

GLASS TOP COOKING STOVE

PRIORITY CLAIM

The present application is based on and claims the priority benefit of Japanese Patent
5 Application 2009-146510 filed on June 19, 2009, the contents of which are incorporated
herein by reference in its entirety.

BACKGROUND OF THE INVENTION

Field of the Invention

10 The present invention relates to a glass top cooking stove with a glass top plate covered
on a main body of the cooking stove.

Description of the Related Art

In a glass top cooking stove, a main body thereof housing therein a gas burner is
15 covered by a top plate made of glass. The top plate is disposed with a burner opening for
exposing the gas burner. A trivet is disposed around the burner opening (refer to Japanese
Patent Laid-open No. 2004-177099).

The trivet is provided with a plurality of trivet legs joined and supported by a circular
trivet frame. The trivet is supported on a top surface of the top plate with a lower edge of
20 the trivet frame directly contacted with the top surface thereof.

The trivet not only supports a cooking container of a relatively heavy weight such as a
cooking pot housed with cooking foods but also receives heat from the gas burner, therefore,
it is made of a metal having relatively high hardness and heavy weight (such as cast iron or
the like). Consequently, the strength or durability thereof needed to avoid deformation due
25 to weight or heat, or worn out and the like due to contact with the cooking container, has
been improved.

However, since the trivet frame contacts directly with the top surface of the top plate
constantly, if the trivet is made of a metal having relatively high hardness and heavy weight,
the impact occurred when a cooking pot or a frying pan placed on the trivet is moved will be
30 transmitted to the glass top plate via the trivet. The impact might cause scratches to the top

plate, and therefore deteriorate an outer appearance of the top plate.

Moreover, when the width of the lower edge of the trivet frame is relative narrow and the trivet has a small contact area to the top plate, the load of the trivet frame or the impact is concentrated on the small area of the top surface of the top plate, it is easy to deteriorate the durability of the glass top plate.

SUMMARY OF THE INVENTION

The present invention has been accomplished in view of the aforementioned problems, and it is therefore an object of the present invention to provide a glass top cooking stove capable of preventing the durability of a glass top plate from being deteriorated so as to maintain a good outer appearance of the top plate over a long term.

The glass top cooking stove of the present invention is provided with a main body, a gas burner disposed in the main body, a glass top plate configured to cover the top surface of the main body and to have a burner opening disposed for exposing the gas burner, and a trivet configured to have a plurality of trivet legs joined and supported by a circular trivet frame and an lower edge of the trivet frame served as a contact surface to the top plate and a seat member which is fixed at an outer circumference of the burner opening disposed in the top plate for seating the trivet frame at a position distant from the burner opening. The seat member includes a seat portion extended along the lower edge of the trivet frame, and an uprising wall uprisen from the seat portion along at least one side of circumferential surfaces of the trivet frame.

According to the present invention, since the seat member is provided to seat the trivet, it can prevent the trivet from causing scratches or damages to the top plate due to the constant contact between the trivet and the top plate when the trivet is placed directly on the top plate. Moreover, the seat member is fixed at an outer circumference of the burner opening, it can support the trivet at a position distant from the inner circumferential edge of the burner opening, improving the stability of a pot or a frying pan placed on the trivet.

Since the seat member is provided with the seat portion extended along the lower edge of the trivet frame, the load from the trivet frame can be dispersed in a longitudinal direction of the seat member to decentralize the load applied to the glass top plate; thus, the durability

of the top plate can be prevented from getting deteriorated.

Further, since the seat member is provided with the uprising wall to position the trivet for certain, the positional deviation or the like of the trivet on the top plate due to imprudent reasons can be prevented. In addition, when the trivet is lifted up from the top plate for
5 cleaning or the like and is placed back to the top plate again, the trivet frame can be guided by the uprising wall to the seat portion for certain, improving the workability of installing the trivet.

It is preferable that the seat member of the present invention is provided with the joining member configured to be inserted into a positioning hole formed in the top plate to
10 penetrate through the top plate, and the seat member is fixed on the top plate of the cooking stove via the joining member.

According thereto, the seat member can be fixed on the top plate for certain with a simple structure, and with good workability when installing the seat member to the top plate.

The seat member of the present invention may be of a plurality of numbers disposed
15 with a predefined interval in a circumferential direction of the trivet frame.

According thereto, when over-boiling or the like, for example, flows over the top plate between the seat member and the burner opening, it is easy for it to flow out of the seat member from the plurality of seat members, alleviating dirt attachment on the seat member and the burner opening.

It is preferable that a concave portion with an opened upper end is formed at the
20 uprising wall of the seat member and a lower end portion of the trivet leg protruded from the trivet frame is engaged in the concave portion.

According thereto, the trivet can be prevented from turning away from the burner for certain. Therefore, when a burner port is provided in the burner for preventing the trivet leg
25 from being broiled, the trivet leg can be made to match with the position of the burner port for certain.

It is preferable to provide a cushion member between the seat member and the top plate.

According thereto, the impact from the trivet which is transmitted to the top plate
30 through the seat member can be absorbed by the cushion member, further preventing the

durability of the top plate from getting deteriorated for certain.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a plan view of a glass top cooking stove according to an embodiment of the present invention.

Fig. 2 is a sectional view of a part of the glass top cooking stove of the present embodiment.

Fig. 3 is a plan view of a seat member.

Fig. 4 is an exploded view of the seat member.

Fig. 5 is a sectional view illustrating an embodiment where another joining member is used.

Fig. 6 is a sectional view illustrating an embodiment where another joining member is used.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

As illustrated in Fig. 1, a glass top cooking stove according to an embodiment of the present invention is a drop-in cooking stove provided with a glass top plate 1 made of crystallized glass or the like of superior heat resistance.

A burner opening 2 is formed in the top plate 1. A gas burner 4 is housed in a main body 3 of the cooking stove. A burner head 5 disposed in the gas burner 4 is exposed out of the burner opening 2.

As illustrated in Fig. 2, a flange 6 is disposed circumferentially around the main body 3. By hanging the flange 6 on a counter top 7 of a system kitchen, the main body 3 is assembled into the counter top 7.

The gas burner 4 is fixed at a pedestal (not shown) disposed on a base plate 8 of the main body 3. As illustrated in Fig. 2, the gas burner 4 is provided with a burner head 5 concentrically with the burner opening 2. The burner head 5 is formed with a plurality of burner ports. A removable blocking plate 9 is provided to block a space formed between a lower end of the burner head 5 and an inner circumferential edge of the burner opening 2 formed in the top plate 1.

The entire inner circumferential edge of the burner opening 2 is disposed with a protection member 10. The protection member 10 not only protects the end surface of the inner circumferential edge of the burner opening 2 from being damaged, but also protects cooking liquids or the like from a cooking container such as a pot (not shown) from overflowing into the inner side of the main body 3 during cooking.

As illustrated in Fig. 1, operation switches 11 for operating the gas burner 4 are disposed at a front near side of the top plate 1. Moreover, a trivet 12 for supporting the cooking container is installed on the top plate 1 in correspondence with the burner opener 2.

The trivet 12 is composed of a plurality of trivet legs 13 disposed with a predefined interval in a circumferential direction and a circular trivet frame 14 joining the plurality of trivet legs 13. In the present embodiment, each of the trivet legs 13 and the trivet frame 14 is made of iron-based metals (for example, stainless steel or the like).

The trivet leg 13 is formed into a plate shape and is provided with a supporting portion 15 extended in a roughly horizontal direction for supporting a cooking container, and a leg portion 16 extended downward from the supporting portion 15. As illustrated in Fig. 2, the trivet frame 14 is formed from a rod of a quadrangular shape in sectional view, and a lower edge thereof serves as a contact surface 17 to the top plate. By welding a lower end of the leg portion 16 of the trivet leg 13 to the trivet frame 14, the trivet leg 13 and the trivet frame 14 are formed integral.

As illustrated in Fig. 2, a seat member 18 for seating the trivet 12 is disposed on the top plate 1. As illustrated in Fig. 3, a plurality of seat members 18 is disposed with a predefined distance outer to the burner opening 2 so as to enclose the burner opening 2. Each seat member 18 is extended to have a curved shape corresponded with the shape of the trivet frame 14 and is fixed on the top plate 1 with a predefined interval between each other.

Although not shown in the drawings, it is acceptable to form the seat member 18 into a circular one. However, if the seat member 18 is formed into a circular one, when over-boiled cooking liquids in the cooking container supported on the trivet 12 flows into the inner side of the seat member 18 (on the top plate 1 between the burner opening 2 and the seat member 18), it is impossible for the cooking liquids to flow out of the seat member 18. In this regarding, as described in the present embodiment, by disposing the plurality of seat

members 18 with a predefined interval, the over-boiled cooking liquids can flow out of the seat member 18 from gaps between adjacent seat members 18, therefore, it is advantageous to prevent the over-boiled cooking liquids from accumulating in the inner side of the seat members 18.

5 The seat member 18 is made of metals (for example, stainless steel or the like) into a band-like plate. As illustrated in Fig. 2 and Fig. 3, the seat member 18 is provided with a flat seat portion 19 for seating the trivet frame 14 when contacted by the contact surface 17 thereof and an uprising wall 20 uprisen from an inner side edge of the seat portion 19. As illustrated in Fig. 2, the uprising wall 20 is opposite to the inner circumferential surface of the trivet frame 14, and prevents the trivet frame 14 seated on the seat portion 19 from being
10 displaced.

 The uprising wall 20 is formed with a plurality of concave portions 21 with an opened upper end. Each concave portion 21 is disposed in correspondence with each trivet leg 13, therefore, when the trivet 12 is seated on the seat member 18, a lower end portion 16a at the
15 inner side of the leg portion 16 of the trivet leg 13 is engaged in the concave portion 21. Accordingly, the trivet 12 seated on the seat member 18 is secured. Therefore, when a burner port among the burner ports 5 is disposed in the burner head 5 for preventing the trivet leg 13 from being broiled, the trivet leg 13 can be made to match with the position of the burner port for certain.

20 As illustrated in Fig. 2 and Fig. 4, a lower side of the seat portion 19 of the seat member 18 is fixed through welding or the like a pin 22 extending downward as a joining member for joining fixedly the seat member 18 to the top plate 1. The pin 22 is inserted into a positioning hole 23 formed in the top plate 1, penetrates through the top plate 1 and protrudes out from the back surface of the top plate 1. A lower end of the pin 22 is formed with a
25 screw portion 24. A nut 25 is screwed on the screw portion 24. According thereto, the seat member 18 is fixed on the top plate 1.

 Therefore, when installing the seat member 18 to the top plate 1, it is only necessary to insert the pin 22 through the positioning hole 23 on the top plate 1 and fix it with the nut 25, providing good assembly workability. When doing this, a packing 26 is disposed between
30 the seat member 18 and the top plate 1, and a packing 27 and a washer 28 are disposed

between the top plate 1 and the nut 25. The packing 26 disposed between the seat member 18 and the top plate 1 has cushioning properties, therefore, functions as a cushion member of the present invention to relieve the impact transmitted from the seat member 18 to the top plate 1.

5 As illustrated in Fig. 5, it is also possible to use a screw 29 as another example of the joining member for fixing the seat member 18 to the top plate 1. In this case, a perforated hole 30 is disposed in the seat portion 19, and the screw 29 is inserted from the upper surface of the seat portion 19 through the perforated hole 30 and the positioning hole 23 in the top plate 1.

10 The head of the screw 29 is configured to go completely into the perforated hole 30 without protruding out of the upper surface of the seat member 19. Thereafter, by screwing the nut 25 on the screw 29, the seat member 18 is fixed to the top plate 1.

It is acceptable for the screw 29 to be a countersunk screw as illustrated in Fig. 5, or a bolt having a hexangular head or the like. Further, as illustrated in Fig. 6, it is acceptable to
15 use a split pin 31 as the joining member in place of the screw 29. In this case, similar to the screw 29, the split pin 31 is inserted into the perforated hole 30 of the seat portion 19 and perforated through the positioning hole 23 of the top plate 1, thereafter, split portions 32 at the lower end of the split pin 31 protruded out from the back surface of the top plate 1 are bent in opposite directions.

20 Although not shown in the drawings, it is also acceptable to adhere and fix the seat member 18 to the top plate 1 by a heat-resistant double faced adhesive tape without using a joining member such as the pin 22, the screw 29, the split pin 31 or the like. Thereby, since it is not necessary to weld the pin 22 to the seat member 18, to open the perforated hole 30 for the screw 29 or the split pin 31, or to form the positioning hole 23 in the top plate 1, it is
25 advantageous in cheap manufacture.

As illustrated in Fig. 2, with the above-mentioned configuration, when the trivet frame 14 is seat on the seat member 18, the seat member 18 and the trivet frame 14 are viewed integrally from the outside. Thereby, disposing the seat member 18 on the top plate 1 will not deteriorate the outer appearance of the top plate 1. Additionally, since the seat member
30 18 can be disposed on the top plate 1 at a position distant from the burner opening 2, the

trivet frame 14 can be made greater in diameter to improve stability. In this case, the distance between the burner opening 2 and the seat member 18 is relative greater, it helps to make the ambient of the burner head 5 visually simpler. In this regard, the outer appearance of the top plate 1 is improved.

5 Since the trivet 12 is supported by the seat member 18, the trivet 12 can be prevented from contacting the top plate 1 directly, and consequently can be prevented from damaging the upper surface of the top plate 1. Specifically, since the seat portion 19 of the seat member 18 has a length in correspondence with the trivet frame 14, the impact caused when the cooking container moves violently on the trivet 12 or the load from the trivet 12 and the
10 cooking container can be dispersed by the seat portion 19, the damages to the top plate 1 can be avoided for certain.

Since the seat member 18 is separate from the trivet 12, it is not necessary to use the same material as the trivet 12. For example, if the seat member 18 is made of a lighter metal (for example, aluminum or the like) than that used in the trivet 12, it is advantageous to
15 reduce the load applied to the top plate 1.

In the present embodiment, the trivet frame 14 is formed into a circular shape in sectional view and plural seat members 18 are configured to have a curved shape in correspondence with the circular shape; however, it is not limited thereto. It is acceptable if the shape of the seat member of the present invention is matched with the shape of the trivet
20 frame. In other words, although not shown in the drawings, if the trivet frame is formed into a quadrangular shape in sectional view, the seat member can be formed into a quadrangular shape or a plurality of linear seat member may be disposed along the trivet frame with a predefined interval. In addition, if the trivet frame is formed into a quadrangular shape in sectional view, the concave portion 21 or the like is not needed to
25 secure the trivet.

In the present embodiment, the seat member 18 is provided with the uprising wall 20 which is configured to uprise from the inner side edge of the seat portion 19 and face the inner circumferential surface of the trivet frame 14; however, the position of the uprising wall is not limited to be in the inner side of the seat portion 19. Although not shown in the
30 drawings, it is acceptable to dispose the uprising wall from an outer side edge of the seat

portion 19 and face the uprising wall to an outer circumferential surface of the trivet frame 14.

5 In the present embodiment, the seat portion 19 of the seat member 18 is configured to be flat; however, it is not limited thereto. Although not shown in the drawings, it is acceptable that a convex portion is formed to be protruded upward from the seat portion 19, preferably at three locations, and the contact surface 17 of the trivet frame 14 is made to contact the convex portions, thereby, it is advantageous that the trivet frame 14 can be seated thereon without rattling.

10 In the present embodiment, the trivet frame 14 is configured to have a quadrangular shape in sectional view; however, it is not limited thereto. It is also acceptable for the trivet frame 14 to have a circular shape in sectional view.

What is claimed is:

1. A glass top cooking stove provided with a main body, a gas burner disposed in the main body, a glass top plate configured to cover the main body and to have a burner opening disposed for exposing the gas burner, and a trivet configured to have a plurality of trivet legs
5 joined and supported by a circular trivet frame and an lower edge of the trivet frame served as a contact surface to the top plate, comprising:

a seat member which is fixed at an outer circumference of the burner opening disposed in the top plate for seating the trivet frame at a position distant from the burner opening,

the seat member includes a seat portion extended along the lower edge of the trivet
10 frame, and an uprising wall uprisen from the seat portion along at least one side of circumferential surfaces of the trivet frame.

2. The glass top cooking stove according to claim 1, wherein the seat member includes a joining member configured to be inserted into a positioning hole formed in the top plate to
15 penetrate through the top plate, and the seat member is fixed on the top plate of the cooking stove via the joining member.

3. The glass top cooking stove according to claim 1, wherein the seat member is of a plurality of numbers disposed with a predefined interval in a circumferential direction of the
20 trivet frame.

4. The glass top cooking stove according to claim 1, wherein a concave portion with an opened upper end is formed at the uprising wall of the seat member and a lower end portion of the trivet leg protruded from the trivet frame is engaged in the concave portion.
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5. The glass top cooking stove according to claim 1, wherein a cushion member is provided between the seat member and the top plate.