March 10, 1964 V. R. KISER 3,124,057

PORTABLE CAMP STOVE

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FIG. 1

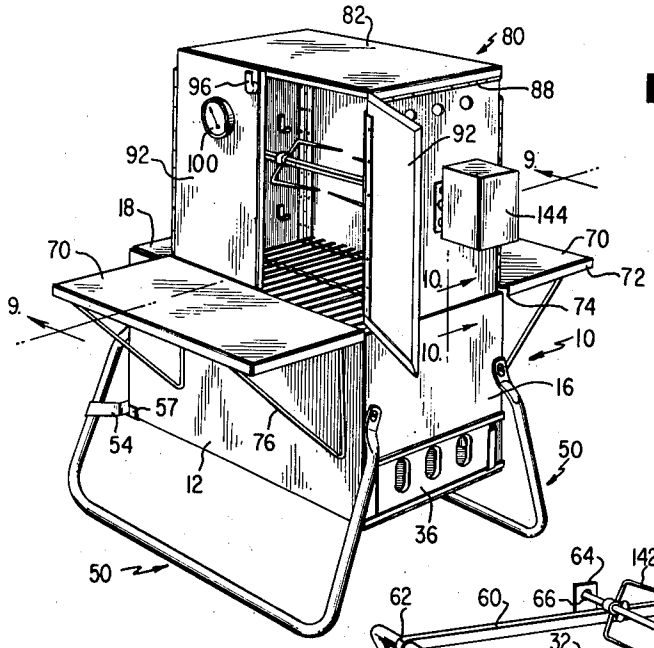


FIG. 2

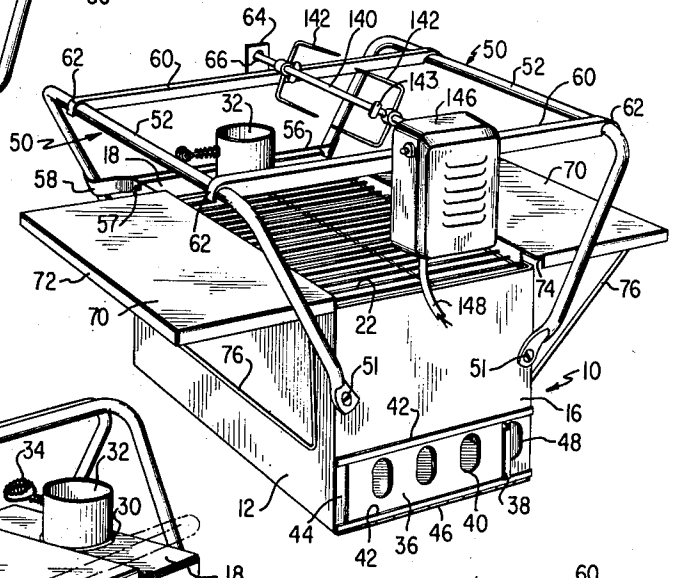
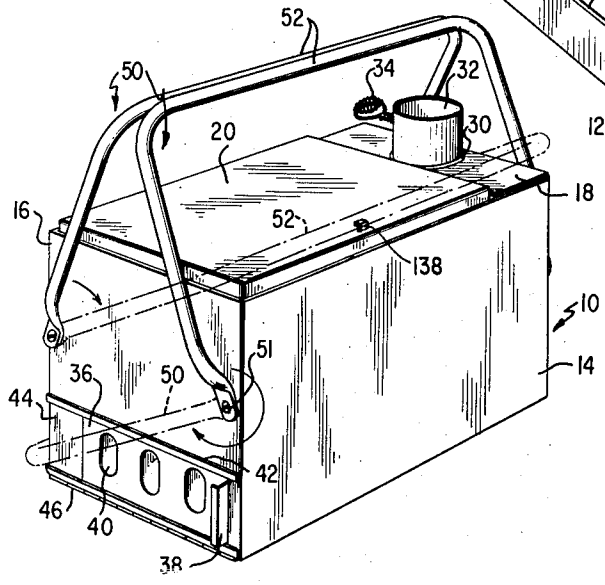


FIG. 3



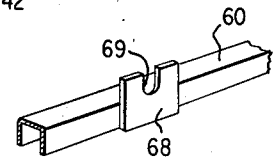


FIG. 4

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FIG. 4

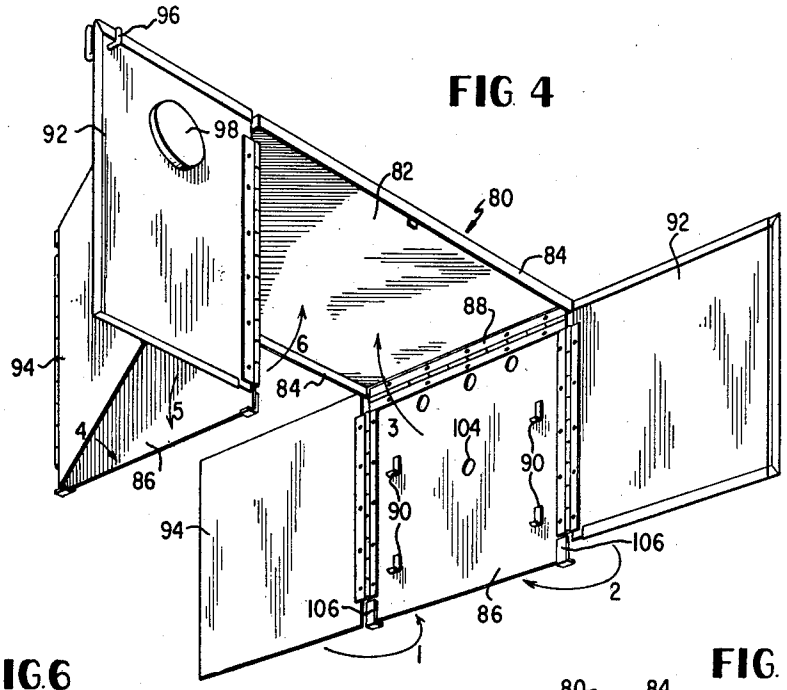


FIG. 6

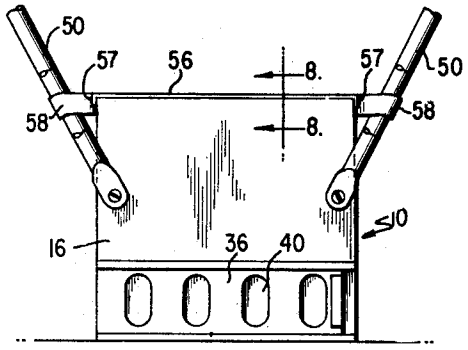


FIG. 5

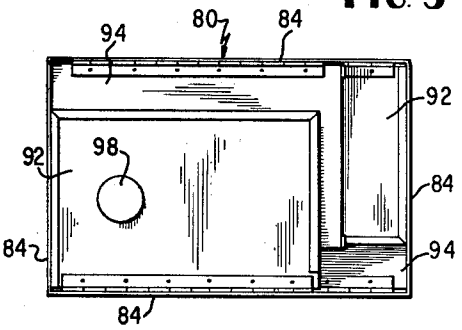
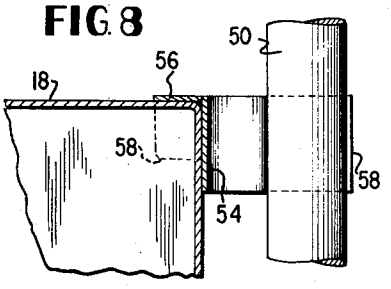


FIG. 8



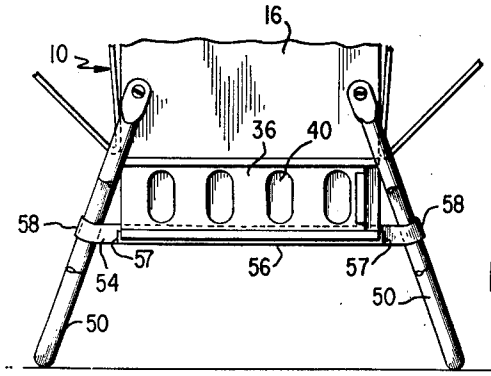


FIG. 7

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FIG. 9

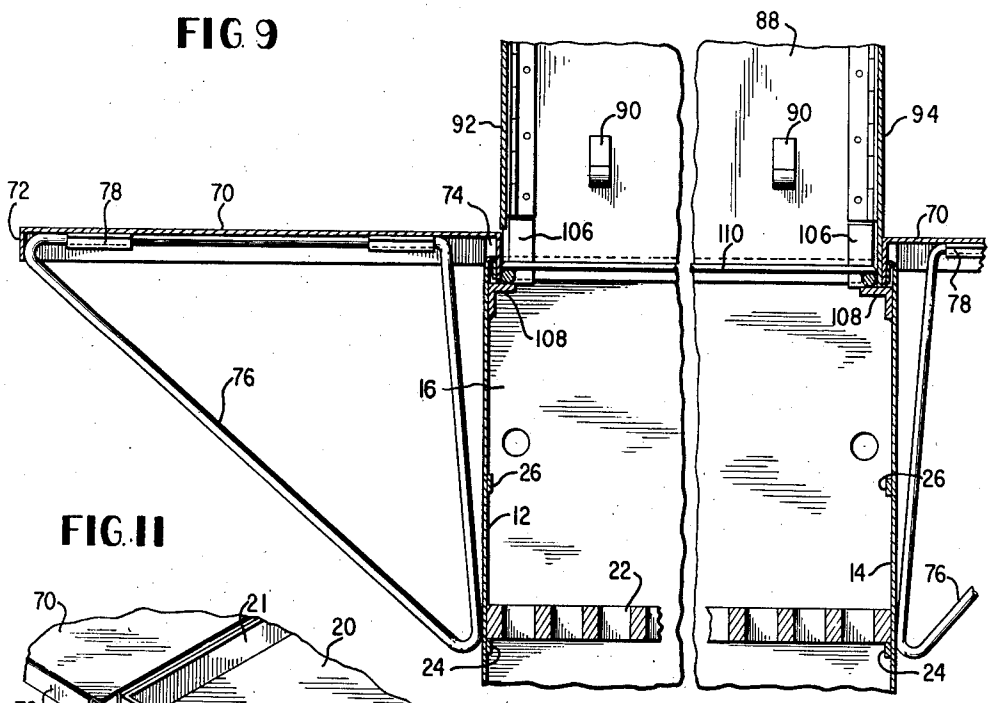
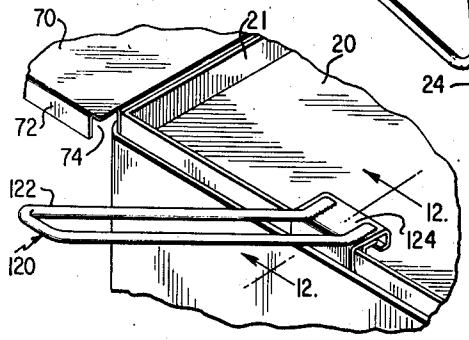


FIG. 11



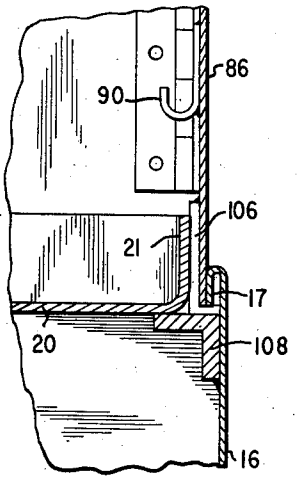
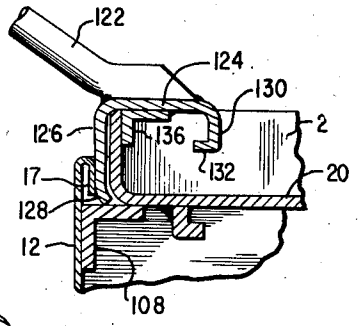


FIG. 10

FIG. 12



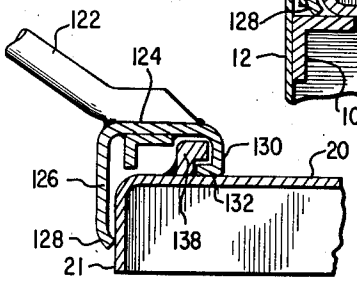


FIG. 13

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3,124,057

PORTABLE CAMP STOVE

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12 Claims. (Cl. 99—340)

This invention relates generally to stoves and more particularly to improvements in a portable camp stove having a collapsible and folding oven which, together with other attachments and accessories, may be packed within the stove casing while being stored or transported.

It is a primary object of the invention to provide an improved portable camp stove having a casing usable as a stove fire box and a removable and collapsible oven receivable within the stove casing when the latter is not being used for cooking purposes, for storage and transport to another location.

Another object of the invention is to provide an improved portable camp stove of the above described characteristics wherein the stove casing is provided with a reversible cover which doubles as a frying pan and which also locks the stove and oven together as a unit when the oven is being used for cooking.

A further object of the invention is to provide an improved portable camp stove having the above described characteristics and which is further provided with additional accessories such as a motorized spit, grates, removable shelf trays, etc., which accessories are also storable in the stove casing and thus readily available to greatly increase the versatility of the stove as to types of cooking operations, kinds of fuel which may be burned, and the like.

A still further object of the invention is to provide an improved portable camp stove, of the above described characteristics, having pivoted legs and detachable braces therefor, said legs being rotatable to four different positions wherein they function first, as supports for the stove, second, as supports for a rotatable spit, third, as carrying handles and fourth, in a storage position, to occupy a minimum of space.

Yet another object of the invention is to provide an improved portable camp stove, of the above described characteristics, having a detachable chimney with a damper disposed therein, and a hinged ash door which also serves as a draft control for the stove.

Still another object of the invention is to provide an improved portable stove, of the above described characteristics, which is of simplified construction, which may be easily and inexpensively fabricated, which has an oven easy to unfold and assemble together with other components, accessories or attachments, and which is also exceedingly simple to collapse, or fold, and dismantle for packing inside the stove casing in storage condition.

The novel features that are considered characteristic of the invention are set forth with particularity in the appended claims. The invention itself, however, both as to its organization and its method of operation, together with additional objects and advantages thereof, will best be understood from the following description of a specific embodiment when read in connection with the accompanying drawings wherein like reference characters indicate like parts throughout the several figures and in which:

FIG. 1 is a perspective view of a stove, constructed in accordance with the invention, in which the oven and certain accessories have been removed from the stove compartment and installed for use as an oven rotisserie combination;

FIG. 2 is a perspective view similar to FIG. 1 but with the oven removed and a motorized spit installed on the legs of the stove;

FIG. 3 is a perspective view of the stove with the oven section collapsed and packed together with other components, attachments and accessories inside the stove compartment where they are not visible in the view and with the stove legs moved to an upper carrying position;

FIG. 4 is a perspective view of the oven section only with its walls partially unfolded, the arrows indicating the direction and sequence for moving the walls to fold or collapse the oven into a flat package;

FIG. 5 is a plan view of the collapsed oven inverted and resting upon the upper wall;

FIG. 6 is a fragmentary end elevational view of the stove as pictured in FIG. 2 with certain of the accessories omitted;

FIG. 7 is an elevational view similar to FIG. 6 but with the legs moved to a stove supporting position;

FIG. 8 is a fragmentary sectional view taken on line 8—8 of FIG. 6 and looking in the direction of the arrows;

FIG. 9 is a fragmentary sectional view taken on line 9—9 of FIG. 1 and looking in the direction of the arrows;

FIG. 10 is a fragmentary sectional view taken on line 10—10 of FIG. 1 in the direction of the arrows;

FIG. 11 is a fragmentary perspective view showing application of an implement for lifting the frying pan closure of the stove chamber;

FIG. 12 is a fragmentary sectional view taken in the direction of the arrows from line 12—12 of FIG. 11;

FIG. 13 is a sectional view similar to FIG. 12 but showing the lifting implement applied to the inverted frying pan stove cover, and

FIG. 14 is a fragmentary perspective view of a portion of a strap brace for support of a rotatable spit.

Referring now more particularly to the drawings, there is shown in FIGS. 1–3, a preferred embodiment of the stove according to this invention as comprising a stove, or firebox, compartment generally indicated at 10 and an oven compartment generally indicated at 80, the oven being installed on the stove in FIG. 1 but removed therefrom in FIG. 2 and folded and collapsed for storage within the storage compartment in FIG. 3.

The stove comprises front and rear walls 12 and 14 respectively, a bottom wall, not visible in these views, end walls 16 and a partially covering top wall 18. These walls enclose and form the stove chamber or fire box, the opening at the top being adapted to be covered by the removable closure 20. Inside the stove is a grate 22 upon which may be placed the fuel to be burned, said grate being removably supported on cleats 24 and 26 at different levels. The top wall 18 has an opening 30 to removably receive a short chimney 32 which carries a damper operable by the protruding handle 34. To permit entry of air and further control the draft, a sliding partition 36, having a hand grip flange 38 at one end and a plurality of vent openings 40 is provided. This partition is slidable in track flanges 42 formed on a separate panel 44 which is hinged at the bottom edge of one of the walls 16 by means of the piano hinge 46. Panel 44 has openings 48 similar to openings 40 (see FIG. 2) so that upon movement of the draft panel 36 to change the registry of the openings 40 and 48, the draft of air into the fire box may be modified. When the damper panel 44 is moved outwardly on the piano hinge 46, the lower part of the stove under the grate 22 is accessible for removal of ashes.

A pair of tubular handles 50, each bent into U-shape, are pivoted at their free ends to the end wall 16 by pivot means 51. Consequently, when the stove is to be carried, the legs may be moved to an upper position as shown in FIG. 3 wherein the transverse portions, or bights of the U's 52 may be grasped for lifting the stove. When the stove is to be stored, the handles 50 may be turned in

the direction of the arrows as illustrated in FIG. 3 to the broken line positions shown in which the bight of one handle lies adjacent to and against the top surface of the stove at one edge and the bight of the other handle lies against the lower edge of the front surface 12. Thus disposed, the handles occupy a minimum of space since they rest directly against the stove casing.

The stove 10 may be supported above a surface by turning the legs 50 on their pivots to occupy a downwardly extending spread position such as in FIGS. 1 and 7. The legs are secured in such position by a brace strap 54 which has an angle cross section including a flange 56 which seats under the lower edge of the stove. At each end, flange 56 has an inturned finger 57 which together embrace the stove walls 12 and 14 and prevent longitudinal movement of the brace. The ends 58 of the brace are curled inwardly to slidably grasp the legs when positioned thereover and are directed at angles so as to hold the legs in spread condition. Portions 53 are spaced at their free edges from the body of strap 54 so that the brace may be lifted away from the legs 50 without necessarily sliding the complete lengths of the legs into the brace. As clearly indicated in FIG. 7, the strap flange 56 comes to rest under the stove so that further sliding movement, which would otherwise be caused by the weight of the stove, is prevented and the stove is firmly positioned on the legs as shown.

As indicated in FIG. 6, the stove may rest on its bottom wall with legs 50 tunred upwardly to diverge from each other. In such instance, the brace 54 is inverted and the curved ends 58 again slidably engage the legs while the flange 56 comes to rest on the upper edge of the stove preventing further spreading movement of the legs.

With the legs in this position, as best illustrated in FIG. 2, a pair of angle straps 60, somewhat similar in shape to the brace 54, may be disposed over the bights 52 of the legs by means of curved end portions 62. Centrally, one strap 60 has, welded or otherwise suitably secured thereto, an upstanding finger 64 having a circular opening 66 to act as a bearing for spit 140. The other strap 60 is provided with a similar finger 68 (see FIG. 14) having a groove 69 in its upper edge for receiving the spit.

A pair of detachable trays 70 are provided for extending the work surface of the stove at its front and rear. Each tray is formed with a downturned peripheral flange 72 with cutouts 74 at the inner corners to permit the trays to be slid inside the upstanding vertical walls 12 and 14 of the stove with the flanges 72 engaging the inner surfaces of such walls. Each tray is then supported in position by a pair of triangular shaped wire braces 76. Each brace is preferably an obtuse angle triangle with one side engaged in hinges 78 at the under side of the tray 70, a second side engageable with the walls 12 and 14 of the cook stove and an angle point bearing against wall 72 of the tray. The brace, when so constructed, bears against the cook stove at only one point which is below the high heat area. The braces may be folded in their hinge mounts 78 to lie flat within the confines of the flanges 72 when not in use and in such condition may be stored within the stove 10 with the other accessories.

The collapsible oven 80 comprises an upper horizontal panel 82 having downturned peripheral flanges 84. A pair of end walls 86 are hinged to the flanges of upper wall 82 by means of piano type hinges 88. At various levels, the end walls 86 are provided with keeper brackets 90 for reception of removable shelves, not shown. At the vertical edges of each of the end walls 86, are hinged front and rear panels 92 and 94 respectively. The two rear panels 94, when folded into alignment, form the rear wall of the oven and are secured in such position by engagement of the upper edges of the panels with the flange of the top panel and by engagement of the lower edges of the panels with the inside surfaces of the upper edge of the stove wall 14. The front panels 92 are slightly shorter in length than the rear panels 94 and are thus openable over the tray 70 when positioned on the stove at the front thereof. One front panel 92 has a keeper latch 95 adapted to engage behind the downturned flange 84 of the top panel to hold the doors in closed position. An aperture 98 is also provided in panel 92 for reception of an oven thermometer 100.

Each oven side panel 86 is provided with a bearing opening 104 for the spit and, at its lower edge, with a pair of outturned brackets 106 which, when the oven is unfolded and inserted in the stove top, serve to support the oven by resting on the stove bracket 108, as best shown in FIG. 10. The outturned portions of brackets 106 will, in that position, fit under the downturned lip 17 formed peripherally on the upper edges of the stove walls. When the stove cover 20 is seated within the oven on the bracket 108 of the stove, the cover will press outwardly against the brackets 106. This holds the oven unfolded and locks the oven to the stove 10 against upward removal of the oven because of retention of brackets 106 under lip 17. The stove and oven will, therefore, be connected to operate as a single unit and cannot be dissassociated until the cover 20 is first lifted and removed from the inside of the oven. The same locking function is performed by the closure 20 when it is inverted and inserted for use as a frying pan. Alternatively, the pan 20 may be replaced by a grill 110, FIG. 9, which also locks the stove and over together. FIG. 4 shows the relation of the various panels comprising the oven and indicates in the numbered sequence 1–6 and the directions of the arrows how the panels may be folded on their hinges to occupy a minimum of space. To collapse the oven, each end panel is turned upwardly and toward the upper panel 82 with the front and rear panels hinged thereto turned outwardly in the direction of the arrows. In the collapsed condition, FIG. 5, each panel lies adjacent the next one and all are confined within the space bounded by the flange 84 of the top panel 82 which has been inverted and is now at the bottom of the stacked panels. When collapsed, the oven will easily fit within the stove casing for storage or transportation.

To open the oven after inversion, to place panel 82 on top, it is apparent from FIG. 4 that the end panels 86 are turned downwardly and the front and rear panels are then turned outwardly in directions opposite to the arrows of the figure.

In FIGS. 11–13 is shown a lifter implement 120 for removing, or inserting, the frying pan stove closure 20 from the oven through the open oven doors 92. The lifter comprises a handle 122 made of a rod bent into an elongated U-shape and welded, or otherwise secured, at the free ends to the upper surface of a short channel member 124. The horizontally disposed web of the channel 124 has an integral downturned flange 126 with a slightly inturned lip 128 and a shorter downturned flange 130 having an inturned lip 132. Spaced closely adjacent to the flange 126 and fixed to the under surface of the web of the channel 124, is a bracket 136 having a downturned flange parallel to flange 126. As shown in FIG. 12, the upturned edge, or flange 21, of the frying pan 20 fits between the flanges 126 and 136 of the lifter so that upon slight turning of the lifter and upward movement thereof, the frying pan flange will be held by the lifter to move therewith. If the frying pan 20 is inverted, as shown in FIG. 13, a detent bracket 138 secured to the under side of the frying pan and having a right angle flange engageable over the lip 132 of the lifter while the flange and lip 128 of the implement bear against the flange 21 of the pan to hold the pan for lifting. Thus, one implement 120 is usable to lift the frying pan whether it is in its normal or inverted position within the oven or on the stove with the oven removed.

When the oven is assembled, as shown in FIG. 1, it may be used with shelves inside to hold food to be roasted or

baked, or the spit 140 may be inserted to rest with its ends rotatably supported in the openings 104. The spit is provided with conventional type forks 142 which are detachably secured thereto by screws having wing nuts 143, as shown in FIG. 2. The spit is adapted to be operated as an oven rotisserie turned by a motor contained in the housing 144 which also may include dry cells, or the like, for energizing the motor. In FIG. 2, the rotatable spit is mounted to turn in the bearing brackets 64 and 68 forming part of the support straps 60 and having the bearing openings 66 and 69, as previously described. In this view, the spit, which can be turned by hand, is shown as being turned by an electric motor housed in the casing 146 and having a cord 148 for connection to a source of electric power.

The entire stove is made of metal or other suitable material of sufficient strength to support the cooking utensils and maintain its shape under the heat generated therein. Various parts of the stove, oven and accessories are suitably painted, enameled or plated to present a pleasing appearance.

It will be readily apparent from the above description that the present invention provides a portable camp stove which is versatile to perform all kinds of cooking in virtually any location. When set up as in FIG. 2, it is adapted to charcoal broil, smoke cook, barbecue or fry. And, when set up as a complete oven and stove combination, as shown in FIG. 1, it is adapted for use in baking, roasting and other types of oven cooking. The damper provided in the chimney and the adjustable openings 40, 48 in the fire box door 36 permit the regulation of the fire and the temperature needed for the cooking at hand. These, together with adjustable cast iron grates enable all types of fuel such as wood, charcoal, coke, etc., to be used. It should also be clear from the above description that the camp stove may be quickly set up, or taken down, and that when the oven is collapsed and packed with all the accessory parts in the stove compartment, the device occupies very little space and may be easily carried by means of the handles which, during use of the stove, function as legs or spit supports.

Although a certain specific embodiment of the invention has been shown and described, it is obvious that many modifications thereof are possible. The invention, therefore, is not to be restricted except insofar as is necessitated by the prior art and by the spirit of the appended claims.

What is claimed is:

1. A portable stove comprising walls defining an enclosure, a pair of handles each of U-shape pivoted at their free ends to opposite walls of the stove, said handles being rotatable from a lower position in which they extend below the stove for support thereof to two upper positions in which they extend above the stove, said handles in one of said upper positions having their bights engaged to be grasped for carrying the stove, a detachable strap slideably engaging said handles to hold them in said lower and spread condition, said strap having inturned end portions slideably grasping said handles and a flange seating under and engaging a wall of the stove to prevent further outward spread of the handles under weight of the stove, and said detachable strap being inverted and engaged with the handles in the second of their upper positions with said flange seating on an upper edge of a wall of the stove wherein the handles are fixed in said second upper position and spread in diverging directions for support of a rotatable spit.

2. A portable stove according to claim 1, wherein said handles are movable to a fourth position for minimum space storage in which one of said handles is rotated upwardly until its bight lies against and parallel to the upper surface of the stove and the other handle is rotated in the same direction downwardly about the stove until its bight engages and is parallel to a vertical wall of the stove above and adjacent the lower edge thereof.

3. A portable stove according to claim 1, wherein an additional pair of straps is provided having inturned ends seating over the bights of the handles in their second upper position, each of said pair of straps including an upstanding finger having a bearing opening for a rotatable spit.

4. A portable stove comprising a bottom wall, vertical side, front and rear walls, a top wall partly enclosing the interior of the stove, an opening in said top wall removably receiving a chimney including a damper, a draft and ash removal opening in the lower portion of one of said side, front and rear walls, a panel having openings hinged to said one wall and pivotally movable to engage and cover said draft opening and away from said wall to uncover the draft opening to permit ash removal, a panel having draft openings slideably mounted on said hinged panel to regulate the draft, and a top closure for the stove removably seated on the front and rear walls to enclose the open top next to said top wall, in combination with a collapsed oven stored within the stove, said oven having a top panel having a downturned peripheral flange, a pair of end panels hinged to the ends of said top panel, each of said end panels having a rear panel and a door panel hinged at the sides thereof whereby the end, rear and door panels may be folded to lie flat against the underside of the top panel and within the confines of the peripheral flange on the top panel.

5. A portable stove according to claim 4, wherein said oven in unfolded condition is received in the upper portion of the open top of the stove, the rear and door panels of the oven forming extensions of the vertical walls of the stove, and means for locking said unfolded oven to the stove.

6. A portable stove comprising a plurality of vertical walls and a horizontal bottom wall enclosing a stove chamber, said chamber being partly open at the top, said vertical walls at their upper edges having inturned and downwardly directed lips, in combination with a collapsible oven engaging said upper edges of said stove when unfolded, said oven including an upper panel, a pair of end panels hinged to the ends of said upper panel, each of said end panels having a rear panel hinged to the rear edge thereof and movable into aligned positions to form the rear wall of the oven, and each of said end panels having a door panel hinged to the front edges thereof, said end panels each having at least one outwardly directed cleat seated within the stove and supporting the oven in the open top of the stove, and a locking member seated within the oven and pressing said cleats outwardly into engagement under the lips of the stove at the upper edges thereof whereby to lock the oven in unfolded condition on the stove.

7. A portable stove according to claim 6, wherein said locking member comprises a plate covering the open upper part of the stove when the oven is collapsed and folded and removed from the stove.

8. A portable stove according to claim 7, wherein said plate comprises a panel having a downturned peripheral flange, said plate being receivable in the open upper part of the stove when inverted for use as a frying pan positioned between the stove and the oven and locking the oven to the stove.

9. A portable stove according to claim 6, wherein said locking member comprises a grill positioned between the stove and the oven and adapted to support articles within the oven over the stove.

10. A portable stove according to claim 6, wherein is additionally provided a separable side tray, said tray comprising a flat panel having downturned peripheral flanges one of said flanges seated over and within an upwardly extending open edge of the stove, said flat panel having a foldable brace member hinged to its under surface and adapted when turned to be received within the confines of said peripheral flanges, said brace member having a portion in engagement with a vertical wall of the stove to secure the tray as a horizontal shelf surface extending

from the stove at the level of the bottom of said oven, and said tray and said oven when removed from the stove and folded to collapsed condition are received within the confines of the stove for storage.

11. A portable stove according to claim 10, wherein said brace member comprises a triangular shaped rod one side of which is secured in the hinge under the tray panel and one point only of a second side of which rests against a vertical wall of the stove when in unfolded position.

12. A portable stove comprising a bottom wall, vertical side, front and rear walls, a top wall partly enclosing the interior of the stove, an opening in said top wall for reception of a chimney including a damper, a draft and ash removal opening in the lower portion of one of said side, front and rear walls, a movable panel with openings therein closing said draft opening, a panel having draft openings slidably mounted on said movable panel to regulate the draft, a top closure for the stove removably seated on the front and rear walls to close the open top next to said top wall, a collapsed oven stored within the stove, said oven having a top panel having a downturned peripheral flange, a pair of end panels hinged to the ends of said top panel, each of said end panels having a rear panel and a door panel hinged at the sides thereof whereby the end, rear and door panels may be folded to lie flat against the underside of the top panel and within the confines of the peripheral flange on the top panel, said oven in unfolded condition being received in the upper portion of the open top of the stove with the rear and door panels of the oven forming extensions of the vertical walls of the stove, a detached, rotatable spit carried within said stove, a pair of U-shaped legs pivoted at their free ends to opposite walls of the stove, said legs being rotatable from a lower position in which they extend below the stove to two upper positions in which they extend above the stove, said legs in one of said upper positions having their bights engaged to be grasped for carrying the stove and collapsed oven, and detachable means for securing the legs in the second of their upper positions wherein the legs are spread in diverging directions for support of said rotatable spit.

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