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(54) **COMPRESSION MOLDED TRIMMABLE SURROUND**

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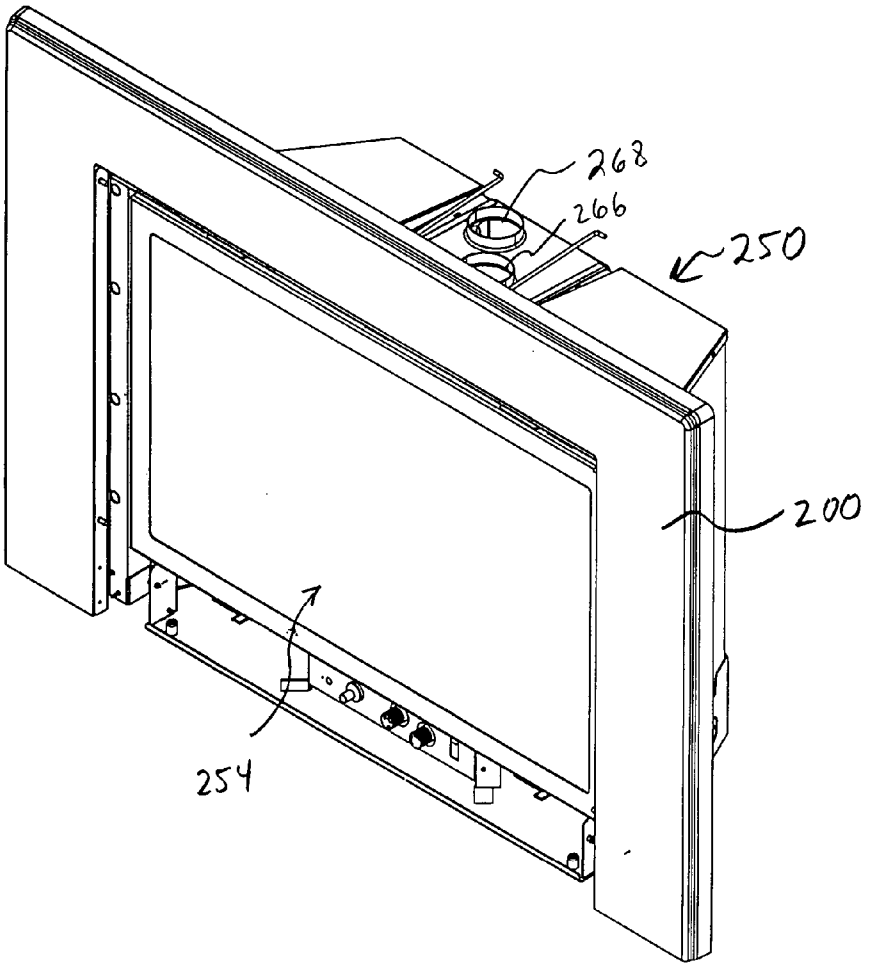
(57) **ABSTRACT**

A trimmable surround and methods for creating the surround for a heat generating device. The trimmable surround includes a molded portion having a ceramic fiber and a binder and an attachment portion. A portion of the molded member is removable to alter a size of the molded member. An attachment portion coupled to the molded portion allows attachment of the trimmable surround to the heat generating device.



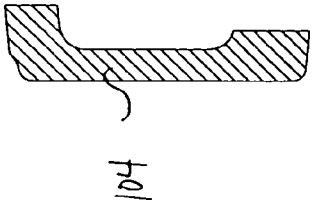


FIG. 2

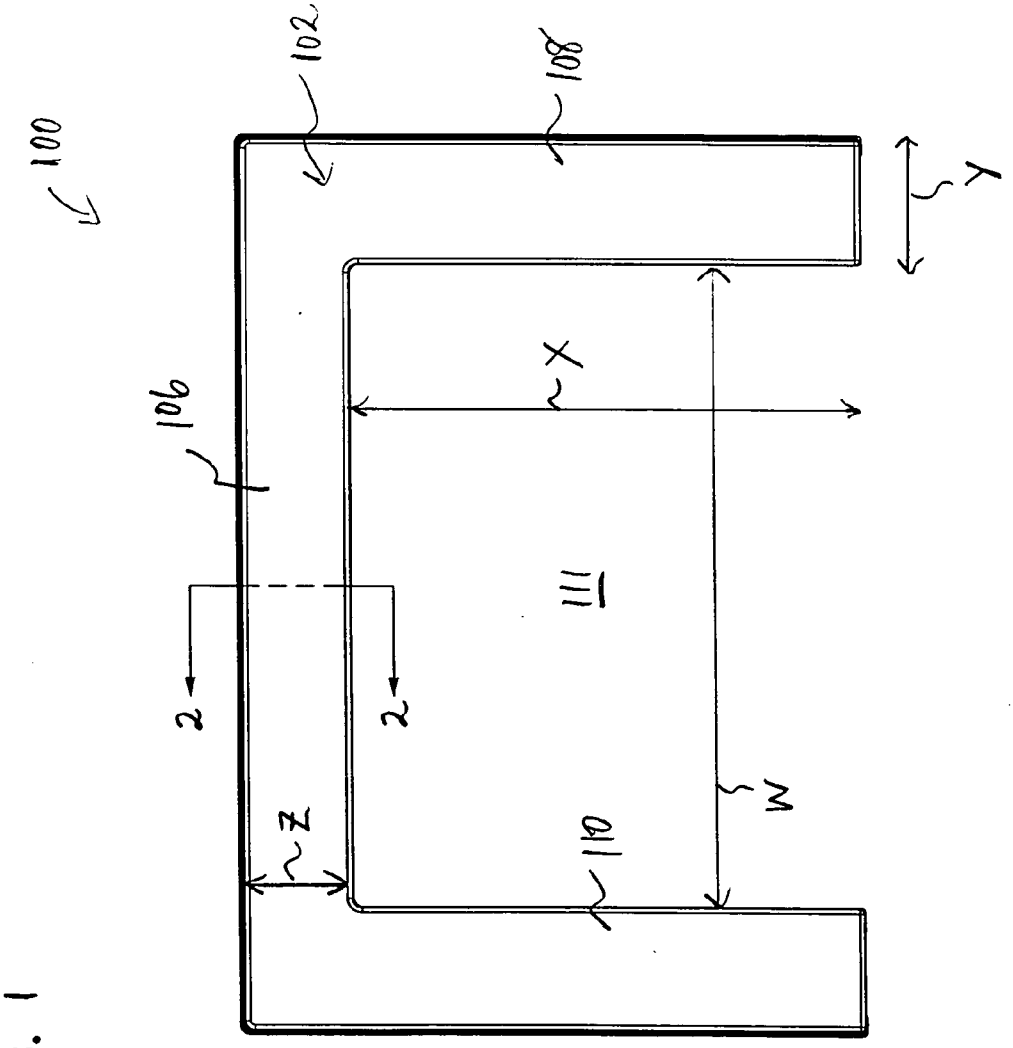


FIG. 1

FIG. 3

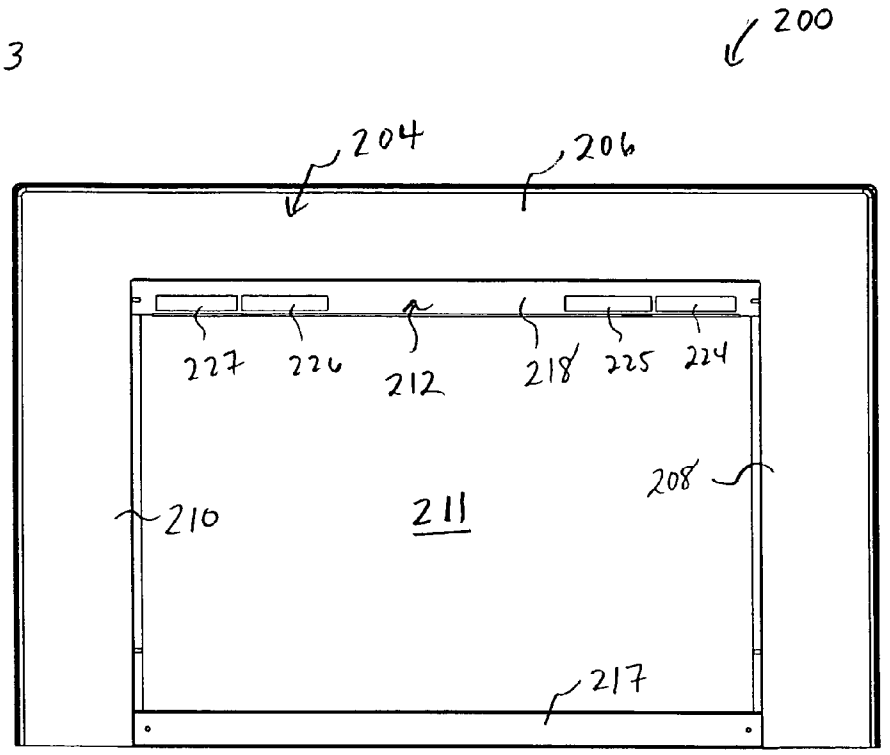

200
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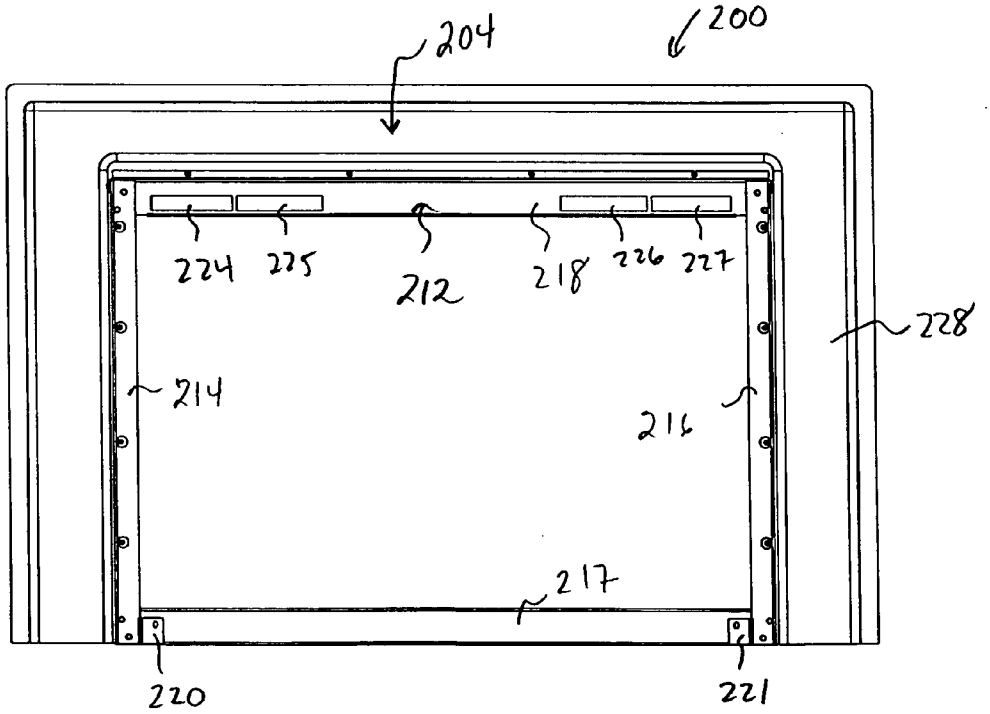
FIG. 4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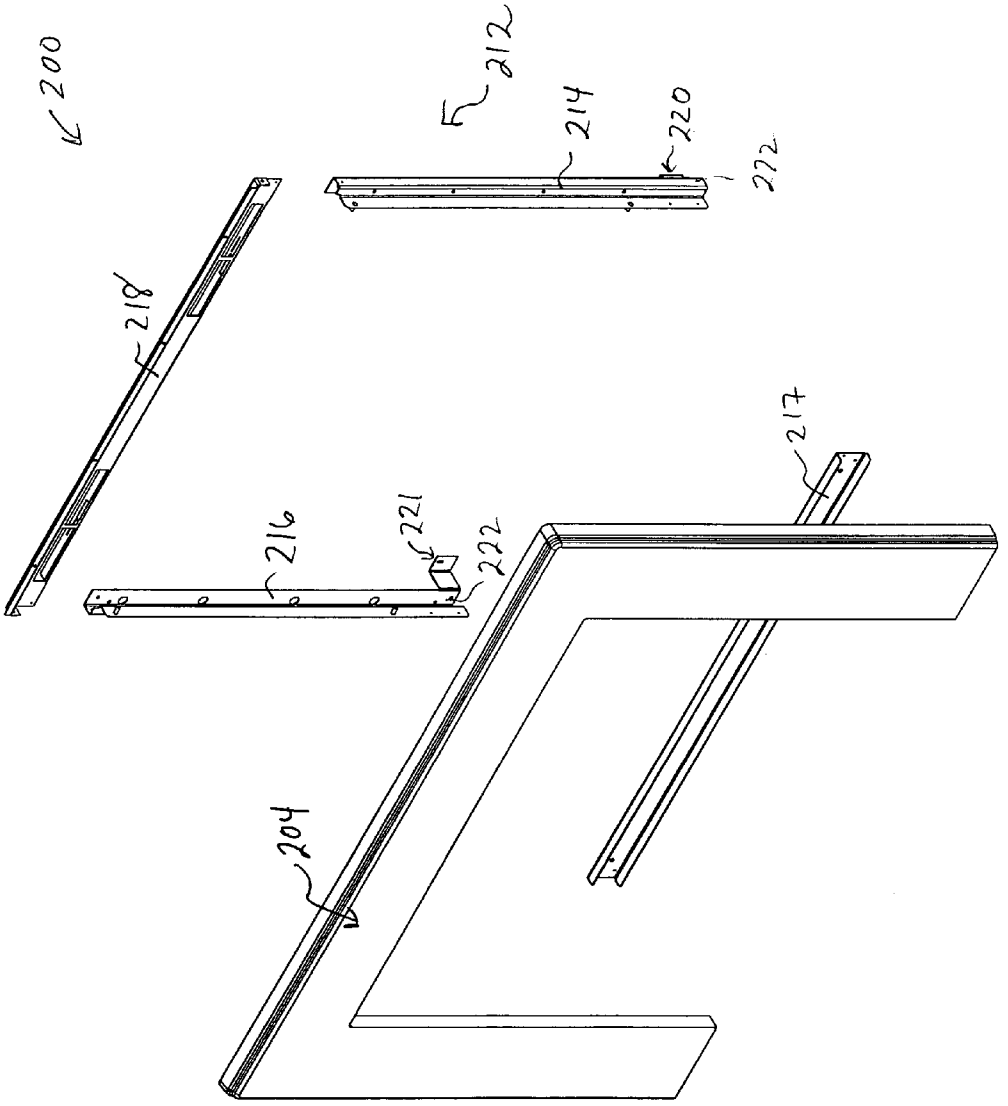

FIG. 5

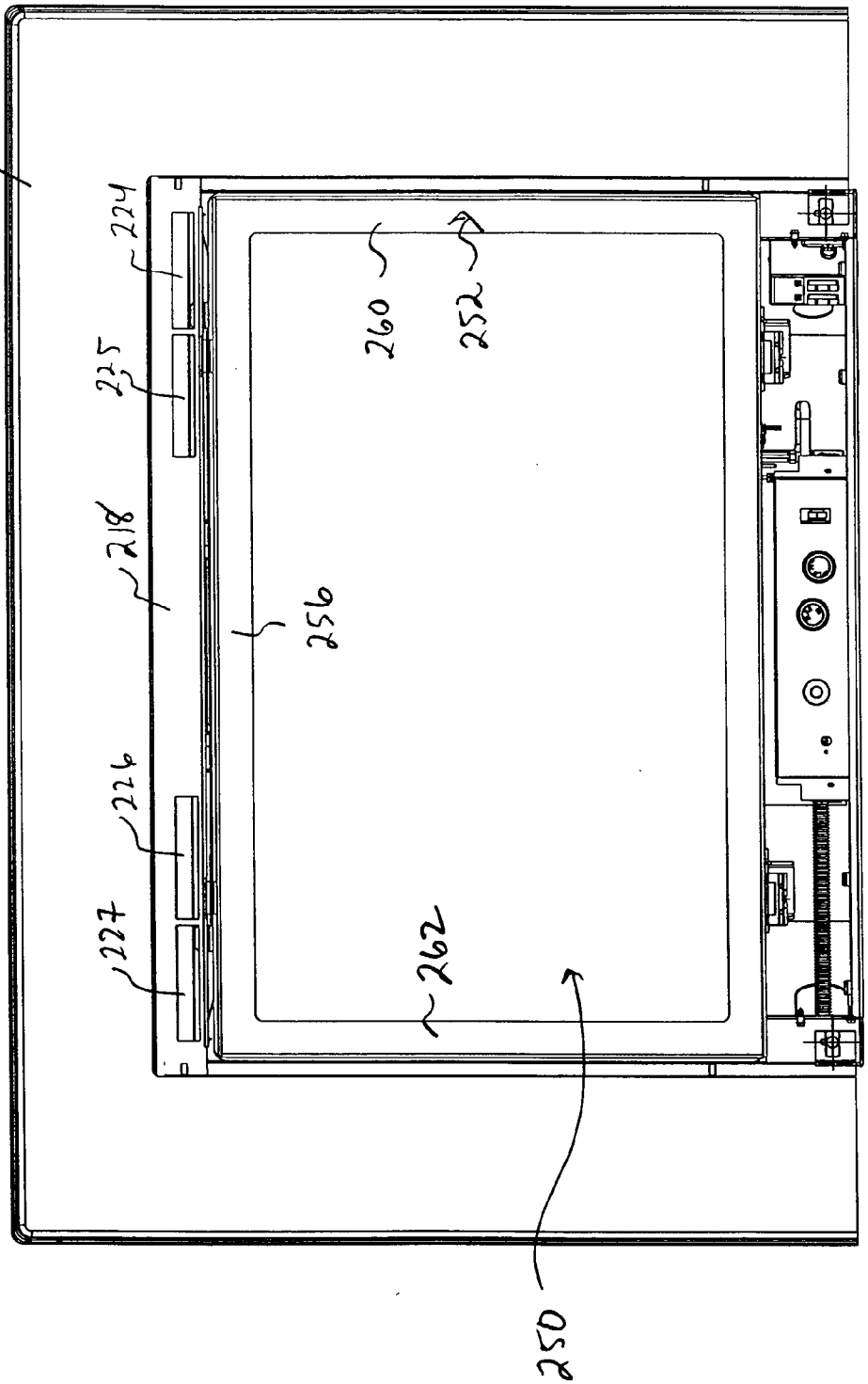

FIG. 6

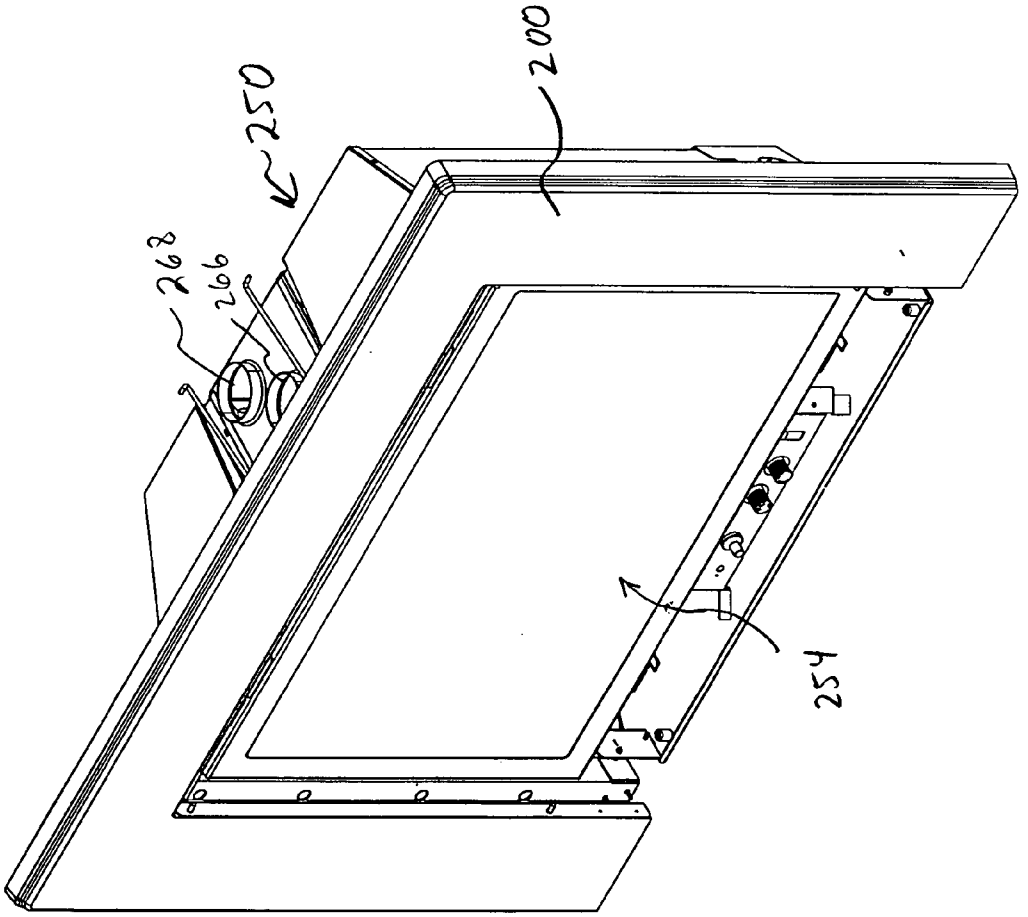

FIG. 7

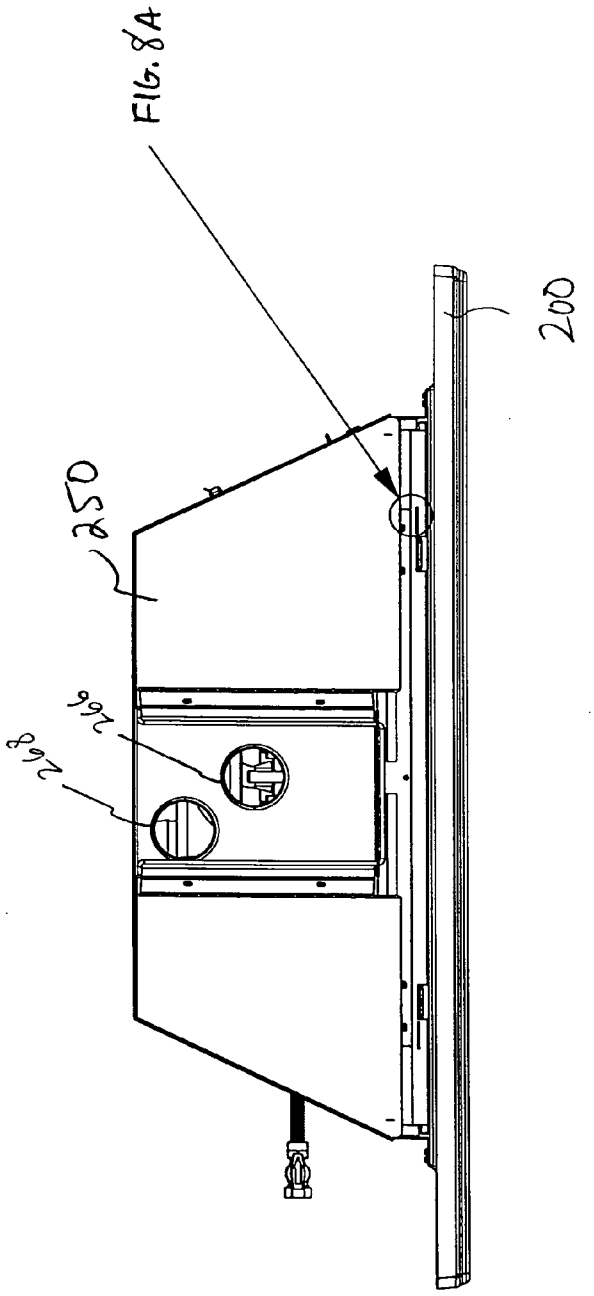

FIG. 8

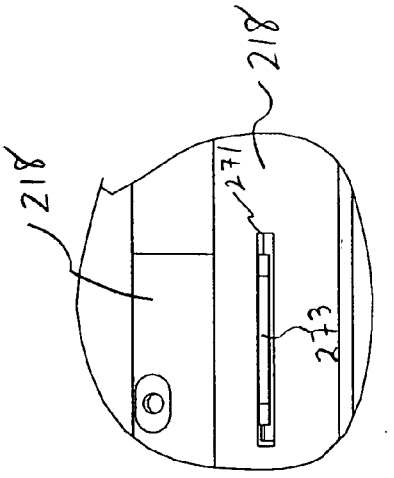

FIG. 8A

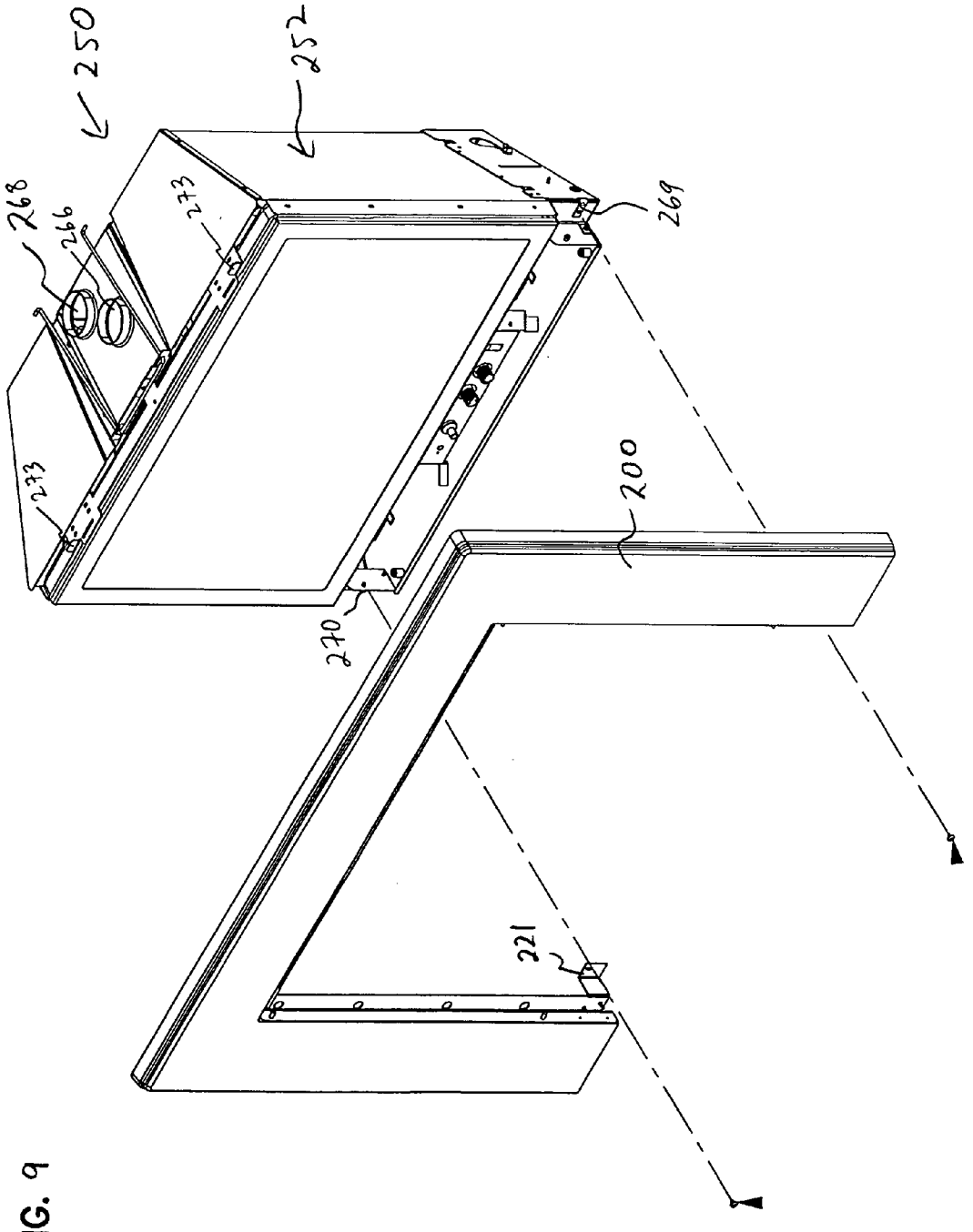

FIG. 9

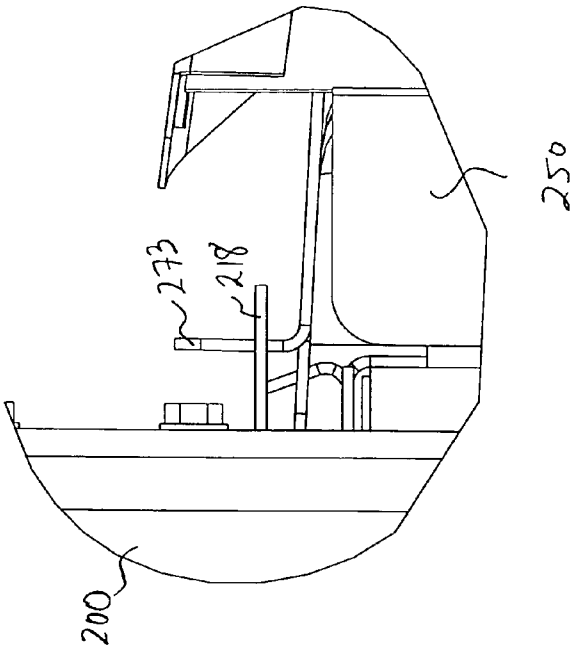

FIG. 10A

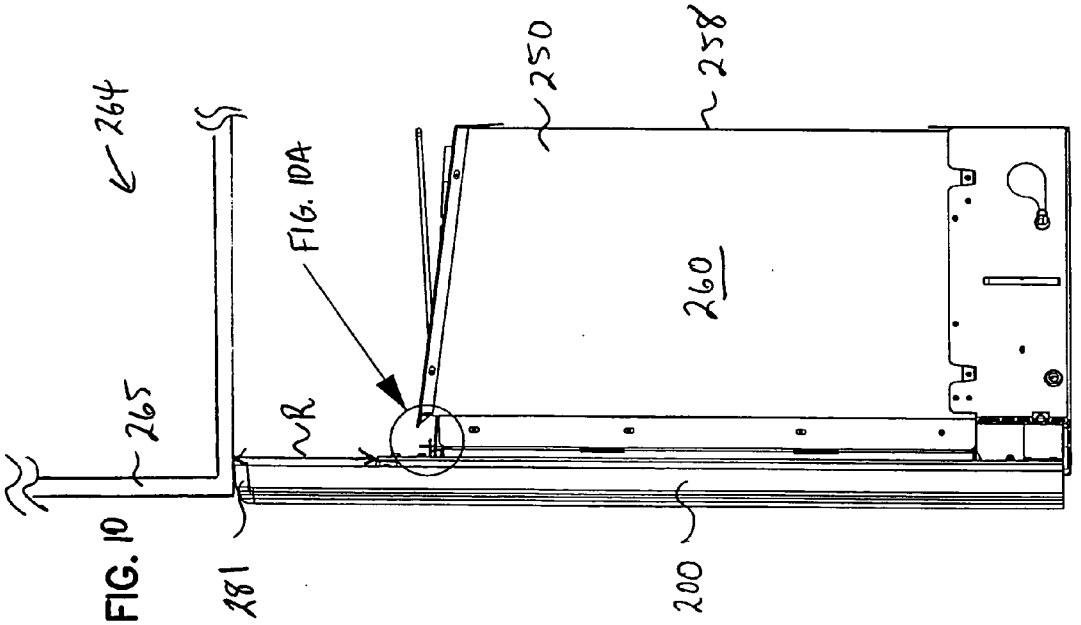

FIG. 10

COMPRESSION MOLDED TRIMMABLE SURROUND

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to U.S. Provisional patent application Ser. No. 10/620,297 filed on Jul. 15, 2003 and entitled TRIMMABLE SURROUND FOR A HEAT GENERATING DEVICE, which provisional application is incorporated herein by reference in its entirety.

TECHNICAL FIELD

[0002] The present invention relates to heat generating devices. More particularly, the invention relates to a trimmable surround and a method for creating a modifyable surround for heat generating devices.

BACKGROUND

[0003] Fireplaces and other heat generating devices have become increasingly commonplace in homes, businesses, and other buildings. For example, a fireplace provides benefits including the generation of heat as well as an aesthetically-pleasing arrangement of flames, sounds, and smells. A fireplace is typically mounted in a wall of a structure and may include one or more exposed surfaces.

[0004] The exposed surfaces of the fireplace can pose safety issues. For example, because the fireplace produces heat, it is possible for one or more of the exposed surfaces of the fireplace to become heated. In particular, metallic exposed surfaces can become hot during fireplace use. Other surfaces of a fireplace that are typically exposed are surfaces through which the interior of the fireplace is viewed (e.g., a glass panel, door, or mesh screen) and the surround that surrounds the fireplace and provides a transition between the exposed fireplace surfaces and the wall structure.

[0005] The exposed surfaces of the surround may become hot and pose a risk of burns to individuals or damage to objects that come into contact with the surfaces. Current fireplace design fails to adequately provide an apparatus or method to maintain the exposed surfaces of the fireplace surround at a temperature that is safe. Also, a metallic exposed surface of the fireplace may not be as aesthetically pleasing to the consumer or blend into a room's decor.

[0006] Further, surrounds are often required to cover gaps that may exist between a combustion device, such as a fireplace insert, and the existing structure of the building, such as a wall or masonry. Current fireplace surrounds that are placed over the exposed surfaces of the fireplace can require custom measurement, cutting, and/or preparation by the seller or manufacturer of the surround, are difficult to modify by the consumer after purchase, and, if prepared with a finish prior to shipment to the consumer, may not match the decor surrounding the fireplace once placed over the exposed surface(s) of the fireplace unit.

SUMMARY

[0007] Generally, the present invention relates to heat generating devices. More particularly, the invention relates to a trimmable surround and a method for creating a modifyable surround for heat generating devices.

[0008] According to one aspect, the invention relates to a trimmable surround and methods for creating the surround for a heat generating device. The trimmable surround includes a molded portion having a ceramic fiber and a binder, and an attachment portion. The attachment portion is coupled to the molded portion to allow attachment of the trimmable surround to the heat generating device. The trimmable surround may be reduced in size by, for example, cutting or trimming portions of the surround.

[0009] The above summary of the present invention is not intended to describe each disclosed embodiment or every implementation of the present invention. Figures in the detailed description that follow more particularly exemplify embodiments of the invention. While certain embodiments will be illustrated and described, the invention is not limited to use in such embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] The invention may be more completely understood in consideration of the following detailed description of various embodiments of the invention in connection with the accompanying drawings, in which:

[0011] **FIG. 1** is a front view of an example surround made in accordance with the present invention;

[0012] **FIG. 2** is a cross-sectional view taken along line **2-2** of the surround shown in **FIG. 1**;

[0013] **FIG. 3** is a front view of a second example surround made in accordance with the present invention;

[0014] **FIG. 4** is a back view of the surround shown in **FIG. 3**;

[0015] **FIG. 5** is front/top exploded perspective view of the surround shown in **FIG. 3**;

[0016] **FIG. 6** is a front view of an example fireplace including an example embodiment of a trimmable surround made in accordance with the present invention;

[0017] **FIG. 7** is a front/top perspective view of the fireplace and trimmable surround shown in **FIG. 6**;

[0018] **FIG. 8** is a top view of the fireplace and trimmable surround shown in **FIG. 6**;

[0019] **FIG. 8A** is an enlarged view of a portion of the fireplace and trimmable surround shown in **FIG. 8**;

[0020] **FIG. 9** is a front/top exploded perspective view of the fireplace and trimmable surround shown in **FIG. 6**;

[0021] **FIG. 10** is a side view of the fireplace and trimmable surround shown in **FIG. 6** installed within an opening of a wall structure; and

[0022] **FIG. 10A** is an enlarged view of a portion of the fireplace and trimmable surround shown in **FIG. 10**.

[0023] While the invention is amenable to various modifications and alternative forms, specifics thereof have been shown by way of example and the drawings and will be described in detail. It should be understood, however, that the intention is not to limit the invention to the particular embodiments described. On the contrary, the intention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the invention.

DETAILED DESCRIPTION

[0024] The present invention relates to fireplaces. More particularly, the invention relates to a surround for a fireplace that can be easily modified, installed over or adjacent to an exposed surface of a fireplace, and finished as desired by the consumer. While the present invention is not so limited, an appreciation of the various aspects of the invention will be gained through a discussion of the examples provided below.

[0025] Embodiments of the present invention may be used in conjunction with any system or apparatus that ignites a combustible gas to generate a gas flame or any other heat generating device. A non-exhaustive list of such heat generating devices may include fireplaces, grills, stoves, furnaces etc. Other embodiments of the present invention may also be applicable to other heat generating devices such as electric fireplaces, and be applicable to simulated fire display devices. While the example embodiments of the present invention provided below are described in conjunction with an example fireplace insert, the present invention is equally applicable to other systems or apparatuses besides a fireplace that ignite a combustible gas to generate a gas flame or that simulate a flame.

[0026] As used herein, the term "coupled" means any structure or method that may be used to provide connectivity between two or more elements, which may or may not include a direct physical connection between the elements. The terms "exposed panel" and "exposed surface" mean any panel or surface of the fireplace or other device that may heated by heat generated by the fireplace and that is accessible by the operator or user of the fireplace following installation. The phrase "combustion chamber enclosure" may include any enclosure in which flames and/or heat are generated or simulated. The term "surround" means any exposed structural surface that covers or is adjacent to a portion of the fireplace (e.g., "exposed surface") or structure adjacent thereto.

[0027] Referring to **FIGS. 1 and 2**, front and cross-sectional views of an example embodiment of a trimmable surround **100** are shown. The trimmable surround **100** may be comprised of any material that provides a surface **102** that insulates a user of a fireplace from at least one exposed surface of the fireplace. The trimmable surround **100** includes a molded portion **104** that includes a top portion **106**, and two side portions **108**, **110**.

[0028] Molded portion **104** can be formed from, for example, inorganic ceramic fibers and a binder. Molded portion **104** can be formed by any known molding technique, such as, for example, compression molding, vacuum forming, or casting techniques. Exemplary molding compositions and forming techniques are described in pending United States Publication No. US-2003-0049575-A1, which is incorporated herein by reference in its entirety. Additional exemplary molding compositions and forming techniques are described in U.S. Pat. Nos. 5,941,237; 5,996,575; and 6,170,481, which patents are incorporated herein by reference in their entirety.

[0029] The top portion **106** and two side portions **108**, **110** can define an opening **111** that typically corresponds to the dimensions of a glass panel that allows viewing into the fireplace. For example, opening **111** is approximately 34 inches wide along dimension W and 26 inches high along dimension X. These dimensions can correspond to the opening of a number of gas fireplace inserts. For example, the dimensions of opening **111** can be used with a Hearth & Home Technologies (Lakeville, Minn.) fireplace insert sold under the names of FB-GRAND. The side portions **108**, **110** of trimmable surround **100** can have a width Y of about, for example, 3-10 inches and preferably has a width of about 7 inches. The top portion **106** can have a dimension Z of about, for example, 3-10 inches and preferably has a width Z of about 6 inches. Trimmable surround **100** can be formed in any other desired size, shape and configuration to the configuration shown in the Figures. For example, trimmable surround can be formed and sized to cover exposed surfaces of wood stoves or other combustion devices.

[0030] Surround **100** can be attached to a combustion device using, for example, screws, bolts, or high temperature adhesives, and may further require placing the surround in front of the combustion device, sizing the surround to press fit into an opening, or utilizing other attachment devices, such as the apparatus disclosed in **FIGS. 3-5**.

[0031] Referring to **FIGS. 3-5**, another embodiment of a trimmable surround **200** is shown. The trimmable surround **200** includes a molded portion **204** having a top portion **206**, and two side portions **208**, **210**. The top portion **206** and two side portions **208**, **210** can define an opening **211** having dimensions A, B (see **FIG. 4**), which dimensions may be similar to dimensions Y, Z for surround **100**.

[0032] Trimmable surround **200** also includes an attachment portion **212**. The attachment portion **212** includes a right bracket **214**, left bracket **216**, and a top bracket **218**. Optionally included is a bottom bracket **217**. Although shown a multiple parts, alternatively, attachment portion can be constructed as a single unit. Flanges **220**, **221** extend from a bottom portion **222** of each of the right and left brackets **214**, **216**.

[0033] Top bracket **218** includes air holes **224**, **225**, **226**, **227** that allow for the circulation of heated room air. Air holes **224**, **225**, **226**, **227** are only one example of a construction that will allow for the return of air into the room in which a fireplace is located. Alternatively, a single air hole can be used, or if no circulation of room air is desired, the air holes can be eliminated.

[0034] As shown in **FIG. 4**, the attachment portion **212** can be screwed into a back surface **228** of the molded portion **204**. Alternatively, attachment portion **212** can be coupled to the molded portion through other means, such as, for example, bolting, adhering, or forming the attachment portion into the molded portion during the molding process. The attachment portion **212** allows an installer to couple the molded portion **204** to a combustion device.

[0035] Trimmable surrounds **100**, **200** can be manipulated in any number of ways. In one method, a standard size surround is used and can be trimmed by the consumer as desired. The consumer purchases the trimmable surround, such as surrounds **100**, **200**, with the intention of trimming the surround to a size that fits a particular fireplace opening or exposed surface that is to be at least partially covered with a finished surround.

[0036] A consumer can trim a surround to a desired size according to the following example steps. After purchasing

a trimmable surround (such as **100**, **200**) of a desired size, shape, or dimension, the consumer can utilize a template, which is either supplied by the manufacturer or created by the consumer, to trace a combustion device opening in which a combustion device is disposed. After tracing the combustion device opening, the consumer cuts the template and verifies that the finished template fits within the combustion device opening. In some embodiments, the template may be cut to a size larger or smaller than the combustion device opening so that the trimmed surround properly overlaps or resides adjacent to the combustion device opening as desired.

[**0037**] Once a final template is created, the inside opening of the template is aligned with an opening (**111**, **211**) of the trimmable surround (**100**, **200**) on a front surface of the trimmable surround (**100**, **200**). The consumer then traces around the template to mark off the size of the combustion device opening. The consumer next cuts or removes the excess portions of the trimmable surround (**100**, **200**) off using a jig saw, skill saw, hand saw or other cutting device. Cutting may be done along, for example, inner edges **203**, **205** of the side portions **208**, **210**, or cutting may define the edges **203**, **205**. The consumer can leave the template in place on the front surface (**103**, **203**) of the trimmable surround (**100**, **200**) during the cutting process. Alternatively, the template can be removed prior to cutting the trimmable surround (**100**, **200**). In further embodiments, the surround may be constructed so that the size modifications to the surround can be made by breaking, bending, or otherwise removing predetermined sections, strips, or other pieces from the surround.

[**0038**] After cutting the trimmable surround (**100**, **200**), the consumer can paint or stain the outer surface facing (e.g., surface **102**) of the surround to match the surrounding decor of the room or fireplace structure. Staining a compression molded fiber material may provide a marbleized or other specific look to the trimmable surround depending on the fiber material and method of molding. After preparing the finish on the trimmable surround (**100**, **200**), the surround can be installed onto the fireplace, insert, stove, or other heat generating device.

[**0039**] Trimmable surround can also be manipulated in other ways. For example, patterns, designs, initials, or other decorative modifications can be made to the trimmable surround (**100**, **200**) prior to or after installation in the fireplace opening. Functional modifications can also be made. For example, holes or openings can be created in the trimmable surround (**100**, **200**) to allow for air passage around the fireplace. These types of modifications can be made to the surround before or after the surround is installed depending of the type of modification being made.

[**0040**] Referring to **FIGS. 6-9**, trimmable surround **200** is shown coupled to a combustion device **250** (heat generating device), such as a fireplace insert. Combustion device **250** is illustrated including an outer enclosure **252** having a front panel **254**, top panel **256**, back panel **258**, and two side panels **260**, **262**.

[**0041**] Coupling of the trimmable surround **200** to front panel **254** can cover gaps, such as gap R shown in **FIG. 10**, between an existing structure **264**, such as a wall or masonry, and the combustion device **250** being covered. As shown in **FIG. 10**, the trimmable surround **200** can been sized to fit within an opening **279** in a wall **265** of the existing structure **264**. For example, if a height of the trimmable surround **200** is too tall to fit within the opening of the wall **265**, an upper portion **281** of the surround **200** can be trimmed to lower the surround and allow the surround to fit within the opening **279** in the wall **265**. Likewise, side portions **208**, **210** can be trimmed on outer side edges **207**, **209** (see **FIG. 9**) as necessary to conform to the opening in a wall **265**, or can be trimmed on inner edges **203**, **205** (see **FIG. 5**) to properly cover the exposed surface **251** of the combustion device **250**. Similar modifications can be made to the top portion **106** and side portions **108**, **110** of trimmable surround **100**.

[**0042**] The combustion device **250** may generally function to ignite combustible gas provided from a combustible gas source to create a gas flame. For example, a burner (not shown) can be positioned within the combustion device **250**, which generates heat that increases the temperature of an exposed surface and the outer enclosure **252**. Often, when a surround is formed of a metal material, the exposed surface is heated to a temperature that can cause injury to an individual who touches the surface unless all or a portion of the exposed surface is isolated from the heat to lower the temperature of the exposed surface.

[**0043**] As shown in **FIGS. 6-10**, utilization of trimmable surround **200** provides a barrier between the user of the combustion device **250** and the exposed surface **251** (see **FIG. 9**), and minimizes the amount of the exposed surface **251**. This type of barrier may be particularly relevant when surface **251** includes a metal or other high heat conductive material. Trimmable surround **200** may be composed of a ceramic fiber and a binder, which is a non-metallic material. Another exemplary non-metallic material for surround **200** is fiberglass. In prior surround systems, metal is primarily used as the material for covering gaps between the combustion device **250** and the existing wall or masonry of a structure.

[**0044**] Room air may be heated as it travels around the outer enclosure **252**. Optionally, a blower (not shown) can be used for moving room air into and out of an area surrounding the combustion device **250**. An exhaust **266** exhausts combusted air from the combustion device **250**. The combustion device **250** may also include an air intake **268** that facilitates bringing fresh combustion air into the combustion device **250** for combustion.

[**0045**] Screws, bolts, high temperature adhesives, or other attachment devices can be utilized to attach the trimmable surround **200** to the combustion device **250**. For example, the trimmable surround **200** may be coupled to device **250** with mounting screws that pass through flanges **220**, **221** and into lower portions **269**, **270** of the combustion device **250**. As shown best in **FIGS. 8A and 10A**, the top bracket **218** can include slots **271** that receive mounting tabs **273** of the combustion device **250**.

[**0046**] **FIGS. 6-10** show a combustion device in one configuration. Other configurations are also possible. For example, the present invention may be applicable to any prefabricated gas fireplace such as a direct vent, a universal vent, a B-vent, a horizontal/vertical-vent, a dual direct vent, or a multisided unit. For a multi-sided fireplace such as the one disclosed in U.S. Pat. No. 5,016,609, incorporated herein by reference in its entirety, a single surround formed from a single molded piece, can be placed over the multiple

exposed sides of the multi-sided unit. Alternatively, a multiple number of panels can be placed over each exposed side of the multi-sided fireplace unit. The present invention may also be applicable to free standing wood stoves and wood inserts.

[0047] The present invention may also be applicable to other combustible gas fireplace systems, as noted above, as well as any other fireplace or device that generates heat such as a simulated electric fireplace or solid fuel-burning fireplace. For example, the simulated electric fireplace may be constructed within the outer enclosure **252**. The simulated electric fireplace can include several electrical components such as a simulated ember bed, lights, a heat source, and a blower.

[0048] As previously noted, the present invention is applicable for use with fireplaces of varying sizes and shapes. The surround can be trimmed and modified as needed to fit a given fireplace configuration. For example, if a fireplace includes an arch-shaped front panel, an upper portion of the opening of the surround can be cut to conform to the arch-shaped front panel. If such a fireplace is used, one or more pieces of the attachment portion, such as the top bracket, can be removed if necessary and only the right and left brackets used to couple the surround to the fireplace.

[0049] The example surrounds disclosed herein can be used to finish a new fireplace installation or to refinish a fireplace that has been previously installed. For example, existing fireplaces that include metallic surrounds can be refinished using surrounds **100**, **200** disclosed herein. If an existing metallic surround is to be replaced, the metallic surrounds can be removed prior to installation of the new surround, or the new surround can simply be placed over the existing metallic surrounds.

[0050] The present invention should not be considered limited to the particular examples or materials described above, but rather should be understood to cover all aspect of the invention as fairly set out in the attached claims. Various modifications, equivalent processes, as well as numerous structures to which the present invention may be applicable will be readily apparent to those of skill in the art to which the present invention is directed upon review of the instant specification.

What is claimed is:

1. A trimmable surround for a heat generating device, the trimmable surround comprising:

a molded member comprising a ceramic fiber and a binder, a portion of the molded member being removable to alter a size of the molded member; and

an attachment member coupled to the molded member and configured to couple the trimmable surround adjacent to an exposed panel of the heat generating device.

2. The trimmable surround of claim 1, wherein the attachment member comprises a top bracket, the top bracket defining a slot configured to receive a mounting tab of the heat generating device.

3. The trimmable surround of claim 1, wherein the heat generating device is a fireplace insert.

4. The trimmable surround of claim 1, wherein the molded member comprises a top member and opposing side members.

5. The trimmable surround of claim 1, wherein the size of the molded member to be altered is a height or a width of the surround outer circumference.

6. The trimmable surround of claim 1, wherein the size of the molded member to be altered is a height or a width of an inner opening sized to cover at least a portion of the exposed panel.

7. The trimmable surround of claim 1, wherein the molded member comprises an outer surface configured for forming a decorative design.

8. The trimmable surround of claim 1, wherein the molded member is formed by compression molding.

9. A gas fireplace comprising:

a front panel including an exposed portion;

a surround positioned adjacent to the front panel, the surround comprising:

a molded member comprising a ceramic fiber and a binder, a portion of the molded member being removable to alter a size of the molded member; and

an attachment member coupled to the molded member, the attachment member being configured to secure the surround adjacent to the front panel;

wherein the front panel is positioned to cover at least a portion of the exposed surface of the front panel.

10. The fireplace of claim 9, wherein the attachment member is configured to secure the surround to the front panel.

11. The fireplace of claim 9, wherein the molded member defines an opening, and a portion of the molded member adjacent the opening covers at least a portion of the exposed portion of the front panel.

12. The fireplace of claim 11, wherein the portion of the molded member that is removable alters a size of the opening of the molded member.

13. The fireplace of claim 9, wherein the size of the molded member to be altered is a height or a width of the surround outer circumference.

14. A method of sizing a surround for a heat generating device, the method comprising the steps of:

providing a trimmable surround sized greater than an opening defined by the heat generating device, the trimmable surround comprising:

a molded portion, the molded portion comprising a ceramic fiber and a binder; and

an attachment portion coupled to the molded portion, the attachment portion being configured to attach the trimmable surround in a position in front of an exposed panel of the heat generating device;

measuring a size of the heat generating device opening; and

removing a portion of the trimmable surround based on the measured size of the heat generating device opening.

15. The method of claim 14, further comprising the step of attaching the trimmable surround to the heat generating device.

16. The method of claim 14, further comprising the step of preparing a template based upon the measured size of the heat generating device opening.

17. The method of claim 16, further comprising the step of placing the template on the trimmable surround, wherein the step of removing a portion of the trimmable surround includes sizing a dimension of the surround to approximate a dimension of the template.

18. The method of claim 14, wherein removing a portion of the trimmable surround alters an outer circumference dimension of the surround.

19. The method of claim 14, wherein removing a portion of the trimmable surround alters a size of an opening defined by the molded portion, the opening having dimensions that approximate the measured size of the heat generating device opening.

20. The method of claim 14, wherein the step of removing a portion of the trimmable surround includes cutting the molded portion.

21. The method of claim 14, further comprising forming the molded member by compression molding.

22. The method of claim 14, further comprising forming the molded member by vacuum molding.

23. The method of claim 14, further comprising forming the molded member by casting.

* * * * *