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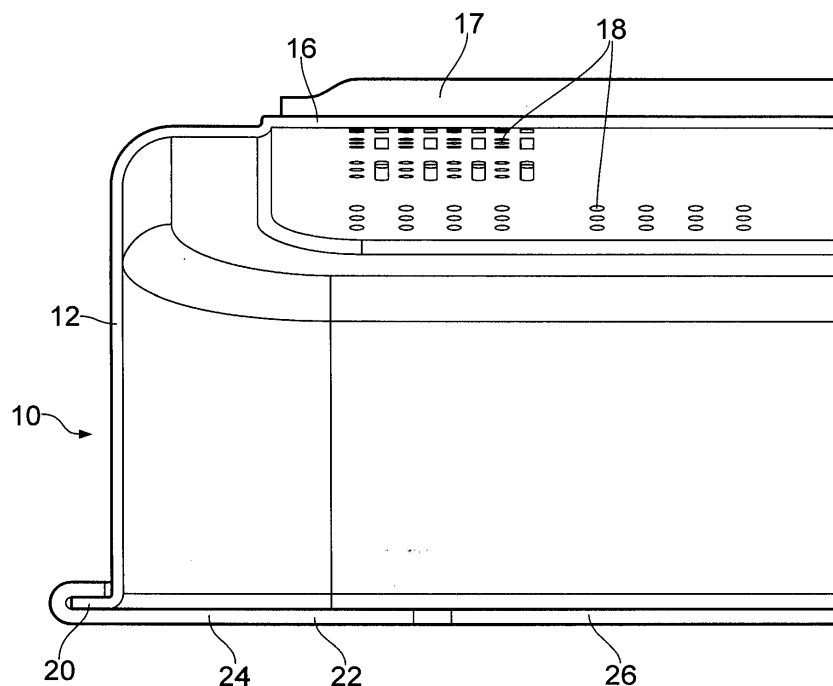
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(54) **GAS BURNER**

(57) A gas burner 10 with a body 12 which defines a combustion chamber. The body 12 is formed of an integral profiled sheet and has a plurality of ports 18 in an

upper slightly raised area to define a flame strip 16. The burner 10 also includes a frame 22 which is mounted to the body 12 by a mechanical joint.



**FIG. 1**

## Description

**[0001]** This invention concerns a gas burner.

**[0002]** A wide range of gas burner designs have been proposed over the years. Such gas burners can be used in a range of applications including cooking and heating.

**[0003]** According to a first aspect of the invention there is provided a gas burner, the gas burner including a body defining a combustion chamber, the body comprising a profiled integral member, with a plurality of ports being provided extending through a face of the body to provide a flame strip, with a combustion surface on the external side of the flame strip, the gas burner also including a frame member which is mounted to the body by a mechanical joint.

**[0004]** The frame member and body may be mounted together by mechanical pressing.

**[0005]** A flange may be provided around the body, and a part of the frame member may be folded around the flange.

**[0006]** The body may comprise an at least generally planar part defining the flame strip, and side walls extending from the planar part, with the flange provided at opposite ends of the side walls from the planar part. The flame strip may be domed.

**[0007]** Metal fibre may be provided on the exterior side of the flame strip. The metal fibre may be provided on only a part of the flame strip. The metal fibre may be provided on just a central part of the flame strip. The metal fibre may be mounted to the body by spot welding.

**[0008]** According to a second aspect of the invention there is provided a method of forming a gas burner, the method comprising forming a plurality of openings in a piece of planar material to define a flame strip with ports therethrough, mechanically shaping the planar material to define a body, and mounting the body to a frame member by forming a mechanical joint therebetween.

**[0009]** The body and frame member may be mounted together by pressing.

**[0010]** A flange may be provided on the body, and the frame member may be profiled to engage on either side of the flange to provide a mechanical joint therebetween.

**[0011]** Metal fibre may be mounted on an external side of the flame strip. The metal fibre may be mounted on the flame strip by spot welding. The metal fibre may be mounted on the flame strip prior to shaping of the planar material to form the body.

**[0012]** Embodiments of the present invention will now be described by way of example only and with reference to the accompanying drawings.

Fig. 1 is a sectional view through part of a first gas burner according to the invention;

Fig. 2 is a diagrammatic cutaway perspective view of the burner of Fig. 1;

Fig. 3 is a plan view of the burner of Fig. 1; and

Fig. 4 is a similar view to Fig. 3 but of a second burner according to the invention.

**[0013]** Figs. 1 to 3 show a gas burner 10 of a type useable for instance in a central heating boiler, a cooking appliance or otherwise. The gas burner comprises a body 12 formed of an integral profiled sheet 14 of an appropriate metal. The body 12 has an upper slightly raised area which defines a flame strip 16 with a combustion surface on the external side of the flame strip 16.

**[0014]** A layer of metal fibre 17 is mounted on the flame strip 14.

**[0015]** A plurality of ports 18 are provided through the flame strip 16. The ports 18 may be in the form of circular holes or slots, or a combination of the two, or other shaped openings. A flange 20 is provided around the body 12 at the edges thereof away from the flame strip 16.

**[0016]** A frame 22 is provided on the burner 10. The frame 22 comprises a peripheral strip 24 defining a central opening 26, with a pair of support members 28 extending across the opening 26. The body 12 is mounted to the frame 22 by the edges of the peripheral strip, being pressed around the flange 20.

**[0017]** This therefore provides a gas burner made of just two components the body 12 and frame 22, and a layer of metal fibre 17, with the body 12 mounted to the frame 20 just by mechanical means, alleviating the need for any welding or similar processes. Providing an integral flame strip with the body, means that only two components are required, and there is no requirement for mounting a separate flame strip to the body.

**[0018]** During manufacture the ports 18 may be formed in the sheet 14. The sheet 14 can then be profiled to form the body 12. The frame 22 can be mounted on to the body by pressing edges of the frame on to the flange as shown in Fig. 1.

**[0019]** In many situations it may be required to provide metal fibre on at least part of the flame strip 16.

**[0020]** In Figs. 1 to 3 the metal fibre 17 extends across just a central portion of the flame strip 16, as is indicated by the lighter shaded ports 18 in Fig. 3, with a row of ports 18 at each end and side not covered by the metal fibre 17.

**[0021]** Fig. 4 shows a second gas burner 28 with a layer of metal fibre 30 extending wholly across the flame strip 16 and covering all of the ports 18. The metal fibre 17, 30 may be mounted to the body 12 by spot welding, and could be mounted on to the flame strip 16 during manufacture and prior to shaping of the body 12. As shown in Fig. 4, in some instances the metal fibre 17, 30 is required to only cover a part of the flame strip 16, and may for instance only be required to cover a central part of the flame strip 16.

**[0022]** The metal fibre is used to reduce or substantially eliminate noise or resonance during use of the burner. Leaving some of the ports uncovered by the metal fibre, provides for a retention of flame for instance with lean or poor gases, and thereby avoids nuisance shutdown of the burner.

**[0023]** There are thus described gas burners which require a reduced number of components relative to existing designs, thereby reducing manufacturing costs. Spot welding is only required for mounting metal fibre where required, and a significant cost, time and power requirement savings are made by using pressing rather than welding to mount together the body and the frame.

**[0024]** As welding of the body does not take place it may be possible to use thinner material than would otherwise be the case for the body. The peripheral mechanical joint has been found to provide an improved seal around the body and frame, relative to conventional welding.

**[0025]** Various other modifications may be made without departing from the scope of the invention. Whilst a rectangular burner is illustrated here, it is to be realised that the invention can be used with a wide range of burner shapes, sizes and types. The ports may take any appropriate form.

**[0026]** Whilst pressing the frame on to a flange of the body has been described. Other mechanical joints could be provided between the body and frames.

**[0027]** Whilst endeavouring in the foregoing specification to draw attention to those features of the invention believed to be of particular importance it should be understood that the Applicant claims protection in respect of any patentable feature or combination of features hereinbefore referred to and/or shown in the drawings whether or not particular emphasis has been placed thereon.

## Claims

1. A gas burner, the gas burner including a body defining a combustion chamber, the body comprising a profiled integral member, with a plurality of ports being provided extending through a face of the body to provide a flame strip, with a combustion surface on the external side of the flame strip, the gas burner also including a frame member which is mounted to the body by a mechanical joint.
2. A gas burner according to claim 1, in which the frame member and body are mounted together by mechanical pressing.
3. A gas burner according to claims 1 or 2, in which a flange is provided around the body.
4. A gas burner according to claim 3 when dependent on claim 2, in which a part of the frame member is folded around the flange.
5. A gas burner according to claims 3 or 4, in which the body comprises an at least generally planar part defining the flame strip, and side walls extending from the planar part, with the flange provided at opposite ends of the side walls from the planar part.

6. A gas burner according to claim 5, in which the flame strip is domed.
7. A gas burner according to any of the preceding claims, in which metal fibre is provided on the exterior side of the flame strip.
8. A gas burner according to claim 7, in which the metal fibre is provided on only a part of the flame strip.
9. A gas burner according to claim 8, in which the metal fibre is provided on just a central part of the flame strip.
10. A gas burner according to any of claims 7 to 9, in which the metal fibre is mounted to the body by spot welding.
11. A method of forming a gas burner, the method comprising forming a plurality of openings in a piece of planar material to define a flame strip with ports therethrough, mechanically shaping the planar material to define a body, and mounting the body to a frame member by forming a mechanical joint therebetween.
12. A method according to claim 11, in which the body and frame member are mounted together by pressing.
13. A method according to claims 11 or 12, in which a flange is provided on the body, and the frame member is profiled to engage on either side of the flange to provide a mechanical joint therebetween.
14. A method according to any of claims 11 to 13, in which metal fibre is mounted on an external side of the flame strip.
15. A method according to claim 14, in which the metal fibre is mounted on the flame strip by spot welding, and the metal fibre may be mounted on the flame strip prior to shaping of the planar material to form the body.

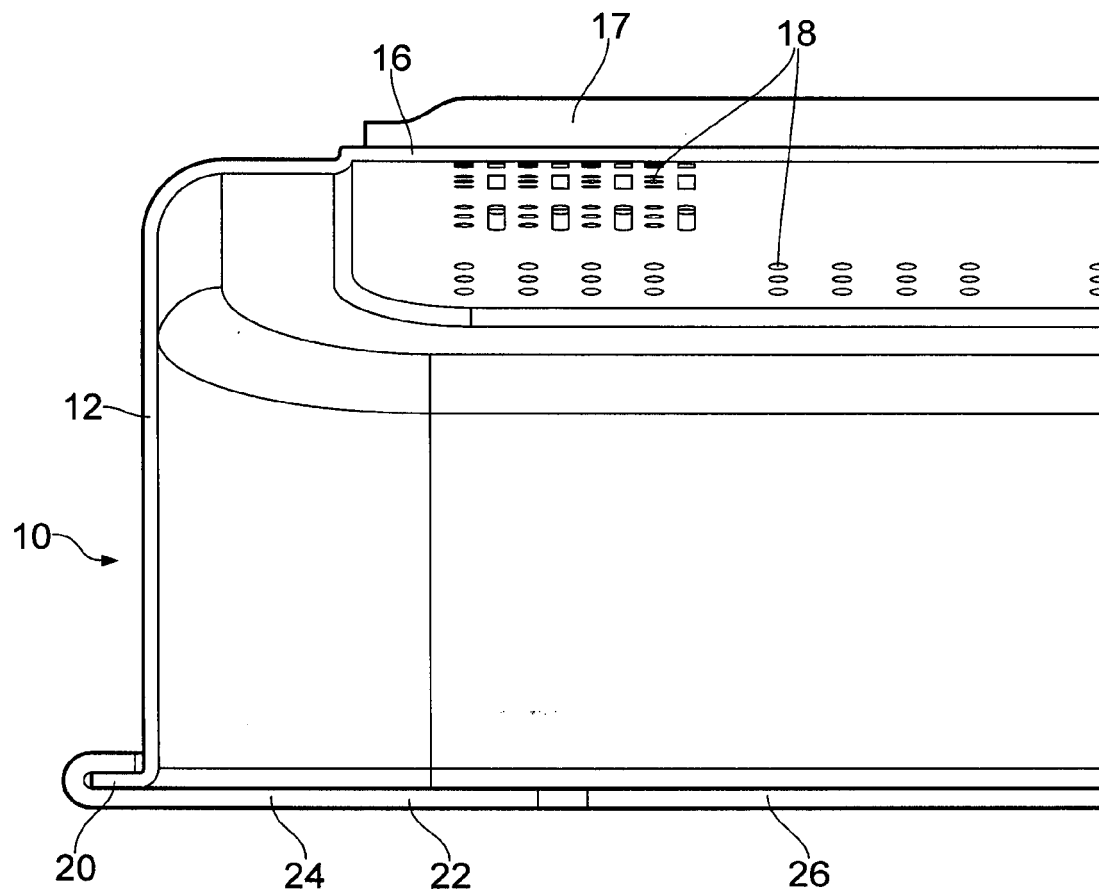


FIG. 1

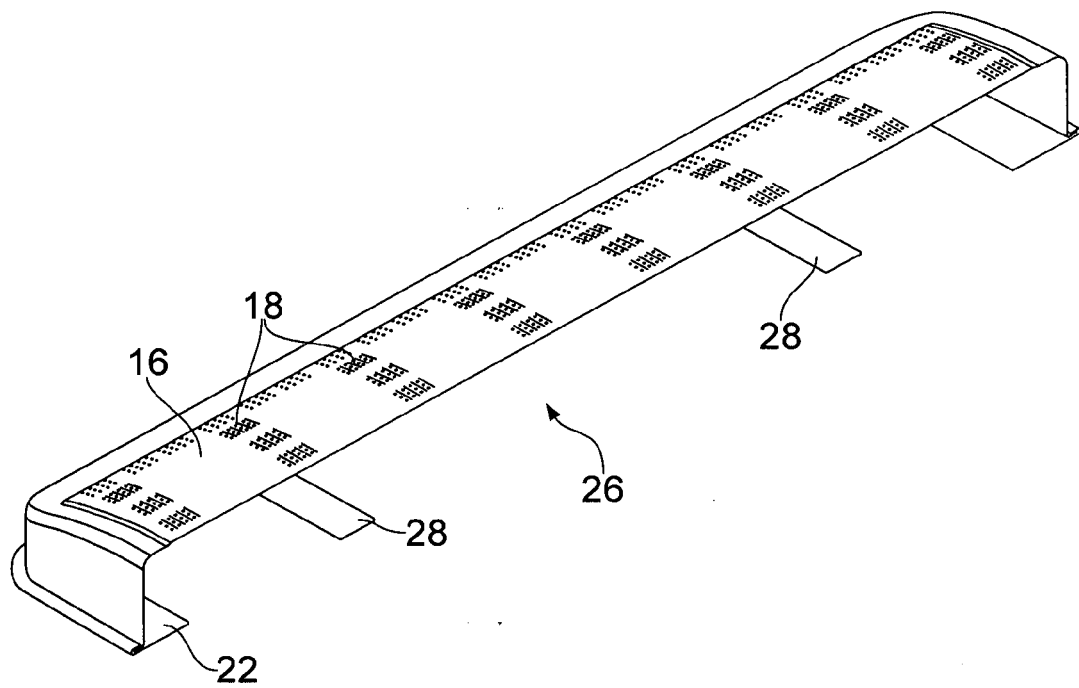


FIG. 2

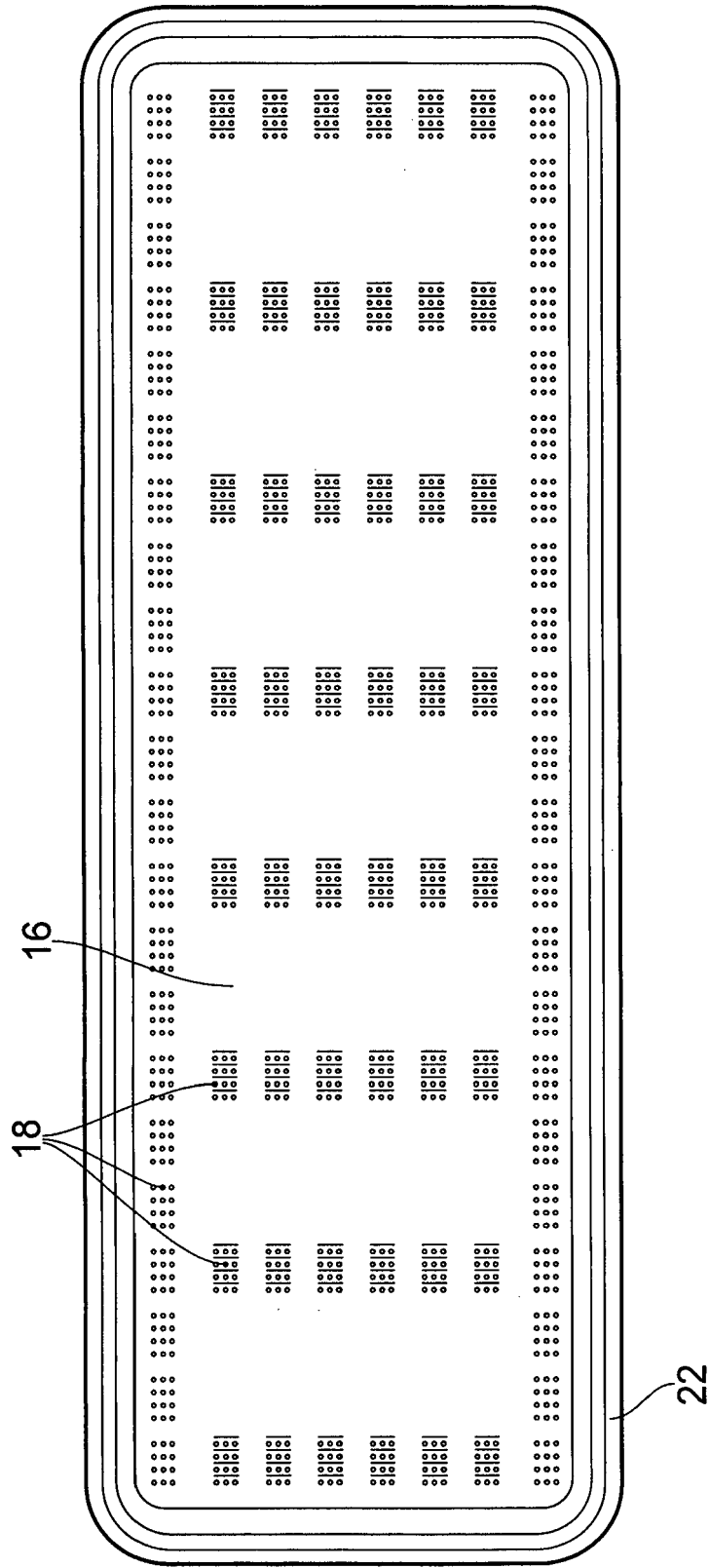


FIG. 3

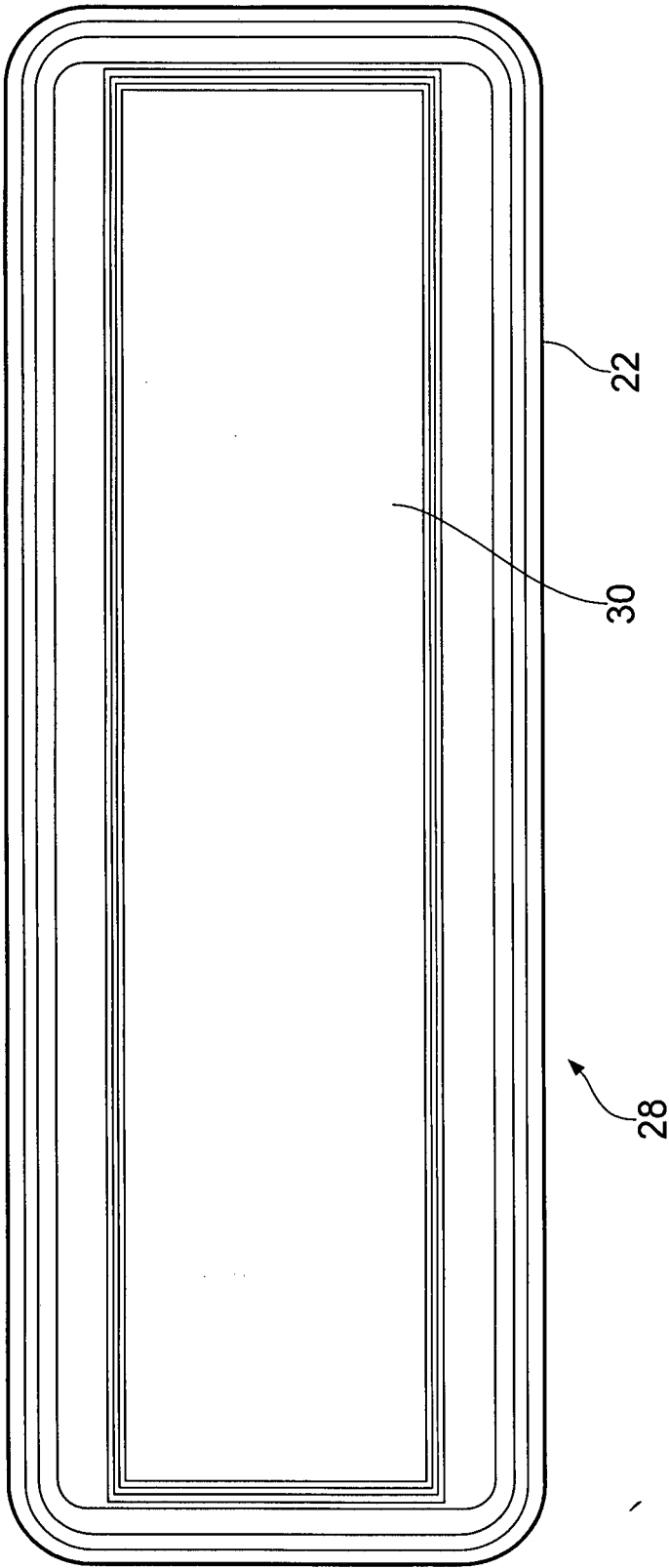


FIG. 4



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EP 15 16 5261

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Place of search The Hague		Date of completion of the search 20 August 2015	Examiner Harder, Sebastian
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