G. W. FERDON.

COLLAPSIBLE STOVE.

APPLICATION FILED OCT. 19, 1916.

1,229,432.

Patented June 12, 1917.

2 SHEETS—SHEET 1.

Fig. 1.

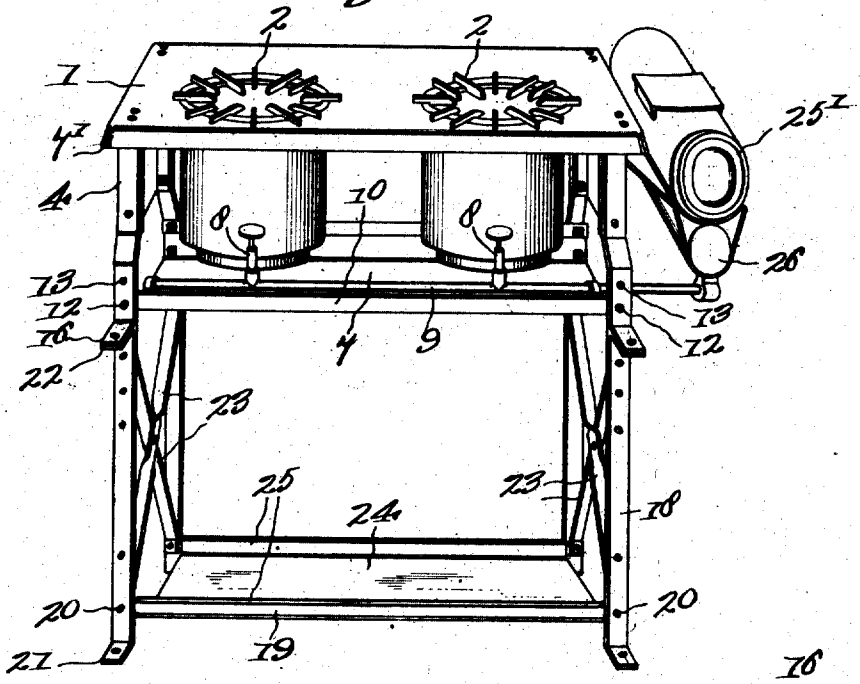
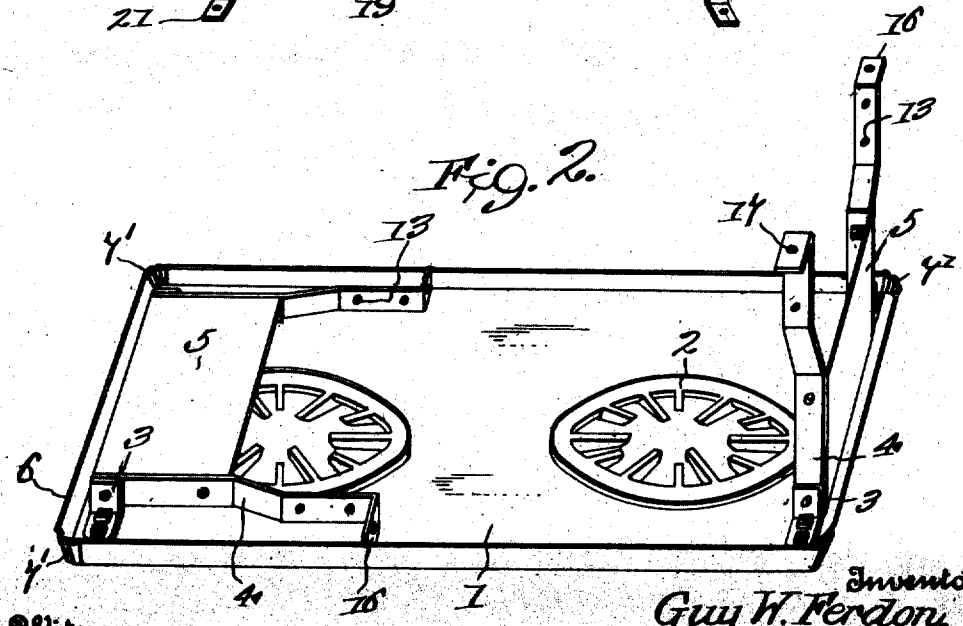


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 4.

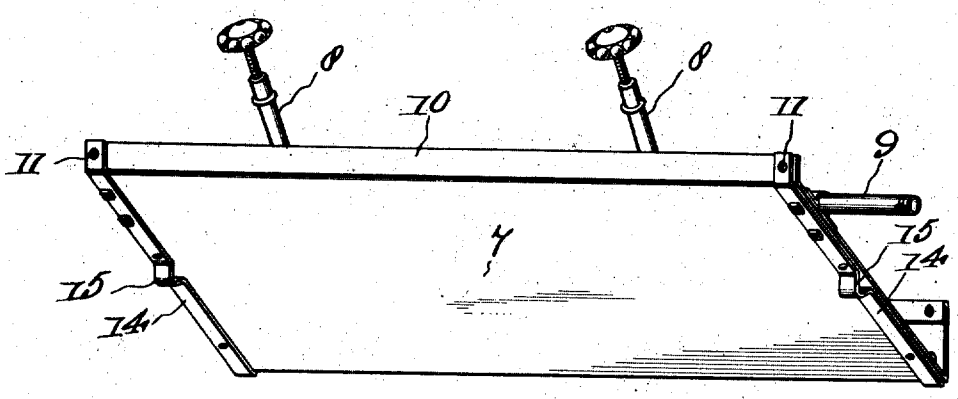
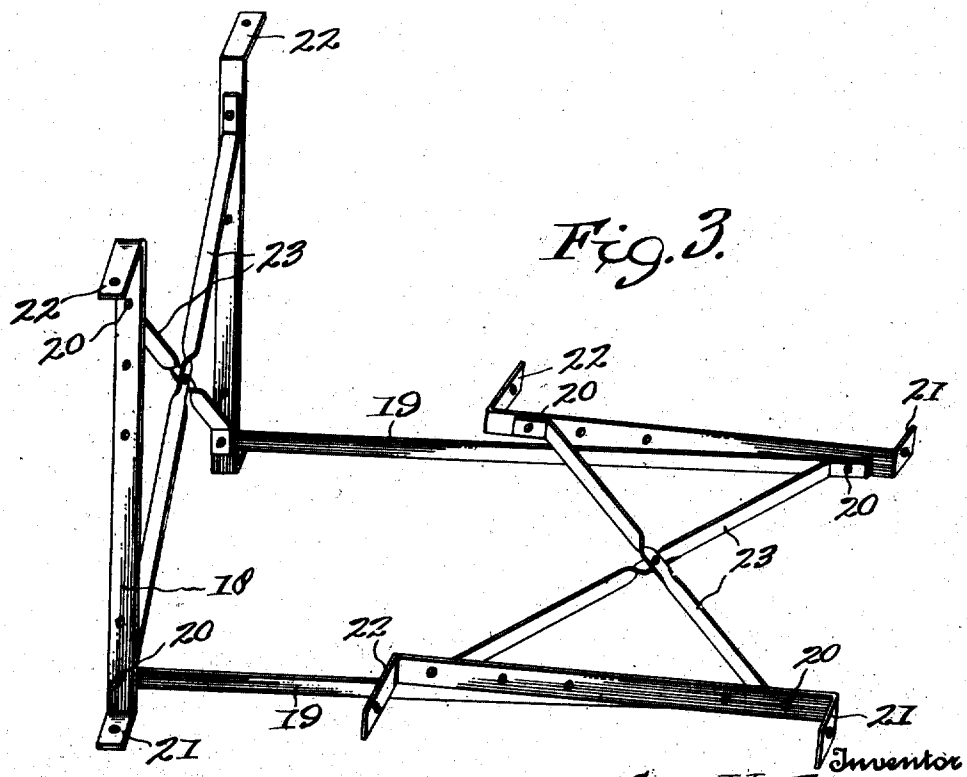


Fig. 3.



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COLLAPSIBLE STOVE.

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To all whom it may concern:

Be it known that I, GUY W. FERDON, a citizen of the United States, residing at Cresskill, county of Bergen, State of New Jersey, have invented certain new and useful Improvements in Collapsible Stoves; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

One object of my invention is to provide an oil stove of the usual "blue flame" kind, which can be shipped knocked-down, and set up in a very few minutes by the most awkward tyro in the use of tools. The desirability of this feature is based upon several things. One is the exorbitant, ever increasing cost of wood, material for packing, nails, of labor for putting the crates together, bulk in trucking and storing, and greatly added cost in freight charges. Another saving is in the delivery from the merchant to the ultimate consumer. My stove is supplied to the retailer packaged in knock-down condition. This packaging enables the retailer to store his stock more compactly than the usual crated stoves can be stored, and also because the wrappings are dust-proof enables him to keep his stock in better condition than the crated stoves can be kept. The housekeeper, if she preserves the wrapper, can easily wrap up such a stove when moving becomes desirable and stow it safely against damage or loss in moving. It should, of course be taken down before being packed. It is also thus protected from dampness or rain in the act of moving.

I have devised a stove which may be knocked down, and packed into a space not much larger than an ordinary suit case or suit box, and which may be carried home by a purchaser under his arm, stood up on end in the street car, carried upon an automobile, or packed away under the seat of a launch, or upon the pack saddle of a prospector's burro. It is also comparatively light in weight. As a matter of fact the stove of my invention, when folded and properly packed, takes up less than one-third of the cubic measure it has when set up.

My knocked down stove may be sent by means of the parcel post, and may be sent as merchandise by mail order houses, etc.

In the drawings:

Figure 1 is a perspective front view of my stove, and a stand or table on which said stove may be mounted;

Fig. 2 is a view of the under side of the top plate of the stove;

Fig. 3 is a view of the folded stand or table; and;

Fig. 4 is a view of the bottom pan of my stove.

In the drawings, 1 represents a top plate provided with the grates 2 secured thereto. On the under side of said plate are brackets 3, and to these brackets are hinged legs 4, each end of these legs being bent into the shape shown, and being of band or heavier iron. They are rigidly held together by the flat bracing pieces 5 which connect them in pairs. The plate should be long enough and the dimensions of the legs such that when the legs are folded down on the plate, they will not lap over, although this feature is not essential. Moreover for strengthening purposes, each said top plate, which is made of sheet metal, is provided with a downwardly bent flange 6 crimped at the corners 7', which flange not only stiffens the plate, but in a measure serves to receive the folded down legs; and the flange may be made deep enough so that it rises above the legs when the latter are folded down, although this is not necessary.

I provide a pan 7, upon which I mount burners 8 and feeding pipe 9. This pan has an up-turned flange 10, at each side, and each end of this flange is perforated as shown at 11. These perforations are adapted to register with perforations 12 in the legs above-mentioned, and bolts may be passed through these perforations so as to hold the legs and pan together and support the whole in a substantially rigid position. This rigidity is effected by drawing the bolts tight, although it may be aided, if desired, by any suitable means not shown, extending from one pair of legs to the other, holes being provided as indicated at 13 for such purpose.

The pans are strengthened at each end by the cross arms 14, provided as shown in Fig. 4, with bracing or stiffening ribs 15, which have a tendency to prevent the pan from sagging in the middle, and serve also as additional feet. I cause the end of each leg to terminate in a projecting foot 16 as shown

in Figs. 1 and 2. These feet are shown as projecting outwardly, although it is obvious that they may be made to project inwardly. They serve as suitable supports for the stove, and are provided with holes 17 through which may pass bolts or screws to hold the stove upon a table or other suitable support. As a proper support for the stove, I provide a bench or table 18, shown in Fig. 3. This consists of two bars 19, extending lengthwise, the length of the top plate substantially. Upon these bars or straps 19, I hinge a pair of braced legs at 20. These legs are of the form shown, and are provided with a lower extending foot 21, upper extending foot 22, and braces 23 connecting said legs in pairs.

As will be observed from an inspection of Fig. 3, these legs may be folded down so as to be nearly flat, and form a compact flat piece. I provide a shelf 24, which shelf has on each side a curved lip 25. These lips pass over the bars 19 so as to pinch them and hold them with a considerable degree of rigidity when the legs are in the upright position.

The holes in the feet 22 are made so as to register with the holes in the feet 16, and bolts may be passed through so as to join the two together. The stove will thus be held fixedly upon a rigid folding table, and collapse is impossible under ordinary conditions of use. Means not shown, may be made to join the legs 21, holes being provided in said legs as shown in Fig. 3 for the purpose.

These braces may consist of a sheet of metal adapted to act as a wind shield, if desired, so as to keep a draft from the burners if the stove is used out of doors.

I provide between the burners and grates the ordinary chimney, or combustion chamber usual in such stoves, and make it removable.

When the stove is to be taken down, the bolts passing through the holes in feet 16 and 22 being removed, the stove may be taken off of the bench or table and folded. Then the pan 7 is removed and the upper legs folded against the upper side of the top plate. Three substantially flat elements are thus provided, namely, the upper plate with its legs folded down, the pan carrying the burners, which are nearly flat, and the table or bench carrying the down-folded legs. There only remains to be packed the combustion chambers, which have been removed from the burners and the tank 25 and feeder 26, which have been screwed upon the end of the oil supplying means. The latter has been secured upon the end of the pipe 9, and its position is determined in the factory with respect to the level of the burners so that the oil may feed evenly.

The tank 25′ is provided with a brace or apron extending up toward the plate or some part of the folding legs, and is provided with holes registering with corresponding holes through which bolts may be passed and the whole braced in position. The tank and the oil feeder may be removable, or the latter may be soldered to the pipe.

In addition to the three flat elements just mentioned, the several combustion chambers and the oil supplying means are to be packed. The dimensions of these are such that they compare with the thickness of the three flat elements above referred to, when the latter are placed on each other or packed together and surrounded with corrugated board. When completed a compact package is made, which is easily transported and easily set up, and which it is impossible to injure under the ordinary conditions of travel or use.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a knock-down fluid fuel stove, in combination, a top plate, inwardly folding legs pivoted at their upper ends to said top plate, a bottom pan, a feeding pipe and burners attached to said pan, means whereby said pan may be removably secured to the lower ends of said legs so as to hold the top plate, the pan with its attachments and the legs rigid for use, a table provided with upwardly extending legs, foldable downwardly upon said table, and means whereby said table legs may be removably secured to the said inwardly folding legs whereby the table is maintained in rigid supporting relation to the other parts.

2. In a knock-down stove, in combination, a top plate, a grate secured to said plate, a pair of brackets bolted to the underside of said plate at each end thereof, a pair of flat legs braced together and pivoted to each pair of brackets so as to fold close down upon the under side of the plate, said legs being provided with perforations at their lower ends, and a pan carrying a burner provided with upturned side flanges, there being perforations through said flanges adapted to register with the perforations in said legs, whereby said legs may be removably and rigidly secured together, said legs being provided with broad outwardly extending feet.

3. In a knock-down stove, in combination, a top plate, infolding legs hinged to the under side of said plate, a pan carrying burners, said pan being secured to said legs beneath said plate, a stove-supporting stand or table provided with down-folding legs or supports, a removable bracing shelf on said table, the plate, the pan and the table adapted to constitute three flat parallel units of little thickness, whereby they may all be packed together in a package of comparatively little thickness.

4. In a knock-down stove, in combination, a top plate provided with grates fixed thereto, infolding legs, hinged to the under side of said plate and adapted to fold close thereto, a pan adapted to be removably secured to said legs, burners secured to said pan, and a fuel tank and supply adapted to be connected to said burners, the plate and pan adapted to be packed into a flat package, comparable in thickness to the dimensions of the fuel tank.

5. In a knock-down stove, in combination, a top plate provided with grates fixed thereon, infolding legs, hinged to the under side of said plate, a burner carrying pan adapted to be secured to the lower ends of said legs when the latter are down turned, a fuel supply for said burners, said legs provided with feet, a table or bench provided with down folding legs, feet on the upper ends of said legs to register with the feet of the plate legs, means for securing said feet together, said plate, pan and table constituting three elements of similar length and breadth, and adapted to be united into a package comparable with the thickness of the fuel supply means.

6. In a knock-down fluid fuel stove, in combination, a top plate, inwardly folding pairs of legs hinged to the underside of said top plate, there being bolt holes through said legs at their lower ends, a pan carrying burners and provided with upturned flanges with holes registering with the holes in the legs, whereby the parts may be detachably bolted together, and cross irons secured to said plate, said irons being bent at points to form feet acting to help support the pan.

7. In a folding or knock-down fluid fuel stove, in combination, a flanged top-plate, inwardly folding leg supports hinged to the underside of said plate and adapted to fold within the flange, said leg supports being provided with holes, a plate adapted to carry burners, and means passing through said holes adapted to engage said leg supports to connect rigidly said plate and leg supports.

8. In a folding or knock-down fluid fuel stove, in combination, a top-plate, a stiffening flange therefor, a grate on said top-plate, inwardly folding leg supports hinged to the underside of said top-plate and adapted to fold within the stiffening flange, said leg supports having holes therein, a plate adapted to support a burner in proper relation to said grate, and means adapted to engage said leg supports at said holes to connect rigidly said plate and said leg supports.

9. In a folding or knock-down fluid fuel stove, in combination, a top-plate, a grate in said top-plate, inwardly folding leg supports hinged to the underside of said top-plate, and adapted to fold inwardly one upon the other against the underside of said top-plate, said leg supports having holes therein, a shelf adapted to support a burner in proper relation to said burner, and means adapted to pass through said holes to engage said leg supports and to hold said leg supports and shelf in rigid detachable connection.

In testimony whereof, I affix my signature.

GUY W. FERDON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."