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(54) **Mouthguard having breathing cavities and breathing holes incorporated into the body of the mouthguard**

(57) An improved mouthguard which has incorporated into it at least one and preferably a multiplicity of breathing holes which extend through an exterior sidewall, an interior sidewall and/or through a bottom transverse wall in the body of the mouthguard. The mouth-

guard can also have incorporated into it at least one and preferably a multiplicity of breathing cavities extending from an upper surface of an exterior and/or interior sidewall into a portion of the sidewall to form one or more air passages.

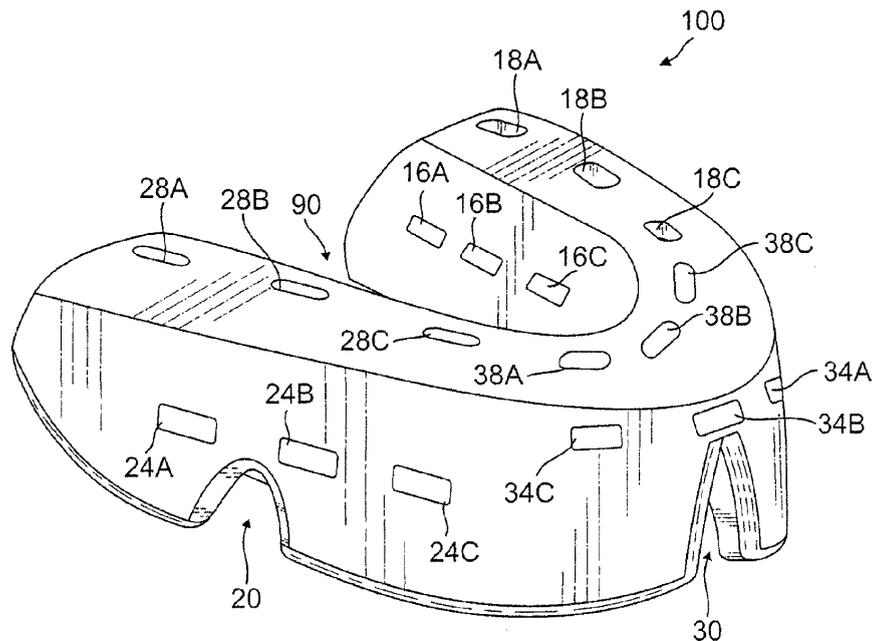


FIG. 1

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Description**BACKGROUND OF THE INVENTION****1. Field of the Invention**

[0001] The present invention relates to the field of mouthguards which are used by athletes during a sporting event to help protect the athlete's teeth.

2. Description of the Prior Art

[0002] In general, various configurations for mouthguards are known in the prior art. However, one problem with all mouthguards is that the athlete is not able to breathe through his/her mouth while the mouthguard is in place in the athlete's mouth. As a result, the athlete has to remove the mouthguard periodically, such as between plays in a football game, in order to breathe through the athlete's mouth.

[0003] The present inventor has conceived of the invention of having a protruding section extending from the front of the mouthguard and extending out of the wearer's mouth so that the protruding section extends beyond the wearer's lips. The protruding section is in fluid communication with the body of the mouthguard so that the wearer can breath outside air while the mouthguard is retained in the wearer's mouth.. This invention is presented in copending Application Serial No. 11/824,872 filed on July 2, 2007.

[0004] The following three patents discuss a mouthguard with breathing holes or other apparatus worn between teeth:

United States Patent 7,422,107 to Bancroft for "Mouthguard"; United States Patent 3,768,465 to Helmer for "Athletic Mouth Protector Apparatus", and United States Patent 5,611,355 to Hilsen for "Snoring And Sleep Apnea Device". None of them have breathing holes in the body of the mouthguard.

[0005] There is a significant need for an improved mouthguard which enables an athlete to breathe through his/her mouth while wearing the mouthguard in the athlete's mouth.

SUMMARY OF THE INVENTION

[0006] The present invention is an improved mouthguard which has incorporated into it at least one and preferably a multiplicity of breathing holes which extend through a portion of the body of the mouthguard.

[0007] The mouthguard for protecting a wearer's upper row of teeth, which mouthguard is comprised of a teeth protecting section including a first upper teeth tray section having a first transverse wall of a given thickness extending from an interior surface to an exterior surface, a first exterior wall having a body extending upwardly from the

first transverse wall and terminating in a top surface and having a given transverse thickness, and a first interior wall having a body extending upwardly from the first transverse wall and terminating in a top surface and having a given transverse thickness, a second teeth tray section having a second transverse wall of a given thickness extending from an interior surface to an exterior surface, a second exterior wall having a body extending upwardly from the second transverse wall and terminating in top surface and having a given transverse thickness, and a second interior wall having a body and extending upwardly from the second transverse wall and terminating in a top surface and having a given transverse thickness, and a middle teeth tray section having a middle transverse wall of a given thickness extending from an interior surface to an exterior surface, a middle exterior wall having a body extending upwardly from the middle transverse wall and terminating in a top surface and having a given transverse thickness, and a middle interior wall having a body extending upwardly from the middle transverse wall and terminating in a top surface and having a given transverse thickness, the three transverse walls aligned, the three exterior walls aligned and the three interior walls aligned so that when the upper row of teeth are placed in the mouthguard, the upper row of teeth rest on the three aligned transverse walls and are protected by the three aligned exterior walls adjacent an exterior surface of the upper row of teeth and by the three aligned interior walls adjacent an interior surface of the upper row of teeth, the three aligned interior walls surrounding a central area of the mouthguard which leads to a wearer's throat.

[0008] Embodiments of the present invention incorporate breathing openings into the body of the mouthguard.

[0009] Embodiments may also incorporate at least one breathing cavity in the first exterior wall of the first teeth tray section extending from the top surface into the body of the first exterior wall and extending through the transverse thickness of the first exterior wall and at least one breathing cavity in the second exterior wall of the second teeth tray section extending from the top surface into the body of the second exterior wall and extending through the transverse thickness of the second exterior wall so that an air passage is formed from outside of the mouthguard in the wearer's mouth through the breathing cavities and into the center area of the mouthguard so that air can pass to a wearer's throat.

[0010] In addition embodiments may further comprise at least one breathing cavity in the exterior middle wall of the middle teeth tray section extending from the top surface into the body of the middle exterior wall and extending through the transverse thickness of the middle exterior wall so that an air passage is formed from outside of the mouthguard in the wearer's mouth through the breathing cavity in the exterior middle wall and into the center area of the mouthguard so that air can pass to a wearer's throat.

[0011] Such embodiments may also comprise incor-

porating at least one breathing cavity in the first interior wall of the first teeth tray section extending from the top surface into the body of the first interior wall and extending through the transverse thickness of the first interior wall and at least one breathing cavity in the second interior wall of the second teeth tray section extending from the top surface into the body of the second interior wall and extending through the transverse thickness of the second interior wall so that an air passage is formed through the breathing cavities and into the center area of the mouthguard so that air can pass to a wearer's throat.

[0012] Such embodiments may further comprise incorporating at least one breathing cavity in the interior middle wall of the middle teeth tray section extending from the top surface into the body of the middle interior wall and extending through the transverse thickness of the middle interior wall so that an air passage is formed in the wearer's mouth through the breathing cavity in the interior middle wall and into the center area of the mouthguard so that air can pass to a wearer's throat.

[0013] Embodiments of the invention may also comprise incorporating a multiplicity of breathing holes in the first exterior wall of the first teeth tray section extending through the transverse thickness of the first exterior wall and a multiplicity of breathing holes in the second exterior wall of the second teeth tray section extending through the transverse thickness of the second exterior wall so that an air passage is formed from outside of the mouthguard in the wearer's mouth through the multiplicity of breathing holes in the first and second exterior walls and into the center area of the mouthguard so that air can pass to a wearer's throat.

[0014] Embodiments may also include incorporating a multiplicity of breathing holes in the exterior middle wall of the middle teeth tray section extending through the transverse thickness of the middle exterior wall so that an air passage is formed from outside of the mouthguard in the wearer's mouth through the multiplicity of breathing holes in the middle exterior wall and into the center area of the mouthguard so that air can pass to a wearer's throat.

[0015] Embodiments may also comprise incorporating a multiplicity of breathing holes in the first interior wall of the first teeth tray section extending through the transverse thickness of the first interior wall and a multiplicity of breathing holes in the second interior wall of the second teeth tray section extending through the transverse thickness of the second interior wall so that an air passage is formed through the multiplicity of breathing holes in the first and second interior walls and into the center area of the mouthguard so that air can pass to a wearer's throat.

[0016] Such embodiments may also comprise incorporating a multiplicity of breathing holes in the interior middle wall of the middle teeth tray section extending through the transverse thickness of the middle interior wall so that an air passage is formed through the multiplicity of breathing holes in the middle interior wall and

into the center area of the mouthguard so that air can pass to a wearer's throat.

[0017] Embodiments of the invention may also comprise incorporating a multiplicity of breathing holes the first transverse wall of the first teeth tray section extending through the transverse thickness of the first transverse wall and a multiplicity of breathing holes in the second transverse wall of the second teeth tray section extending through the transverse thickness of the second transverse wall so that an air passage is formed from outside of the mouthguard in the wearer's mouth through the multiplicity of breathing holes in the first and second transverse walls and into the center area of the mouthguard so that air can pass to a wearer's throat.

[0018] More broadly, embodiments of the present invention may comprise incorporating a multiplicity of breathing holes in at least the first transverse wall of the first teeth tray section extending through the transverse thickness of the first transverse wall or in the second transverse wall of the second teeth tray section extending through the transverse thickness of the second transverse wall so that an air passage is formed from outside of the mouthguard in the wearer's mouth through the multiplicity of breathing holes in the first or second transverse walls and into the center area of the mouthguard so that air can pass to a wearer's throat.

[0019] Further novel features of the present invention will become apparent from the following detailed description, discussion and the appended claims, taken in conjunction with the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] Referring particularly to the drawings for the purpose of illustration only and not limitation, there is illustrated:

FIG. 1 is a bottom perspective view of a preferred embodiment of the present invention mouthguard having breathing cavities and breathing openings incorporated therein. The invention can include at least one or a multiplicity of breathing cavities and at least one or a multiplicity of breathing openings;

FIG. 2 is a front elevational view of the preferred embodiment of the present invention mouthguard having breathing cavities and breathing openings incorporated therein;

FIG. 3 is a rear elevational view of the preferred embodiment of the present invention mouthguard having breathing cavities and breathing openings incorporated therein;

FIG. 4A is a side elevational view when viewed from the left side of the preferred embodiment of the present invention mouthguard having breathing cavities and breathing openings incorporated therein;

FIG. 4B is a side elevational view when viewed from the right side of the preferred embodiment of the present invention mouthguard having breathing cavities and breathing openings incorporated therein;

FIG. 5 is a top plan view of the preferred embodiment of the present invention mouthguard having breathing cavities and breathing openings incorporated therein;

FIG. 6 is a bottom plan view of the preferred embodiment of the present invention mouthguard having breathing cavities and breathing openings incorporated therein; and

FIG. 7 is a cross-sectional view taken along Line 7-7 of FIG. 5;

FIG. 8 is a cross-sectional view taken along Line 8-8 of FIG. 5;

FIG. 9 is a cross-sectional view taken along Line 9-9 of FIG. 5; and

FIG. 10 is a front elevational view of the mouthguard worn in a person's mouth with the person's teeth shown in dotted lines in the mouthguard.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0021] Although specific embodiments of the present invention will now be described with reference to the drawings, it should be understood that such embodiments are by way of example only and merely illustrative of but a small number of the many possible specific embodiments which can represent applications of the principles of the present invention. Various changes and modifications obvious to one skilled in the art to which the present invention pertains are deemed to be within the scope and contemplation of the present invention as further defined in the appended claims.

[0022] Referring to Figures 1-9, there is illustrated at 100 the mouthguard for protecting a wearer's upper row of teeth, which mouthguard is comprised of a teeth protecting section including a first upper teeth tray section 110 having a first transverse wall 112 of a given thickness T1 extending from an interior surface 114 to an exterior surface 116, a first exterior wall 120 having a body 122 extending upwardly from the first transverse wall 112 and terminating in a top surface 124 and having a given transverse thickness T2, and a first interior wall 130 having a body 132 extending upwardly from the first transverse wall 112 and terminating in a top surface 134 and having a given transverse thickness T3, a second teeth tray section 140 having a second transverse wall 142 of a given thickness T4 extending from an interior surface 144 to an exterior surface 146, a second exterior wall 150 having

a body 152 extending upwardly from the second transverse wall 142 and terminating in top surface 154 and having a given transverse thickness T5, and a second interior wall 160 having a body 162 and extending upwardly from the second transverse wall 142 and terminating in a top surface 164 and having a given transverse thickness T6, and a middle teeth tray section 170 having a middle transverse wall 172 of a given thickness T7 extending from an interior surface 174 to an exterior surface 176, a middle exterior wall 180 having a body 182 extending upwardly from the middle transverse wall 172 and terminating in a top surface 184 and having a given transverse thickness T8, and a middle interior wall 190 having a body 192 extending upwardly from the middle transverse wall 172 and terminating in a top surface 194 and having a given transverse thickness T9, the three transverse walls 112, 142 and 172 aligned, the three exterior walls 120, 150 and 180 aligned and the three interior walls 130, 160 and 190 aligned so that when a wearer 300 has the wearer's upper row of teeth 200 placed in the mouthguard 100, the upper row of teeth 200 rest on the three aligned transverse walls 112, 142 and 172 and are protected by the three aligned exterior walls 120, 150 and 180 adjacent an exterior surface 210 of the upper row of teeth 200 and by the three aligned interior walls 130, 160 and 190 adjacent an interior surface 220 of the upper row of teeth 200, the three aligned interior walls 130, 160 and 190 surrounding a central area 90 of the mouthguard 100 which leads to a wearer's throat when the mouthguard is in the wearer's mouth.

[0023] Embodiments of the present invention incorporate breathing openings into the body of the mouthguard.

[0024] In an embodiment, at least one breathing cavity 10 is incorporated in the first exterior wall 120 of the first teeth tray section 110 extending from the top surface 124 into the body 122 of the first exterior wall 120 and extending through the transverse thickness T2 of the first exterior wall 120 and at least one breathing cavity 20 in the second exterior wall 150 of the second teeth tray section 140 extending from the top surface 154 into the body 152 of the second exterior wall 150 and extending through the transverse thickness T5 of the second exterior wall 150 so that an air passage is formed from outside of the mouthguard 100 in the wearer's mouth through the breathing cavities 10 and 20 and into the center area 90 of the mouthguard 100 so that air can pass to a wearer's throat. While at least one breathing cavity 10 and 20 are illustrated in the first and second exterior walls, it will be appreciated that it is within the scope of embodiments of the present invention to have any multiplicity of breathing cavities in the first exterior wall 120 and in the second exterior wall 150. Each breathing cavity 10 and/or 20 can be generally "V" shaped or "U" shaped or any other desired shape to enable air to go from a location in the wearer's mouth into the central area 90 of the mouthguard 100 so that air can pass to the wearer's throat.

[0025] In addition, embodiments may further comprises at least one breathing cavity 30 in the exterior middle

wall 180 of the middle teeth tray section 170 extending from the top surface 184 into the body 182 of the middle exterior wall 180 and extending through the transverse thickness T8 of the middle exterior wall 180 so that an air passage is formed from outside of the mouthguard 100 in the wearer's mouth through the breathing cavity 30 in the exterior middle wall 180 and into the center area 90 of the mouthguard 100 so that air can pass to a wearer's throat. While at least one breathing cavity 30 is illustrated in the middle exterior wall 180, it will be appreciated that it is within the scope of embodiments of the present invention to have any multiplicity of breathing cavities in the middle exterior wall 180.

[0026] Each breathing cavity 30 can be generally "V" shaped or "U" shaped or any other desired shape to enable air to go from a location in the wearer's mouth into the central area 90 of the mouthguard 100 so that air can pass to the wearer's throat.

[0027] Embodiments may also comprise incorporating at least one breathing cavity 12 in the first interior wall 130 of the first teeth tray section 110 extending from the top surface 134 into the body 132 of the first interior wall 130 and extending through the transverse thickness T3 of the first interior wall 130 and at least one breathing cavity 22 in the second interior wall 160 of the second teeth tray section 140 extending from the top surface 164 into the body 162 of the second interior wall 160 and extending through the transverse thickness T6 of the second interior wall 160 so that an air passage is formed through the breathing cavities and into the center area 90 of the mouthguard 100 so that air can pass to a wearer's throat. While at least one breathing cavity 12 and 22 are illustrated in the first and second interior walls, it will be appreciated that it is within the spirit and scope of the present invention to have any multiplicity of breathing cavities in the first interior wall 130 and in the second interior wall 160. Each breathing cavity 12 and/or 22 can be generally "V" shaped or "U" shaped or any other desired shape to enable air to go from a location in the wearer's mouth into the central area 90 of the mouthguard 100 so that air can pass to the wearer's throat.

[0028] Embodiments may further comprise incorporating at least one breathing cavity 32 in the interior middle wall 190 of the middle teeth tray section 170 extending from the top surface 194 into the body 192 of the middle interior wall 190 and extending through the transverse thickness T9 of the middle interior wall 190 so that an air passage is formed in the wearer's mouth through the breathing cavity 32 in the interior middle wall 190 and into the center area 90 of the mouthguard 100 so that air can pass to a wearer's throat. While at least one breathing cavity 32 is illustrated in the middle interior wall 190, it will be appreciated that it is within the scope of embodiments of the present invention to have any multiplicity of breathing cavities in the middle interior wall 190. Each breathing cavity 32 can be generally "V" shaped or "U" shaped or any other desired shape to enable air to go from a location in the wearer's mouth into the central area

90 of the mouthguard 100 so that air can pass to the wearer's throat.

[0029] Embodiments of the invention may also comprise incorporating at least one and preferably a multiplicity of breathing holes 14A, 14B and 14C in the first exterior wall 120 of the first teeth tray section 110 extending through the transverse thickness T2 of the first exterior wall 120 and at least one and preferably a multiplicity of breathing holes 24A, 24B and 24C in the second exterior wall 150 of the second teeth tray section 140 extending through the transverse thickness T5 of the second exterior wall 150 so that an air passage is formed from outside of the mouthguard 100 in the wearer's mouth through the multiplicity of breathing holes in the first and second exterior walls 120 and 150 and into the center area 90 of the mouthguard 100 so that air can pass to a wearer's throat. The breathing holes can be circular, oval, or any other desired shape.

[0030] Embodiments may also include incorporating at least one and preferably a multiplicity of breathing holes 34A, 34B and 34C in the exterior middle wall 180 of the middle teeth tray section 170 extending through the transverse thickness T8 of the middle exterior wall 180 so that an air passage is formed from outside of the mouthguard 100 in the wearer's mouth through the multiplicity of breathing holes in the middle exterior wall 180 and into the center area 90 of the mouthguard 100 so that air can pass to a wearer's throat. The breathing holes can be circular, oval, or any other desired shape.

[0031] Embodiments may also comprise incorporating at least one and preferably a multiplicity of breathing holes 16A, 16B and 16C in the first interior wall 130 of the first teeth tray section 110 extending through the transverse thickness T3 of the first interior wall 130 and at least one and preferably a multiplicity of breathing holes 26A, 26B and 26C in the second interior wall 160 of the second teeth tray section 140 extending through the transverse thickness T6 of the second interior wall 160 so that an air passage is formed through the multiplicity of breathing holes in the first and second interior walls 130 and 160 and into the center area 90 of the mouthguard 100 so that air can pass to a wearer's throat. The breathing holes can be circular, oval, or any other desired shape.

[0032] Embodiments may also comprise incorporating at least one and preferably a multiplicity of breathing holes 36A, 36B and 36C in the interior middle wall 190 of the middle teeth tray section 170 extending through the transverse thickness T9 of the middle interior wall 190 so that an air passage is formed through the multiplicity of breathing holes in the middle interior wall 190 and into the center area 90 of the mouthguard 100 so that air can pass to a wearer's throat. The breathing holes can be circular, oval, or any other desired shape.

[0033] Embodiments may also comprise incorporating at least one and preferably a multiplicity of breathing holes 18A, 18B and 18C in the first transverse wall 112 of the first teeth tray section 110 extending through the

transverse thickness T1 of the first transverse wall 112 and at least one and preferably a multiplicity of breathing holes 28A, 28B and 28C in the second transverse wall 142 of the second teeth tray section 140 extending through the transverse thickness T4 of the second transverse wall 142 so that an air passage is formed from outside of the mouthguard 100 and in the wearer's mouth and through the multiplicity of breathing holes in the first and second transverse walls 112 and 142. The breathing holes can be circular, oval, or any other desired shape.

[0034] Embodiments may also comprise incorporating at least one and preferably a multiplicity of breathing holes 38A, 38B and 38C in the middle transverse wall 172 of the middle teeth tray section 170 extending through the transverse thickness T7 of the middle transverse wall 172 so that an air passage is formed through the multiplicity of breathing holes in the middle transverse wall 172. The breathing holes can be circular, oval, or any other desired shape.

[0035] While in the above description, the openings have been described a breathing holes, the openings can also be considered to be breathing openings. Therefore, all of the openings identified as breathing holes 14A, 14B, 14C, 18A, 18B, 18C, 16A, 16B, 16C, 24A, 24B, 24C, 28A, 28B, 28C, 26A, 26B, 26C, 34A, 34B, 34C, 38A, 38B, 38C, 36A, 36B and 36C can also be described as breathing openings or air passage means.

[0036] Embodiments of the present invention incorporate breathing cavities or breathing holes into various locations of the body of the mouthguard 100 so that the wearer can breath through the breathing cavities or breathing hole openings. Even through the mouthguard is retained in the mouth and between the wearer's teeth, the breathing cavities and/or breathing openings at various locations in the body of the mouthguard still enable the wearer to breath air and permit the mouthguard to be retained in the mouthguard and not have to be removed between plays during a game.

[0037] Embodiments of the present invention incorporate having any desired combination of breathing cavities and breathing holes in any of the exterior sidewalls, interior sidewalls and bottom transverse walls of the mouthguard. It will be appreciated that some mouthguards may not have an interior wall but just an exterior wall and a transverse lower wall. The concept of breathing cavities and breathing openings at any location of any portion of the mouthguard body is within the scope of embodiments of the present invention.

[0038] Embodiments of the present invention provide significant advantages over prior art mouthguards, for example, those which do not have breathing holes incorporated therein. By way of example, during a football game, after each play is over, the player must remove the mouthguard in order to breathe through his mouth. In some designs the mouthguard is attached to a helmet which can create problems if the helmet is knocked off. In other designs where the mouthguard is loose, the player either has to hold the mouthguard in his hand or place

it his helmet. Either way, the practice is unsanitary and germs can then be transmitted to the player's mouth when the player reinserts the mouthguard in his mouth. Through the incorporation of breathing holes, the player can continue to retain the mouthguard in his mouth after the play is over. The ability to breathe through the player's mouth also improves the player's performance during the athletic event.

[0039] Mouthguards embodying the present invention can be molded out of a single piece of strong material such as rubber, resin, polyvinyl chloride, or various synthetic plastic compounds.

[0040] Of course the embodiments of the present invention are not intended to be restricted to any particular form or arrangement, or any specific embodiment, or any specific use, disclosed herein, since the same may be modified in various particulars or relations without departing from the scope of the claimed invention hereinabove shown and described of which the apparatus or method shown is intended only for illustration and disclosure of an operative embodiment and not to show all of the various forms or modifications in which this invention might be embodied or operated.

Claims

1. A mouthguard for protecting a wearer's upper row of teeth, the mouthguard comprising:
 - a. a teeth protecting section including a first upper teeth tray section having a first transverse wall, a first exterior wall having a body extending upwardly from the first transverse wall and terminating in a top surface and having a transverse thickness extending from an exterior side to an interior side, and a first interior wall having a body extending upwardly from the first transverse wall and terminating in a top surface and having a transverse thickness extending from a side facing the first transverse wall to an interior side, a second teeth tray section having a second transverse wall, a second exterior wall having a body extending upwardly from the second transverse wall and terminating in a top surface and having a transverse thickness extending from an exterior side to an interior side, and a second interior wall having a body and extending upwardly from the second transverse wall and terminating in a top surface and having a transverse thickness extending from a side facing the second transverse wall to an interior side, and a middle teeth tray section having a middle transverse wall, a middle exterior wall having a body extending upwardly from the middle transverse wall and terminating in a top surface and having a transverse thickness extending from an exterior side to an interior side, and a middle

interior wall having a body extending upwardly from the middle transverse wall and terminating in a top surface and having a transverse thickness extending from a side facing the middle exterior wall to an interior side, the three transverse walls aligned, the three exterior walls aligned and the three interior walls aligned so that when the upper row of teeth are placed in the mouthguard, the upper row of teeth rest on the three

aligned transverse walls and are protected by the three aligned exterior walls adjacent an exterior surface of the upper row of teeth and by the three aligned interior walls adjacent an interior surface of the upper row of teeth, the three aligned interior walls surrounding a central area of the mouthguard which leads to a wearer's throat;

b. at least one breathing cavity in the first exterior wall of the first teeth tray section extending from the top surface into the body of the first exterior wall and extending through the transverse thickness of the first exterior wall and at least one breathing cavity in the second exterior wall of the second teeth tray section extending from the top surface into the body of the second exterior wall and extending through the transverse thickness of the second exterior wall so that an air passage is formed from outside of the mouthguard in the wearer's mouth through the breathing cavities and into the center area of the mouthguard so that air can pass to a wearer's throat.

- 2. The mouthguard in accordance with Claim 1, further comprising:

at least one breathing cavity in the exterior middle wall of the middle teeth tray section extending from the top surface into the body of the middle exterior wall and extending through the transverse thickness of the middle exterior wall so that an air passage is formed from outside of the mouthguard in the wearer's mouth through the breathing cavity in the exterior middle wall and into the center area of the mouthguard so that air can pass to a wearer's throat.

- 3. A mouthguard in accordance with Claim 1, further comprising:

at least one breathing cavity in the first interior wall of the first teeth tray section extending from the top surface into the body of the first interior wall and extending through the transverse thickness of the first interior wall and at least one breathing cavity in the second interior wall of the second teeth tray section extending from the top

surface into the body of the second interior wall and extending through the transverse thickness of the second interior wall so that an air passage is formed through the breathing cavities and into the center area of the mouthguard so that air can pass to a wearer's throat.

- 4. The mouthguard in accordance with Claim 1, further comprising:

at least one breathing cavity in the interior middle wall of the middle teeth tray section extending from the top surface into the body of the middle interior wall and extending through the transverse thickness of the middle interior wall so that an air passage is formed in the wearer's mouth through the breathing cavity in the interior middle wall and into the center area of the mouthguard so that air can pass to a wearer's throat.

- 5. A mouthguard in accordance with Claim 1, further comprising:

a multiplicity of breathing holes in the first exterior wall of the first teeth tray section extending through the transverse thickness of the first exterior wall and a multiplicity of breathing holes in the second exterior wall of the second teeth tray section extending through the transverse thickness of the second exterior wall so that an air passage is formed from outside of the mouthguard in the wearer's mouth through the multiplicity of breathing holes in the first and second exterior walls and into the center area of the mouthguard so that air can pass to a wearer's throat.

- 6. The mouthguard in accordance with Claim 1, further comprising:

a multiplicity of breathing holes in the exterior middle wall of the middle teeth tray section extending through the transverse thickness of the middle exterior wall so that an air passage is formed from outside of the mouthguard in the wearer's mouth through the multiplicity of breathing holes in the middle exterior wall and into the center area of the mouthguard so that air can pass to a wearer's throat.

- 7. A mouthguard in accordance with Claim 1, further comprising:

a multiplicity of breathing holes in the first interior wall of the first teeth tray section extending through the transverse thickness of the first interior wall and a multiplicity of breathing holes in the second interior wall of the second teeth

tray section extending through the transverse thickness of the second interior wall so that an air passage is formed through the multiplicity of breathing holes in the first and second interior walls and into the center area of the mouthguard so that air can pass to a wearer's throat.

- 8. A mouthguard in accordance with Claim 1, further comprising:

a multiplicity of breathing holes in the interior middle wall of the middle teeth tray section extending through the transverse thickness of the middle interior wall so that an air passage is formed through the multiplicity of breathing holes in the middle interior wall and into the center area of the mouthguard so that air can pass to a wearer's throat.

- 9. A mouthguard in accordance with Claim 1, further comprising:

a multiplicity of breathing holes in the first transverse wall of the first teeth tray section extending through the transverse thickness of the first transverse wall and a multiplicity of breathing holes in the second transverse wall of the second teeth tray section extending through the transverse thickness of the second transverse wall so that an air passage is formed from outside of the mouthguard in the wearer's mouth through the multiplicity of breathing holes in the first and second transverse walls and into the center area of the mouthguard so that air can pass to a wearer's throat.

- 10. The mouthguard in accordance with Claim 1, further comprising:

a multiplicity of breathing holes in the transverse middle wall of the middle teeth tray section extending through the transverse thickness of the middle transverse wall so that an air passage is formed from outside of the mouthguard in the wearer's mouth through the multiplicity of breathing holes in the middle transverse wall and into the center area of the mouthguard so that air can pass to a wearer's throat.

- 11. A mouthguard in accordance with Claim 1, further comprising:

a multiplicity of spaced apart breathing cavities in the body, each of which extends from an upper surface of the body into a portion of a sidewall of the body so that air passages are formed so that air can pass from locations in the wearer's mouth to a wearer's throat.

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- 12. A mouthguard in accordance with Claim 1, further comprising:

at least one breathing cavity in the body which extends from an upper surface of the body into a portion of a sidewall of the body so that an air passage is formed so that air can pass from locations in the wearer's mouth to a wearer's throat.

- 13. A mouthguard in accordance with Claim 1, further comprising:

a multiplicity of spaced apart breathing openings each extending through a sidewall of the body so that air passages are formed so that air can pass from locations in the wearer's mouth to a wearer's throat.

- 14. A mouthguard in accordance with Claim 1, further comprising:

a multiplicity of spaced apart breathing openings each extending through a bottom wall of the body so that air passages are formed so that air can pass from locations in the wearer's mouth to a wearer's throat.

- 15. A mouthguard in accordance with Claim 1, further comprising:

at least one breathing opening extending through a bottom wall of the body so that an air passage is formed so that air can pass from locations in the wearer's mouth to a wearer's throat.

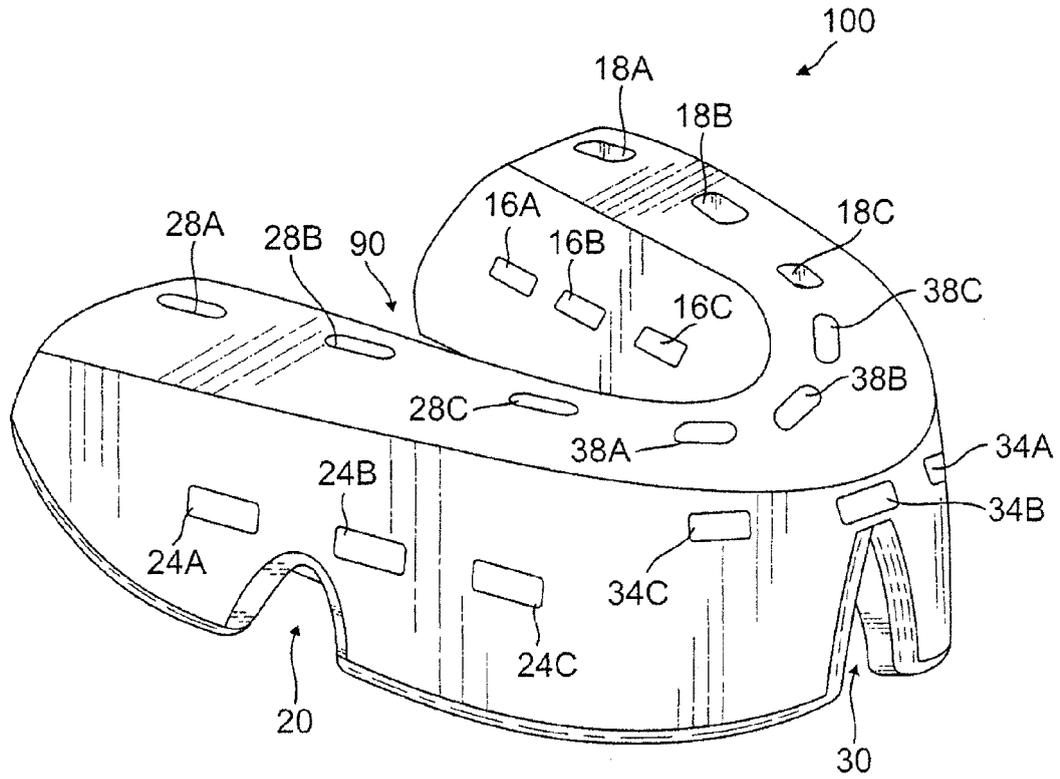


FIG. 1

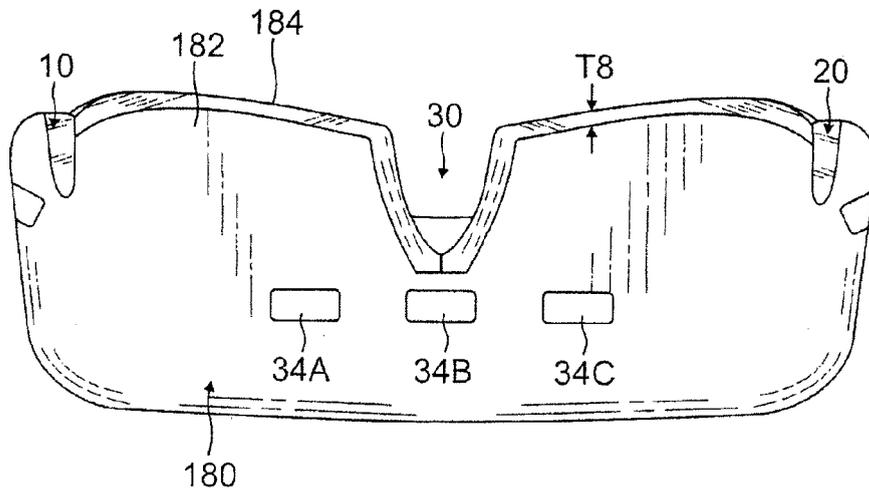


FIG. 2

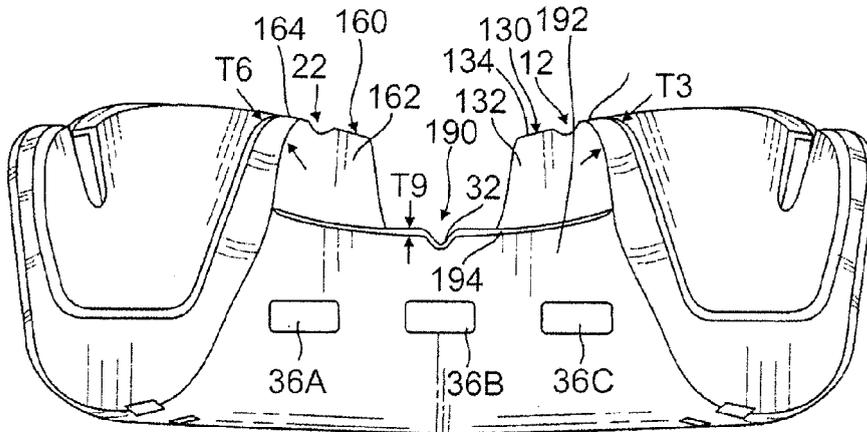


FIG. 3

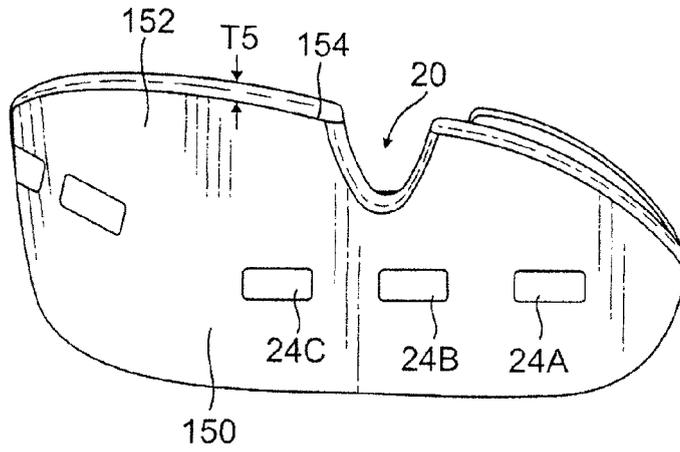


FIG. 4A

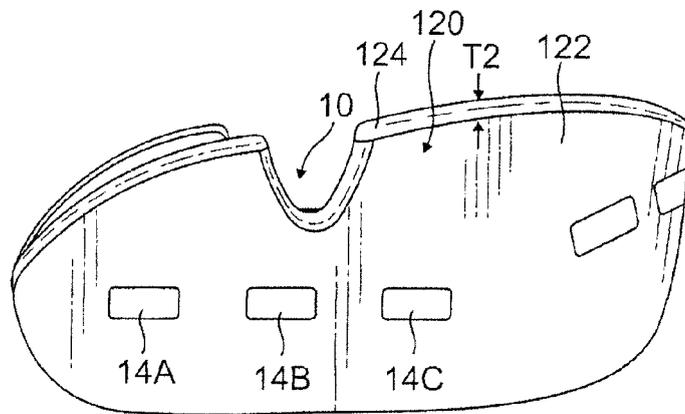
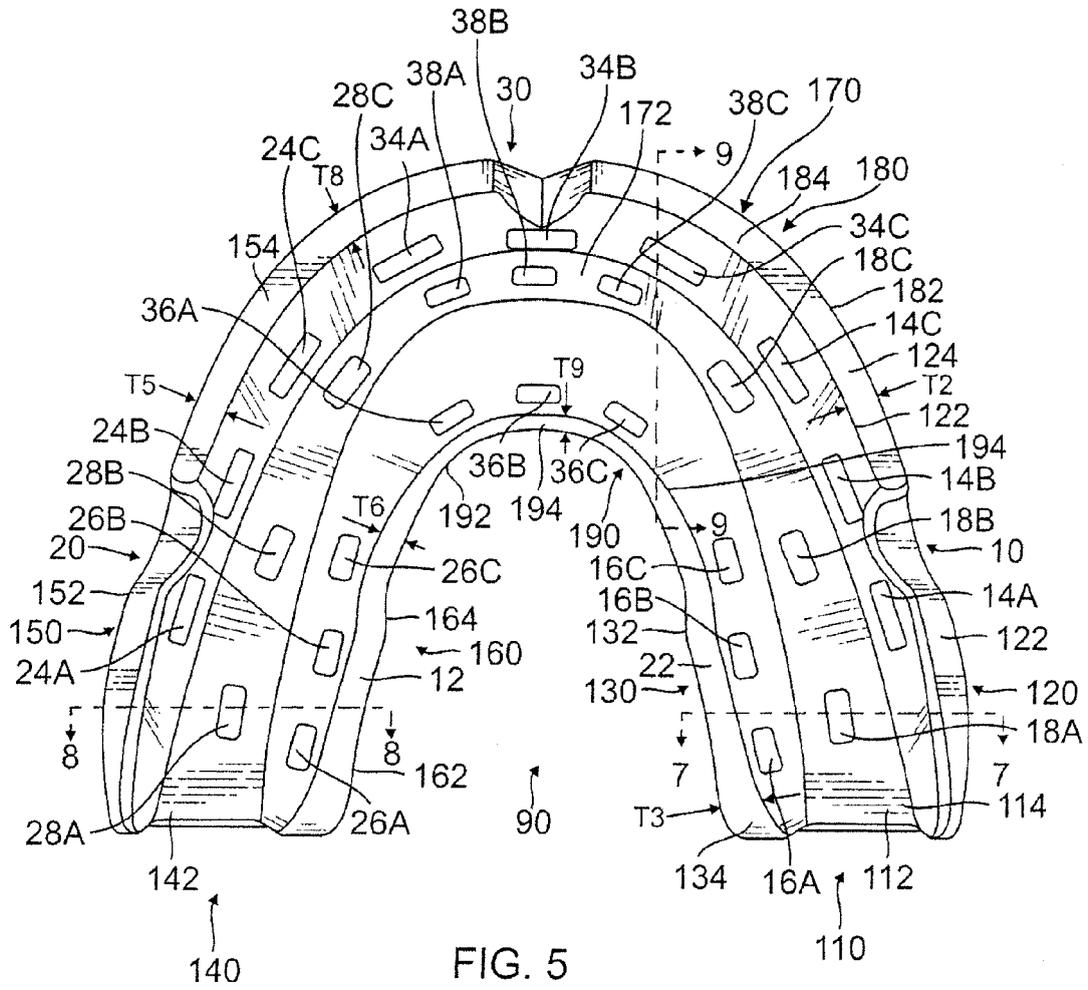


FIG. 4B



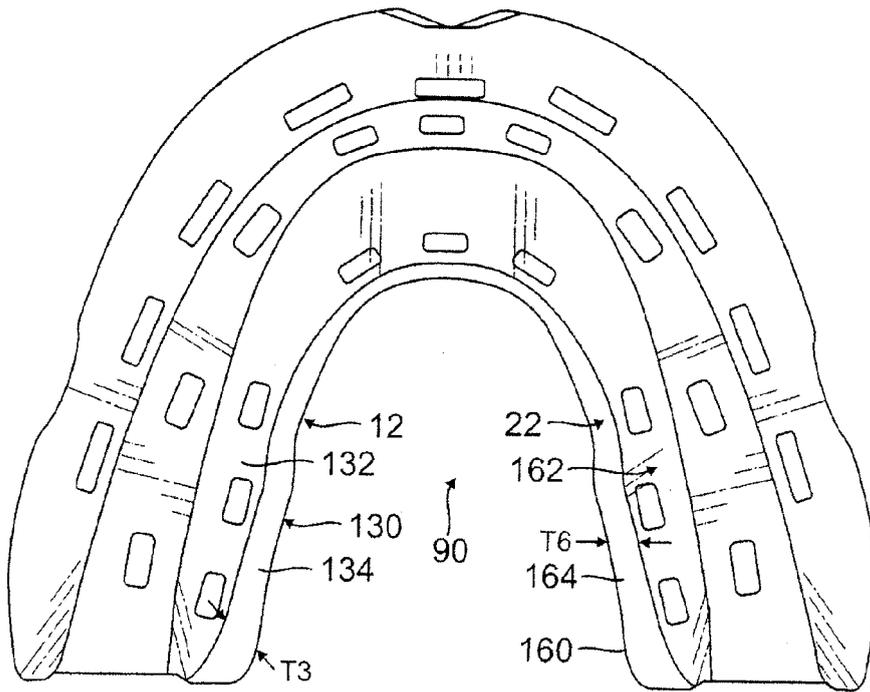


FIG. 6

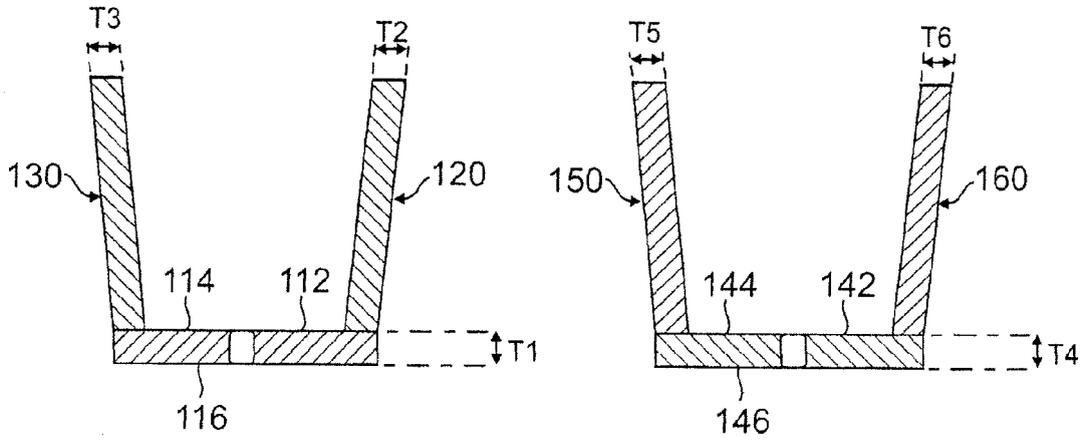


FIG. 7

FIG. 8

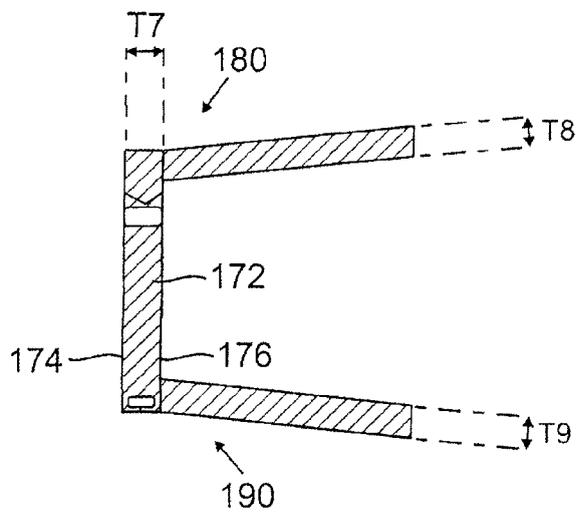


FIG. 9

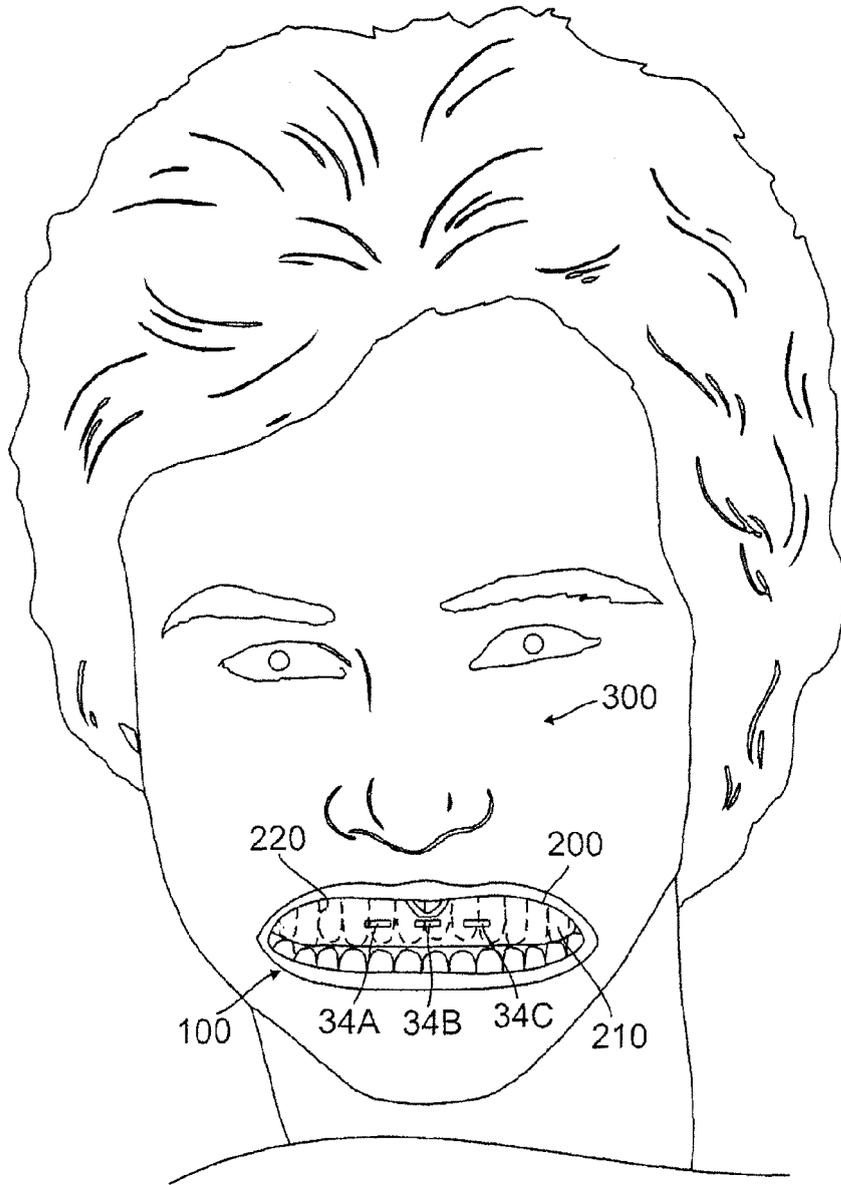


FIG. 10



EUROPEAN SEARCH REPORT

Application Number
EP 11 17 4916

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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1	Place of search Munich	Date of completion of the search 16 November 2011	Examiner Squeri, Michele
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