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W. R. LAMMERSEN
SELF-KINDLING FUEL UNIT

2,548,379

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FIG. 1.

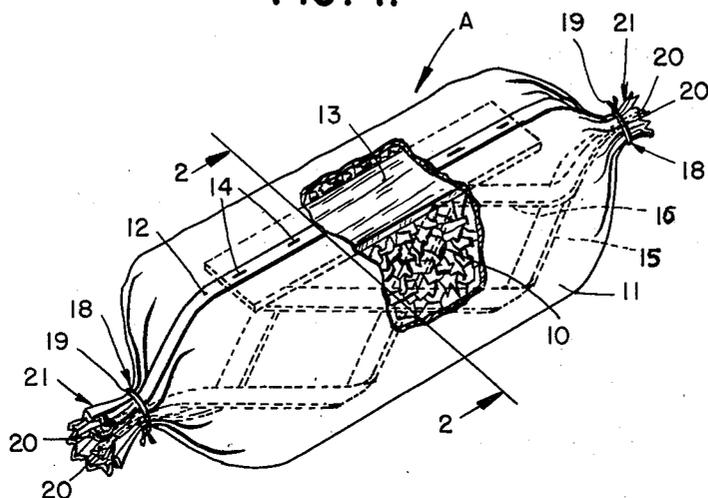


FIG. 2.

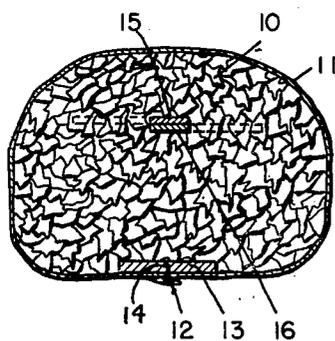


FIG. 3.

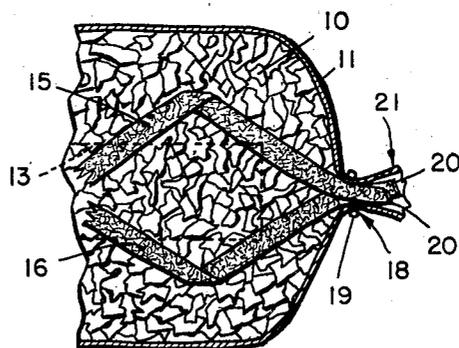
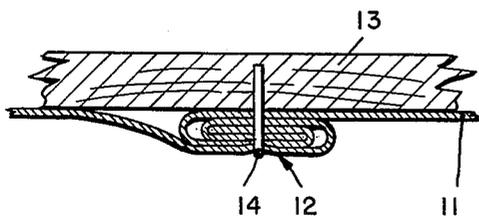


FIG. 4.



INVENTOR
WALTER R. LAMMERSEN
BY

King & Rodgers

ATTORNEYS

UNITED STATES PATENT OFFICE

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SELF-KINDLING FUEL UNIT

Walter R. Lammersen, North Hollywood, Calif.,
 assignor to Walter R. Lammersen and Joseph
 E. Lammersen, doing business as Landell Manu-
 facturing Company, Los Angeles, Calif., a co-
 partnership

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5 Claims. (Cl. 44-40)

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The present invention relates to a fuel unit, and more particularly to a single use self-kindling charcoal fuel unit.

The practice of outdoor cooking, and in particular the practice of barbecuing meats, both outdoors and indoors, has increased greatly in recent years. The number and varieties of barbecue fireplaces has increased in pace with the practice, and now range from a simple pan with a few holes in the bottom to admit air for combustion with a plain grid across its top, to elaborate masonry structures with electric motor-driven spits and accessory warming ovens.

However, regardless of setting, the principal feature of the barbecue, aside from the food itself, is the almost universally used charge of charcoal which serves as the fuel.

Ordinarily a supply of charcoal is kept on hand, either in bulk, in a bin or box, or in large sacks. From such storage place, the charcoal is shoveled or poured into the grate or burning area of the fireplace.

In starting the fire kindling wood and paper usually are employed. Sometimes the kindling fire is built first, and the charcoal is dumped on after the fire is well started. In other cases the charge of charcoal is first placed in the fireplace and the kindling fire is built on top of it. Whichever method is employed, however, this phase of kindling the charcoal and starting the fire is universally considered a dirty, messy job, and one to be passed on to someone else whenever possible.

Furthermore, the charcoal does not always ignite at the first try, with the result that the fuel bed may become choked with unburned or partly burned kindling and paper, which delays the time required for the charcoal to burn down to a bed of glowing coals necessary for best cooking results.

Another difficulty encountered frequently by inexperienced barbecue cooks, and they apparently comprise the great majority, is that they either use too little charcoal, and have to add more, cooling the fire and interrupting the cooking; or else use too much and consequently end the cooking process with a roaring fire, much too hot for satisfactory cooking and wasting a large amount of fuel. A proper charge for the average barbecue grate, which is usually about 10 by 18 inches in area, is one which will burn down to an evenly glowing bed of coals and will continue in such condition long enough to cook two servings of food thereon, usually about half an hour. Such a fire can be used to cook for two to ten

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or more persons, using the same amount of fuel.

An object of the present invention is to make an improved fuel unit.

5 Another object is to make an improved fuel unit having easy kindling characteristics.

Another object is to make a clean, easy handling, rapid kindling, unitary charge of charcoal for barbecuing.

10 In order to attain these objects there is provided, in accordance with one feature of the invention, a unit comprising a charge of charcoal sufficient for barbecuing an average meal, the charcoal being contained in a clean, dust retaining, combustible wrapper, with a wick member extending through the charcoal and secured to a kindling point of the wrapper, a stiffening staple receiving and drip-catching backing member for a closure zone of the wrapper being preferably contained within the wrapper and arranged in contact with a side thereof.

These and other features of the invention will be set forth in the following description and the accompanying drawings, comprising one sheet.

25 In the drawings:

Fig. 1 is a view in perspective of a fuel unit embodying the present invention, a portion thereof being broken away, and the unit being shown inverted from its normal position in storage and in use;

30 Fig. 2 is a transverse sectional view taken in the plane of the line 2-2 of Fig. 1, but with the unit in its normal position for storage and use;

Fig. 3 is a fragmentary horizontal sectional view of an end portion of the unit; and

Fig. 4 is an enlarged fragmentary sectional view of a portion of Fig. 2 showing a wrapper seam stapled to a stiffening board.

In the illustrated form of my self-kindling fuel unit A, a predetermined quantity or charge 40 of charcoal is enclosed in a combustible wrapper 11 which may be of paper. The paper is of a type which is dust-tight, strong enough to withstand ordinary handling, and at the same time 45 which will burn freely and will be easily reduced to ashes on burning. Such a paper may comprise a medium weight kraft type paper.

The charcoal used may be made from oak or other wood, or may be made from any other suitable carbonaceous material, the term charcoal being used herein to designate any readily inflammable solid material of high carbon content and having a somewhat porous structure.

The charge of charcoal is preferably in fragmentary condition, comprising lumps of suitable

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size, such as from $\frac{3}{4}$ " to 2", in intimate contact with each other but with voids or open interstices therebetween permitting access of air for combustion. The quantity of charcoal in the charge may be varied in accordance with the characteristics of the charcoal, and should be sufficient to provide a glowing coal bed or fire of the desired size. For ordinary home barbecue use, a quantity of charcoal in the neighborhood of 5 pounds is generally found satisfactory.

A preferred method for securing the paper or other combustible wrapper about the fuel charge comprises wrapping the charge in a rectangular sheet 11 of paper and folding the longitudinal adjoining edges of the sheet which is used as a wrapper together in a dust-tight seam, as at 12. It is important that the material which is used as a wrapper be relatively dust-tight so that it will retain within the wrapper any charcoal dust which may be formed by abrasion of the charcoal pieces between themselves.

In the drawings Fig. 1 shows the fuel unit in the position in which it ordinarily is handled during manufacture. However, when stored, handled, and finally placed in a fireplace for burning, it preferably is positioned as shown in Figs. 2 and 4 with the seam 12 and a board 13 on the bottom. In the latter position the board 13 will support the fuel charge and if of sufficient width, will catch any drippings of the impregnating material during the kindling stage of combustion. Otherwise such drippings might run down through the charcoal and into the barbecue fireplace below the fuel bed.

In a preferred form of my invention the board 13, which may be of relatively light cheap stock such as $\frac{1}{4}$ or $\frac{1}{2}$ inch crating wood or heavy cardboard is held on top of the charge 10 of charcoal before closing the wrapper 11, as shown in Fig. 1. This board forms a stiffening support for the seamed edges of the wrapper, and also acts to distribute the weight of the charge uniformly over the side of the wrapper on which the board is mounted. The board also facilitates handling the unit and in retaining it in shape. The seam of the wrapper may be attached to the board by ordinary wire staples 14 driven through the overlapped and interlocked seamed edges of the wrapper and into the board 13.

A pair of kindling wick members 15 and 16 are embedded in the charge of charcoal as best shown in Fig. 2 preferably in the upper portion of the charge. The distance of the wicks below the top of the charge may vary preferably between $\frac{1}{6}$ to $\frac{1}{2}$ of the depth of the charge, although the wicks would operate wherever they were located in the fuel charge. The wick members are illustrated as being placed in the package in zig-zag overlapping relation as shown in Figs. 1 and 3, so as to pass through a relatively large horizontal area of the charge of charcoal in which they are embedded. The wick members preferably are made of a thick absorbent inexpensive combustible material, such as a multi-layered soft pulp paper or thin fibrous combustible material.

Before placing in position in the charge of charcoal, the wicks are impregnated throughout their entire lengths with the exception of the end portions thereof adjacent to the wrapping 11, with a highly combustible material, preferably of relatively low melting point, such as a paraffin wax or other suitable hydrocarbon substance. The end portions 20 of the wicks pref-

erably are unimpregnated so as to avoid staining the wrapper and to facilitate ready ignition of the ends of the wicks.

The impregnating material is preferably one which is solid at ordinary atmospheric temperatures but which will liquefy and burn readily on heating. Best results are generally obtained with paraffin wax which is solid below about 120° F., liquefies between about 120° and 140° F., and vaporizes and burns at higher temperatures. The above temperatures are not critical but are in a range which will permit storing of the packaged fuel units without having the impregnating material melt and stain the wrappers, and possibly leak out. The impregnating material should melt readily, however, when heated by the initial burning process, so that the excess thereof beyond the retention capacity of the wick will flow out into the surrounding charcoal, and should have vaporized and burned completely away by the time the charcoal is burning properly to start the cooking process.

The wicks should be impregnated with an excess quantity of the material so that when it melts the wicks will be unable to retain the entire quantity of the liquefied material, which therefore will flow into and be absorbed by the surrounding fuel charge, thereby adding to its combustibility. The wax-impregnated wicks are preferably somewhat flexible so as to yield or bend somewhat under engagement by the lumps of charcoal during the wrapping of the charge, without danger of breaking or tearing the wicks.

In closing the package the end portions of the wrapper are bunched together, as at 21, with the unimpregnated end portions 20 of the wicks extending into the bunched ends 21 of the wrapper. The bunched end portions 21 of the wrapper and the ends 20 of the wicks therein are secured as at 18 at each end of the unit by encircling ties 19 which may be of light rope, cord, raffia, or other suitable material. The material used for these securing ties 19 is preferably one which will readily and quickly burn away and break when ignited, so as to loosen the end portions of the wrapper and permit access of air to support combustion of the impregnated wick material at and inwardly of the position of the ties. The most suitable material I have found for this purpose is raffia. The bunched end portions 21 of the wrapper extend beyond the securing ties 19 a sufficient distance to permit them to be used as initial igniting charges for the fuel unit.

A preferred method of making the above described fuel unit is to support the combustible wrapper sheet 11 on a bed or cradle of suitable shape, place the charcoal charge 10 and wicks 15 and 16 in position over the middle portion of the wrapper, lay the stiffening board 13 on top of the charcoal, bring the longitudinal edge portions of the wrapper up around and over the charge and fold the edges of the wrapper together along the top center line of the charge so as to snugly enclose the contents including charcoal 10, wicks 15 and 16, and board 13. The edges of the wrapper, which are folded together to form the seam 12, are secured together and to the board 13, as by wire staples 14, and the ends of the wrapper are bunched together around the ends of the wicks and tied as described above, to form the complete unit A as shown in Fig. 1.

In using the device the entire fuel unit A, inverted from the position shown in Fig. 1, is placed in any suitable fireplace or other location where the fire is to be built and one or both of

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the bunched ends 21 is ignited. As these bunched ends burn, the projecting ends of the wicks also become ignited and burn inwardly. The tie members 19 also burn and break, causing the bunched ends of the wrapper to loosen sufficiently to permit ready access of air to and around the wicks, and the wrapper inwardly of the securing ties 19 also becomes ignited. Heat from this initial burning operation heats the fuel charge near the ends of the unit and the impregnated portions of the wicks 15 and 16 inwardly from their ends.

The wick impregnating material when thus heated liquefies and flows into, and is absorbed by, charcoal adjacent thereto and increases the combustibility thereof.

As combustion continues increasing amounts of the impregnating material are liquefied and then vaporized and burned, so that the combustion progresses steadily inward along and around the wick and through the entire length of the fuel charge. The wrapper, the wicks, and the board 13 are burned away, and the entire area of the fuel unit is eventually ignited and burns to provide the desired bed of hot glowing coals. The combustion of the board 13 at the bottom of the board also assists in igniting the charcoal.

If any of the liquefied impregnating material from the wicks should run down through the charge of charcoal most of it will land on the board 13 which will aid in igniting the board. The entire amount of impregnating material will have burned away, however, and the wick and wrapper will have been completely reduced to ashes by the time the charcoal charge is burning as a bed of glowing coals in proper condition for cooking. There is therefore no danger of any unsavory odor being retained beyond the initial kindling period, which otherwise might contaminate food cooked on the fire.

The charge of charcoal being the correct amount for most cooking operations of the type for which it is intended, the use of this unit permits even an unskilled operator to build a satisfactory fire. The fire attains a proper condition for cooking much more quickly and evenly when built with a fuel unit embodying the present invention than with the old methods previously set forth herein. Furthermore, the present type of fuel units may be easily handled and stored without soiling one's hands or clothing or the storage area. The wick impregnating material being of a nature to retain its non-liquid form at ordinary room and summer outdoor temperatures eliminates the danger of having the fuel substance run out of the package or stain the wrapping while in storage. At the same time it permits a relatively large kindling charge to be retained within the package so as to insure rapid and uniform kindling of the fuel.

While the bunched ends of the wrapper in the form illustrated comprise satisfactory and readily lighted ignition points, any other small quantity of highly combustible fuel may be secured to the wrapper and used to ignite the wrapper and wicks without danger of clogging the fuel bed.

While I have illustrated a preferred form of my invention it will be apparent to those familiar with the art that the present fuel unit is capable of some changes without departing from the spirit and scope of this invention. It is desired therefore not to limit the invention except as set forth in the following claims.

I claim:

1. A self-kindling fuel unit comprising a charge

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of charcoal, a dust-proof combustible wrapper enclosing said charge, said wrapper having two end portions located at opposite ends of the unit and each bunched together to close the ends of the wrapper and form a readily combustible ignition fuel supply at each end of the unit exposed exteriorly of the wrapper and in igniting proximity thereto, a tie member of readily combustible material adjacent each end of the unit encircling and securing together the bunched end portion of the wrapper adjacent that end of the unit, said bunched end portions projecting outwardly beyond said tie members, and a wick extending through the entire length of the charge and embedded in the charge of charcoal with its ends projecting beyond said tie members and within the bunched end portions of the wrapper outwardly of the tie members, the portion of said wick between said tie members being impregnated with a highly combustible substance.

2. A self-kindling fuel unit comprising a charge of charcoal, a dust-proof combustible wrapper enclosing said charge, a wick extending through the entire length of the charge between two opposite ends thereof and projecting beyond the charge at each end, said wick being embedded within the upper portion of the charge and being impregnated with a readily combustible substance, and a readily combustible ignition fuel supply exposed exteriorly of said wrapper at each end thereof and in igniting proximity to the projecting portions of said wick.

3. A self-kindling fuel unit comprising a charge of charcoal, a dust-proof combustible wrapper enclosing the charge, a readily combustible ignition fuel supply exposed exteriorly of said wrapper and in igniting proximity thereto, and a wick embedded in the charge of charcoal and extending longitudinally through the entire length of the charge and projecting outwardly beyond the charge at each end; said wick being impregnated, throughout the entire portion of its length that is embedded in the charge, with a highly combustible substance, solid at normal atmospheric temperatures and liquid at temperatures above about 120° F., whereby the combustible wick impregnating substance will melt as combustion is initiated to raise the wick temperature above the melting point of said substance, and will soak into and add to the combustibility of charcoal adjacent to the wick; and the outwardly projecting portions of said wick beyond the ends of the charge being unimpregnated with said combustible substance and being secured to the wrapper.

4. A fuel unit set forth in claim 3, and also comprising a substantially flat stiffening member of combustible sheet material contained within the bottom of the wrapper adjacent and secured to the bottom side of the wrapper, said stiffening member being disposed below the impregnated portion of said wick in position to receive and catch melted impregnating material dripping from said wick.

5. A self-kindling fuel unit comprising a charge of charcoal wrapped in an enclosing sheet of combustible sheet material, the longitudinal edges of the wrapper being interfolded to form a joining seam at the bottom of the unit, a stiffening member of sheet material mounted inwardly of said seam, fastening means penetrating the seam and embedded in the stiffening member to secure the seamed edges together and to the stiffening member, the ends of the wrapper being

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bunched together to enclose the ends of the fuel charge and tied to remain so bunched, the wrapper being of a length to project beyond one of said ties, to form an igniting point for the unit, a wick of absorbent material embedded in the charge of charcoal and disposed in an irregular path extending through the entire length of the charge and overlying the stiffening member, an end of the wick being secured to the wrapper adjacent the bunched ignition extension thereof, and a quantity of highly combustible substance impregnating the wick and coated thereon in quantities beyond the capacity of the wick to absorb when liquid, said substance liquefying at temperatures above approximately 120° F.

WALTER R. LAMMERSEN.

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REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
1,124,015	Griffin	Jan. 5, 1915
1,401,803	Lynes	Dec. 27, 1921
2,011,245	Horne	Aug. 13, 1935
2,240,335	Keil	Apr. 29, 1941

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