Nov. 17, 1936. K. STUART 2,061,336

PORTABLE FOLDING STOVE

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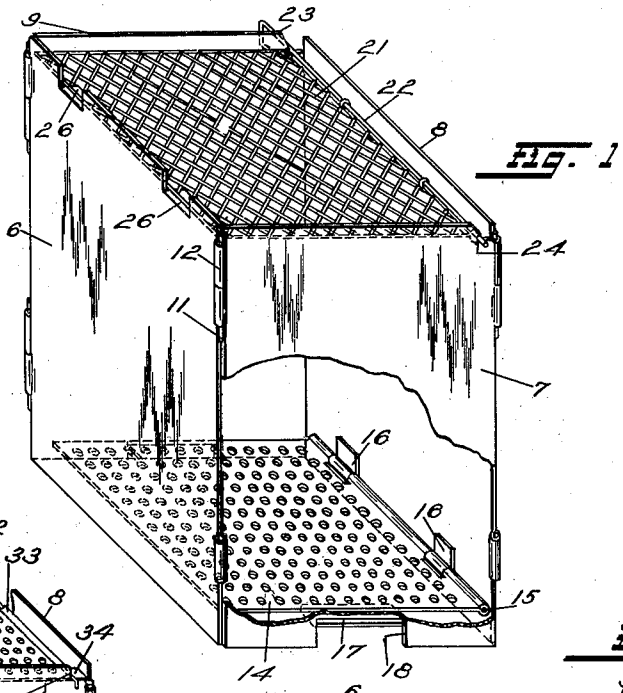


Fig. 1

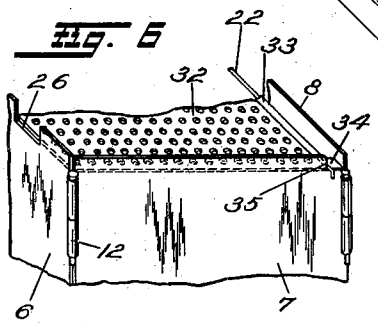


Fig. 6

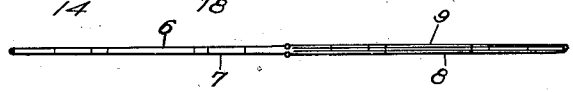


Fig. 4

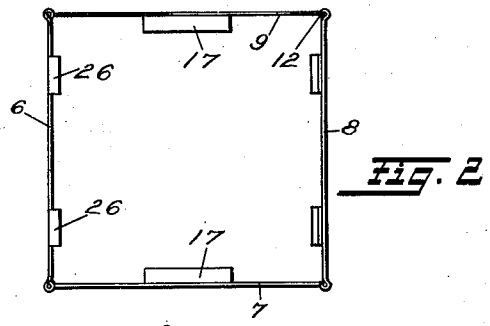


Fig. 2

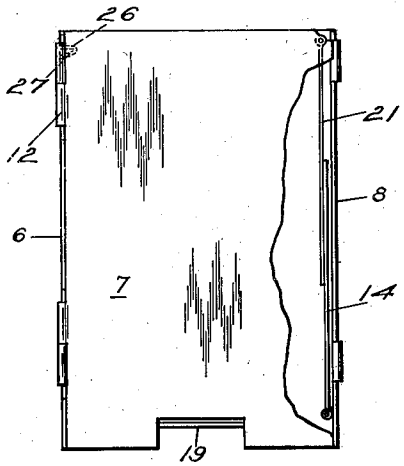


Fig. 3

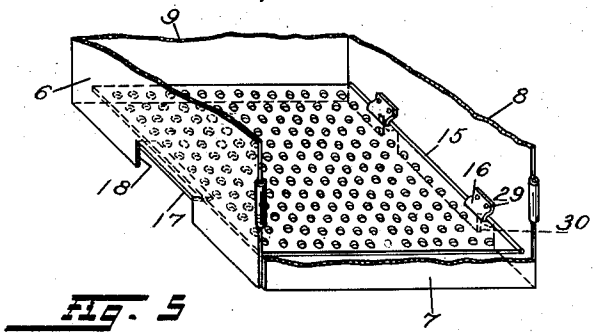


Fig. 5

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PORTABLE FOLDING STOVE

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2 Claims. (Cl. 126—29)

The present invention relates to stoves, and more particularly to an improved folding stove suitable for use by campers, motorists and others desiring a stove which can be compactly folded after use.

As heretofore constructed, such stoves have been made up with parts which must be kept separate when the stove is folded. Also, previous stoves of this type could not be manufactured cheaply because of their relatively large number of parts and the special work necessary to form each part.

It is a primary object of the present invention to provide a folding stove made up of a small number of parts easy to manufacture and assemble, said stove being collapsible and occupying but little space when folded.

It is a further object of the present invention to provide a folding stove made up of metal panels having grate supports and hinge connections formed directly from the material of the panels whereby to eliminate the necessity of providing separate parts for this purpose.

A still further object of the present invention is to provide supports for the hinged grates of the improved stove, said supports being formed directly from the sheet metal of the panels comprising the principal body portion of the stove.

A still further object of the present invention is to provide a sheet metal stove which may rest directly upon the ground or other support, draft openings for fuel combustion being provided by apertures in the metal body of the stove resulting from the formation of supports or hinges for the fuel carrying grate of the stove.

A still further object of the present invention is to provide a folding stove having a top grate of unitary construction which imparts rigidity to the stove when the stove is set up for use.

Still another object of the present invention is to provide a hinge rod for the detachable top plate or grill of the improved stove, the said hinge rod having a hook adapted for use as a tool to raise the fuel grate of the stove.

Further objects of my invention appear in the following disclosure of my invention in its preferred forms and are defined by the terms of the appended claims.

Referring to the drawing in which like reference numerals indicate like parts:

Figure 1 is a perspective view of a stove embodying the present invention, one of the side panels being partly broken away to disclose the interior construction.

Figure 2 is a top plan view of the connected side panels of the stove.

Figure 3 is a view of the stove in side elevation, one of the side panels being partially broken away to illustrate the position of grates prior to folding the stove.

Figure 4 is a diagrammatic edge view showing the stove completely folded into compact substantially flat form.

Figure 5 is a fragmentary perspective view of a slightly modified form of stove of the present invention.

Figure 6 is a fragmentary perspective view of another modification.

Referring in detail to the accompanying drawing and for the present particularly to Figure 1 thereof, it will be seen that the rectangular body of the improved stove is made up from four panels of sheet iron or other suitable sheet metal. These panels are designated by reference numerals 6, 7, 8 and 9 respectively and they are joined together at adjacent edges by means of hinge rods 11 engaging in hinge eyes 12, the latter being formed by bending tongues on the panels to the cylindrical shape shown to receive rods 11.

A fuel grate 14 is hingedly connected to the panel 8 at a short distance from the bottom edge of the panel by means of a hinge rod 15 and hinges 16 which are riveted or otherwise suitably secured to said panel. In place of hinges 16, the panel 8 may be slit or notched to provide integral tongues to be bent inwardly from the plane of the panel and around the hinge rod 15 when assembling the grate to the panel in a manner to be later described in connection with Figure 5. When the stove is set up for use as shown in Figure 1 of the drawing, the grate 14 stands at right angles to the panel 8 and brackets or supports 17 are provided on which the grate 14 rests in this position. These supports are preferably formed from the material of the panels 7 and 9 by notching these panels inwardly from the bottom edge and bending the material between the notches at right angles to the panel. When the grate 14 is in the horizontal position shown in Figure 1 with the stove ready for use, the grate braces and imparts rigidity to the lower end of the stove and holds the several panels of the stove body at right angles to each other.

The openings 18 (Figure 1), remaining after the brackets 17 are formed from the material of panels 7 and 9, serve as draft openings for supplying air to support combustion of charcoal or other fuel placed on the grate 14. Brackets 17 may be formed in any or all of the upright

panels of the stove but I prefer to form these brackets on panels 7 and 9 as shown. The two draft openings 18 opposite each other distribute the air uniformly to the burning fuel on the grate 14 and produce an even hot fire. Also, when the brackets 17 are located in panels 7 and 9, they do not interfere with each other when the stove is folded. The inner end of each bracket 17 may be bent at an acute angle as indicated at 19 imparting a more finished appearance and reducing the distance by which the bracket projects from the panel whereby to facilitate collapsing or folding the body of the stove.

A top grill or grate 21 for supporting articles of food to be cooked or vessels containing food is supported in a novel manner above grate 14. The grill 21 may be formed of wire mesh or may be a sheet of reticulated metal of suitable dimensions similar to grate 14. A hinge rod 22 is secured along one edge of the grill 14. Each end of this hinge rod extends beyond the grill, one end being bent to form a hook 23. The extended ends of the rod rest in notches 24 cut in panels 7 and 9 and the grill is supported in horizontal position by brackets 26 formed from the material of panel 6 in a manner similar to that described in connection with the formation of brackets 17. The notches 24 are of such shape that the extended ends of the rod 22 may be readily seated in the notches. The brackets 26 are reversely bent as indicated at 27. When the grill 21 is in the position of Figure 1, it braces and imparts rigidity to the body of the stove near the top thereof in the same manner that the grate 14 braces the stove body at its lower end.

The stove just described may be folded into compact form as indicated by Figure 4 of the drawing. It is to be noted that it is an important feature of the improved stove of my invention that no separate or loose parts are left over after the stove is collapsed substantially flat for carrying. All of the parts of the stove are secured together when the stove is folded and there are no separate hinge rods or bars that might become lost. In folding the stove, the removable top grill or grate 21 is lifted, the open notches 24 in the panels 7 and 9 readily permitting this and the fuel grate 14 is raised until it rests against the panel 8. Hook 23 may be conveniently used to aid in pulling up the bottom grate. After the grate 14 has been raised to rest against the panel to which it is attached, the top grill or grate 21 is dropped down alongside of panel 8 with the extended ends of the rod 23 resting in the slots 24. This position of the parts is illustrated in Figure 3 of the drawing. The body portion of the stove may now be collapsed as shown on Figure 4 of the drawing.

In the modification shown on Figure 5 of the drawing, the hinges 16 for the fuel grate 14 are formed by notching the panel 8 to provide tongues which are bent up across the rod 15 and secured as by rivets 29 to the panel 8. By forming the hinges in this manner, additional draft openings 30 are provided. The supporting bracket 17 for the fuel grate 14 is provided on the panel opposite the panel 8. The draft opening 18 assists the draft openings 30 in supplying air to the fire.

A further modification which involves the structure of the upper part of the stove is disclosed in Figure 6 of the drawings. It will be understood that my improved stove, as illustrated in Figure 1, may be constructed in accordance with the disclosures of either Figures 5 or 6, or it may embody the features of both Figures 5 and 6. Referring to Figure 6, the top grill 32, corresponding to the grill 21 of Figure 1, is formed from perforated sheet metal as shown or it may be made of wire screen material.

The hinge rod 22 is secured to the grill 32 by rolling a portion of the outer margin of the grill over the rod as shown at 33. The tongues 34 at each side of the rolled over portion project beyond the rod 22 in the plane of the grill. These tongues 34 cooperate with the upper margin of the panel 8 to prevent the grill from slipping off the supports 26 formed on the panel 6 when the grill 32 is in its horizontal position ready for use.

The upper corners of panels 7 and 9 are cut away adjacent panel 6 to provide substantially square notches 35, each notch having a horizontal edge on which the rod 22 rests. The hinge rods 11 connecting the panels 7 and 9 to panel 8 do not extend above the horizontal edges of the square notches 35.

When the stove is folded, the rod 22 slips over the heads of the short hinge rods and permits the stove to be compactly folded, as in the folded position, the rod 22 occupies the space directly above the hinge rods. The tongues 34 do not project above the top edge of the stove when the grill 32 is hung alongside of panel 8 in preparation for folding the stove. The remainder of the folding operation is the same as that previously described in connection with Figure 1. Where the top grate 32 is made sufficiently large to fit snugly in its horizontal position in the top of the stove, the extensions 34 may be omitted.

From the foregoing description of my invention it will be seen that I have provided a collapsible stove which can be readily set up for use and which produces a quick and efficient means for cooking foods. After use it can be folded into a bundle of small compass that can be readily transported in an automobile.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiment is therefore to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are therefore intended to be embraced therein.

What is claimed and desired to be secured by United States Letters Patent is:—

1. In a collapsible stove a body including a plurality of collapsible substantially vertical sides, a pair of notches formed in corresponding upper corners of a pair of opposite sides, a grill, hinging means disposed at one edge of said grill including a pair of projections extending beyond the edges of said grill and adapted to be received in said notches, and complementary cooperating means formed on said grill and said sides for normally retaining said grill in non-collapsed position, said notches being designed to permit movement of said projections therein to allow movement of said grill relative to said body sides for causing disengagement of said complementary cooperating means, whereby said

grill may be folded within said collapsible body sides.

2. The structure defined in claim 1 wherein said hinging means comprises a hinge rod disposed at one side of said grill, and said complementary cooperating means comprises at least one tab member struck out from at least one of said sides and associated with said grill in an overlapping relationship, the overlap being of less dimension than said notches in the direction of movement of said projections in said notches.

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