

Examiners' Report - Paper B 2007 (Electricity/Mechanics)

1. General Considerations

The invention relates to a light emitting golf ball having an exchangeable chemiluminescent lightstick.

The description of the invention starts from a prior art golf ball (see Par. 3 and Fig.1), in which a spherical chemiluminescent light source is confined. The light source of the golf ball can therefore only be activated once and is not exchangeable. The stated aim of the invention is to provide a light emitting golf ball which can be activated more than once and which is easy to make.

Two prior art documents D1 and D2 are mentioned in the communication under Art. 96(2) EPC. It is noted that each document describes two separate items of prior art.

D1 shows two different electrically illuminated golf balls. The first golf ball (herein referred to as D1/1) is controlled by a non-conductive needle acting as a switch actuator. This golf ball can be activated more than once, but the light source cannot be exchanged. The second golf ball (herein referred to as D1/2) has a golf ball body made of two half shells which are screwed together and a light source which can be activated more than once and which can be exchanged.

D2 relates firstly to a chemiluminescent lightstick (herein referred to as D2/1) and secondly to an ice hockey puck in which such a chemiluminescent lightstick is embedded (herein referred to as D2/2). The lightstick cannot be exchanged and therefore the puck can only be illuminated once. D2 also discloses that hockey balls can be made in the same way as the pucks of D2/2.

In accordance with the wishes of the applicant, it was expected to provide, an amended independent claim to a golf ball body, an amended independent claim to a lightstick and an amended claim to a golf ball kit comprising a golf ball body and a chemiluminescent lightstick.

Drafting the letter of reply involved the following challenges. Firstly to provide arguments concerning basis in the original application, novelty and inventive step for the amended claims. Secondly to provide arguments pertaining to Rule 29(2) EPC and to unity of invention (Art. 82 EPC).

2. Claims (50 Points)

2.1 Example Solution Claims

An example of a good set of amended claims is provided in an annex to this report. (features in *italics* show the amendments made with respect to the original claim set). The example set of claims has a structure which is based on the original set of claims, i.e. it includes an independent claim to a golf ball body, an independent claim to a chemiluminescent lightstick, and dependent claims including claims to golf ball kits. This structure reflects the wishes of the applicant expressed in his letter to the representative.

2.2 Independent Golf Ball Body Claim (25 points)

The indications in square brackets [...] give references for the basis of the amendments to the original application:

Golf ball body (6) made of translucent material, comprising *a diametric bore [claim 2] (8)* and being configured to receive completely and to retain a chemiluminescent *lightstick [claim 2] (7)* such that it can be exchanged, characterised in that *the diametric bore (8) ends with an opening (9) on the outer surface of the body (6) through which the lightstick (7) can be inserted and removed [par. 009, last sentence]*.

The examiner objected to the original golf ball body claim on the grounds of lack of novelty with respect to prior art item D1/2. In order to establish novelty with respect to D1/2, the claim had to define an opening on the outer surface of the body through which a lightstick can be inserted and removed. In the application, this opening is always associated with a diametric bore; there is no basis in the original disclosure for an opening associated with any other form of cavity. Furthermore in the original application, the diametric bore is always disclosed in conjunction with a chemiluminescent lightstick. Therefore the claim had to define the cavity as a diametric bore and the chemiluminescent light source as a chemiluminescent lightstick.

It is noted that D1/1 discloses a golf ball body having a diametric bore which ends with an opening on the outer surface of the body. However the size of the opening is too small to permit the insertion/removal of a chemiluminescent lightstick through the opening as defined in the revised claim set.

2.3 Exclusion of Embodiments/ Unnecessary Limitations of the Independent Golf Ball Body Claim

For example: An independent claim to the golf ball body according to the example claim (claim 1) but additionally claiming that the diametric bore is provided with an internal thread which extends along at least a portion of the diametric bore. This claim only protects one embodiment, 13 points were lost.

2.4 Independent Golf Ball Body Claim with Added Subject Matter, Art. 123(2) EPC.

This year, the most frequently occurring deficiency of the golf ball body claim was to add subject matter extending beyond that which was originally filed. Amendments which added subject matter extending beyond that which was originally filed and which could not be recovered in post grant proceedings (the so called Art: 123(2)(3) trap) lost 16 points. Amendments which included subject matter which extended beyond that which was originally filed but which were recoverable in post grant proceedings (non trap) lost up to 10 points for each issue.

2.4.1 Art. 123(2)(3) Trap Amendments

For example, a claim directed to a golf ball body that is defined as being “monolithic” or “made in one piece”. There is no direct and unambiguous basis in the original description or in the original figures, which are schematic. See in particular the Guidelines in C-VI, 5.3.1 and 5.3.2. It is noted that, although in the description on paragraph 8 of the application it is mentioned that the golf ball comprises “two main parts”, this does not imply that either of these “main parts” is made in one piece. For example the lightstick is composed of several sub-parts, see paragraph 10 of the application.

2.4.2 Art. 123(2) Non-trap Amendments

Examples of such amendments are:

- Generalisation of the “chemiluminescent light source” to “light source” .
- Generalisation of a “chemiluminescent lightstick” to a “lightstick”.
- Generalisation of a “diametric bore” to a “bore”.
- Generalising the “golf ball body” to a “ball body”
- Generalising the “golf ball body” to a “sports equipment”.
- Incorporating only one of the features of original claim 2 (chemiluminescent lightstick and diametric bore) into an amended claim 1. In the entire application these features are always linked to each other.
- Defining a diametric bore having an opening without in some way defining that the chemiluminescent lightstick can be inserted and removed through the opening.
- Defining the opening as being the opening of the cavity without indication that the cavity is a diametric bore and the light source a chemiluminescent lightstick.

2.5 Claims Lacking Clarity, Art. 84 EPC.

Up to a total of 10 points were deducted for golf ball body claims which were not clear. Major clarity issues cost more points than minor issues. For example, a claim to a golf ball body in which it was not clear whether or not a chemiluminescent lightstick was additionally claimed as being comprised in the golf ball body. Such a claim lost 10 points with respect to this issue. Minor clarity issues lost 2 points for each issue.

2.6 Independent Golf Ball Body Claim Lacking Novelty (-16 points).

For example a claim simply combining original claims 1 and 2. The subject-matter of this claim is not new with respect to the prior art item D1/2, as is explained in point 3 of the communication under Art 96(2) EPC.

2.7 Independent Golf Ball Body Claim Lacking Inventive Step (-13 points).

For example, a claim based on a combination of original claims 1 and 2 and additionally claiming that the golf ball body is moulded, was considered to lack inventive step in the light of prior art items D1/2 and D2/2.

2.8 Formal Matters

This year, it was considered appropriate to provide an amended independent golf ball body claim using the two part form. 2 points were deducted for claims which did not use the two part form or where the two part form was inconsistent with the closest prior art chosen in the answer. It should be noted that for answers which defined document D2/2 as the closest prior art, the pre-characterising portion of the claim should not have included a golf ball body, since D2/2 does not disclose a golf ball body. Up to 2 points were also deducted where reference signs were missing or incorrect.

2.9. Example Independent Lightstick Claim (10 points)

(The indications in square brackets [...] give references for the basis of the amendments in the original application):

Chemiluminescent lightstick (7) characterised in that said lightstick (7) has an outer thread [Par. 013, fourth sentence] (12) so that it can be screwed in the diametric bore [implicit from Par. 013, third and fourth sentences] (8) of the golf ball body (6) of claim 5 to be received completely therein and to be retained therein.

Original lightstick claim 7 was objected to on the grounds of lack of novelty. The expected independent lightstick claim covers the second embodiment described in par. 13 of the application. The feature of the outer thread is added in order to establish novelty and non-obviousness with respect to the lightsticks disclosed in document D2.

Answers which did not include a claim to a lightstick as part of the solution but which clearly set out an independent claim to a lightstick in a note to the examiner as subject matter for a divisional application were not expected and lost the points available both for the claim and associated arguments (see Instructions to the candidates, par. 12). However some bonus points were available to such candidates based on the merits of the lightstick claim set out.

2.10 Inferior Solutions / Unnecessary Limitations of the Independent Lightstick Claim

Independent claims defining lightsticks which were unnecessarily limited lost up to 5 points. For example claims to a lightstick comprising a capsule lost 5 points.

Some answers included claims to lightsticks which defined a structural feature of the lightstick which was considered to be unnecessary, but not limiting. No points were deducted for the inclusion of such features. For example, claims to lightsticks which were tubular lost no points with respect to this feature.

2.11 Independent Lightstick Claim Lacking Novelty / Inventive Step (up to -9 points)

It was considered that any claim defining one of the chemiluminescent lightsticks disclosed in the application in association with a “press-fit” of the lightstick in the golf ball body (see par. 12 of the application) would at least lack inventive step with respect to the lightsticks disclosed in document D2. This is because such lightsticks are of the kind which are described in D2/1 and it is stated in D2, paragraph 2 that these lightsticks can be supplied in a range of dimensions which would fit in a golf ball body. Such claims lost up to 9 points. This year, this was the most frequently occurring deficiency in independent claims defining lightsticks.

2.12 Independent Chemiluminescent Lightstick Claim with Added Subject matter, Art. 123(2) EPC.

Distinction was made between Art. 123(2), (3) EPC trap amendments, which lost 6 points and Art. 123(2) non-trap amendments which lost 4 points.

2.12.1 Art. 123(2)(3) Trap Amendments (-6 Points)

For example, claims defining a lightstick having a tapered portion. There is no disclosure in the original application of a lightstick having a tapered portion. Although in Par. 14 of the application it is stated that there is a correspondence between the shape of the diametric bore and that of the lightstick, this was not considered to be an implicit disclosure of tapered lightsticks.

2.12.2 Art. 123(2) Non-trap Amendments (-4 Points)

For example: Claims generalising a “chemiluminescent lightstick” to a “lightstick.”

Claims which defined a chemiluminescent lightstick having an outer thread but which included a reference to claims to golf ball bodies which were only directed to the press fitting of a light stick likewise lost 4 points.

2.13 Independent Lightstick Claim Lacking Clarity (up to -6 points)

Up to 2 points were deducted per clarity issue. This year the claims to lightsticks were generally clearly drafted.

2.14 Formal Matters Regarding Independent Lightstick Claims

The two part form of claim was considered to be appropriate. Answers in the one part form lost 1 point. Up to 1 point was deducted where reference signs were missing.

2.15. Expected Dependent Claims (15 points)

Points in this section were awarded for the content of the claims themselves and for a logical claim structure, including correct references and stated claim dependencies with respect to preceding claims.

Points were awarded for retaining appropriate claims from the original set of dependent claims, these claims depending on the amended independent claim chosen. Points were also awarded for new dependent claims which were considered to offer potential fallback positions. An example of such a claim is: a claim to a kit of parts comprising a golf ball body having a threaded bore and a threaded lightstick (see claim 9 in the example set of claims at the end of this report).

3. Argumentation (50 points)

3.1 General Remarks

This year, because two independent device claims were expected in the amended claim set (claims to a golf ball body and to a lightstick), points were available for arguments specifically relating to each of these claims. Additionally a small number of points were available for arguments justifying having more than one independent claim in the same category and for justifying that there was unity of invention between the independent claims.

Where appropriate, it was expected that arguments distinguish between the different items of prior art (D1/1, D1/2, D2/1, D2/2), even when these were contained within the same document. See the Guidelines in C-IV,7.1.

This year, at least for the example solution, arguments were not expected to relate to the prior art indicated by the applicant in the description of the application, Par. 3 and in Fig. 1. This is because the claims of the example solution are restricted with respect to the originally filed claims and no objection was raised on the basis of this prior art document in the communication under Art. 96(2) EPC.

It should be noted that formal statements in the letter of reply that did not relate to arguments in support of the amended claims received no points. For example, auxiliary requests for oral proceedings etc.

3.2 Basis for the Amendments (10 points available)

It was expected that the support in the original application for each individual amendment was precisely explained. Full points were available for answers which clearly identified the amendments actually made to the claims and which clearly indicated the basis for the amendment in the original application. For example the basis could be indicated by citing the original claim number or a paragraph number of the description or a combination of both. Where the basis was not explicitly derivable from the citation, arguments justifying the basis were additionally expected. This applied for example to claims containing features which had been generalised. Irrespective of whether such generalisations were considered to add subject matter (Art. 123(2) EPC), points were awarded for argumentation which set out to justify the generalisation.

3.3 Argumentation Regarding Novelty (5 Points)

Full points were awarded to answers which identified at least one difference between each independent claim and each item of prior art. 4 points were available for justifying the novelty of the expected independent golf ball body claim and 1 point for the expected lightstick claim.

For example, in order to justify novelty for the golf ball body claimed in claim 1 of the example solution with respect to D2/1 and D2/2, it was sufficient to indicate that none of the items of prior art disclosed in D2 disclose a golf ball body.

It should be noted that identifying differences between features which are referred to in a claim but which do not actually fall within the scope of the claim may not be sufficient to prove novelty. For example, in the golf ball body claimed in claim 1 of the example solution, a chemiluminescent lightstick is referred to but is not part of the golf ball body. Stating that D1/2 does not disclose a chemiluminescent lightstick does not demonstrate that the claim is novel with respect to this item of prior art.

3.4 Inventive Step Argumentation (27 points)

This year 27 points were available for argumentation justifying inventive step of the amended independent claims.

3.4.1 Inventive Step Arguments Relating to the Golf Ball Body (23 Points)

It was appropriate to provide arguments which were structured to follow the problem solution approach (see Guidelines C-IV,9.8).

3.4.1a Identifying the Closest Prior Art (5 Points)

2 points were available for clearly identifying the most appropriate item of prior art as the closest prior art and 3 points for providing short arguments justifying this choice.

For the example solution, the item of prior art shown in Fig. 2 of D1 (D1/2) was considered to be the closest prior art. D1 is the only prior art document which discloses golf ball bodies. D1/2 is the only item of prior art available which discloses a replaceable light source. It is therefore considered to be the most logical starting point for the expected golf ball body claim.

3.4.1b Derivation of the Objective Problem (8 Points)

Points were awarded for the steps of a. **identifying the difference(s)** between the claim and the closest prior art, (2 points) b. **stating the technical effect(s) or advantage(s)** of the difference(s) (3 points) and c. **deriving an objective problem** from the effect(s) / advantage(s) (3 points). In order to achieve full points, the steps had to be consistent with each other. For example, stating a technical effect of a feature which had not been previously identified as a difference lead to a loss of points. No points were deducted for logically structured answers which included all the above parts a, b and c presented in a different order.

For the example solution, the following arguments could have been used:

- a. The difference between claim 1 and the prior art D1/2 is that the diametric bore ends with an opening on the outer surface of the golf ball body through which the lightstick can be inserted and removed.
- b. The technical effect of this difference is that a lightstick can be inserted or removed without needing to open up or dismantle the golf ball body. A secondary effect with respect to D1/2 is that the golf ball body claimed obviates the need for a junction between two half shells, which is known to be prone to damage (see D2, par. 10).

c. Based on the above steps a and b, the objective technical problem could for example be defined as that of providing a **robust** golf ball body which can receive completely and retain a chemiluminescent lightstick such that it can be **easily** exchanged.

3.4.1c Arguments as to why the Independent Golf Ball Body Claim is not Obvious from the Available Prior Art (10 points)

Convincing arguments relating to the substance of the case were expected. The arguments were expected to relate to the objective problem formulated in the answer.

In analysing combinations of prior art items, it was appropriate to firstly consider the question of whether the skilled person would consider combining the prior art items. And secondly, if they were combined, whether the combination would lead to the subject matter claimed. The following are possible arguments which could be applied to the example solution:

D1/2 taken in isolation.

Regarding D1/2 in isolation, the skilled person, confronted with the above problem, would look at ways of improving the robustness and ease of insertion of the lightstick without having any indication to change the basic structure of the golf ball body. For example, the skilled person would be expected to consider enlarging the threads which join the two half shells of the body to make it more robust. However, they would not provide an opening on the outer surface of the golf ball body.

D1/2 in combination with D1/1

D1/1 discloses an embedded light source, the skilled person would therefore not consider D1/1 to solve the problem of ease of insertion of a lightstick.

Even if the teachings of D1/2 and D1/1 were to be combined, the skilled person would not arrive at the subject matter claimed. D1/1 does disclose a diametric bore having an opening on the outside of a golf ball body, however the opening is only 1.5 mm wide and therefore too small to admit a chemiluminescent lightstick which has a diameter of at least 5mm according to prior art D2/1. Starting from the light source of D1/2, which is activated by an impact switch, there would no longer be a need for activation by removal of the switch actuator needle described in D1/1, and therefore the hole in the outside of the golf ball body of D1/1 would likewise be redundant and the skilled person would not include this feature in any modified form of D1/2.

When considering the problem, in isolation, of making the golf ball body of D1/2 more robust, the skilled person would realise that the golf ball body of D1/1 provides a solution to this problem. However they would realise that the golf ball body of D1/1 is robust because the light source is embedded in the ball body, thereby obviating the need for having two separable half shells. In solving this problem in isolation, the skilled person would therefore be likely to provide a golf ball body with an embedded light source, activatable by an impact switch.

D1/2 in combination with D2/1

D2/1 relates to chemiluminescent lightsticks. The skilled person would therefore not consider D2/1 to solve a problem related to a golf ball body. Even if the skilled person were to combine the teaching of D1/2 with D2/1, the combination would merely lead to replacing the electrical light source of D1/2 with a chemiluminescent lightstick of the same dimensions. The combination would not motivate the skilled person to change any of the features of the golf ball body of D1/2.

D1/2 in combination with D2/2

The skilled person would not combine the teachings of D1/2 and D2/2 because D2/2 is in the technical area of ice hockey pucks and field hockey balls. Furthermore, since D2/2 discloses an embedded lightstick, the skilled person would not consider D2/2 to solve the problem of ease of insertion of a replaceable lightstick.

When considering the problem, in isolation, of making the golf ball body of D1/2 more robust, the skilled person would realise that the puck of D2/2 provides a solution to this problem. However, they would recognise that the puck of D2/2 is robust because the light source is embedded in the puck and because, instead of being detachable, the half bodies of D2/2 are glued or welded together. In solving this problem in isolation, the skilled person would therefore be likely to provide a golf ball body with an embedded non-exchangeable chemiluminescent lightstick.

None of the above combinations would result in a golf ball body having a diametric bore ending with an opening on the outer surface of the body through which a chemiluminescent lightstick can be inserted and removed. Therefore the claim (of the example solution) is considered to involve an inventive step.

3.4.2 Inventive Step Arguments Relating to the Chemiluminescent Lightstick (4 points)

It was considered sufficient to provide very brief arguments regarding the inventive step of the independent claim to the chemiluminescent lightstick. Only D2 discloses chemiluminescent lightsticks and none of these have an outer thread.

3.5 Other arguments (8 points)

As the examiner requested in the communication under Art. 96(2) EPC, answers having more than one independent claim were expected to include brief arguments relating to the requirements of Rule 29(2) EPC and to unity of invention, Art. 82 EPC.

3 points were available for correctly identifying the independent claims and for mentioning Art. 82 EPC and Rule 29(2) EPC.

Concerning Rule 29(2) EPC, 3 points were available for arguments explaining that the two independent claims define inter-related products. The golf ball body and light stick defined in the claims interact as "plug and socket" devices. Such claims fall under Rule 29(2) a) (see Guidelines C-III 3,2(i)).

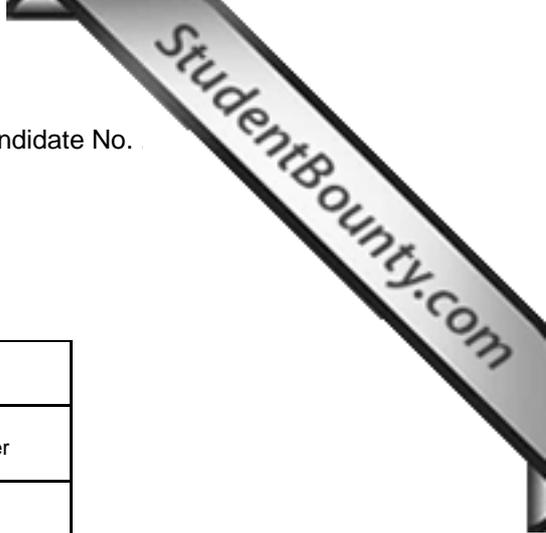
2 points were available for arguments regarding the unity of invention of the independent claims, Art. 82 EPC in combination with Rule 30(1) EPC.

Annex: Claims of an Example Solution

1. Golf ball body (6) made of translucent material, comprising a *diametric bore* (8) and being configured to receive completely and to retain a chemiluminescent *lightstick* (7) such that it can be exchanged, characterised in that *the diametric bore (8) ends with an opening (9) on the outer surface of the body (6) through which the lightstick (7) can be inserted and removed.*
2. Golf ball body (6) according to claim 1, wherein said diametric bore (8) is a through bore.
3. Golf ball body (6) according to claim 2, wherein said diametric bore (8) has a tapered portion.
4. Golf ball body (6) according to claim 1, wherein said diametric bore (8) is a blind bore.
5. Golf ball body (6) according to claims 2 or 4, wherein the golf ball body (6) is provided with an inner thread (11) which extends along at least a portion of the diametric bore (8).
6. Chemiluminescent lightstick (7) characterised in that said lightstick (7) *has an outer thread (12) so that it can be screwed into the diametric bore (8) of the golf ball body (6) of claim 5 to be received completely therein and to be retained therein.*
7. *Chemiluminescent lightstick (7) according to claim 6, wherein the lightstick (7) has engaging means (13) in the form of a slot at one end for engaging with means for rotating the lightstick (7).*
8. Golf ball kit comprising a golf ball body (6) according to any of claims 1 to 5 and a chemiluminescent lightstick (7) *suitable for being received completely and for being retained in the diametric bore (8) of the golf ball body (6) such that it can be exchanged.*
9. Golf ball kit comprising a golf ball body (6) according to claim 5 and a chemiluminescent lightstick (7) according to any of claims 6 or 7.
10. Golf ball kit comprising a golf ball body (6) according to claim 2 or 3 and a chemiluminescent lightstick (7), *wherein said lightstick (7) and the diametric bore (8) are dimensioned such that the lightstick (7) can be press fitted into the diametric bore (8).*

EXAMINATION COMMITTEE I

Candidate No. _____



Paper B (Electricity/Mechanics) 2007 - Schedule of marks

Category	Maximum possible	Marks awarded	
		Marker	Marker
Independent	35		
Dependent	15		
Claims	50		
Basis for Amendments	10		
Novelty	5		
Inventive Step	27		
Others	8		
Arguments	50		
Total	100		

Sub-Committee for Electricity/Mechanics agrees on marks and recommends the following grade to the Examination Board:

PASS
(50-100)

FAIL
(0-49)
COMPENSABLE FAIL
(45-49, in case the candidate sits
the examination for the first time)

6 July 2007