July 3, 1951 J. D. BROWN 2,559,243

COLLAPSIBLE STOVE

Filed June 19, 1947 3 Sheets-Sheet 1

Fig. 1.

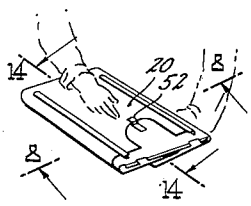


Fig. 2.

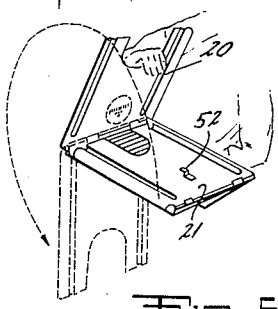


Fig. 3.

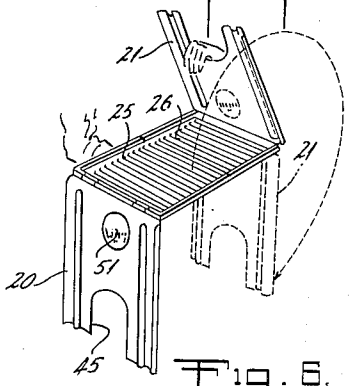


Fig. 4.

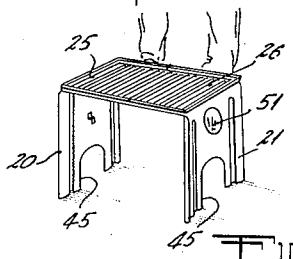


Fig. 5.

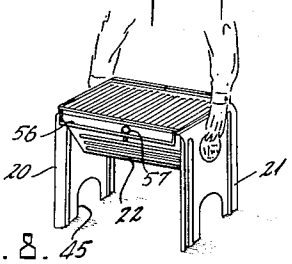


Fig. 6.

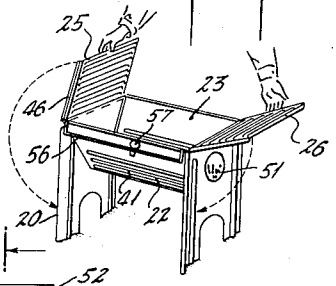


Fig. 8.

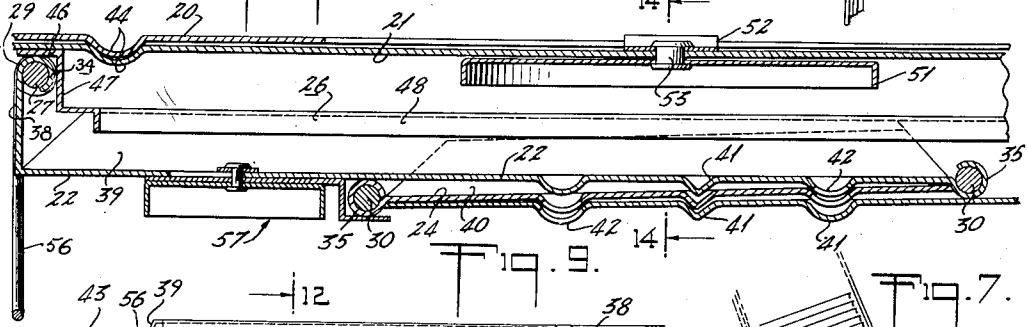


Fig. 9.

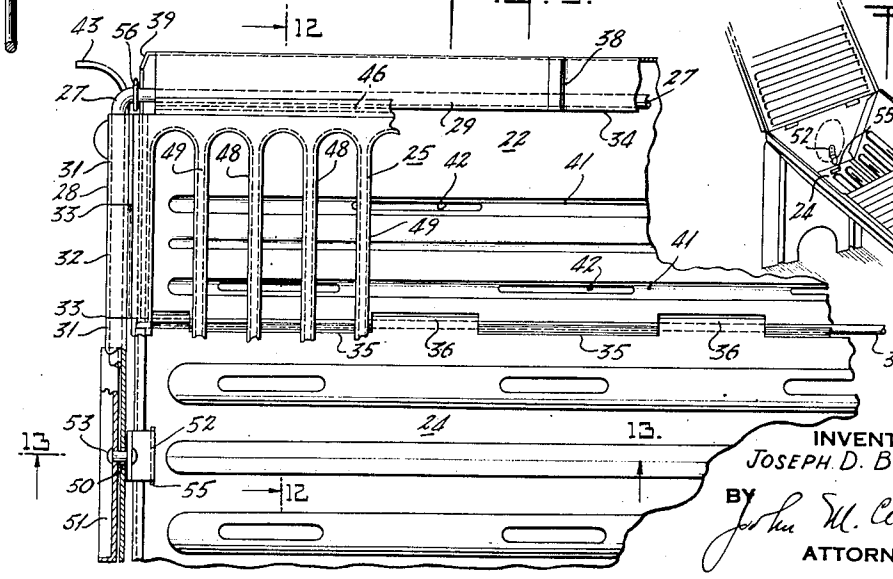


Fig. 7.

INVENTOR
JOSEPH D. BROWN
BY Joshua W. Cole
ATTORNEY

July 3, 1951 J. D. BROWN 2,559,243

COLLAPSIBLE STOVE

Filed June 19, 1947 3 Sheets-Sheet 2

Fig. 10.

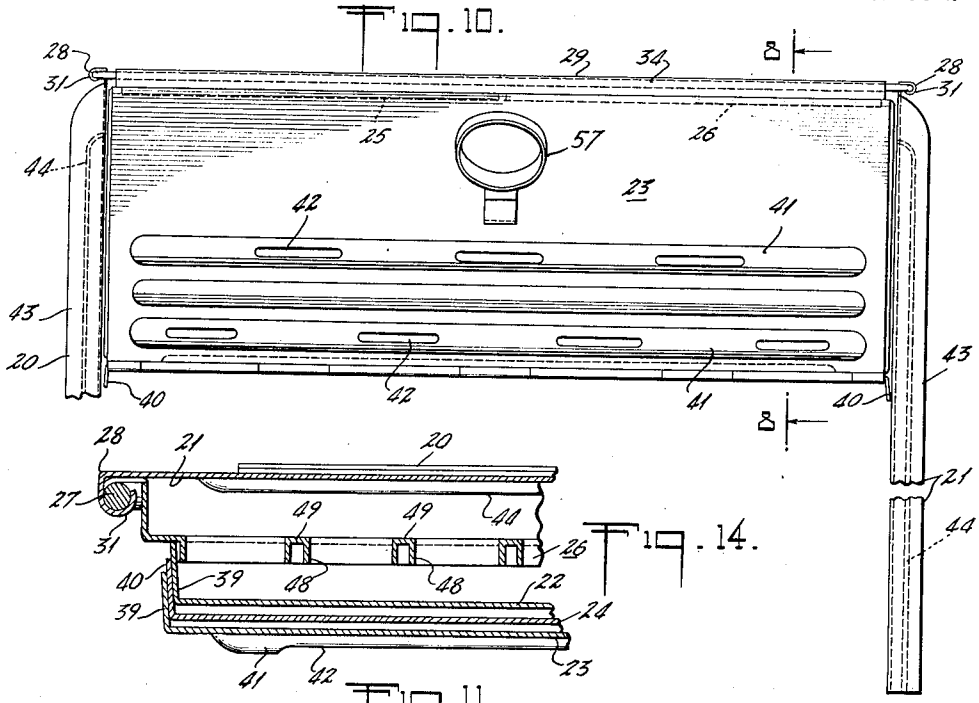
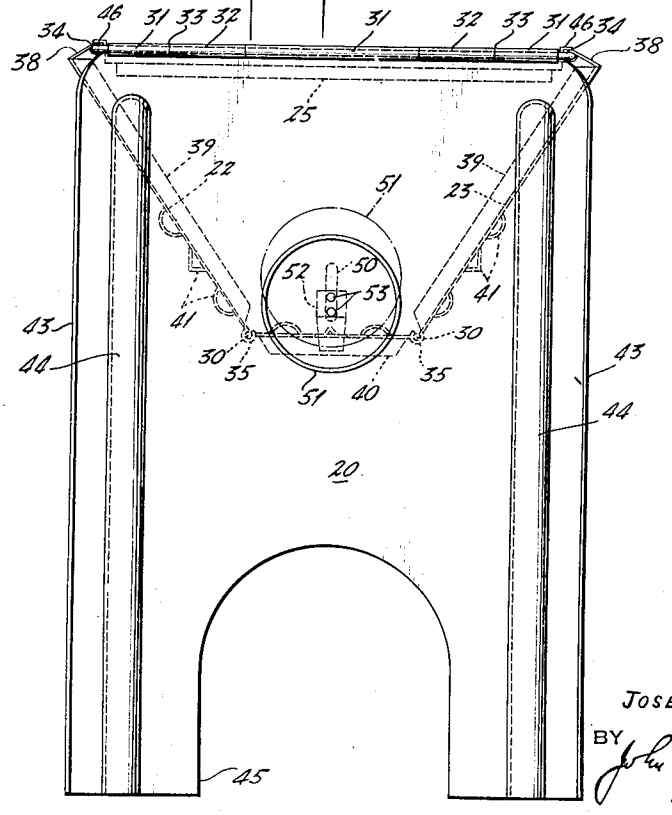


Fig. 14.

Fig. 11.



INVENTOR
JOSEPH D. BROWN
BY John M. Ch.
ATTORNEY

July 3, 1951 J. D. BROWN 2,559,243

COLLAPSIBLE STOVE

Filed June 19, 1947 3 Sheets-Sheet 3

Fig. 12.

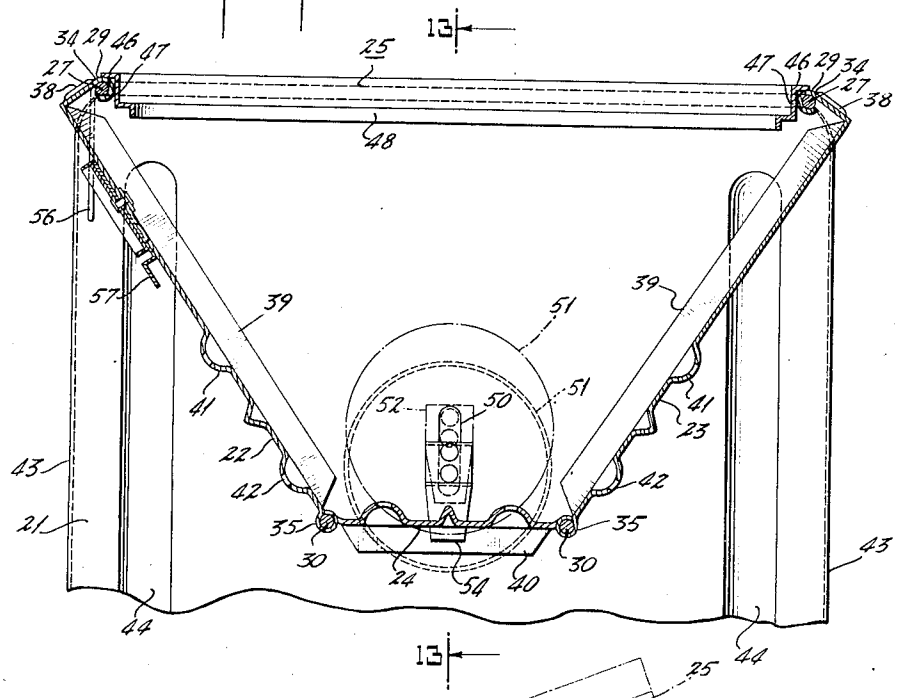
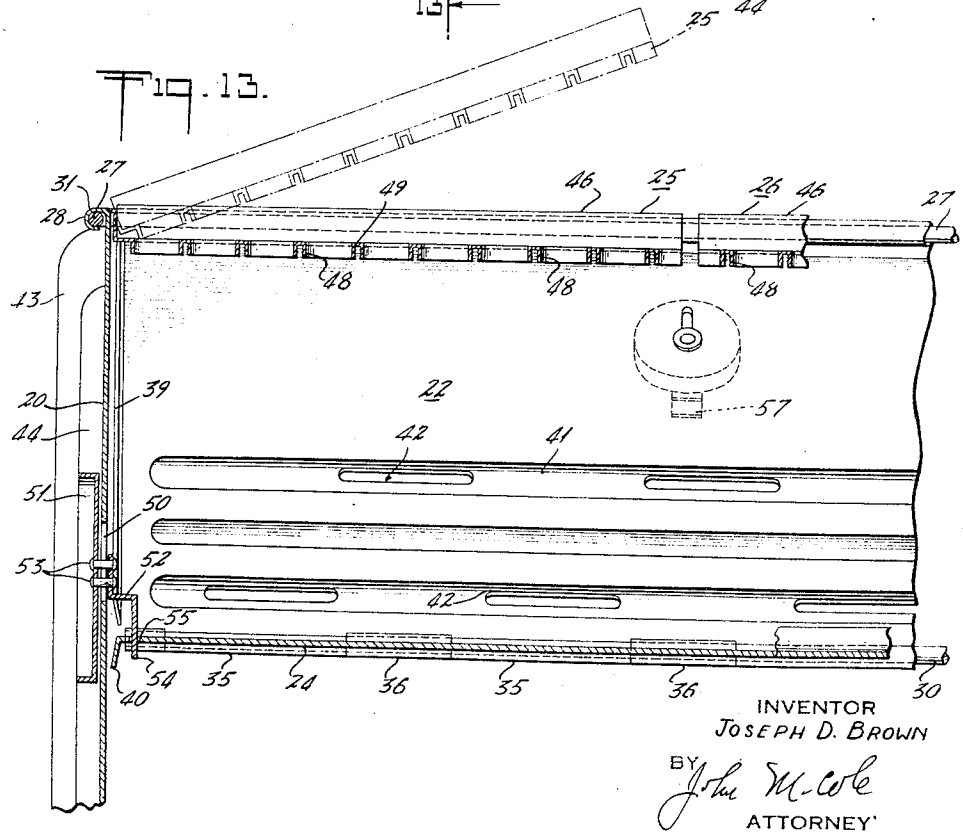


Fig. 13.



INVENTOR
JOSEPH D. BROWN
BY John M. Cole
ATTORNEY

Patented July 3, 1951

2,559,243

UNITED STATES PATENT OFFICE

2,559,243

COLLAPSIBLE STOVE

Joseph D. Brown, Eastchester, N. Y., assignor to Poloron Products, Inc., New Rochelle, N. Y., a corporation of New York

Application June 19, 1947, Serial No. 755,638

17 Claims. (Cl. 126—9)

1

The present invention relates to collapsible stoves and is more particularly directed toward collapsible stoves for burning solid fuel such as wood or charcoal for outdoor cooking.

The present invention contemplates collapsible stoves made out of sheet metal parts, all of which are held together by a suitable wire frame and suitable wire hinge pins, the entire stove being capable of being collapsed into a small, thin, readily portable unit or extended to form a complete stove with supports for holding its fire box above the ground and carrying suitable grill members above the fire box to support cooking utensils or food which is to be cooked directly over the hot fuel. These grill members are arranged to be swung out of the way to facilitate placing fuel in the fire box.

According to the present invention the stove, when in extended position, is very securely locked together so as to be able to support any load likely to be placed on the stove. It may be readily opened up or collapsed as desired, and when in collapsed position, the parts are locked together with the surfaces likely to become sooty from the use of the stove interiorly disposed so that the collapsed stove remains clean for handling.

Other and further objects will appear as the description proceeds.

The accompanying drawings show, for purposes of illustrating the present invention, an embodiment in which the invention may take form, it being understood that the drawings are illustrative of the invention rather than limiting the same.

In these drawings:

Figures 1 through 7 are diagrammatic perspective views illustrating the setting up of the stove, Figure 1 being a view of the collapsed stove, Figure 2 a view showing the shifting of one leg into position, Figure 3 a view illustrating the shifting of the other leg into position, Figure 4 a view illustrating the placing of the legs on a support, Figure 5 the dropping of the fire box into position and locking the legs to the fire box, and Figures 6 and 7 illustrating the opening up of the grills forming a split top, the latter views being taken at different angles;

Figure 8 is a transverse sectional view on the line 8—8 of Figures 1 and 10 showing the stove collapsed;

Figure 9 is a top plan view showing the stove in open position with parts broken away;

Figure 10 is a side elevational view of the collapsible stove in fully set up position;

Figure 11 is an end view of the stove;

2

Figure 12 is a transverse sectional view on the line 12—12 of Figure 9;

Figure 13 is a longitudinal sectional view on the line 13—13 of Figure 9; and

Figure 14 is a longitudinal sectional view on the line 14—14 of Figures 1 and 8 showing the stove collapsed.

The collapsible stove shown herein employs two metal leg members 20 and 21 which are alike, two like side plates 22 and 23 for a fire box, a single bottom fire box plate 24 and two like grill members 25, 26. The leg members and side plates are carried on the ends 28 and sides 29 of a rectangular frame 27 formed of a wire loop whose ends are welded together. The bottom plate is secured to the side plates by hinge pins 30. The legs 20 and 21 have hinge knuckles or ears 31 folded around the ends 28 of the wire loop. The grill members 25 and 26 have ears or knuckles 32 which pass through notches 33 in the legs and are folded about the ends 28 of the wire loop. The fire box side plates 22 and 23 are folded about the sides 29 of the wire loop as indicated at 34. The lower edges of the side plates 22 and 23 have knuckles or ears 35 and the sides of the bottom plate have similar ears 36, these ears receiving the hinge pins 30.

The side plates 22 and 23 have stiffening flanges 38 along the top edges, and stiffening flanges 39 along the ends. The bottom plate 24 of the fire box has stiffening flanges 40 along its ends. The plates 23 and 24 have stiffening beads 41 which extend lengthwise, certain of these beads being provided with slots 42 to permit entry of air for combustion.

The legs 20 and 21 have flanges 43 and stiffening beads 44 and are cut out as indicated at 45 so that each leg has two spaced feet. The grill members 25 and 26 are punched to have upper flanges 46 to rest above the side members 29 of the frame and are drawn downwardly as indicated at 47 so as to fit inside the frame. The grill members are punched to provide elongated holes 48, the material punched out to form these holes being pressed down so as to provide narrow inverted channel-shaped ribs or cross-members 49, so that the grill is stiff and strong for the support of cooking utensils and the like.

It will be noted that the leg members are in the form of rectangular panels of sheet metal and of the width and length of the rectangular frame so that they can cover the frame and folded fire box. Each of the leg plates 20 and 21 is slotted as indicated at 50 (Figure 13). A locking plate in the form of a round disk 51 is carried on the outside of each leg, and a clip

52 is carried on the inside of each leg, the plate 51 and clip 52 being secured together by riveting as indicated at 53. The lower ends 54 of the clips are adapted to go through holes 55 in the ends of the bottom plate 24.

A bail 56 to facilitate carrying the collapsed stove may be secured to the frame ring in a position to be folded out of the way for packing or hang free when not in use, also a locking device 57 may be carried by one side plate in a position to engage the folded bottom plate, as shown in Figure 8.

The sheet metal parts are preferably made of aluminum coated steel 0.030" thick, so as to be resistant to corrosion and readily cleanable and light in weight.

When the collapsible stove is collapsed it assumes the form shown in Figure 1 and may, for example, be approximately 19 inches long, 12 inches wide and 1½ inches thick. The material is sufficiently resilient to permit the flanges to telescope one another as indicated in Figures 8 and 14. When folded the clip 52 on one leg is able to enter the notch 45 of the other leg and engage with the material of the notched leg so as to hold the entire assemblage together as indicated in Figure 1. Either leg may be on top of the other.

The first step in putting the device into operation is to support the stove in one hand as indicated in Figure 1, then slide the catch hook 52 on the under leg so as to release the upper leg and this upper leg is swung upwardly and downwardly by the other hand as indicated in Figure 2. It then hangs down. The other leg is swung around to the hanging position as indicated in Figure 3 and the other leg plate swung down. The two legs are then allowed to rest on the ground or other support and the operator removes his hand from underneath the central part of the stove, releases the catch 57 and allows the fire box to drop into position, shaking it, if necessary. When the fire box is lowered the locking plates 51 on the outer sides of the legs are then pushed down to bring the clip 52 into the openings 55 in the bottom plate of the fire box as indicated in the various figures. This locks the legs and fire box together and provides a sturdy structure. The grills can then be swung up as indicated in Figure 6 and all the way over to the outside of the legs where they hang down, if desired. Fuel can then be put into the fire box and lighted as usual. The grills may be returned to the upper position and the stove used for usual cooking operations either supporting utensils on the grills or placing the food to be broiled directly on the grills.

The fire may be readily dumped by inverting the stove so that all unburned fuel is discharged.

When the fire box is to be collapsed the operations are reversed. It will be noted that all parts of the stove which were in contact with the fuel have now become folded inside, with the exception of a small spot surrounding the locking clip used to lock the two legs together.

Since it is obvious that the invention may be embodied in other forms and constructions within the scope of the claims, I wish it to be understood that the particular form shown is but one of these forms, and various modifications and changes being possible, I do not otherwise limit myself in any way with respect thereto.

What is claimed is:

1. A collapsible stove for burning solid fuel comprising a frame having two parallel horizontal side members, and a fire box including sheet metal side plates wider than one-half the spacing of the side members and pivoted at their upper edges to the side members so as to be supported therefrom and a sheet metal bottom plate pivoted at its side edges to the lower edges of both the side plates so as to be solely supported by the side plates, the side plates being swingable upwardly into overlapping relation to bring the bottom plate between the overlapped portions.

2. A collapsible stove as claimed in claim 1, wherein the side plates and bottom plate have longitudinally extending reinforcing ribs slitted for air supply.

3. A collapsible stove as claimed in claim 1, wherein the side plates have stiffening flanges along the upper edges and along their ends, and the bottom plate has stiffening flanges along its ends.

4. A collapsible stove for burning solid fuel comprising a rectangular frame having side and end members, a fire box including sheet metal side plates wider than one-half the spacing of the side members and pivoted at their upper edges to the side members so as to be supported therefrom and a sheet metal bottom plate pivoted at its side edges to the lower edges of both the side plates so as to be solely supported by the side plates, the side plates being swingable upwardly into overlapping relation and bringing the bottom plate between the overlapped portions, and upwardly swingable grill members hinged to opposite sides of the frame to permit insertion of fuel and when lowered supported on the frame so as to support cooking utensils.

5. A collapsible stove for burning solid fuel comprising a rectangular frame having side members and end members, a fire box including sheet metal side plates wider than one-half the spacing of the side members and pivoted at their upper edges to the side members so as to be supported therefrom and a sheet metal bottom plate pivoted at its side edges to the lower edges of both the side plates so as to be solely supported by the side plates, the side plates being swingable upwardly into overlapping relation to bring the bottom plate between the overlapped portions, and sheet metal end plates pivoted to the end members of the frame to swing from a downwardly extending vertical position where they abut the ends of the side plates and bottom plate, to a horizontal position where they are parallel with one another and outside the collapsed side and bottom plate, and locking means for locking each end plate to the end of the bottom plate.

6. A collapsible stove as claimed in claim 5, wherein the end plates are of substantially the same length as the side plates so as to form legs to support the fire box in an elevated position and so as to cover the length of the fire box when the end plates are folded.

7. A collapsible stove as claimed in claim 5, having upwardly swingable grill members hinged to opposite ends of the frame to permit insertion of fuel and when lowered supported on the frame so as to support cooking utensils.

8. A collapsible stove as claimed in claim 5, wherein said ends carry locking devices engageable with the bottom of the fire box to lock the ends to the bottom of the fire box.

9. A collapsible stove as claimed in claim 5, wherein the ends have stiffening side flanges spaced wider than the width of the frame so as

to pass by the frame when folded into collapsed position.

10. A collapsible stove for burning solid fuel comprising a frame having two parallel horizontal side members, and a fire box including sheet metal side plates wider than one-half the spacing of the side members and pivoted at their upper edges to the side members so as to be supported therefrom and a sheet metal bottom plate pivoted at its side edges to the lower edges of both the side plates so as to be solely supported by the side plates, the side plates being swingable upwardly into overlapping relation to bring the bottom plate between the overlapped portions, and a locking device carried by one side plate and engageable with the other side plate when the plates are in overlapped position.

11. A collapsible stove for burning solid fuel comprising a horizontal rectangular frame having side members and end members, leg forming ends in the form of rectangular panels of sheet metal pivotally carried by the end members of the frame and of the width and length substantially the width and length of the frame, and a collapsible fire box carried by the side members of the frame and including downwardly converging side plates hinged to the side members and a bottom plate hinged at its opposite edges to both of the side plates, the side plates and bottom plate being foldable to bring them substantially into the plane of the frame, the ends being foldable from normally vertical positions to cover one another and the frame for the entire width and length thereof.

12. A collapsible stove for burning solid fuel comprising a horizontal rectangular frame having side members and end members, leg forming ends in the form of rectangular panels of sheet metal pivotally carried by the end members of the frame and of the width and length substantially the width and length of the frame, a collapsible fire box carried by the side members of the frame and including downwardly converging side plates hinged to the side members and a bottom plate hinged at its opposite edges to both of the side plates, the side plates and bottom plate being foldable to bring them substantially into the plane of the frame, the ends being foldable from normally vertical positions to cover the frame for the entire width and length thereof, and interlocking devices carried by the ends and the bottom plate to secure them together when the fire box is opened.

13. A collapsible stove comprising a rectangular wire loop, sheet metal leg forming plates of substantially the width and length of the loop and pivoted to the ends of the loop, sheet metal grill members pivoted to the ends of the loop and having side edges adapted to rest on the sides of the loop, sheet metal fire box side plates pivoted along their upper edges to the sides of the loop to be supported therefrom, a bottom plate pivoted at its side edges to the lower edges of both of the side plates so as to be supported by the side plates, and leg carried locks engageable with the bottom plate to lock the legs and fire box together, the fire box plates being collapsible to substantially the plane of the loop, the legs being also swingable to overlie the collapsed fire box.

14. A collapsible stove comprising a rectangular wire loop, sheet metal legs having ears folded about the ends of the loop, sheet metal grill members having ears folded about the ends of the loop and side edges adapted to rest on the sides of the loop, sheet metal fire box side plates having along their upper edges ears folded about the sides of the loop and similar ears along their lower edges, a bottom plate having ears receivable between the ears of the lower edges of the side plates, hinge pins passing through the ears of the bottom plate and side plates to hold them together, and leg carried locks engageable with the bottom plate to lock the legs and fire box together.

15. A collapsible stove for burning solid fuel comprising a horizontal elongated rectangular frame, a fire box of the width and length of the length of the frame and pivotally carried by two opposite sides of the frame but foldable into the plane of the frame, and legs of substantially the length and width of the frame in the form of rectangular panels of sheet metal pivotally carried by each of the frame ends and swingable from leg forming positions wherein they close the ends of the fire box to positions where they are on top of one another and of the frame to completely cover the folded firebox and frame, the ends of the firebox and the leg forming plates having cooperative locking means for securing the leg forming plates to the firebox when the firebox is opened and the plates are in leg forming positions, the locking means on one leg being engageable with the other leg when the legs are on top of one another.

16. A collapsible stove as claimed in claim 15, having grill members pivoted to the frame ends with their free ends resting on the frame sides to support cooking utensils or swingable upwardly to permit supplying fuel to the fire box.

17. A collapsible stove as claimed in claim 15, wherein the fire box is pivoted to the long sides of the frame and having grill members pivoted to the short sides of the frame with their free ends resting on the long sides of the frame each adapted to support cooking utensils while the other is swingable upwardly to permit insertion of solid fuel into the fire box.

JOSEPH D. BROWN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,436,937	Boyle	Nov. 28, 1922
2,122,275	Bitner	June 28, 1938
2,152,168	Anderson	Mar. 28, 1939
2,164,835	Pearson	July 4, 1939
2,246,440	Hester	June 17, 1941