F. KRÜGER.

PORTABLE COOKER ARRANGEMENT.

APPLICATION FILED JULY 3, 1916.

1,354,044.

Patented Sept. 28, 1920.

Fig. 1.

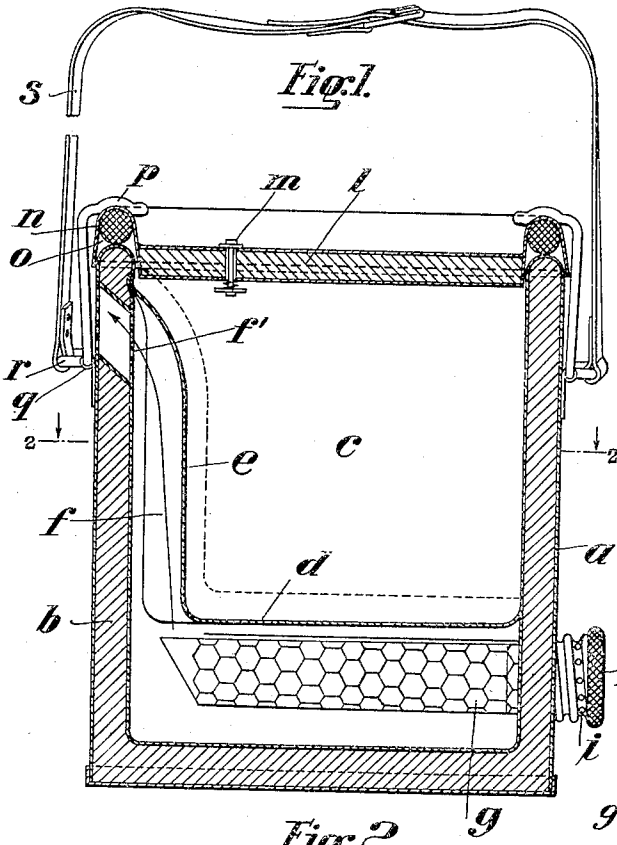


Fig. 3.

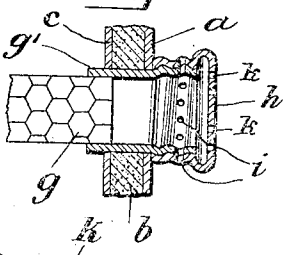
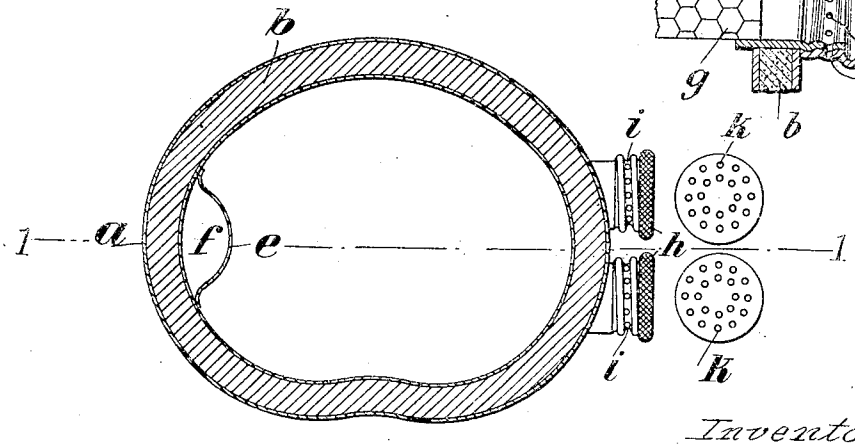


Fig. 2.



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PORTABLE-COOKER ARRANGEMENT.

1,354,044. Specification of Letters Patent. Patented Sept. 28, 1920.

Application filed July 3, 1916. Serial No. 107,480.

To all whom it may concern:

Be it known that I, FRANZ KRÜGER, tailor, citizen of Germany, subject of the King of Prussia and Emperor of Germany, residing at Berlin, in the Kingdom of Prussia and Empire of Germany, have invented new and useful Improvements in Portable-Cooker Arrangements, of which the following is a specification.

The present invention relates to improvements in portable cooker arrangements, in which a heating chamber is combined with the food vessel. According to the present invention the heating chamber into which the fuel is placed, is long shape and extends across the lower part of the cooker, and is provided at one end with an air supply, a chimney leading to the upper edge of the cooker being arranged at the opposite end at an angle to the longitudinal extension of the cooker. By this arrangement the combustion air will always flow through the heating chamber in a longitudinal direction to the same and with a strong draft, and that the direction of this draft may also be reversed, so that, under circumstances, the chimney will serve as air supply and the air supply orifice as exhaust for the burnt gases. The arrangement according to the present invention allows of employing the cooker also with such fuels, which require a strong draft for their combustion, while the cooker is in any position. The said cooker therefore allows of cooking or heating food during journeys, for example, by travelers in walking or soldiers on the march, the cooker may be used with any possible fuel which may be obtained in the remotest places, and its operation will not be impaired by vibrations, shocks or any change in its position.

The present invention differs by the peculiar arrangement of the heating chamber and the chimney, from other portable cookers, in which the passage for the air and that for the gases respectively are disposed beside each other and open both in the upper part of the apparatus. With such apparatus the mouth of both passages heats to the same degree, wherefore no permanent draft can be maintained through the combustion chamber proper. Furthermore only a small part of the fuel in such heating chambers is supplied with combustion air, as the draft does not traverse its entire length, so that the fire will go out after it has been burning a short while only. The present invention also differs from the known pocket stoves, which are operated with solid fuels, essentially in that the chimney is arranged at a right angle to the longitudinal extension of the chamber and at one end of the latter, so that a permanent strong draft is maintained through the fuel. For obtaining this effect it is necessary that the air supply orifice is disposed at the one end, the chimney at the other end of the long heating chamber. If, as it is the case with other known cookers, the air supply orifices are disposed around the periphery of the heating chamber, it will not be possible to secure a permanent draft through the chimney at all positions of the cooker, whether the same be disposed in the center or whether there be several chimneys disposed at the side.

The cooker according to the present invention is preferably made of such a shape that it may be carried either on a shoulder strap, or may be lashed to the knapsack or the ruck-sack, or be attached in any other suitable manner.

In the accompanying drawings, in which similar reference characters correspond with similar parts in the several views,

Figure 1 is a vertical sectional view, the section being taken along the line 1—1 of Fig. 2.

Fig. 2 is a horizontal section, the section being taken along the line 2—2 of Fig. 1.

Fig. 3 is a sectional detail view illustrating the connection of one of the fuel burners with the food container, outer chamber and screw cap or closing member. Figs. 1 and 2 show the cooker of a shape, adapted for the preparing of food during a march.

In the constructional form shown in Fig. 1 in longitudinal section and in Fig. 2 in cross section, the cooker consists of a body *a* of a pea-shaped section, which is preferably made with double walls, having a suitable insulating material *b* such as kieselguhr, wool, paper or the like packed between the said double walls. The vessel may, however, also be made with single walls and may be protected against radiation of the heat by being covered or coated with a heat insulating means or material. The cooking vessel consists of a metal vessel *c* with a bottom *d*. At the one side of this vessel is disposed a passage *f*, which, is formed by an indent in the one wall *e* of the

vessel, and which, at the upper end of the body *a*, leads out into the atmosphere. The opening is preferably covered with a piece of wire netting or a perforated cap *f'*. The heating chamber, which is disposed in the lower part of the body, is supplied with solid fuel, preferably the kind of coal known as compressed fuel. This fuel is preferably disposed in such a manner in a tube or drawer *g* made of wire netting that said fuel may be conveniently supplied from outside through an opening in the wall of the body. This opening is closed by means of a screw cap *h* which preferably contains holes *i* and *k*, the width of which may be varied, and which may serve for supplying the necessary air or eventually for carrying off the combustion gases. In the constructional form shown these holes *i* are disposed at the side of the cap *h*. A short tube *g'* provided with a male thread, is here provided for introducing the tube *g* of wire netting and the fuel, and contains a series of holes which correspond with perforations *i* in the screw cap *h*, which has the shape of a cup. As may be seen from Fig. 2, similar adjustable air supply orifices *k* are provided in the face of the cap. The cooking vessel proper *c* is closed by means of a lid *l*, which closes in a liquid tight manner. In this lid *l* is provided a spring pressed valve *m*, which will open when the pressure within the cooking vessel reaches a certain degree. In the constructional form shown, the joint between the lid and the vessel is obtained by means of groove *o* having an elastic packing, for example a rubber ring *n*. The lid is secured in its position by means of hooks *p*, which are linked in eyes *q* at the side of the vessel *a* and have a leverlike extension *r* bent off at one side which is made into the shape of an eye or the like, and receives the shoulder strap or the like. As will be evident from the side view in Fig. 1 the hook *p* will be secured in its locking position, when the cooker is carried by the strap *s*, or when by any other means an upward pull is exerted on the lever *r*.

In the constructional form shown in Figs. 1 and 2 heating tubes are provided beside each other, said tubes being disposed on opposite sides of the center line of the chamber so that there will always be an up draft through the device should it be laid upon either of its sides. There will also be an up draft through the device should it be laid edgewise or upside down. It is obvious that also one tube alone, or more than two tubes of any other shape may be employed. The strap *s* may be made in form of a shoulder strap, and may, as shown in Fig. 1, be adjusted by the aid of buckles, in such a manner, that the cooker may also be secured to the rucksack or the like.

The details of the said constructional form may be varied in various ways without departing from the principle of the present invention.

The cooker according to the present invention affords the advantage that food which has been placed into the cooker beforehand, may be cooked during the march. The owner of such cooker, may, therefore, enjoy his meal as soon as he reaches his halt, without having to wait and cook his food. Any shocks produced during the march will not affect the operation of the cooker, on the contrary, such shocks may even have a favorable effect on the heating arrangement.

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

1. A cooking stove comprising a food container, an outer chamber in which said container is secured in spaced relation above the bottom of the chamber, said chamber having an opening in its wall at a level between the bottom of said chamber and the bottom of said container, a tube fitted in said opening and having screw-threads and having an annular series of draft apertures, a fuel burner supported between said bottoms by means of said tube and being in open communication with the latter, and a screw-cap on the outer end of said tube and being provided with a series of apertures adapted to be in and out of registry with the first said apertures by adjustment of said screw cap on the threads of said tube.

2. In a portable cooking device comprising a casing, a food vessel disposed within said casing, a heating chamber extending below that vessel transversely above the bottom of said casing through the whole length of said food vessel, a chimney arranged at one end of that chamber at right angles to it and leading to the upper edge of said casing, an opening in the wall of said casing at the other end of said heating chamber, a heating device for solid fuel, arranged within that chamber and extending from said opening to the other end of said chamber and nearly to the lower end of the chimney.

3. In a portable cooking device comprising a casing, a food vessel disposed within said casing, a heating chamber extending below that vessel transversely above the bottom of said casing through the whole length of said food vessel, a chimney arranged at one end of that chamber at right angles to it and leading to the upper edge of said casing, an opening in the wall of said casing, a tube fitted in said opening and containing a heating device for solid fuel, said heating device extending from said opening to the other end of said chamber and nearly to the lower end of the chimney.

4. In a portable cooking device compris-

ing a casing, a food vessel disposed within said casing, a heating chamber extending below that vessel transversely above the bottom of said casing through the whole length of said food vessel, a chimney arranged at one end of that chamber at right angles to it and leading to the upper edge of said casing, an opening in the wall of said casing, a tube fitted in said opening and containing a heating device for solid fuel, said heating device extending from said opening to the other end of said chamber and nearly to the lower end of the chimney, said tube being closed at the outer end by a screw-cap, said screw-cap bearing a wire gauze-cylinder adapted to receive the solid fuel.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FRANZ KRÜGER.

Witnesses:
HENRY HASPER,
ALLEN F. JENNINGS.