

No. 700,356.

Patented May 20, 1902.

F. L. MITCHELL.  
COLLAPSIBLE CAMP STOVE.

(Application filed Aug. 15, 1901.)

(No Model.)

4 Sheets—Sheet 1.

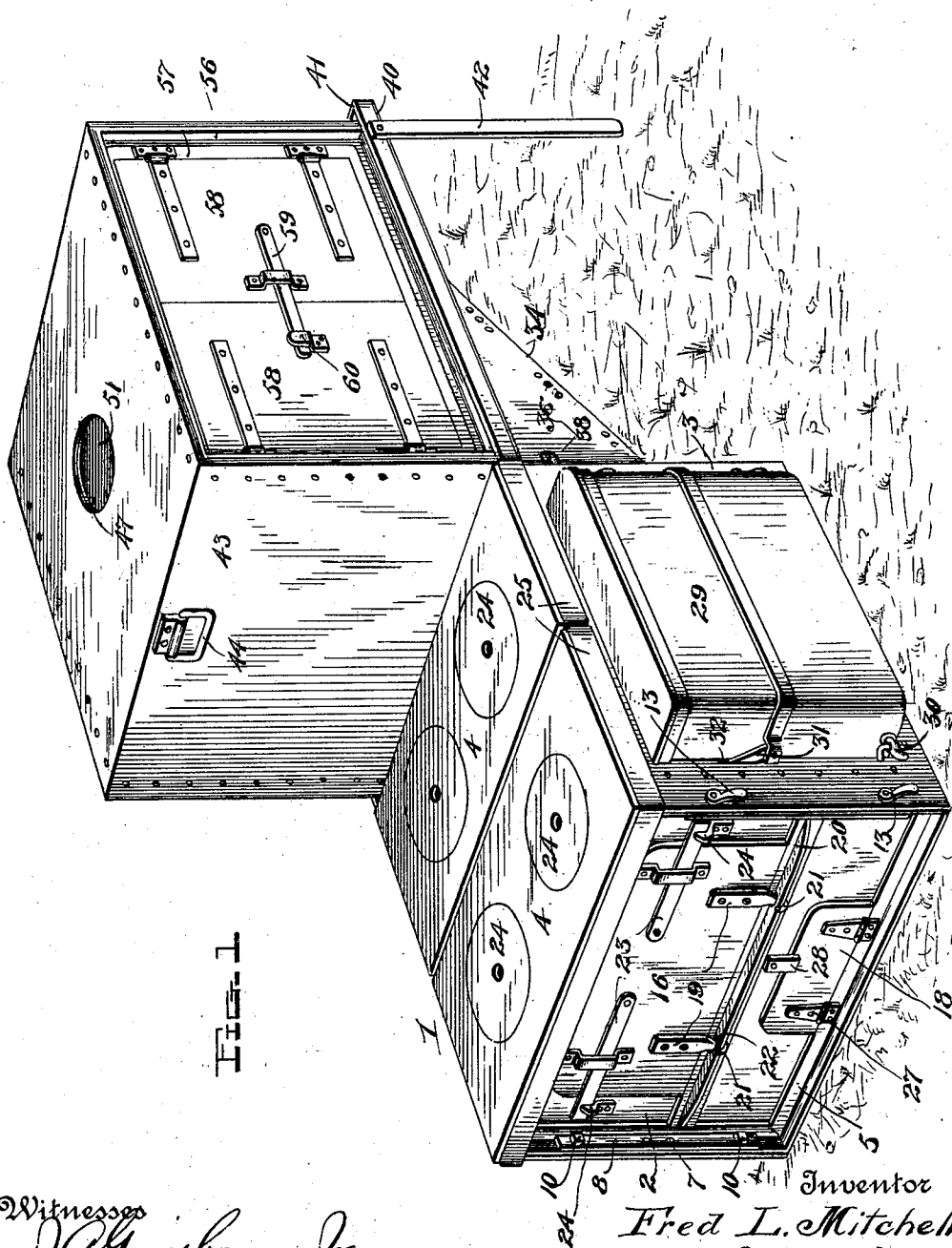


FIG. 1

Witnesses  
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4 Sheets—Sheet 2.

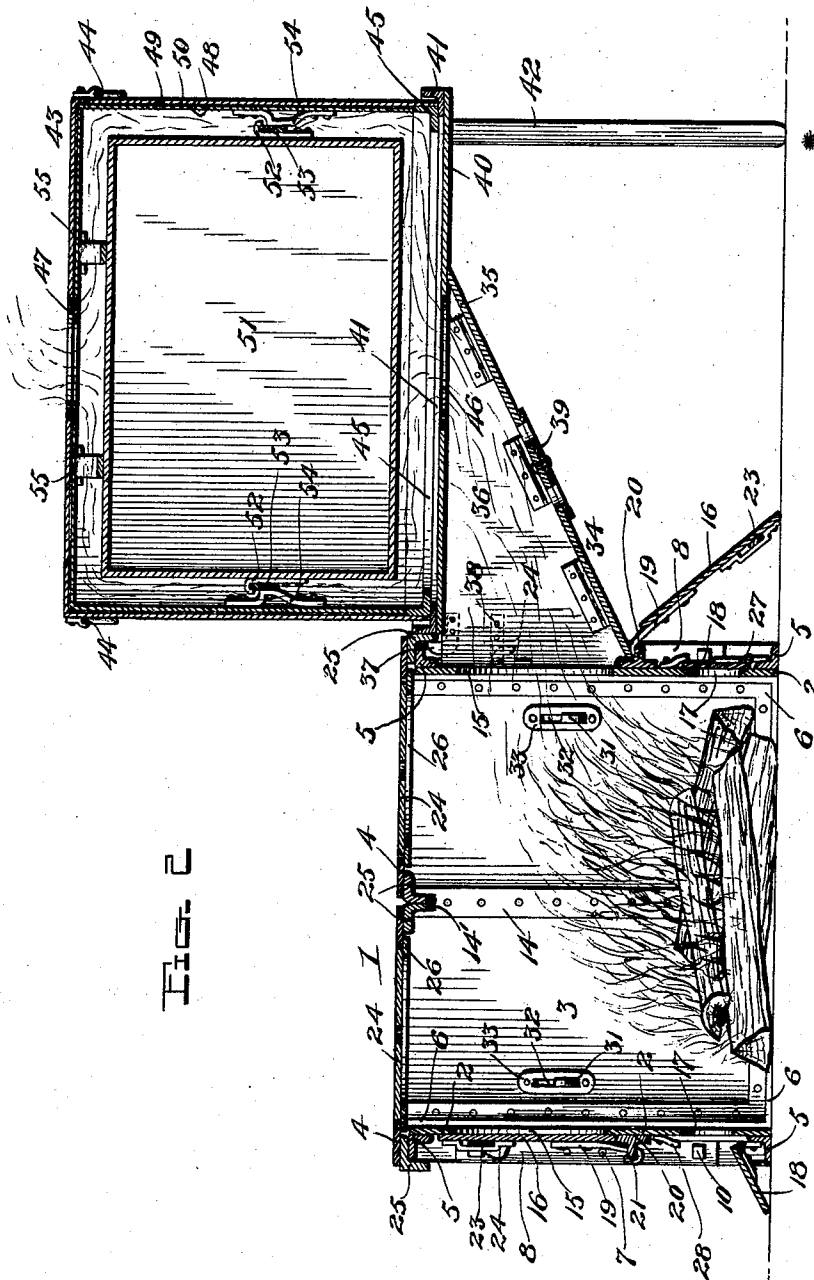


Fig. 2

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FIG. 3

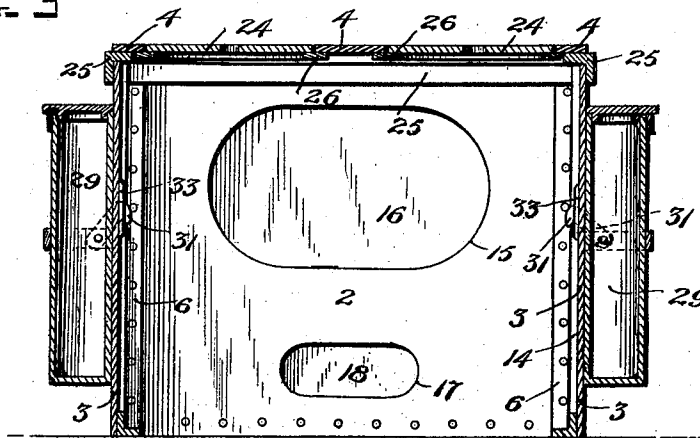
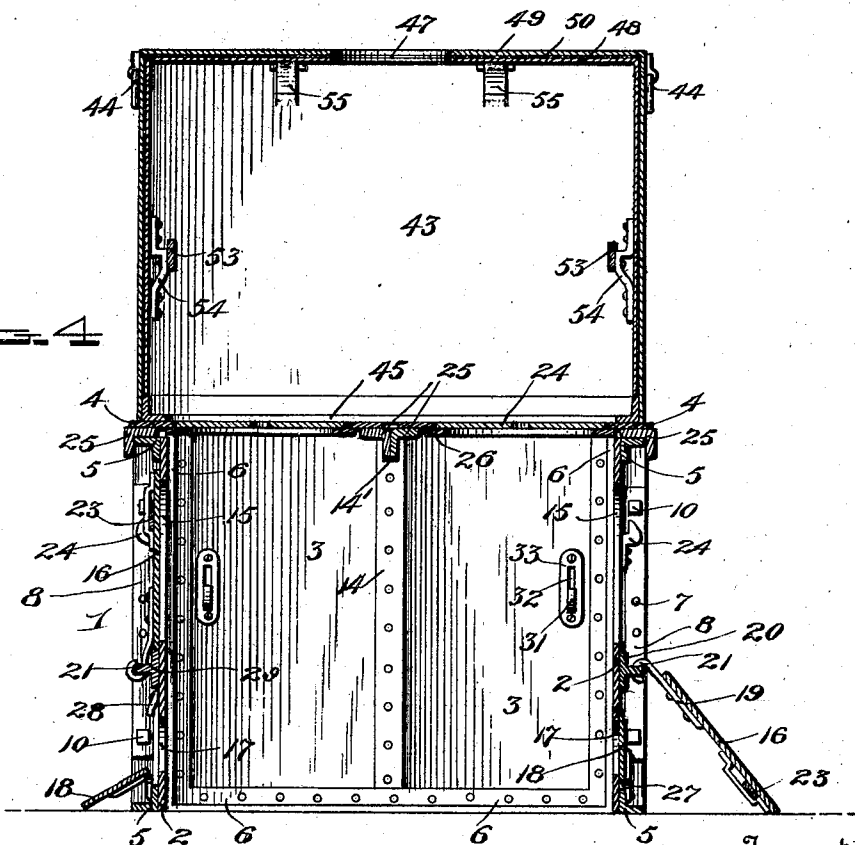


FIG. 4



Witnesses

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4 Sheets—Sheet 4.

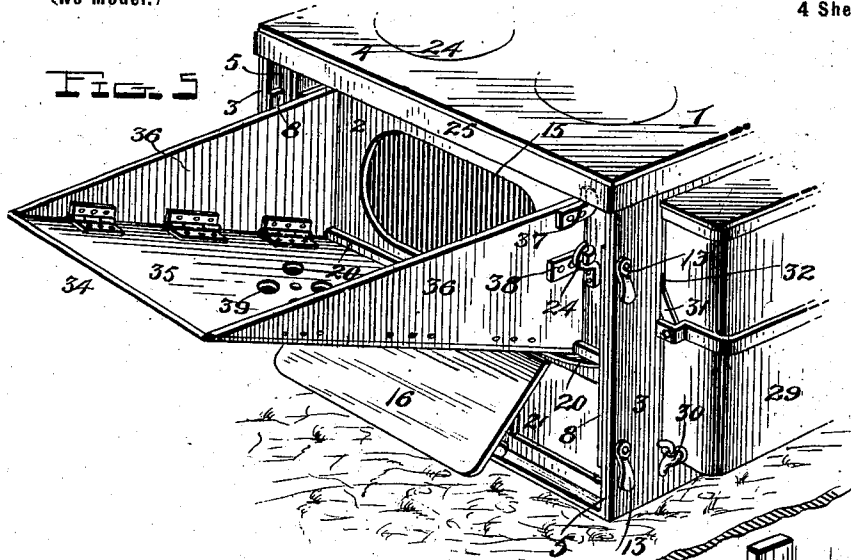


FIG. 6

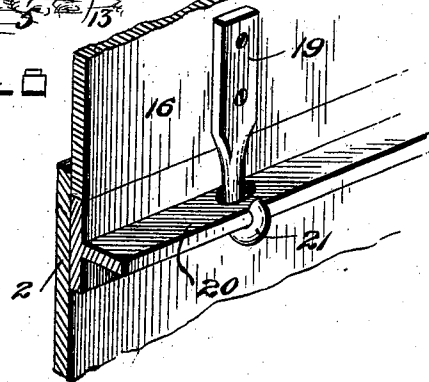
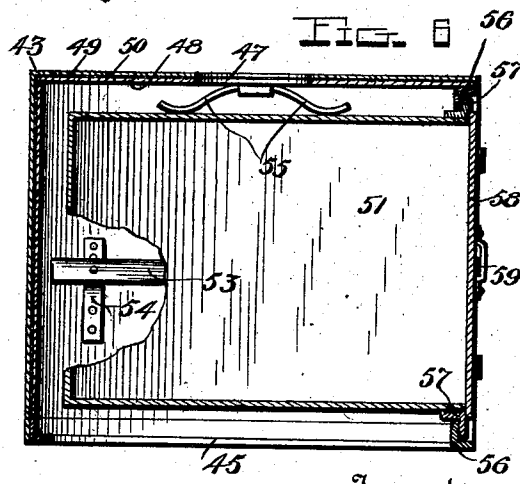
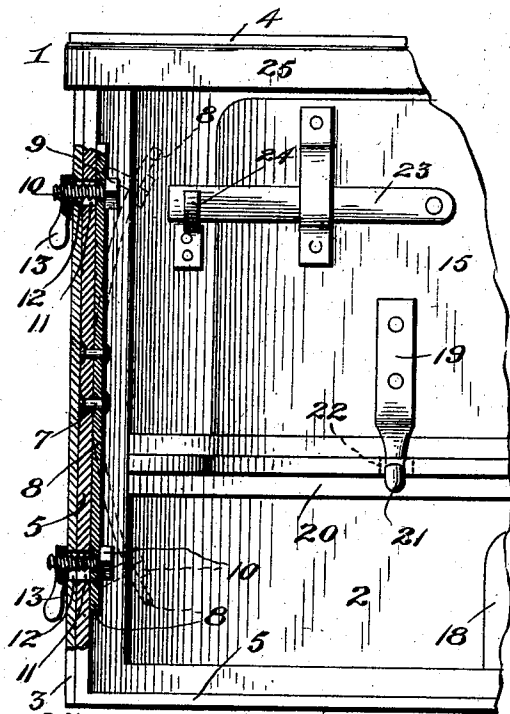


FIG. 7



Witnesses

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# UNITED STATES PATENT OFFICE.

FRED L. MITCHELL, OF NEW YORK, N. Y.

## COLLAPSIBLE CAMP-STOVE.

SPECIFICATION forming part of Letters Patent No. 700,356, dated May 20, 1902.

Application filed August 15, 1901. Serial No. 72,160. (No model.)

*To all whom it may concern:*

Be it known that I, FRED L. MITCHELL, a citizen of the United States, residing at New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Collapsible Camp-Stoves; and I do 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.

This invention relates to improvements in collapsible camp-stoves; and it consists of the features of construction and combination of parts hereinafter described and claimed.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the complete stove and oven as set up for use. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is a cross-section through the body of the stove. Fig. 4 is a longitudinal section of the same, showing the use of the oven-drum as a hood for protecting from rain the articles cooking on the top of the stove. Fig. 5 is a perspective view looking toward one of the ends of the stove, showing the oven removed and the mode of application of the flue. Fig. 6 is a longitudinal section through the oven and its inclosing casing or drum. Fig. 7 is a detail view, partly in elevation and partly in section, showing the manner of connecting the side and end walls of the stove; and Fig. 8 is a detail view of the hinge connection of the main draft-door.

Like reference characters designate corresponding parts throughout the several views.

The stove-body 1 is bottomless and grateless and composed of the end and side walls 2 and 3 and two top sections 4. The side and end walls are connected at the corners in such manner as to be readily assembled and disassembled, and each end wall is provided around its edge with a flanging 5, of angle-iron, and rests against the vertical portions of a corresponding flanging-strip 6, of angle-iron, extending along the lower edge and side edges of the said side walls. To the vertical portions of the angle-iron flanges on the end walls are centrally secured, by means of rivets 7 or other suitable fastenings, spring-metal plates 8, which are provided at their ends with

screw-threaded apertures 9 for the reception of bolts 10. These bolts are thus secured to the spring-plates against displacement, and their threaded shanks are adapted to pass loosely through openings 11 and 12, formed, respectively, in the flange 5 upon the end wall and in the side wall and to receive winged ends 13, whereby the said side and end walls are clamped together. As shown in Fig. 7, the heads of the bolts bear against the ends of the spring-plates 7 and hold the same against the outer flanges of the angle-iron 5, so as to maintain a tension on the bolts to hold the winged-nuts 13 tightly clamped against the outer face of the side wall, thereby maintaining the parts in firm engagement. When it is desired to disconnect the side and end walls, the winged-nuts 13 are screwed off the bolts, and the latter will then be retracted by the springing back of the ends of the spring-plates 7, thus disconnecting the parts from each other. As the bolts 10 are threaded into the apertures 9 in the ends of the spring-plates, it will be seen that said bolts are fixed to the plates and cannot in the ordinary use of the stove when the parts are disassembled become lost or mislaid, as would be likely the case if the bolts were not fixed to the plates. The flanges 5 and 6 on the side and end walls are adapted to form broad bases for the walls to rest upon. The flange 6 on the side wall forms a three-sided strip extending along the base and vertical edges of the wall and serving as ledges against which the end walls bear. Each side wall is reinforced upon its one side by a central vertical bracing-strip 14, and this strip and the side wall are notched, as indicated at 14', in their upper edges for a purpose to be presently described. Each end wall is provided with an upper main draft-opening 15, adapted to be closed by a main draft-door 16, and with a lower draft-opening 17, adapted to be closed by a draft-door 18.

The upper main door 16 is hinged at its lower edge to the end wall by strap-hinges 19, which engage the horizontal web of a T-shaped plate 20, secured horizontally upon the outer face of the end wall. These strap-hinges 19 have at their lower ends shanks formed into hooks 21 to engage the said horizontal web of the T-shaped plate, and said shanks pass

through openings 22, formed in said plate, the opening being of such relative size as to allow the shanks to fit and slide loosely therein, so that the door will turn freely on, the hinges thus formed and so that by this construction expansion and contraction of the parts will be compensated for, so as to prevent binding of said parts upon one another and any interference with the free movement of the door. The door 16 is adapted to tilt downward and is provided with pivoted latches 23 to engage keepers 24 on the outer face of the end wall 2 on opposite side of draft-opening 15.

The top of the stove is divided to form the two sections 4, which are provided with the usual removable plates 24, closing pot-openings formed therein. Each section 4 is provided around its edges with an angle-iron flanging 25 and is provided upon its under side with rings 26 to support the said plates 24. The depending portions of the angle-iron flanges 25 at the meeting edges of the top sections 4 are adapted to fit down into the slots 14' in the side pieces 3. The vertical flanges of the angle-iron pieces around the remaining sides and ends of the top sections 4 fit down around and inclose the angle-iron flanges 5 upon the walls 2, and their horizontal flanges rest upon the horizontal flanges of said angle-irons 5, whereby the two top sections 4 are supported in an effective manner. By this construction it will be seen that the parts of the stove-body are connected in such manner that they may be readily and conveniently assembled and disassembled and packed away in close compass for storage or transportation.

The lower door 18 of each end wall 2 is connected to the vertical web of the lower horizontal portion of the angle-iron 5 by hinges 27 to tilt downward and is adapted to be held closed by a pivoted turn-button 28.

On opposite sides of the stove are supported hot-water tanks 29, each of which is provided with a draw-off cock 30. To the end walls of each of these tanks are pivoted hangers 31, which project through slots 32, formed in said side walls, and have hooked ends to engage the walls of the openings to removably support the tank in position. The walls of each slot 32 are preferably reinforced by a slotted plate 33, which strengthen said wall to prevent displacement thereof under the weight of the tanks.

A flue 34, consisting of an inclined bottom 35 and two side pieces 36, hinged to fold down upon said bottom, is provided for use in connection with either one of the draft-openings 15, formed in the end walls of the body of the stove. The sides 36 are pivoted to the plate 35, so that they may be turned down upon the same for close storage when the stove is disassembled for packing away or shipment, and are provided at their inner ends with upwardly-projecting hooks 37 to bear against the inner side of the depending flange 25 on the outer side of one of the top sections 4

and below the same with lateral hooks 38 to engage the keepers 24 when the door 16 is turned down. The open top of the flue is adapted to be closed by the supporting-plate of the oven-drum hereinafter described and to conduct the smoke and products of combustion from the top of the stove to said drum. In order to augment or diminish the draft, the plate 35 of the flue is provided with a suitable damper 39.

The oven-supporting plate 40 is in the nature of a shallow tray having its opposite side and end edges bordered by a flange-strip 41, which may consist of one web of a strip of angle-iron, of which the other web is suitably secured to said plate. One end of the plate is adapted to rest against the flange 25 on one of the removable top sections 4 of the stove. The supporting-plate 40 is adapted to rest upon the flue 34, which is in turn supported by the T-shaped horizontal plate 20, and to rest at its outer end upon legs 42, which are pivoted, so as to be turned down to bear upon the surface of the ground. On the plate 40 is mounted a drum or oven-casing 43, which is open at its bottom and provided at its opposite ends with pivoted handles 44, which enable the drum or casing to be easily transported and handled. This casing has at its lower end an angle-iron 45, which is adapted to rest upon the angle-iron 41, which angle-irons respectively stiffen the edge of the supporting-plate 40 and the drum. The smoke and products of combustion from the stove are adapted to pass into the drum through opening 46, formed in the plate 40, which is in connection with the flue 34. The drum or casing 43 is provided with a vent or outlet 47 for the smoke and products of combustion and consists of inner and outer plates 48 and 49, having between them an interposed layer 50 of asbestos or other suitable heat-confining material. The oven 51 is adapted to be supported concentrically within the drum or casing 43 and for this purpose is provided with hooks 52 to engage track-rails 53, carried by hangers 54, secured to end walls of the casing 43. In order to prevent the disconnection of these hooks from the the tracks and the displacement of the oven in case the drum 43 should be overturned while in use, plate-springs 55 are secured to the top wall of the drum and have ends free to bear upon the top wall of the oven, so as to hold the hooks in firm engagement with the tracks. One side of the drum 43 is left open to receive the oven 51 and has a surrounding strip 56 of angle-iron, against which is adapted to abut a corresponding strip 57 on the outer end of the oven, so as to form an air-tight joint between them to prevent the escape at the front of the heat and products of combustion circulating around the oven, which discharge to the atmosphere through the opening 47. The front of the oven is closed by two hinged doors 58, one of which carries a latch 59 to

engage a keeper 60 on the other, as clearly shown in Fig. 1.

In assembling the stove for use the end and side walls of the body are first connected in the manner before described and the sections of the top placed in position. The hot-water tanks 29 are then supported upon the said walls of the stove by engaging their hook-hangers with side walls in the manner shown.

The main draft-door 16 at that end of the stove on which it is desired to employ the flue 34 is then let down and the flue placed in position, and finally drum and oven are arranged to cooperate with this flue, as illustrated in Fig. 2. The lower draft-door 18 upon the end of the stove opposite that upon which the flue is opened to admit air to support combustion and to create the necessary draft throughout the stove and oven.

The fire is then built in the stove, and the smoke and heat products of combustion therefrom pass outwardly through the open passage 15, thence into the flue 34, thence through the opening 46 into the drum 43 and circulate in said drum around the oven 51, and finally pass out to the atmosphere through the opening 47. By this means an effective heating of the oven is secured. The flue 34 is made reversible, so as to be applicable to either end of the oven in order that the lower draft-door may open on that side toward which the wind is blowing, so as to facilitate combustion to the highest degree and adapt the flue to draw freely. By this means better results are secured and the necessity of shifting the entire stove obviated. When the stove is disassembled, the parts are disconnected in the manner described, the flue 34 released and folded, the legs 42 also folded up, the draft-doors closed, and the oven and drum removed. The parts of the stove, with the exception of the oven and drum, are stored away in a suitable receptacle, such as shown, for instance, in my application for patent for "Combined box and camp-table" filed of even date herewith, Serial No. 72,159, while the oven 51 is utilized as a storage-receptacle for the culinary utensils. The stove when thus packed may be readily and conveniently stored away or transported.

During inclement weather the oven may be removed from its drum or casing and placed upon the top of the stove, as shown in Fig. 4, to be used as a protecting-hood to shield the articles cooking.

From the foregoing description, taken in connection with the accompanying drawings, the construction, mode of operation, and advantages of the invention will be readily understood. Variations in the construction and arrangement of parts may be made within the scope of the invention without departing from the spirit or sacrificing any of the advantages thereof.

Having thus described my invention, what I desire to obtain by Letters Patent is—

1. In a collapsible camp-stove, a stove-body

formed of side and end pieces and a top, bolts having their threaded shanks projecting loosely through openings in the side and end pieces, a curved plate-spring secured intermediate of its ends to the end walls between said openings and carrying said bolts, and nuts engaging the shanks of the bolts and holding the ends of the plate-spring under tension whereby, upon the disengagement of the nuts, the said ends of the spring will be freed and retract the bolts, substantially as described.

2. In a collapsible camp-stove, a stove-body formed of side and end pieces and a top, bolts having their threaded shanks projecting loosely through openings in the side and end pieces, springs fixed to the end walls and engaging the bolts, and nuts upon the bolts and holding the springs under tension whereby, upon the disengagement of said nuts, the springs will retract the bolts, substantially as specified.

3. In a collapsible camp-stove, a side wall, an end wall provided with an offstanding flange, said side wall and flange being provided with registering openings, a spring-plate centrally secured to said flange, bolts carried by the ends of said spring-plate and adapted to project through said openings, and nuts to engage the bolts and hold the ends of the springs under tension whereby, upon the disengagement of the nuts, the said ends of the springs will be freed and retract the bolts, substantially as set forth.

4. In a camp-stove, a stove-body comprising side walls provided with angle-irons, end walls adapted to rest against said angle-irons, and having angle-irons extending around their edges, means for connecting the side and end walls, and a top formed of sections having angle-iron flanges which fit in slots in the side walls and rest upon the flanges on the end walls, substantially as described.

5. In a collapsible camp-stove, detachable side and end walls, the side walls being provided with slots and the end walls with off-standing flanges, and a top having a flange to engage the slots and to rest upon the flanges of the end walls, substantially as described.

6. In a camp-stove, a stove-body provided with draft-openings, doors for closing said openings, a flue interchangeable to cooperate with either draft-opening, and an oven adapted to be supported by the flue, substantially as described.

7. In a camp-stove, a stove-body having draft-openings formed in its opposite end walls, and a foldable flue to cooperate with either of said draft-openings, substantially as described.

8. In a camp-stove, a stove-body having a draft-opening, a flue adapted to cooperate therewith, a supporting-plate to rest upon the flue, a drum supported by said plate, and an oven in said drum, substantially as described.

9. In a camp-stove, a stove-body having a draft-opening, a flue adapted to cooperate

therewith, said flue being removable and fold-  
able, a plate supported by the flue and hav-  
ing a smoke-passage, a drum or casing car-  
ried by said plate, and an oven within the cas-  
5 ing, substantially as described.

10 10. A collapsible camp-stove comprising  
side and end walls and a top, said parts being  
detachably connected and the side walls pro-  
vided with draft-openings, a flue interchange-  
able to cooperate with either draft-opening,  
a supporting-plate to rest upon the flue, a

drum adapted to be supported by the plate,  
and an oven in said drum, substantially as  
and for the purpose specified.

In testimony whereof I have hereunto set 15  
my hand in presence of two subscribing wit-  
nesses.

FRED L. MITCHELL.

Witnesses:

CHAS. MITCHELL,

SAMUEL A. SWART.