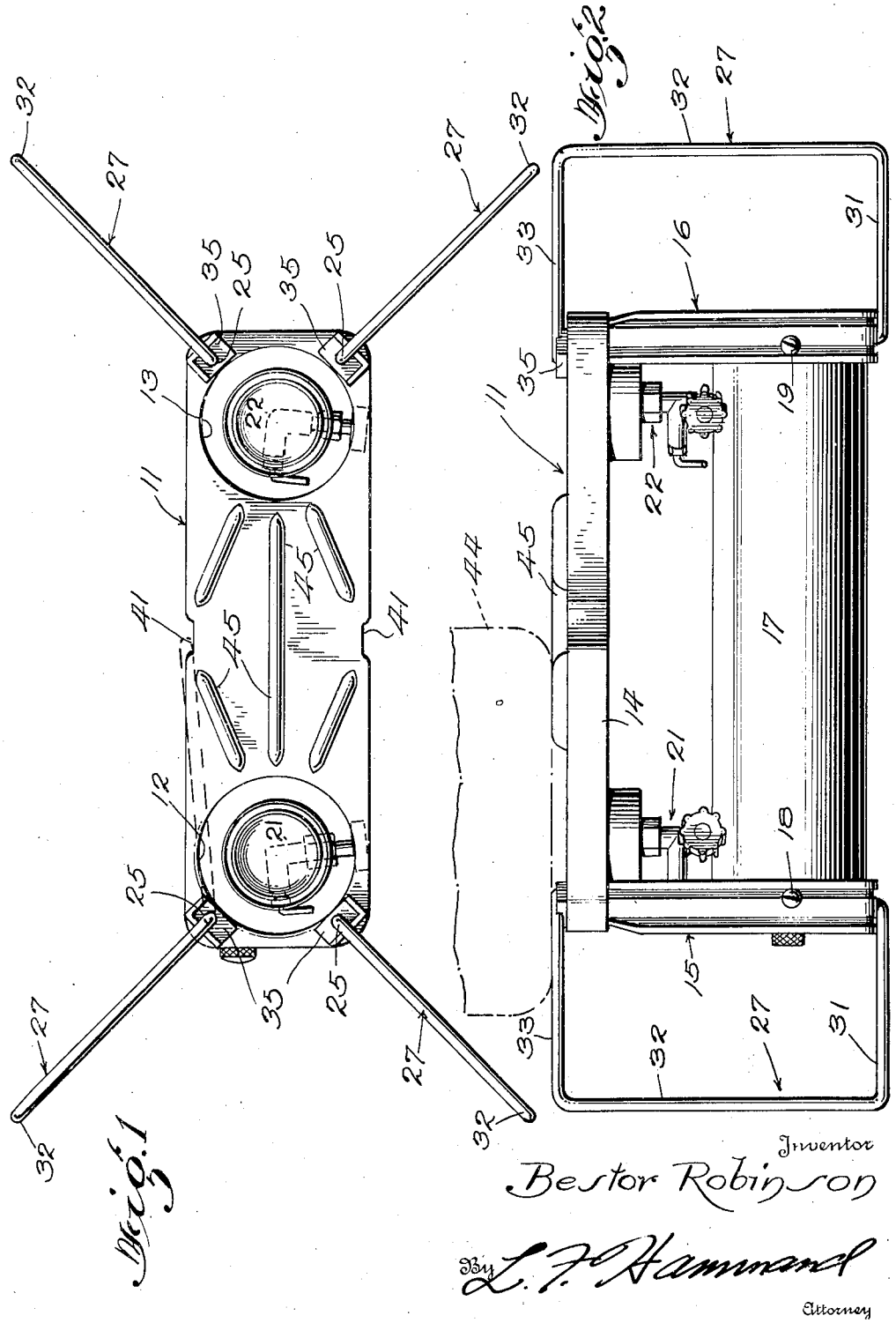
July 27, 1943. B. ROBINSON 2,325,077

FOLDING STOVE

Filed July 7, 1942 2 Sheets-Sheet 1



Inventor

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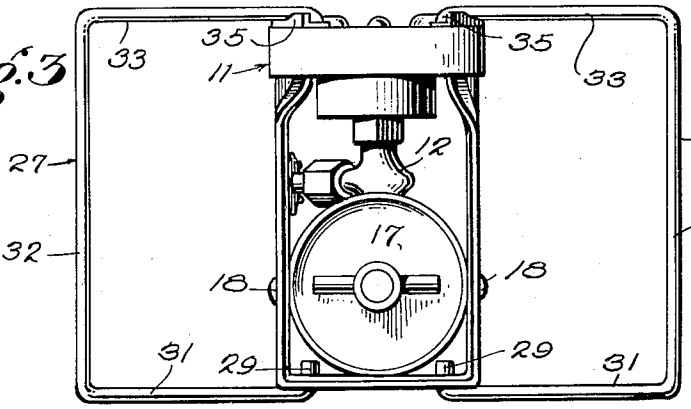
Attorney

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Fig. 3



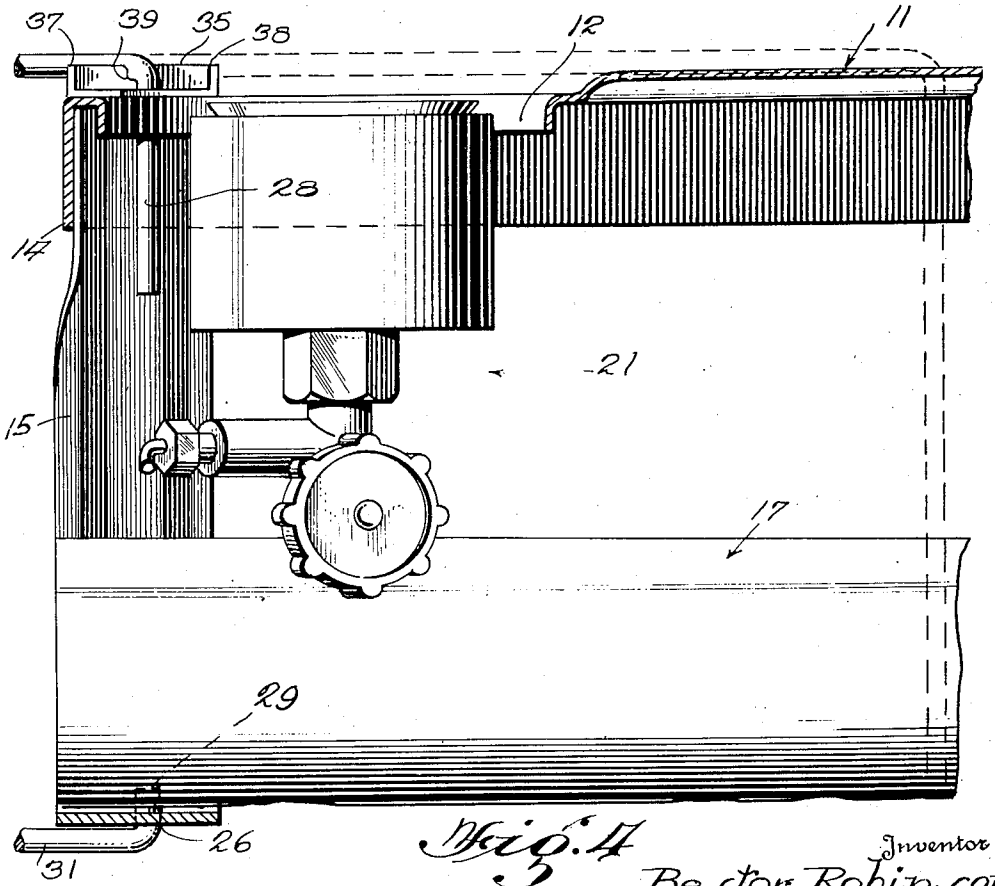


Fig. 4

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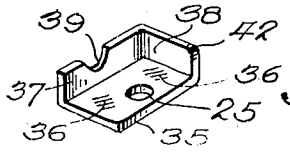


Fig. 5

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UNITED STATES PATENT OFFICE

2,325,077

FOLDING STOVE

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Application July 7, 1942, Serial No. 449,988

3 Claims. (Cl. 126—38)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

The invention described herein, if patented, may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

The present invention relates to stoves, and more particularly to a folding frame for a double burner miniature gasoline stove.

A prime object of the present invention is a provision of a folding stove frame adapted for military use, and of such construction and mechanical design that it is sufficiently large to accommodate two relatively large cooking vessels when in operating position and yet may be folded into a relatively small compact unit for transporting in the field. In this connection it may be well to point out that ski troops, parachute troops, et cetera, are provided with equipment of this character, and it is a first essential that the equipment be so designed as to be relatively light and compact when in folded position; but it is equally important that it be adapted to receive and support relatively large cooking vessels without danger of tipping or collapsing.

It is, accordingly, an important object of the present invention to provide a novel mechanical design for a folding stove frame of simple, rugged and sturdy construction capable of withstanding considerable abuse without damage.

A further object of the invention is the provision of a folding stove having shiftable leg brackets arranged to be instantly opened to place the stove in operating position or closed when not in use.

A further object of the invention is the provision of a folding stove structure including a long and relatively narrow rigid stove or burner frame associated with a plurality of stove legs pivoted on said frame and arranged to be shifted between an operation position wherein they extend outwardly from the corners of the frame to provide a relatively great base of support for the stove, or may be folded against the stove frame so that the entire structure is compactly arranged.

A further object of the invention resides in the provision of shiftable supporting brackets or legs so designed as to include a straight vertical riser portion extending directly upwardly from the ground to the top of the stove, so that they will be capable of supporting relatively great loads, and will provide a base of support of an effective area not less than the stove top; to thus impart stability to the structure and prevent any possibility of accidental tipping.

A further object of the invention resides in the provision of supporting brackets of generally rectangular configuration including a base rail and top rail inter-connected by vertical riser and pivoted on the burner frame in such a manner that the inherent resiliency of the bracket may be utilized to maintain the brackets in predetermined position.

A further object of the invention resides in the provision of a burner frame including shiftable supporting brackets pivoted adjacent the stove burners and adapted to lie in open top notches, so that the weight of the cooking vessel positioned on the burner will effectively lock the stove legs or brackets in extended position.

Another important object of the invention is the provision of a folding stove frame comprising relatively few and simple parts, capable of easy assembly, and well adapted to economical mass production methods of manufacture.

Referring now more particularly to the drawings wherein one of the present preferred embodiments of the present invention has been illustrated,

Fig. 1 is a top plan view of a two-burner stove with its supporting brackets in extended operating position.

Fig. 2 is a side elevational view of the stove illustrated in Fig. 1.

Fig. 3 is an end elevational view.

Fig. 4 is a fragmental sectional view, and

Fig. 5 is a detail perspective view of one of the bracket positioning plates.

The stove frame, in general, comprises a relatively small compact burner frame which, in the device illustrated, is relatively long and narrow, to provide space for a cylindrical fuel reservoir and to provide a mounting for two fuel burners, one adjacent each end of the frame. This rigid burner frame is supplemented by a plurality of shiftable supporting brackets arranged to be folded closely against the sides of the burner frame when the device is not in use, or to be extended angularly outwardly from each corner of the burner frame to provide the maximum base of support when the stove is being used.

The burner frame includes a top frame member 11 of generally rectangular shape and of a length greatly in excess of its width, so as to provide a relatively long narrow stove top having two burner apertures 12 and 13, respectively, positioned at the opposite ends of the top frame and remote from each other. The top frame is preferably formed to include downwardly extending side and end walls 14, to give increased rigidity to the frame and to provide additional

protection for the comparatively delicate burner mechanisms, as will hereinafter appear.

A pair of end frames 15 and 16 are welded to or otherwise secured to the opposite ends of the top frame, each of the frames 15 and 16 including a flat horizontal bottom portion and two upwardly extending side portions that form the corner posts of the burner frame (see Fig. 3). A cylindrical fuel reservoir 17 extends between the lower ends of the end frames 15 and 16, respectively, and is secured to the end frames in any desired fashion, as for example, by means of the structures 18 and 19. The arrangement is such that the cylindrical fuel reservoir 17 acts as the lower element of the burner frame so that the fuel reservoir, the top frame, and the end frames 15 and 16 substantially surround and enclose the fuel burners 21 and 22. Burners 21 and 22 are independently mounted on the fuel reservoir 17 at points immediately below the burner apertures 12 and 13, respectively, and, since all portions of the burners including the shut-off vlave control and needle valve control are entirely within the dimensional limits of the burner frame, these relatively delicate parts are well protected against accidental damage from rough handling or from external impacts that may be received by the stove in shipping or in use.

As thus far described, it will be apparent that the rigid burner frame provides a complete mounting for a pair of burners and gives adequate protection against damage to the burners. But since this frame is of such small size, it is provided with a plurality of shiftable brackets to increase its effective area of support on the ground, and also to provide an equally large top supporting surface adapted to receive a plurality of quite large and relatively heavy cooking vessels. To this end the top frame 11 is perforated at its four corners at the points indicated at 25 to provide pivotal mountings for the upper ends of these brackets, and cooperating perforations 26 are formed in the lower portions of the end frames 15 and 16, respectively, to provide pivotal mountings for the lower ends of the brackets. The lower perforations 26 are immediately below and in axial alignment with the perforations 25. Shiftable supporting brackets 27 are mounted for pivotal movement in the openings 25 and 26 by means of a downwardly extending top pivot 28 and upwardly extending bottom pivots 29 (see Figs. 3 and 4). Each of the supporting brackets 27 is formed of a single integral piece of round metal rod bent in a generally rectangular formation to include a base rail 31 extending horizontally outwardly from the pivot 29, a vertical riser portion 32 at right angles to the base rail and extending directly upwardly and a top rail 33 extending inwardly and terminating in the upper pivot portion 28. The top frame 11 of the stove is also provided with a plurality of positioning plates 35 secured to the corners of the top frame in a desired manner, as for example, by spot welding at the points 26. The plates 35 are of generally rectangular formation and include upwardly extending side flanges 37 and 38. It will be noted that the pivotal opening 25 in the top frame 11 extends through the plate 35, as seen in Fig. 5, and a locking notch 39 is formed in the flange 37 at a point adjacent the pivotal opening 25.

The shiftable supporting brackets 27 may be assembled on the burner frame by first inserting a relatively long top pivot 28 into the opening 25 and then flexing the bracket sufficiently to insert the shorter lower pivot portion 29 into the opening 26; it being understood, of course, that the bracket 27 is of such formation that the upper rail and lower rail are tensioned toward each other, so as to exert a slight resilient action tending to draw the top rail downwardly into resilient engagement with the plate 25.

This tension is utilized in the present invention to maintain the supporting bracket 27 in predetermined position, either in the solid line position illustrated in the drawings or in folded position as illustrated in dotted lines in Fig. 1. This action is accomplished by the positioning in plates 35, since when the brackets 27 are moved to their extended operating position, as shown in the drawings, the inner end of the top rail 33 of the bracket will snap into the lock notch 39 of the bracket 35 and resiliently maintain the bracket in position. Similarly, the bracket 35 will serve to retain the brackets 27 in closed inoperative position, since when the outer rails 32 of the brackets 27 are moved into the recesses 41 in the top frame 11, the inner portion of the top rail 33 of the brackets 27 will ride beyond the corner portion 42 of the positioning plate 35, so that the corner portion 42 will act as a spring detent to resist return movement of the brackets. The recesses 41 are of a depth greater than the diameter of the rod of the brackets 27, so that the brackets may move completely within the dimensional limits of the top frame.

It is to be remembered, of course, that since the brackets 27 are formed of round rod and are held in the notches 39 or behind the flange corner 42 by their own resiliency only, they will be held in yielding spring engaged position rather than positively locked. This is advantageous when the stove is not loaded, in that it allows the operator to set up the stove by simply drawing the brackets into position with sufficient force and to overcome the spring detents, and eliminates the necessity of manipulating any type of latch or positive lock. On the other hand, it is desirable when the stove is in operating position that the brackets be quite positively fixed in position so that they will have little or no tendency to shift in the event that they are accidentally kicked or struck by external forces when the stove is being used. Thus it is highly desirable that the supporting brackets 27 be more firmly locked in position when the stove is loaded (i. e., supporting one or more cooking vessels) than when it is not in use. This effect is accomplished in the present invention by the combination of structures hereinbefore described. When the stove is not in use the movement of the bracket from the notch 39 is resisted only by a slight resiliency due to the tensioning of the bracket. However, when a heavy cooking utensil is placed in position on the burner as indicated in dotted lines at 44, the lower surface of the vessel will rest directly on the top of the rails 33 and will thus hold these rails quite securely in the locking notches 39. It will be seen that since the upper pivot 28 is unsupported, the entire weight of the cooking vessel that is supported by the top rails will be received by the notches 39 of the plate 35, and the weight of heavy cooking utensils is sufficient to establish an almost positive lock between the brackets 27 and the burner frame; the locking action having been found to be sufficient to positively prevent movement of the bracket 27 by any force insufficient to shift the entire stove bodily.

From the foregoing description it will be seen

that the present invention provides a novel and improved folding stove construction comprising a relatively small and compact burner frame in combination with a plurality of shiftable supporting brackets. The arrangement is such that the brackets may be folded into the notched recesses 41 where they will lie entirely within the dimensional limits of the burner frame and give a maximum conservation of space, or they may be extended to the position shown in the drawings, so that the effective base of support of the stove and effective utensil supporting area extends to the vertical risers **32** at the extreme outward limits of the supporting brackets **27**.

This construction provides a relatively large area that may be effectively utilized for supporting large cooking vessels and also is capable of supporting great weight, since the weight of the cooking vessels may be largely carried by the straight vertical risers **32** and straight vertical corner posts of the burner frame. This is in sharp contrast with certain prior art structures wherein the weight is supported by various arrangements of brackets, latches, or similar structures of non-rigid or fragile construction. Further, the teachings of the present invention provide a folding stove frame wherein the shiftable members are resiliently held in predetermined position when the stove is unloaded and are positively locked in position automatically when a cooking vessel is positioned over the stove burner.

It is believed pertinent to mention, in passing, that the preferred embodiment of the device, as illustrated in the present drawings, has been developed particularly for use in the United States Army and has been adopted by the Army as representative of a structure having the most desirable military characteristics known in the art. It is believed, however, that its utility extends to commercial and civilian adaptations as well as military uses, and it is accordingly requested that the scope of the present application be regarded as limited only by the scope of the appended claims.

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

1. In a folding stove, a burner frame including a liquid fuel burner, a pivotal mounting on said frame, a shiftable supporting bracket comprising a metal rod pivoted in said mounting, a locking notch positioned adjacent the pivot to receive the shiftable bracket; said notch being open at the top only, so that the weight of any cooking vessel positioned adjacent the burner will be directly applied to the shiftable supporting bracket to force it firmly into the locking notch and thus provide a substantially positive lock for the shiftable supporting bracket when the stove is loaded.

2. In a folding stove, a burner frame including a liquid fuel burner, a perforation in said frame comprising a pivotal mounting on said frame arranged to receive the inner end of a shiftable utensil bracket including a metal rod having a vertical pivot portion and a horizontal utensil supporting rail, a locking notch positioned adjacent the top pivot and open at the top to receive the shiftable bracket, the inner end of the bracket being supported only by the notch so that the full weight of the load on the inner end of the bracket will act on the notch to provide a substantially positive lock for the bracket when the stove is loaded.

3. In a folding stove, in combination, a burner frame including a single integral top frame structure of generally rectangular shape and of a length greatly in excess of its width; said frame including burner apertures at each end and remote from each other, and a plurality of recesses on its opposite sides intermediate its ends; and a plurality of shiftable supporting brackets associated with said burner frame; each of said brackets consisting of a single integral metal rod formed in a generally rectangular shape to include a bottom pivot mounted on a lower portion of the burner frame, a base rail extending generally horizontally outwardly from said bottom pivot, a vertical riser portion extending upwardly at right angles to said base rail a distance approximately equal to the height of the burner frame, a top rail extending horizontally inwardly from the vertical riser portion and directly above the aforementioned base rail, and a top pivot portion extending downwardly from the inner end of the top rail and in pivotal engagement with the frame; said pivots and the aforementioned recesses on the burner frame being arranged so that the risers of the brackets map be positioned within the recesses to permit compact folding of the stove.

BESTOR ROBINSON.