   Starting from E1 as the closest prior art, which shows
        (see Figure 1) the features according to the preamble
        of claim 1 and addresses the problem of uneven tire
        wear, the skilled person might consult the teaching of
        E4 which also deals with the problem of uneven wear of
        pneumatic tires. However, irrespective of whether
        ranges of ratios according to the characterising
        portion of claim 1 are known from E4 (the appellant
        argued a non-novel selection of ranges from two lists),
        the appellant admits that E4 shows a step height of the
        outer rib in a direction exterior to a virtual line
        that was an extension of the second outer rib (see
        Figure 2: second running surface Y2 not located to the
        inside in the tire diameter direction of a virtual
        extension line of the first running surface Y1).

        The board finds that E1 and E4 show different solutions
        to the same problem which are structurally incompatible
        with each other. In E4, the tread outline shape is
        established by providing a belt layer 7 extending below
        the second running surface and separated by a rubber
        layer of increasing thickness from the tire equator
        axially outward from the carcass cords, so that the
        step height of the outer rib results in an exterior
        direction. E1 also shows a belt layer 12 at least
        partially extending below the second running surface,
        but the tire tread outline shape results from a step
        height between the rubber of the first running surface
        and the second running surface. However, E4 does not
        show a step height da between the first and the second
        running surfaces, neither in Figure 2 (relating to an
        uninflated tire, see paragraph [0020]), nor when
        assuming inflation to the maximum pressure (see
        paragraph [0021]: "With this structure, the tread
        outline shape in a standard internal pressure state in

which the tire is assembled into a standard rim and the
standard internal pressure is charged is brought into
closer to a single arc having a radius of ..."), i.e.
E4 does not provide any indication to give up the
"single arc" shape and replacing it by a step height
between the two running surfaces as claimed. Therefore,
the skilled person would either stick to the structure
known from E1, for which the ratios of dimensions as
claimed are unknown, or he would be tempted to use the
structure as disclosed in E4, which does not show the
features according to the preamble of claim 1 although
it might show a tire falling within the claimed ranges
of ratios of dimensions. Thus, the skilled person would
not arrive at the subject-matter of claim 1.

In view of the foregoing, it can be left open whether
the minimum contact length Lm shown in E4 corresponds
to dimension B specified in claim 1 and whether values
for B and C are derivable from E4, as discussed
extensively between the parties.

3.2.3   For the same reasons as mentioned above, the board
cannot see that the skilled person starting from E4 as
the closest prior art and taking into account the
teaching of E1 would arrive at the subject-matter of
claim 1 in an obvious manner. Again, when combining the
teachings of E4 and E1, the skilled person might
consider to choose the structural features of E1 in
order to realise a step height between the two running
surfaces, but then there is no information about the
ratio of dimensions in the tire's footprint as required
by the characterising portion of claim 1.

3.2.4   Dependent claims 2 and 3 concern particular embodiments
of claim 1 and are therefore likewise allowable.

4.   *Sufficiency of disclosure (Article 100(b) EPC)*

4.1   The board finds that the objections raised under
        Article 100(b) EPC against claim 1 as granted, which
        the appellant also maintained against granted claim 2
        and thus against claim 1 of the present auxiliary
        request 1, are unfounded.

4.2   Claim 1 relates rather generally to "a pneumatic tire",
        without specifying its mounting location at the
        steering axle as mentioned in the description.
        Moreover, the wording of claim 1 leaves open whether a
        single-mounted or dual-mounted configuration has to be
        assumed and which standard applies. Although the
        "maximum loading" as specified in claim 1 might be
        different in a single-mounted and in a dual-mounted
        configuration, as argued by the appellant, the board
        finds that this objection relates to the broadness of
        the claimed subject-matter, which is an issue under
        Article 84 EPC and as such cannot be raised against
        granted claims. The fact that the wording of a claim is
        broad, however, has to be taken into account when
        assessing novelty and inventive step.

        The same applies to the issue of rounding and
        measurement errors which have to be considered when
        interpreting the ranges of numerical values for the
        differences $(A-B)/L$ and $(C-B)/L$ specified in claim 1,
        in accordance with decision T 175/95 cited by the
        appellant. The recognised rounding conventions have to
        be applied in the assessment of novelty, which in the
        board's view is not a problem under Article 100(b) EPC.
        For the same reason, the board cannot see a problem in
        the offsets for measurement of B and C given in claim 1
        which contain values expressed to three decimal places.

4.3   The appellant also objected to the contested patent
       being silent on the post-treatment ("smoothing") of a
       real tire contact pattern, necessary for arriving at
       the schematic representation of the tread contact shape
       in Figure 1 of the patent specification. The board
       holds that this does not give rise to a problem under
       Article 100(b) EPC, since the concept and methods of
       contact pattern measurement are known in the field of
       pneumatic tires, as evidenced by the prior art cited by
       the appellant itself (e.g. E4, E5). The skilled person
       will therefore supplement the information contained in
       the application using his common general knowledge.

       For the same reason, the board cannot see a problem in
       the contested patent being silent on the values to be
       considered for a tire having an asymmetric rib
       geometry, i.e. where the length dimensions specified in
       claim 1 are different on both sides of the equatorial
       plane. It is well-known that in such a particular case
       a representative dimension value can be provided by
       applying an averaging method.

4.4   Since claim 1 of auxiliary request 1 (identical with
       independent claim 2 as granted) specifies in more
       detail the circumferential axial cross-sectional
       geometry by structural features (i.e. radius of
       curvature of the first running surface in relation to
       the second running surface, step heights between them),
       the board cannot follow the appellant's objection that
       the claim resembled more a method claim and should have
       been formulated differently. Moreover, such objection
       relates to clarity of a granted claim which cannot be
       questioned in appeal proceedings.

4.5   The appellant also argued that it was not a matter of
       routine experimentation and a reasonable amount of

trial and error to arrive at a tire according to
claim 1. In particular, the contested patent only
taught one way to carry out the invention, namely the
example according to Figures 1 and 2.

According to the established case law, an invention is
in principle sufficiently disclosed if at least one way
is clearly indicated enabling the person skilled in the
art to carry out the invention. A reasonable amount of
trial and error is permissible, if the skilled person
has at his disposal, either in the specification or on
the basis of common general knowledge, adequate
information leading necessarily and directly towards
success through the evaluation of initial failures.

Claim 1 of auxiliary request 1 explicitly specifies the
external profile of the axial cross-sectional shape of
the tire tread by way of two relationships between
structural parameters of the tire, namely the radius of
curvature of a second running surface in relation to a
first running surface (R2>R1) and also the step heights
between the two running surfaces and their virtual
extension lines (db>da), to obtain a form of a
footprint as defined in claim 1. Contrary to the
objections raised by the appellant against claim 1 as
granted (referring in particular to decisions T 68/85,
T 1063/06 and T 480/11), allegedly trying to define the
invention solely by way of functional features or the
result to be achieved, claim 1 according to auxiliary
request 1 now contains a definition of the structure of
the tire tread which provide adequate information
leading the skilled person with a reasonable amount of
trial and error to the claimed subject-matter. This
process of trial and error does not represent an undue
burden for the skilled person, as implicitly
acknowledged by the appellant when arguing

insufficiency of disclosure of granted claim 1 in
comparison to granted claim 2 (also paragraphs [0045],
[0046]) which specifies structures of the tire.
The appellant also referred to paragraph [0018] of the
contested patent and the internal structure of the tire
mentioned therein. Although it had an influence on the
ground contact shape, the patent allegedly was silent
on the internal structure. However, the board cannot
see a problem under Article 100(b) EPC because the last
sentence in the paragraph cited by the appellant
explicitly states that the invention allows for a
ground contact shape as claimed "by the running surface
cross-section, without depending on the internal
structure of the tire". Thus, there is no information
lacking to put the invention as claimed into practice.

4.6   Finally, the appellant alleges that the invention was
        insufficiently disclosed since the contested patent was
        silent on how to proceed in cases in which maximum
        pressure and load were not quoted in reference
        standards for a given tire dimension.

        As can be derived from the contested decision (see
        point 3.1), this argument refers to an alleged
        inconsistency in the description of the contested
        patent, in which it is referred to the JATMA-
        specification when describing the first embodiment,
        whereas in the experimental tests a tire size of
        295/75R22.5 was used which is not quoted in the JATMA-
        specification. However, this tire size can be found in
        the TRA-specification setting the standards for the US-
        market, and it is explicitly said in the patent
        specification that for the experimental tests the
        "abrasion test method and evaluation method were: North
        American market", i.e. the board cannot see a problem
        there. Moreover, the passages from JATMA- and TRA-

specification provided by the appellant show that both
specifications set different standards which are not
comparable as to the absolute values of tire load for a
comparable tire pressure (e.g. TRA, tire size
"295/75R22.5": maximum tire load 3000 kg at 830 kPa in
a single-mounted configuration; JATMA, tire size
"295/70R22.5" and "295/80R22.5" show maximum tire loads
of 3280 kg and 3470 kg for 825 kPa and even higher
values at higher pressure in a single-mounted
configuration), so the appellant's deviating
calculation results when deriving values by
interpolation are explainable and cannot support an
alleged insufficiency of disclosure.

4.7   In view of the above, the board finds that the
        invention as defined in claim 1 according to auxiliary
        request 1 is sufficiently disclosed.

Order

For these reasons it is decided that:

1.   The decision under appeal is set aside.

2.   The case is remitted to the department of first
        instance with the order to maintain the patent as
        amended in the following version:

        -   Claims 1 to 3 according to the first auxiliary
            request filed with the letter of 8 June 2017;
        -   Description, pages 2 to 8 as filed during the oral
            proceedings on 23 June 2017;
        -   Figures 1 to 9 of the patent specification.

The Registrar: The Chairman:

A. Vottner   G. Pricolo

Decision electronically authenticated