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(71) Applicants:
- **De Smecht, John**
  8691 Beveren aan de Ijzer (BE)
- **Roussel, Nadine**
  8691 Beveren aan de Ijzer (BE)

(72) Inventors:
- **De Smecht, John**
  8691 Beveren aan de Ijzer (BE)
- **Roussel, Nadine**
  8691 Beveren aan de Ijzer (BE)

(74) Representative: **Cardoen, Annelies Andréa C. et al**
KOB NV
President Kennedypark 31c
8500 Kortrijk (BE)

(54) ELECTRIC FIREPLACE

(57) Electric fireplace (1) comprising a projection space (2) in which flames are projected, wherein said projection space (2) is at least visible from a front side of the electric fireplace (1), and comprising a first image-generating element (3) for displaying a first image, wherein said image displays flames, and comprising a projection element (4) for projecting the first image as an upright projection image (8) in the projection space (2), wherein the electric fireplace (1) comprises one or more lighting elements (5), which are arranged in the projection space (2) at the location of the provided projection image (8), in order to embellish the projection image (8).

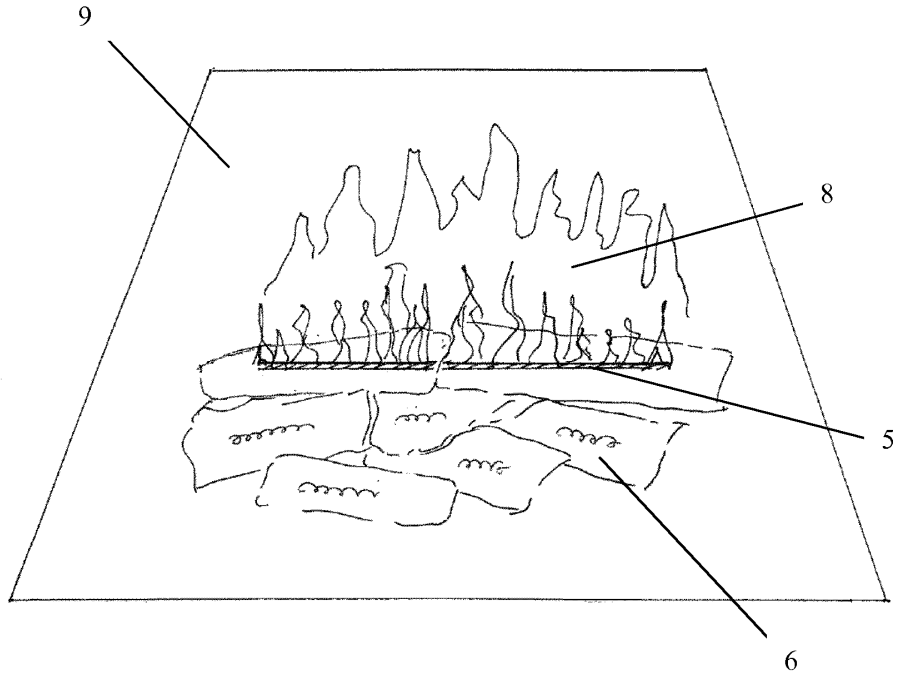

Fig. 3

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Description

[0001] The present invention relates to an electric fireplace comprising a projection space in which flames are projected, wherein said projection space is at least visible from a front side of the electric fireplace, comprising a first image-generating element for displaying a first image, wherein said first image displays flames, and comprising a projection element for projecting the first image as an upright projection image in the projection space, wherein the electric fireplace comprises one or more lighting elements, which are arranged in the projection space at the location of the provided projection image, in order to embellish the projection image and wherein the provided projection image is a 2D image that extends along an upright plane.

[0002] Conventional fireplaces that use, for example, wood and/or coal are perceived by many to be very atmospheric. However, a conventional fireplace also entails many drawbacks. For instance, a conventional fireplace needs to be regularly cleaned, the fuel, for example the wood and/or the coal, needs to be placed in the fireplace and such a fireplace produces a large amount of dust and dirt. An electric fireplace is installed to emulate the atmosphere of a conventional fireplace, but does not have the above-mentioned drawbacks of a conventional fireplace. The term conventional fireplace is used here to refer to, for example, a wood burner (open fireplace and/or a closed wood burner), a coal stove and/or a multi-fuel stove.

[0003] The electric fireplace may be configured to radiate heat, in which case the electric fireplace also serves as a fully operational heating element in addition to its atmosphere-creating function. The electric fireplace may, however, also be configured to radiate no heat, or only a certain amount of atmospheric heat, in which case the electric fireplace is used primarily as an element to create an atmosphere. Especially in energy-efficient dwellings such as passive houses, for example, it is no longer necessary for the electric fireplace to actually give off much heat.

[0004] The drawback of the existing electric fireplaces is that, during the operation of the electric fireplace, the appearance still differs greatly from that of a lit conventional fireplace. The image of flames that is visible is considered by many to be somewhat unrealistic, thus undermining the atmosphere-creating effect of the electric fireplace. Today, there are electric fireplaces which comprise an imitation fuel bed, for example imitation logs, and which comprise a 2D screen that is located behind said imitation fuel bed. A video displaying flames is then played on said 2D screen. If someone looks directly at this electric fireplace, it can clearly be seen that the image of flames is located behind the imitation fuel bed, as a result of which the illusion of a lit fuel bed is not achieved. Such electric fireplaces are therefore also not considered to be aesthetically pleasing.

[0005] In order to resolve this problem, electric fireplaces have already been marketed which comprise an additional 2D screen that displays flames, wherein this 2D screen forms a top wall of the electric fireplace and wherein this electric fireplace further comprises a transparent plate which projects the image of this 2D screen onto the imitation fuel bed. Such an electric fireplace is shown in WO 2013/110674. Here, the illusion is created that the flames are located in the fuel bed. However, the projected image is a 2D image, as a result of which the flames have a somewhat unrealistic appearance.

[0006] In order to create a 3D effect, there are already electric fireplaces with complex systems that aim to help create a 3D flame effect. It is thus possible, for example, to use several mirrors and screens and/or water vapour. These complex systems increase the production cost of the electric fireplaces and make the electric fireplace more susceptible to breaking. Moreover, the appearance of such electric fireplaces still leaves something to be desired.

[0007] It is therefore an object of the invention to produce an electric fireplace, the appearance of which during the operation of the electric fireplace shows more similarities with that of a conventional fireplace, so that the appearance is considered to be aesthetically pleasing.

[0008] This object is achieved by providing an electric fireplace comprising a projection space in which flames are projected, wherein said projection space is at least visible from a front side of the electric fireplace, comprising a first image-generating element for displaying a first image comprising flames and a projection element for projecting the first image as an upright projection image in the projection space, wherein the electric fireplace comprises one or more lighting elements, which are arranged in the projection space at the location of the provided projection image, in order to embellish the projection image, wherein the provided projection image is a 2D image that extends along an upright plane, and wherein said one or more lighting elements extend at least partially in the plane of the projection image.

[0009] The flames in a conventional fireplace are also at least visible from the front side of the fireplace. It is therefore logical that the projection space must be visible from the front side of the electric fireplace, so that the project image is also visible from said front side.

[0010] Said lighting elements are arranged at the location of the provided projection image and extend at least partially in the plane of the projection image. They will therefore shine light directly onto this projection image. The appearance of the projection image is significantly enhanced as a result, meaning that the projection image acquires the appearance of a 3D image. As the first image displays flames, the illusion of 3D flames is created with the aid of these lighting elements and a realistic image of flames is thus visible in the projection space during the operation of the electric fireplace. In order to optimize the appearance of the electric fireplace, the first image will preferably also display smoke so that

smoke is therefore visible in the projection space.

[0011] An upright projection image is used. In many embodiments, the projection space will comprise a flat base, wherein the electric fireplace is then configured to be arranged in a space such that this base extends virtually horizontally. By then using an upright projection image, upright projected flames are obtained. Preferably, the projection image extends virtually vertically.

[0012] The projection element may, for example, be a (partially) transparent plate, such as a glass plate or a plastic plate. The projection element may also comprise several plates and/or have an irregular form. Thus, the projection element may comprise several mirrors that extend in such a way during use that they are able to form an upright projection image of the first image. The first image-generating element may comprise a screen, wherein said screen, for example, forms a top wall of the projection space. However, the first image-generating element may, for example, also be a projector. Preferably, the projection element is configured to project the first image onto one location in the projection space. However, there may also be embodiments in which the projection element is able to display the projection image in different locations in the projection space. This is due to the fact that the projection element can assume different positions and/or the first image-generating element can assume different positions. In this case, it is possible, for example, to provide different sets of one or more lighting elements, wherein it is possible to select, depending on the location of the projection image, which set is to be used during use of the electric fireplace. However, it is also possible to provide one displaceable set of one or more lighting elements, wherein the position of this set is then chosen as a function of the location of the provided projection image.

[0013] The projection image is a 2D image that extends along an upright plane. In this case, it is therefore not necessary to provide complex systems to create the illusion of a 3D projection image. It is thus possible, for example, to provide a simple first image-generating element that displays a 2D image, for example a first image-generating element comprising a 2D screen. It is simple for a projection element to project a 2D image as a 2D projection image. By providing one or more said lighting elements in this case, the projection image is embellished in a simple manner and it is possible to create the illusion of a 3D image without the need for complex systems. Said one or more lighting elements are also powered by electricity, as a result of which it is not necessary to provide additional energy sources to guarantee the proper functioning of the electric fireplace.

[0014] As a result of the fact that said one or more lighting elements extend at least partially in the plane of the projection image, they are readily able to shine light onto the projection image. In that case, one or more of these lighting elements are preferably provided for emitting a light beam, wherein the main axis of the light beam extends virtually in said plane. These one or more lighting elements may, for example, all extend along the same line or may extend above and below one another. It is thus possible, for example, to provide one LED strip. In this case, other lighting elements may also extend alongside said plane.

[0015] The projection element is preferably a partially transparent plate. With the aid of such a plate, it is easy to reflect and thus project the first image in the projection space. Such a plate is barely visible during use of the electric fireplace, as the plate is partially transparent. This plate may, for example, be a glass plate, but may also, for example, be a plastic plate. This partially transparent plate may assume a fixed position in the projection space or this transparent plate may be arranged so as to be displaceable. Preferably and during use, this partially transparent plate forms an angle with a horizontal plane of between 30° and 60°. If the first image-generating element comprises a screen that at least partially forms a top wall of the projection space, this is an ideal configuration.

[0016] In a preferred embodiment, the electric fireplace comprises an imitation fuel bed which is arranged in the projection space, the projection element is configured to project the projection image onto the imitation fuel bed and said one or more lighting elements are arranged at the location of the imitation fuel bed. It is thus possible for the imitation fuel bed to comprise said one or more lighting elements. The imitation fuel bed may, for example, comprise imitation logs and/or imitation coal. In a specific embodiment, the imitation fuel bed may also comprise pebbles. As a result of the fact that the image is projected onto the imitation fuel bed, it is possible to create the effect that the flames are located in the imitation fuel bed. Since the one or more lighting elements are arranged at the imitation fuel bed and these one or more lighting elements are thus located, for example, on and/or between the imitation logs and/or on and/or between the imitation coal and/or below the imitation fuel bed, it is possible to illuminate the projected flames from the bottom side, which gives the effect of the flames coming out of the imitation fuel bed and thus of the flames originating from and burning on the imitation fuel bed. This therefore results in a very good 3D effect of moving flames. In a specific embodiment, the imitation fuel bed comprises imitation logs and the one or more lighting elements are arranged on an outwardly facing side of these imitation logs. These one or more lighting elements can therefore be arranged on the outwardly facing side of the imitation logs. These imitation logs are optionally provided with indentations in which the lighting elements may be arranged. If the imitation logs are hollow logs, which are, for example, open at the bottom, said one or more lighting elements may be located inside said imitation logs and/or may be located below them. In that case, the imitation logs are preferably transparent at least at the location of these lighting elements. The one or more lighting elements may also be located entirely below the imitation fuel bed. The imitation fuel bed may in that case

be partially transparent.

[0017] In certain embodiments, the projection space will be delimited at the top by a top wall, delimited at the bottom by a base and delimited at the rear by a rear wall, wherein the projection space will then be visible from the front side. In these embodiments, the imitation fuel bed is preferably arranged on the base. In conventional fireplaces, the logs and/or coal are also arranged on the base, as a result of which these embodiments therefore strongly resemble conventional fireplaces.

[0018] Preferably, one or more of said one or more lighting elements are provided for emitting light in at least an upright direction. As real flames in existing conventional fireplaces will usually also move in an upright direction, light that is emitted in an upright direction provides a realistic appearance of the projection image.

[0019] In a highly preferred embodiment, the electric fireplace comprises a second image-generating element for displaying a second image comprising flames, wherein the provided projection image is located in front of said second image-generating element. If the projection space is delimited by a rear wall, this second image-generating element may, for example, at least partially form the rear wall and the projection image may additionally be configured to extend virtually parallel to the rear wall. In this case, the projection image is located in front of the second image-generating element and will thus also be located in front of the second image if the second image-generating element comprises, for example, a screen on which it is configured to display flames. This additional second image reinforces the illusion that the visible flames are 3D flames and thus real flames. This second image-generating element preferably also displays smoke.

[0020] Further preferably, a fuel bed is also visible on the second image. In that case, a fuel bed is visible even if no imitation fuel bed has been arranged in the projection space. If an imitation fuel bed has been arranged in the projection space, the displayed fuel bed of the second image reinforces the illusion of a real fuel bed and creates more depth. This is beneficial to the illusion of a real conventional fireplace. For example, if the imitation fuel bed comprises imitation logs, the second image can also display logs. In a specific embodiment, the first image may also display a fuel bed.

[0021] Also further preferably, the second image-generating element comprises a screen that at least partially forms a rear wall that delimits said projection space. Preferably, the projection space is only delimited by one rear wall and said screen forms part of this rear wall. The rear wall may, for example, be formed by a 2D screen, such as an LCD screen, for example, wherein a 2D image of flames is displayed on this screen and wherein smoke and/or a fuel bed are additionally displayed on this screen. This second image-generating element may also comprise several screens. In another specific embodiment, the second image-generating element may adjoin said rear wall.

[0022] Preferably, the first image-generating element comprises a screen that at least partially forms a top wall of the projection space. This screen may, for example, be a 2D screen such as an LCD screen. Screens are commonly available and it is possible to provide an energy-efficient screen. The existing screens are also readily able to display high-quality images and are thus extremely suitable for displaying an image of flames and also optionally for additionally displaying smoke. If there is also a second image-generating element comprising a screen, this screen may, for example, also be an LCD screen. Said first image-generating element may also comprise several screens. These several screens may then be provided to together display said first image. However, these several screens may also be configured to display the first image and one or more additional images. In another specific embodiment, the first image-generating element may adjoin said top wall.

[0023] In a preferred embodiment, the one or more lighting elements comprise LEDs. LEDs are energy-efficient and may also be made relatively small so that, when the electric fireplace is in use and when it is not in use, they do not disrupt the appearance of the electric fireplace. It is possible to provide LEDs of a predetermined and fixed intensity, brightness and/or colour and/or it is possible to provide LEDs whose intensity, brightness and/or colour are adjustable. It is possible to opt to use several separate LEDs and/or it is possible to choose to use one or more LED strips.

[0024] Further preferably, the LEDs are controllable. It is possible to adjust the brightness, intensity and/or the colour of the LEDs as desired, so that there is always the desired effect. It is possible to use LEDs that are able to emit virtually all colours and/or it is possible to use LEDs that may only have a number of colours.

[0025] In a highly preferred embodiment, one or more of the one or more lighting elements are configured to emit light of a colour situated between RAL 1000 and RAL 1037. Yet further preferably, all of said one or more lighting elements are configured to emit light of a colour situated between RAL 1000 and RAL 1037. RAL stands for "Reichs Ausschuss für Lieferbedingungen". In this case, the lighting elements will then emit light having yellow tones when using the electric fireplace. This yellow light will ensure that the flames have a realistic appearance and that the illusion of 3D flames is created. This is because the flames displayed in the projection space already have yellow tones. The yellow of the lighting elements will intensify the yellow of the flames and ensure that yellow light is distributed over a 3D space, thus resulting in the illusion of 3D flames. Anyone who looks at the electric fireplace will thus receive the impression that the flames are burning on the fuel bed and coming out of the fuel bed. If the lighting elements are additionally controllable LEDs, it is possible to ensure that it is only possible to select colours situated between RAL 1000 and RAL 1037, so that the flames always have a realistic appearance. This effect is strongest if the electric fire-

place comprises an imitation fuel bed and the one or more lighting elements are located at the imitation fuel bed. In this case, the projected flames will then be illuminated with yellow light from the bottom side, thus achieving the effect that the flames are coming out of the imitation fuel bed and the flames originate from and are burning on the imitation fuel bed, while the flames still have a very realistic colour and the illusion of moving 3D flames is reinforced.

[0026] One or more of the one or more lighting elements are preferably configured to emit light of a wavelength situated between 565 and 590 nanometres. Yet further preferably, all of said one or more lighting elements are configured to emit light of a wavelength situated between 565 and 590 nanometres. In this case, the LEDs will then emit yellow light. As stated above, this yellow light will ensure that the flames have a realistic appearance and that the illusion of 3D flames is created. If the lighting elements are controllable LEDs, it is possible to ensure that it is only possible to select colours of a wavelength situated between 565 and 590 nanometres, so that the flames always look realistic. This effect is strongest if the electric fireplace comprises an imitation fuel bed and the one or more lighting elements are located at the imitation fuel bed. In this case, the projected flames will then be illuminated with yellow light from the bottom side, thus achieving the effect that the flames are coming out of the imitation fuel bed and the flames originate from and are burning on the imitation fuel bed, while the flames still have a very realistic colour and the illusion of moving 3D flames is reinforced.

[0027] In a specific embodiment, all lighting elements that emit yellow light extend in the plane of the projection image. In another specific embodiment, lighting elements that emit yellow light may also extend alongside the plane of the projection image. In a certain embodiment, lighting elements that emit red/orange light may also extend in the plane of the projection image.

[0028] In a highly preferred embodiment, the one or more lighting elements are yellow LEDs that optionally form part of one or more LED strips.

[0029] In a highly preferred embodiment, the projection element is displaceable between at least two positions, namely a use position, in which the projection element is configured to project the first image as said projection image and a rest position, in which the projection element is virtually invisible from the front side of the electric fireplace. A problem with the existing electric fireplaces comprising a projection element is that the projection element is visible when the electric fireplace is not in use. It is thus immediately apparent that it is not a conventional fireplace. In addition, if the projection element is a partially transparent plate, such as a glass plate or a plastic plate, this plate may, for example, cause undesired reflection of the components of the electric fireplace or the area surrounding the electric fireplace. When the electric fireplace is not in use, the electric fireplace is therefore regarded as an undesirable feature. To resolve this problem, the projection element is displaceable into its rest position in this highly preferred embodiment. As the projection element is then virtually invisible, it therefore cannot have a negative effect on the appearance of the electric fireplace when the fireplace is not in use. Furthermore, in a specific embodiment the projection element can have two or more use positions, meaning that it is possible to select where the projection image will appear. In the rest position, the projection element may, for example, be placed virtually against the top wall, the bottom wall, the rear side or a side wall of the electric fireplace. The projection element may, however, also be placed in an optionally sealable cavity of the electric fireplace so that the projection element is less visible, if at all.

[0030] Further preferably, the projection element is pivotably displaceable. It can thus be provided so as to be pivotable about a hinge pin which is configured to extend horizontally and also, for example, additionally extends parallel to the rear wall if this is present.

[0031] Further preferably, in the embodiment in which the projection element is displaceable between said positions, the projection element, in the use position, forms an angle with a horizontal plane of between 30° and 60°. At such an angle, the projection element is readily able to project the first image into the projection space as an upright projection image.

[0032] Also further preferably, the projection element, in the rest position of the projection element, virtually adjoins the top wall. The visibility of the projection element is minimal in this case, as a result of which the projection element is virtually invisible in practice. In this case, the projection element will, for example, virtually adjoin the first image-generating element when the first image-generating element extends, for example, near the top wall and/or at least partially forms the top wall. As it is only the intention for the projection image to be visible and thus not the first image-generating element, the projection element will also be virtually invisible when it is arranged in the vicinity of the image-generating element.

[0033] In a preferred embodiment, the electric fireplace comprises one or more heat mats. With the aid of heat mats, it is simple to provide atmospheric heat. In this case, the electric fireplace then emits a warm glow, so that the illusion of a conventional fireplace is reinforced. The heat mats used may, for example, also be electrically controllable, so that it is not necessary to provide additional energy sources to generate this atmospheric heat. In an embodiment in which the projection space is delimited by side walls, these heat mats can be arranged against one or more side walls. By arranging the heat mats on these side walls, they will hardly, if at all, disrupt the appearance of the electric fireplace. It is possible to arrange the heat mats against the entire side wall and/or only against the side wall at the front side of the electric fireplace. It is also possible to arrange these heat mats against the base of the electric fireplace, if present, for example in front of the imitation fuel bed, if present. It is also possible to arrange the heat mats in other suitable

locations.

[0034] The first image-generating element preferably displays a video of flames. The first image-generating element thus plays a video of an image of flames. To this end, the first image-generating element may, for example, comprise a screen on which the video is displayed. By using a video, it is possible to display an image of flames that varies sufficiently by selecting a video with an adequate playing time. Using a video reduces the risk that someone looking at the electric fireplace will quickly notice a repeating pattern of flames. If there is a second image-generating element, this second image-generating element will preferably also display a video of flames.

[0035] Further preferably, the video additionally displays smoke. The reason for this is that smoke is also visible in a conventional fireplace. By playing not just a video with flames, but a video with flames and smoke, the appearance of the electric fireplace is improved during use of the electric fireplace.

[0036] Also further preferably, the video is obtained by combining several images of flames. This results in a dynamic and attractive video image. The video may thus, for example, be a video composition, made from a number of chroma-keyed videos of simple, for example single, flames that are filmed under certain light conditions.

[0037] In a preferred embodiment comprising an imitation fuel bed, the imitation fuel bed comprises light-generating elements for creating a glowing effect of the imitation fuel bed. In addition to the lighting elements that are provided in order to embellish the projection image, there are also elements that ensure that the imitation fuel bed and thus, for example, the imitation logs and/or imitation coal, will glow. In this way, the illusion of a conventional fireplace is generated even more effectively.

[0038] Further preferably, several of the light-generating elements are configured to emit light of a wavelength situated between 591 and 780 nm and/or to emit light of a colour situated between RAL 3000 and RAL 3033 and/or between RAL 2000 and RAL 2013. In this case, these light-generating elements will emit light with red/orange tones, thus achieving the effect of a glowing fuel bed. For example, light is thus emitted of a colour situated between RAL 2000-2013 and/or a wavelength situated between 591 and 650 nm.

[0039] The present invention will now be explained in more detail by means of the following detailed description of a preferred embodiment of an electric fireplace according to the present invention. The sole aim of this description is to give purely illustrative examples and to indicate further advantages and particulars, and can therefore by no means be interpreted as a limitation of the area of application of the invention or of the patent rights defined in the claims.

[0040] In this detailed description, reference numerals are used to refer to the attached drawings, in which

- *Figure 1* diagrammatically shows a perspective view of an electric fireplace according to the invention, in which the walls are shown as transparent so that the projection space is clearly visible;
- *Figure 2* diagrammatically shows a cross section through the electric fireplace shown in Figure 1, perpendicular to the width direction;
- *Figure 3* shows a perspective view of a base of the electric fireplace shown in Figures 1 and 2, on which the imitation fuel bed is placed and the projection image is displayed.

[0041] The electric fireplace (1) shown in the figures is in the shape of a cuboid and comprises a projection space (2) which is delimited by a top wall (11), a base (9), a rear wall (10) and two side walls (12). An imitation fuel bed (6) is arranged on the base (9), wherein this imitation fuel bed (6) comprises imitation logs, light-generating red/orange LEDs which are placed inside the logs and an LED strip (5).

[0042] The electric fireplace (1) further comprises a first image-generating element (3) which comprises a 2D LCD screen, wherein this LCD screen partially forms said top wall (11). The fireplace (1) also comprises a second image-generating element (7) which comprises a 2D LCD screen, wherein this LCD screen adjoins said rear wall (10). Furthermore, this fireplace (1) comprises a displaceable projection element (4), namely a partially transparent plate. This projection element (4) is pivotable between a use position, in which this projection element (4) is arranged in the projection space (2) such that this plate forms an angle of virtually 45° with the base (9) and is located in front of the imitation fuel bed (6), seen along the front side of the electric fireplace (1), and a rest position in which the projection element (4) adjoins the top wall (11). The rest position in Figures 1 and 2 is shown using dashed lines and the projection element (4) in Figures 1 and 2 is in the use position. The front side is not delimited by a wall, as a result of which the projection space (2) can be seen from the front side of the fireplace (1).

[0043] The electric fireplace (1) further comprises two heat mats that are provided in order to create atmospheric heat.

[0044] The screen of the first image-generating element (3) displays a video of an image of flames, wherein this image of flames is obtained by combining several images of single flames. This image of flames is also accompanied in each case by an image of smoke, thus resulting in the illusion of real flames. The screen of the second image-generating element (7) displays flames and logs.

[0045] During use of the electric fireplace (1), the projection element (4) is located in the use position and the two screens display their video. Due to the position of the first image-generating element (3) and the position of the projection element (4), the 2D image which is displayed by the first image-generating element (3) is projected onto the imitation fuel bed (6) as an upright 2D

projection image (8) at a distance from the rear wall (10). Said LED strip (5) extends in the plane of the projection image (8) and is thus able to embellish this projection image (8). The image of the first image-generating element (3) is thus projected onto the imitation fuel bed (6) at the location of the LED strip (5).

[0046] This LED strip (5) is further configured to emit yellow light from the bottom side of the flames of the projection image (8) along light beams whose main axes extend virtually parallel in the plane of the projection image (8). Due to this yellow light, the displayed flames of the projection image (8) are enhanced and this yellow light will also extend alongside this plane, thus resulting in the illusion of 3D flames. The flames come out of the imitation fuel bed (6), as it were.

[0047] The light-generating red/orange LEDs provide a glowing effect of the imitation fuel bed (6).

[0048] When the electric fireplace (1) is not in use, the projection element (4) is placed into its rest position. The projection element (4) is then virtually invisible and will thus also not negatively affect the appearance of the electric fireplace (1).

Claims

1. Electric fireplace (1) comprising a projection space (2) in which flames are projected, wherein said projection space (2) is at least visible from a front side of the electric fireplace (1), comprising a first image-generating element (3) for displaying a first image, wherein said first image displays flames, and comprising a projection element (4) for projecting the first image as an upright projection image (8) in the projection space (2), wherein the electric fireplace (1) comprises one or more lighting elements (5), which are arranged in the projection space (2) at the location of the provided projection image (8), in order to embellish the projection image (8) and wherein the provided projection image (8) is a 2D image that extends along an upright plane, **characterized in that** said one or more lighting elements (5) extend at least partially in the plane of the projection image (8).

2. Electric fireplace (1) according to Claim 1, **characterized in that** the projection element (4) is a partially transparent plate.

3. Electric fireplace (1) according to Claim 1 or 2, **characterized in that** the electric fireplace (1) comprises an imitation fuel bed (6) which is arranged in the projection space (2), the projection element (4) is provided for projecting the projection image (8) onto the imitation fuel bed (6) and said one or more lighting elements (5) are arranged at the location of the imitation fuel bed (6).

4. Electric fireplace (1) according to one of the preceding claims, **characterized in that** one or more of said one or more lighting elements (5) are provided for at least emitting light in an upright direction.

5. Electric fireplace (1) according to one of the preceding claims, **characterized in that** the electric fireplace (1) comprises a second image-generating element (7) for displaying a second image comprising flames, wherein the provided projection image (8) is located in front of said second image-generating element (7).

6. Electric fireplace (1) according to one of the preceding claims, **characterized in that** the first image-generating element (3) comprises a screen that at least partially forms a top wall (11) of the projection space (2).

7. Electric fireplace (1) according to one of the preceding claims, **characterized in that** the one or more lighting elements (5) comprise LEDs.

8. Electric fireplace (1) according to one of the preceding claims, **characterized in that** one or more of the one or more lighting elements (5) are configured to emit light of a colour situated between RAL 1000 and RAL 1037.

9. Electric fireplace (1) according to one of the preceding claims, **characterized in that** one or more of the one or more lighting elements (5) are configured to emit light of a wavelength situated between 556 and 590 nanometres.

10. Electric fireplace (1) according to one of the preceding claims, **characterized in that** the projection element (4) is displaceable between at least two positions, namely a use position, in which the projection element (4) is configured to project the first image as said projection image (8), and a rest position, in which the projection element (4) is virtually invisible from the front side of the electric fireplace (1).

11. Electric fireplace (1) according to Claim 10, **characterized in that** the projection element (4) is pivotably displaceable.

12. Electric fireplace (1) according to Claim 10 or 11, **characterized in that** the projection element (4), in the use position, forms an angle with a horizontal plane of between 30° and 60°.

13. Electric fireplace (1) according to one of Claims 10 to 12, **characterized in that** the projection space (2) comprises a top wall (11) and **in that** the projection element (4), in the rest position of the projection element (4), virtually adjoins the top wall (11).

14. Electric fireplace (1) according to Claim 3 or according to Claim 3 and one of Claims 4 to 13, **characterized in that** the imitation fuel bed (6) comprises light-generating elements for creating a glowing effect of the imitation fuel bed (6).

15. Electric fireplace (1) according to Claim 14, **characterized in that** several of the light-generating elements are configured to emit light of a wavelength situated between 591 and 780 nm.

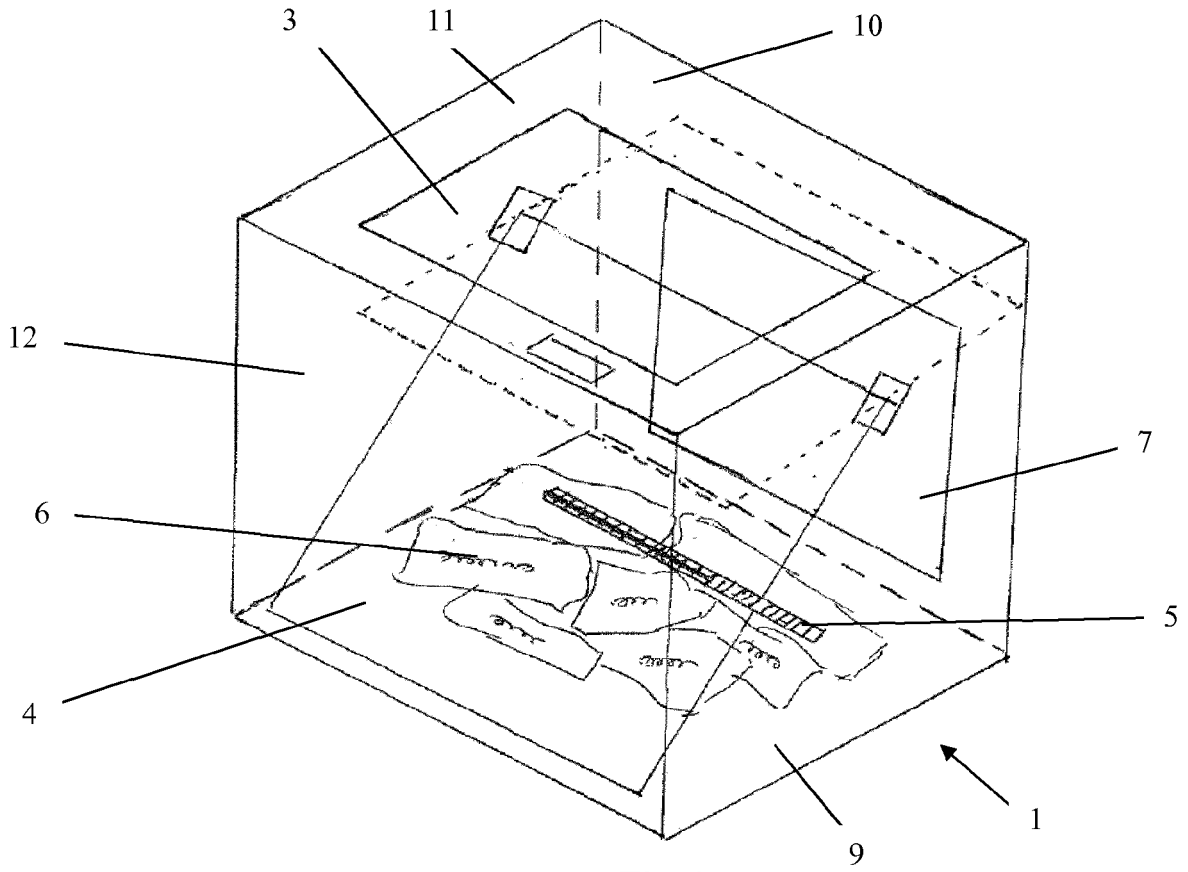

Fig. 1

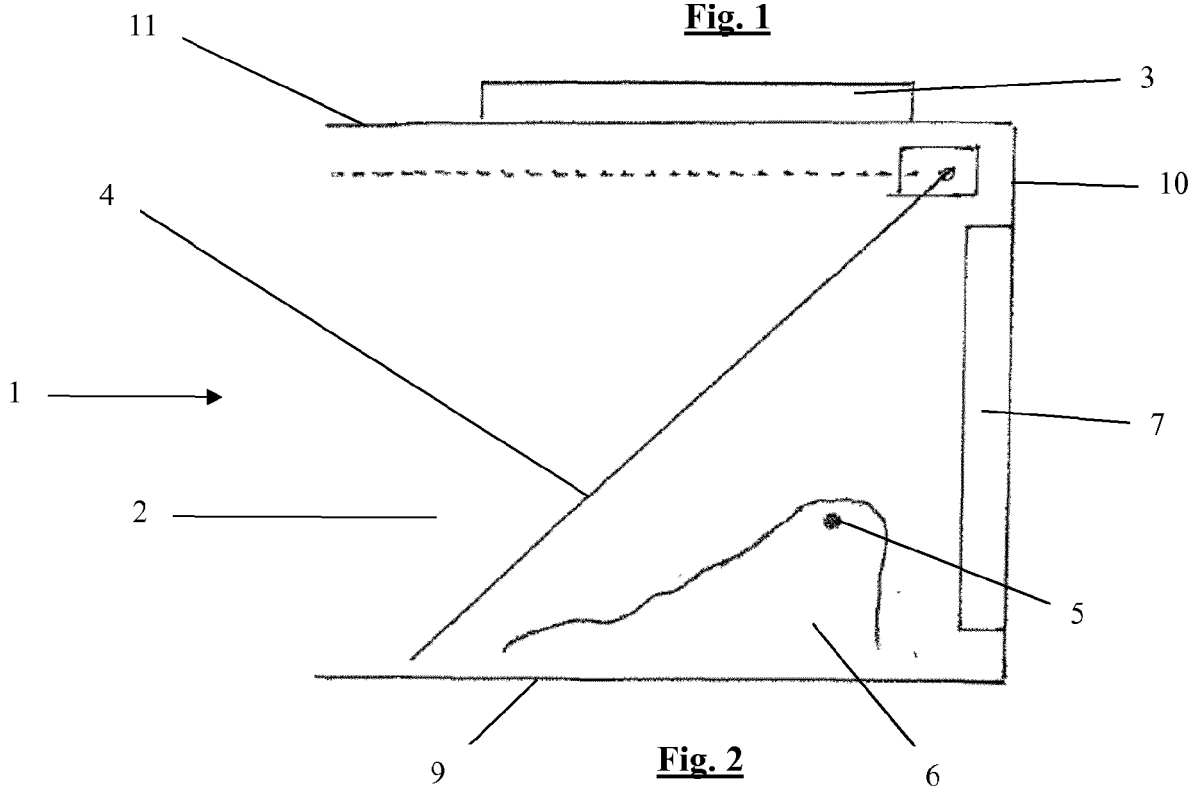

Fig. 2

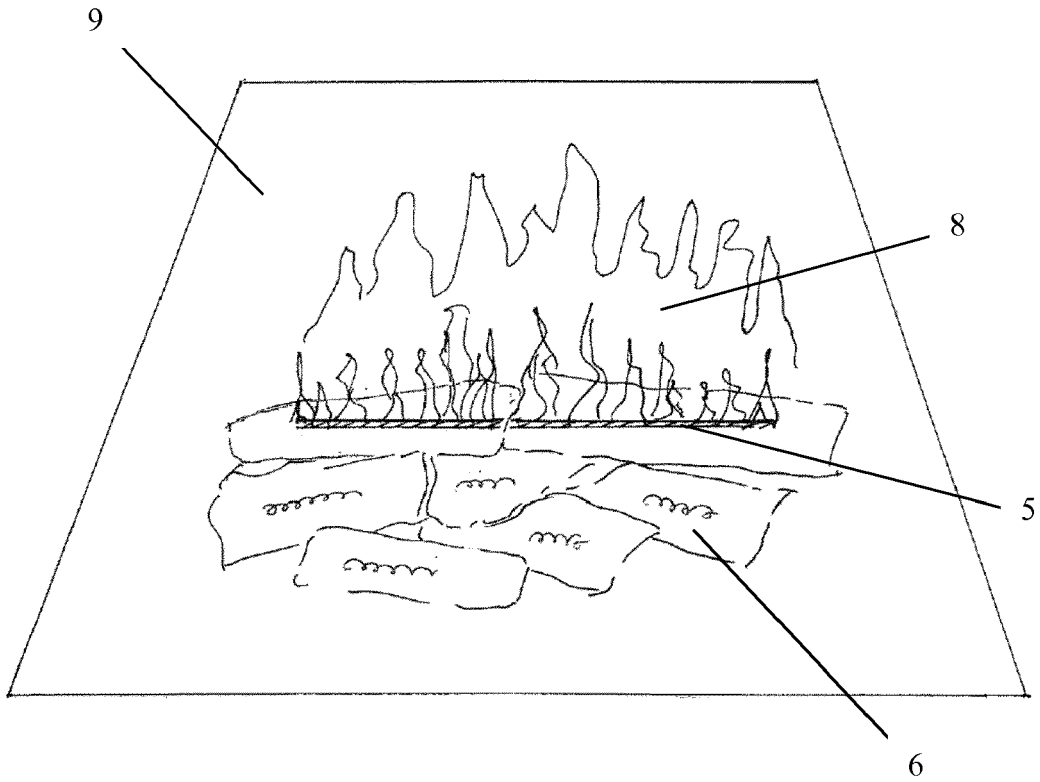

Fig. 3

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EUROPEAN SEARCH REPORT

Application Number
EP 18 20 1931

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The present search report has been drawn up for all claims

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The Hague	18 December 2018	Jalal, Rashwan

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The Hague	18 December 2018	Jalal, Rashwan

CATEGORY OF CITED DOCUMENTS

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