

May 20, 1952

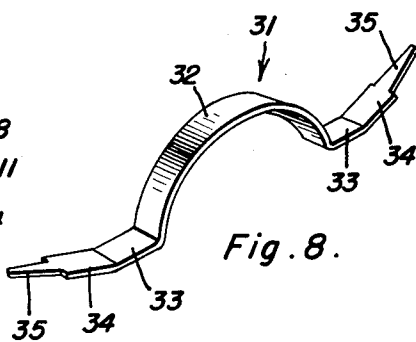
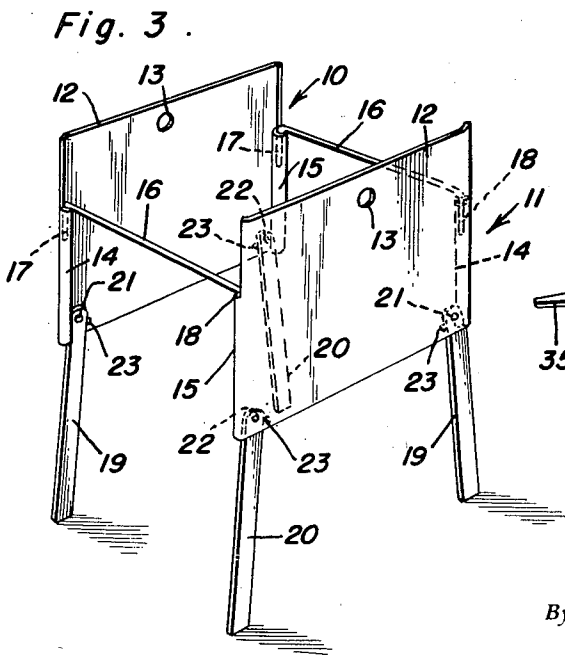
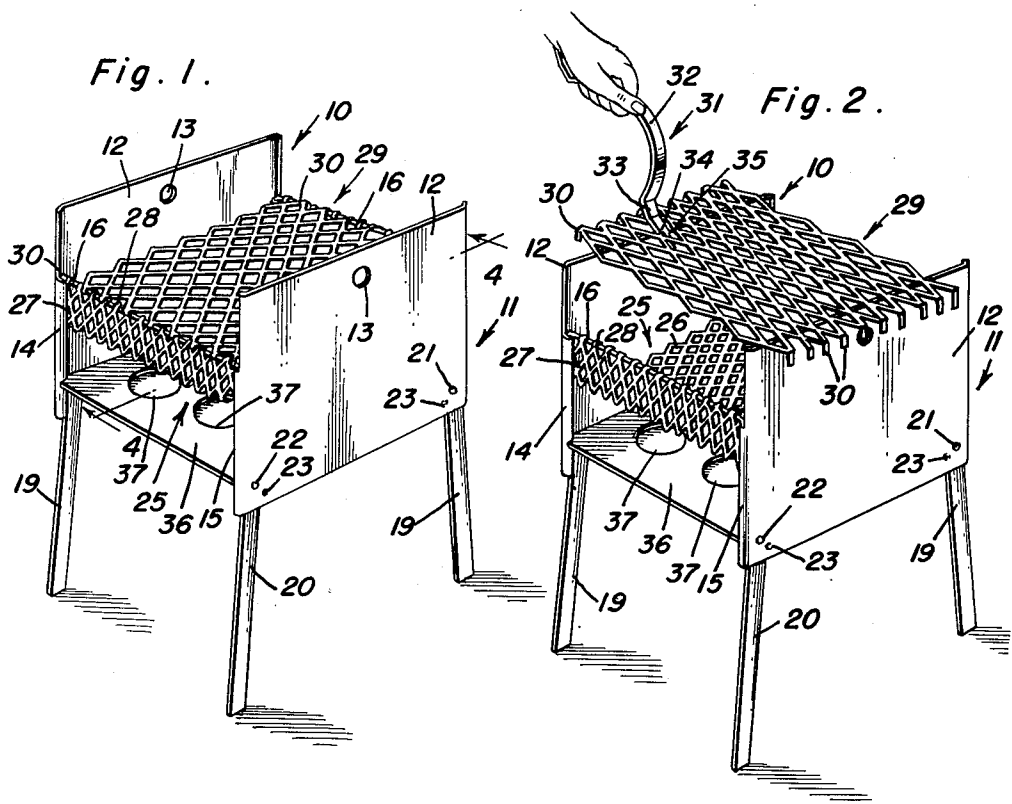
A. S. HAISLIP

2,597,477

COLLAPSIBLE CAMP STOVE

Filed Oct. 25, 1948

2 SHEETS—SHEET 1



Inventor

Albert S. Haislip

By

Clarence A. O'Brien
and Harvey B. Jackson
Attorneys

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2 SHEETS—SHEET 2

Fig. 4.

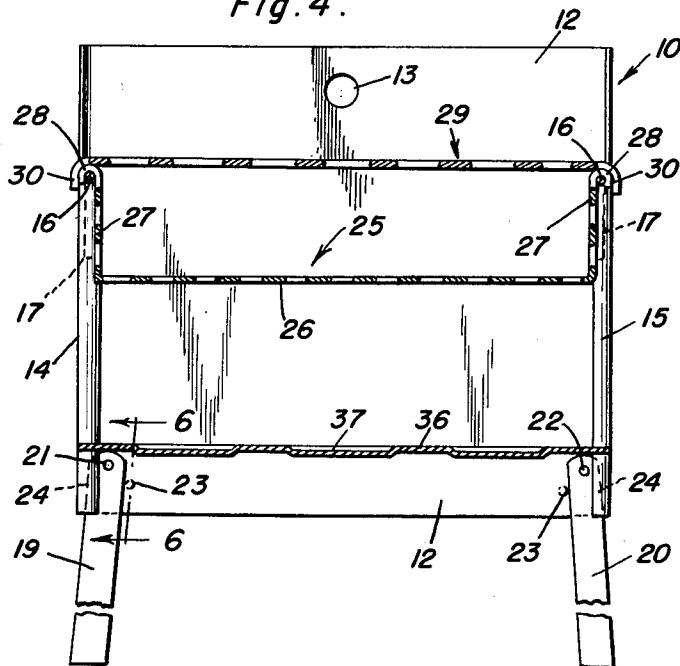


Fig. 5.

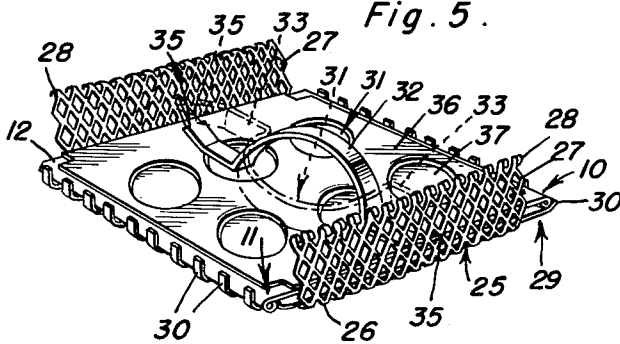


Fig. 6.

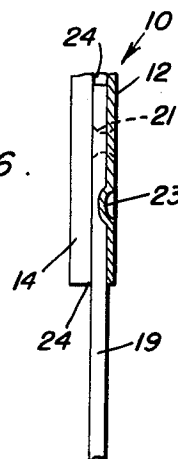
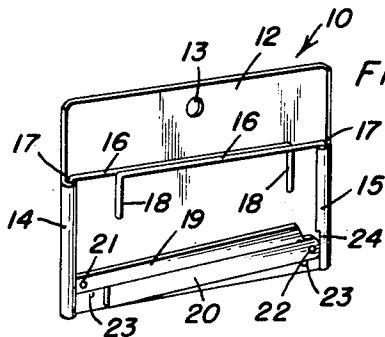


Fig. 7.



Inventor

Albert S. Haistip

By

Almonce A. O'Brien
and Harvey B. Jacobson
Attorneys

UNITED STATES PATENT OFFICE

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COLLAPSIBLE CAMP STOVE

Albert S. Haislip, Fredericksburg, Va.

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6 Claims. (Cl. 126—25)

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The present invention relates to a structurally distinct and novel portable and foldable camp or field stove developed and mechanically perfected with a view toward providing tourists, anglers, sportsmen and others with a practical and inexpensive stove for ready and convenient use.

I am conversant with the general state of the prior art and realize that many and varied types of wood, coal and coke burning camp stoves have been patented and used. Nevertheless and notwithstanding the developed field of invention, I have evolved and produced a distinguishable construction having incorporated therein appreciable features of refinement and distinction which cooperate, additively, in providing a radically different camp stove.

As will be hereinafter seen, I am working with knockdown and foldable-type ready-to-use camp stoves characterized by a leg supported frame structure, a fire supporting grate which is readily insertable and removable and a separable grille which is liftable from a normal low plane to an elevated plane as shown for example in Patent No. 2,158,236 granted to me under date of May 16, 1939 and Patent No. 2,247,612 granted to me under date of July 1, 1941.

Manufacturing, packaging, transporting and other requirements necessary to the production of a readily and acceptably marketable stove are constantly changing and, therefore, the principal object in this instant matter is to structurally, functionally and otherwise improve upon my prior mentioned patents and other structurally similar stoves known to me.

One object of the invention is to provide a knockdown frame structure of the type and form shown in Figure 3 and embodying a pair of duplicate leg units, each unit comprising a flat substantially imperforate panel constituting a fire retaining wall, foldable legs hingedly connected with the lower portion of each panel, the vertical edge portions of the opposed panels, when latter are in vertical parallelism, being provided with rolled edges which define tubular beads serving as adapters for horizontal stay links which, when in use and as shown, serve to complete a foldable frame structure, the principal part of the overall novel stove.

A further object of the invention, keeping in mind the foldable knockdown frame structure of Figure 2, is to provide a readily applicable and removable plate which is situated and supported, in one of its optionally useful positions, on the hinged upper ends of the panel supporting legs

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and is held in position by the stated beads or adapters thus insuring positive retention of said plate.

A still further object of the invention is to provide the aforesaid plate which is imperforate and which, in its low position, resides beneath the openwork fire grate in a manner to serve as an apron to trap ashes, when the stove is used indoors, said plate having the additional function, when supported over the grate, of a griddle for food frying and cooking purposes.

In addition to the above it is another significant object to provide an openwork fire grate having upstanding flanges at opposite ends, the upper edge portions of the flanges being provided with return bends and the latter serving as hooks and being adapted to be hung and thus suspended from stay rods or links provided therefor in the aforementioned folding and knockdown frame structure.

Then, too, novelty is predicated upon the stated frame structure erecting and hinging links fire grate suspended from and "locking" the links, in conjunction with an openwork grille which in its low plane is within the confines of the frame structure and covers the fire grate and is held against endwise slippage by way of the latter and said stay links, said grille being susceptible of occupying an elevated plane atop the upper edges of the frame panels (see Figures 1 and 2, respectively), and there being, in addition, a novel handle unit which, in the latter instance, serves as a convenient lifter in the case the grille is hot.

What is more, it is an outstanding object to provide a camp stove constructed with the aforementioned features which latter are so proportioned and shaped that they may be interfitted and nested together in the manner illustrated in Figure 5 and to allow the cooperation therewith of a unique handle which not only serves for convenient carrying but has retentive and clamping facilities whereby end portions may be engaged with the flanged ends of the grate and intermediate portions pressed firmly and yieldably against the underlying stacked parts for convenient packaging for sale and carrying when the stove is folded.

Other objects and advantages will become more readily apparent from the following description and the accompanying illustrative drawings.

In the drawings:

Figure 1 is a perspective view of my improved folding and collapsible type camp stove set up for

use with the aforementioned grille in its normal low position;

Figure 2 is a perspective view based on Figure 1 and showing the same stove with the grille lifted and residing for use atop the upper edges of the stated frame panels, said view showing the handle or lifter in use;

Figure 3 is a perspective view of the foldable frame structure erected and ready to receive the fire grate which holds it against collapsing;

Figure 4 is a central vertical section taken substantially on the plane of the horizontal line 4—4 of Figure 1, looking in the direction of the arrows;

Figure 5 is a perspective view showing the manner in which all of the parts are dismantled from the complete "set up" in Figure 4, collapsed, nested and clamped together for compact carrying purposes;

Figure 6 is an enlarged fragmentary sectional and elevational view on the line 6—6 of Figure 4, looking in the direction of the arrows;

Figure 7 is a perspective view of one of the frame units with legs and links folded;

Figure 8 is a perspective view of the novel multiple purpose handle unit.

Reference is made first to the foldable knock-down frame structure of Figure 3. This is a skeleton framework and is characterized by a pair of duplicate frame units 10 and 11. It is thought that each frame unit is novel in itself and by referring to Figure 7, in conjunction with Figure 3, an informative illustration appears. Reference being had to Figure 7, each frame unit comprises a substantially flat rectangular sheet metal or equivalent panel 12 having a central hole 13 adjacent its upper edge. This is the only opening and, therefore, the panel is said to be substantially imperforate. The lower portions of the vertical edges of the panel are rolled to form tubular beads 14 and 15. It will be noticed that the beads extend upwardly from the lower edge and terminate downwardly of the upper edge of the panel. As before stated, these beads serve as stop shoulders, hinging knuckles and also as keepers. In respect to the latter purpose, I call attention to stay rods or links 16 having laterally bent ends 17 and 18 which constitute hooks. The hooks 18 fit down into the upper open ends of keepers 14 and 15, thus joining the links to the panel (Figure 7). The legs are denoted by the numerals 19 and 20 and these are permanently hinged in place at their inner ends at the points 21 and 22 which hinge points are close to the respective beads 14 and 15 and, in fact, inwardly of the beads. The numerals 23 in all instances designate indentations (see Figure 6) which constitute yielding detents and when the legs are swung "down" and "out" to supporting positions they snap beyond the detents and project slightly into retaining slots 24 provided therefor in the co-acting lower end portions of the respective beads. This feature is evident from Figure 4 where it will be seen that the legs have been swung down with the outer edges fitting in the slots 24 and with the inner edges coacting with the complementary detents 23.

When the two units 10 and 11 are erected and set up as shown in Figure 3, the hooked ends of the stay links fit into the co-acting keepers 14 and 15 in an obvious manner, thus momentarily assembling two units in frame-forming relationship. Incidentally, the links 16 may be permanently attached to one of the panels 12 or may be wholly free and bodily detachable from said

panel. That is to say, and as illustrated for example in Figure 7, the hooks 17 and 18 are shown permanently fastened in the beads 14 and 15, thus making it possible to carry both links on one panel, as here depicted. Or, and as stated, the links 16 may have both hook-ends 17 and 18 free to be fitted into opposed keepers when the parts are assembled as shown in Figure 3. Novelty is thought to reside in giving the beads 14 and 15 the function of keepers for hooked ends on a pair of stay links between opposed spaced panels and using the same beads additionally as stop shoulders for the hinged end portions of the legs, as already referred to and shown.

Not only do the stay links or rods 16 serve to spread and support the units 10 and 11 in erected positions, but they function as hanger rods for the fire grate 25. The grate comprises a rigid sheet metal openwork structure including a flat plate-like body portion 26 of rectangular form with laterally directed ends which may be described as flanges 27. The flanges have their upper free edges bent into hanger hooks 28 which, as shown in Figure 4, engage over and are suspended from the stay links. Here again, it will be noted that the body portion of the grate fits nicely between the adjacent beads for stability. Also the longitudinal edge portions of said body 26, preferably, but not necessarily, rest in firm contact with the inner surfaces or faces of the panels 12 between the stated beads 14 and 15.

The liftable and lowerable utensil supporting and cooking grille is also of reticulated or openwork construction and is denoted by the numeral 29 and is made to fit loosely between the panels when the latter are erected and has downturned hooks 30 which engage over the aforementioned grate hooks 28. Thus, the stay links 16 support and hold in place the grate unit and the grate unit in conjunction with the stay links serve to support and assist in holding in place the grille 29. The latter may be used as shown in Figure 4 and also in Figure 1 and may, in addition, be lifted up bodily and placed atop the upper edges of the panels to assume an elevated position as shown in Figure 2.

When the grille 29 is hot it is necessary to employ a stick or other convenient implement to assist in handling it. In the instant construction I provide a novel multiple purpose carrying handle 31 which, as shown in Figure 8, is formed from strap metal and includes an inverted U-shaped portion 32 substantially flat pressure portions 33 and laterally deflected yieldable end portions 34 terminating in wedge-shaped prongs 35. When the handle is used as a lifter, one of the prongs is engaged with the grille in the manner shown in Figure 2, whereby to facilitate lifting, lowering and otherwise handling the grille. The handle also is especially useful for carrying the collapsed structure as shown in Figure 5. In the latter figure the grate serves as a sort of a "basket" and the grille 29 is placed in the basket between the flanged end portion with its hooks 28 upturned. Then, the folded units 10 and 11 are inserted. At this time and before continuing with the clamping feature of the handle I would state that the structure includes an optional plate 36 which I distinguish as a hot plate or griddle. This is an imperforate sheet metal plate of rectangular form with notched corners and has indentations 37 forming wells for frying eggs, cooking pancakes and for other obvious cooking purposes. The plate is so made that when it is used as shown, for instance, in Figures

1, 2 and 4, that it rests upon the hinged upper ends of the legs and has its notched corners engaging but clearing the beads or abutments 14 and 15. So, here again, the beads or abutments 14 and 15 are given an additional function, that of folding the griddle plate 36 in place. In the showings made in Figures 1, 2 and 4 the plate 26 does not actually function as a "griddle." Instead, it functions as an apron and underlies the fire receptacle or grate to trap ashes. It is sometimes desired to use a stove like this indoors and it helps to have the apron beneath the fire grate even though the stove is set up on a concrete or other fireproof floor. It keeps most of the ashes and charcoals from dropping directly on the floor. Primarily, however, the plate is used for a griddle and is placed on top of the grille 29 or it may be substituted for the grille in both low and elevated position as shown in Figure 2 if that particular plane of use is preferable for frying and cooking purposes. It is thought that the griddle feature is a contributory part of the overall construction.

Referring now again to Figure 5, and assuming that the plate 36 is in position, it is evident that said plate is stacked upon the units 10 and 11 after the latter are stacked upon and within the confines of the hooks of the grille 29. Then, the handle 31 is engaged and rocked bodily from the dotted "edge-down" to the full line or upright position so that the portions 33 of the handle are pressed down against said plate and the resilient prongs are engaged in selected openings in the openwork flanges 27 just sufficiently to mechanically connect the handle with said flanges and also to exert downward pressure upon the flat portions 33, whereby to clamp the various parts in nested and stacked relationship. In inserting or applying the handle it is usually advisable to turn it over on one edge, as shown in dotted lines in Figure 5, and then to swing it up to the vertical full line position. This serves to provide the desired "cam action" of pressing the stacked parts firmly together.

The order of stacking the parts may, of course, be varied. That is to say, the plate 36 may be inserted first, the units 10 and 11 next, and the grille 29 placed on top (where plate 36 is shown). Under the latter plan of stacking the hooks 30 would be faced downwardly. Thus, there need be no fixed plan of nesting and stacking.

The prongs 35 on the handle unit 31 may, whenever required, be inserted into holes 13 in the panels (Figures 1 and 3) for conveniently lifting and carrying the entire erected stove. Hence, the handle unit has, at least, three different functions.

If and when the stove is used indoors, say in a conventional-type brick fireplace, such may be done without extending the legs. That is to say, when the legs are folded up and into the stated framework, the latter is then suitable for placement, bottom down of course, on the usual hearth, making it practical to use my stove for cooking in the stated fireplace. There are situations too when the stove may be used, as described, for example, where an outdoor fireplace is elevated; or, where the stove is placed on a relatively high picnic table or the like.

I call attention to the fact again that in the frame structure depicted in Figure 3, the links 16 may be hingedly connected at ends 17 and 18 permanently with the panels 12 thus making four parts, the two panels 12 and the two links defining a foldable frame. Alternatively, the two

links 16 may be both mounted on one panel as shown in Fig. 7. More importantly, however, it will be noticed that the structure of Figure 3 is neither self-standing nor capable of supporting any weight and it is therefore necessary, due to the readily collapsible hinging joints between the links 16—16 and panels 12—12 to in some suitable manner hold the links and panels put. This is where the grate comes in. That is to say, once the grate 25 is dropped into position between the panels and the flanged ends 27 are hooked over the links, the links are then mechanically "tied" to one another and cannot angle. This means that the links are held put and the panels are rigidly held in parallelism. It follows that it is essential that the step of folding be controlled by the steps of inserting and removing the fire grate 25. Then too, the downturned hooks 30 on the grille 29 actually engage over the hooks 28 on the flange portions 27 of the fire grate to guard against accidental displacement of said grille when it is in the position shown in Fig. 1.

It is thought that persons skilled in the art to which the invention relates will be able to obtain a clear understanding of the invention after considering the description in connection with the drawings. Therefore, a more lengthy description is regarded as unnecessary.

Minor changes in the shape, size and arrangement of details coming within the field of invention claimed may be resorted to in actual practice, if desired.

Having described the invention, what is claimed as new is:

1. As a new article of manufacture and a component of a folding-type camp stove as herein shown and described, a flat rectangular panel, said panel being substantially imperforate and provided on opposite vertical edges with hollow beads, the latter serving as abutments as well as keepers, stay links having laterally bent ends serving as hooks, said hooks being hingedly mounted in the respective upper ends of said beads, said links being foldable against said panel between said beads, and a pair of duplicate legs hingedly connected with said panel, said legs, when not in use also folding to out-of-the-way positions against the panel, and, when in use, resting in contact with adjacent respective beads, the latter limiting the downward and outward swing of the legs, and said panel having detents for the respective legs adapted to assist in maintaining the legs in erected stove supporting positions.

2. A folded ready-to-carry camp stove of the class shown and described comprising a fire grate of openwork construction embodying a flat body portion having right angularly bent end portions, a pair of frame units having foldable legs, each unit embodying a panel corresponding in size to said body portion, said units being stacked one upon the other and resting on said body portion and nested in place between said angularly bent ends, and a carrying handle having a central U-shaped grip, flat pressure portions and resilient terminals fashioned into prongs, said prongs releasably engaging said angularly bent ends in a manner to put clamping force on said pressure portions upon said units, whereby to retain the latter securely in nested positions in said grate.

3. A portable folding-type camp stove of the form shown and described comprising a pair of complementary units, said units being duplicates

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of one another and each unit embodying a flat substantially imperforate panel serving as a fire retaining wall, horizontal inverted U-shaped links interposed between and having their ends hingedly connecting said panels in spaced parallelism, and a readily insertable and removable fire grate situated between said panels and provided at opposite ends with laterally bent upstanding flanges terminating on their free edges in hanger hooks, said links being disposed outwardly of and in abutting contact with said flanges and the hooks on said flanges being hung on said links, whereby the grate serves to positively and mechanically interconnect the links and to prevent the panels from folding in relation to each other or said links.

4. A portable folding-type camp stove of the form shown and described comprising a pair of complementary knockdown units, said units being duplicates of one another and each embodying a flat substantially imperforate panel serving as a fire retaining wall, and a pair of stove supporting legs, the latter being foldable and hingedly attached to said panel, hinging and assembling links interposed between and foldably joining the respective panels to one another, a readily insertable and removable fire grate situated between said panels with edge portions in firm contact with and separably connected to said links, an insertable and removable imperforate plate resting atop the hinged ends of said legs beneath said grate, and a separate insertable and removable openwork utensil supporting and cooking grille located between said panels with edge portions spaced from the inner surfaces of the panels and the remaining edge portions hooked removably over coacting edge portions of said grate.

5. A folded ready-to-carry and erect camp stove of the class shown and described comprising a fire grate of openwork construction embodying a flat body portion having a pair of spaced parallel upstanding flanges at opposite ends, a pair of complementary frame units, each unit having assembling and erecting links and pivotally mounted supporting legs, the legs and links being folded within the confines of the marginal edge portions of said unit and said units being stacked upon one another and resting on the body portion and nested between said flanges, an openwork grille also nested between said flanges, and a carrying handle having a central U-shaped grip, flat pressure portions and resilient terminals

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fashioned into prongs, said prongs releasably engaging said flanges in a manner to put clamping force on said pressure portions and upon said grille and said units in order to maintain the grille and units in separably superimposed relation within the confines of said grate.

6. A knockdown camp stove of the class shown and described comprising a substantially imperforate vertically disposable panel provided on opposite vertical ends with open ended beads, the lower end portions of said beads having slots therein, lower portions of said panel having detents, a pair of legs hingedly connected to said panel and swung outwardly of said detents and having portions releasably engaged in the coacting slots, a second panel opposed in parallelism to the first panel and provided on opposite vertical edge portions with open ended beads, the lower end portions of said beads having slots, the lower portions of said panel having detents adjacent said slots, a pair of legs complementary to the first named legs hingedly attached at corresponding upper ends to said panel and located outwardly of said detents and releasably seated in said slots, a pair of links interposed between intermediate edge portions of said panels and having downturned hooks, said hooks being releasably and hingedly mounted in the adjacent corresponding upper end portions of said beads, a fire grate, said fire grate having vertical end flanges, said end flanges abutting the links and said end flanges having hooks hung on the respective links.

ALBERT S. HAISLIP.

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