Feb. 28, 1939. F. H. SCHNEIDER ET AL 2,148,777

GAS BURNER AND SUPPORT THEREFOR

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Fig. 1.

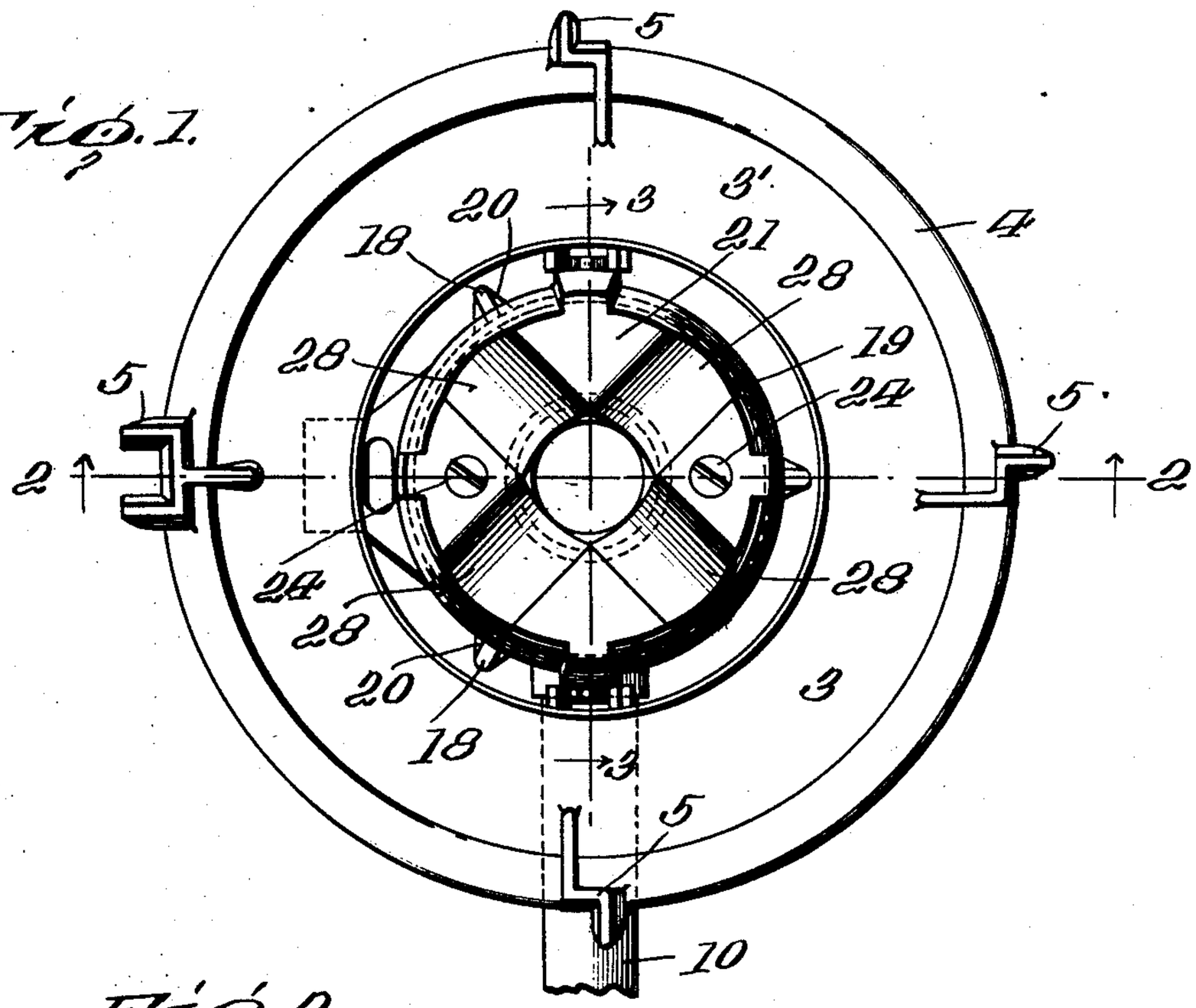


Fig. 2.

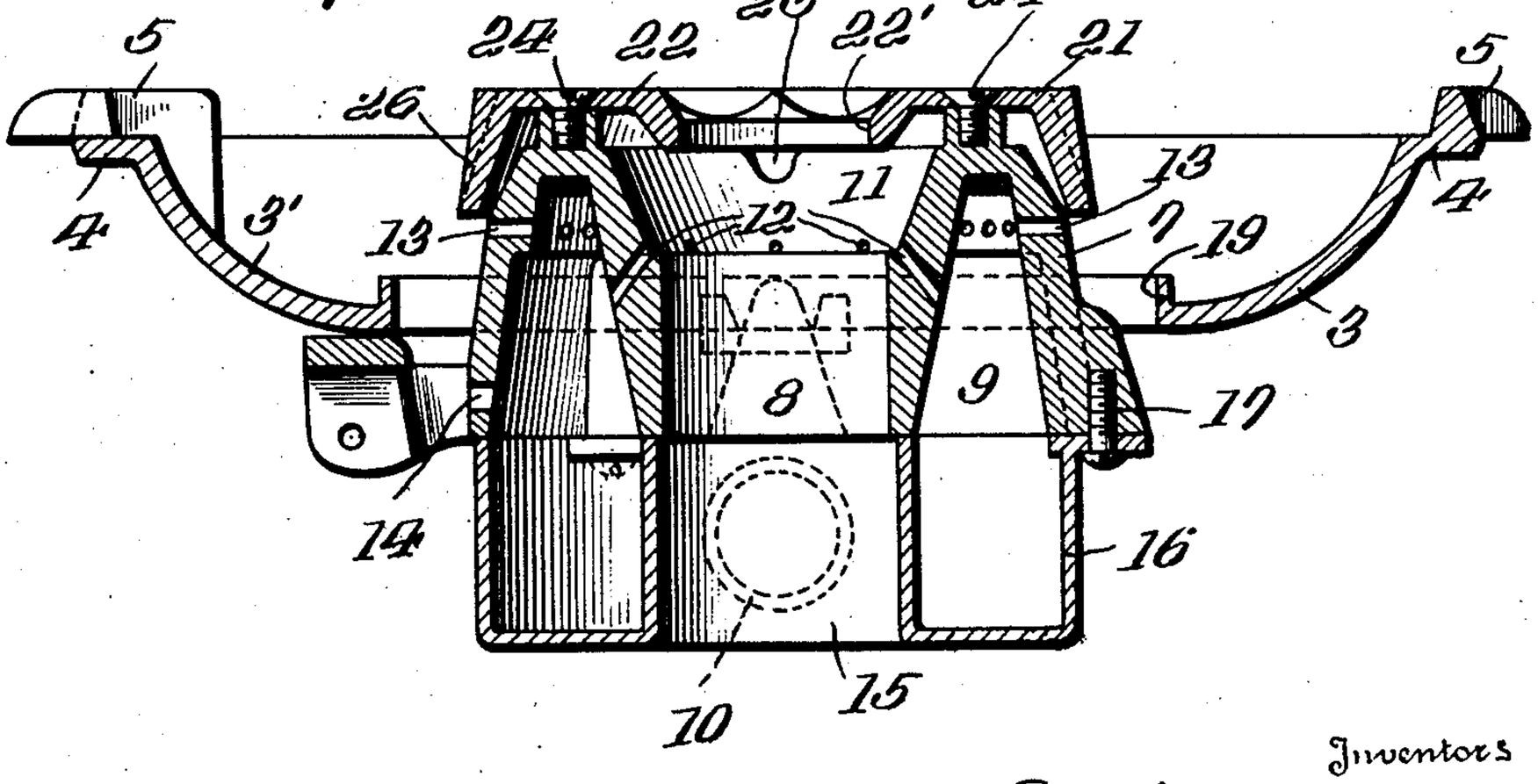


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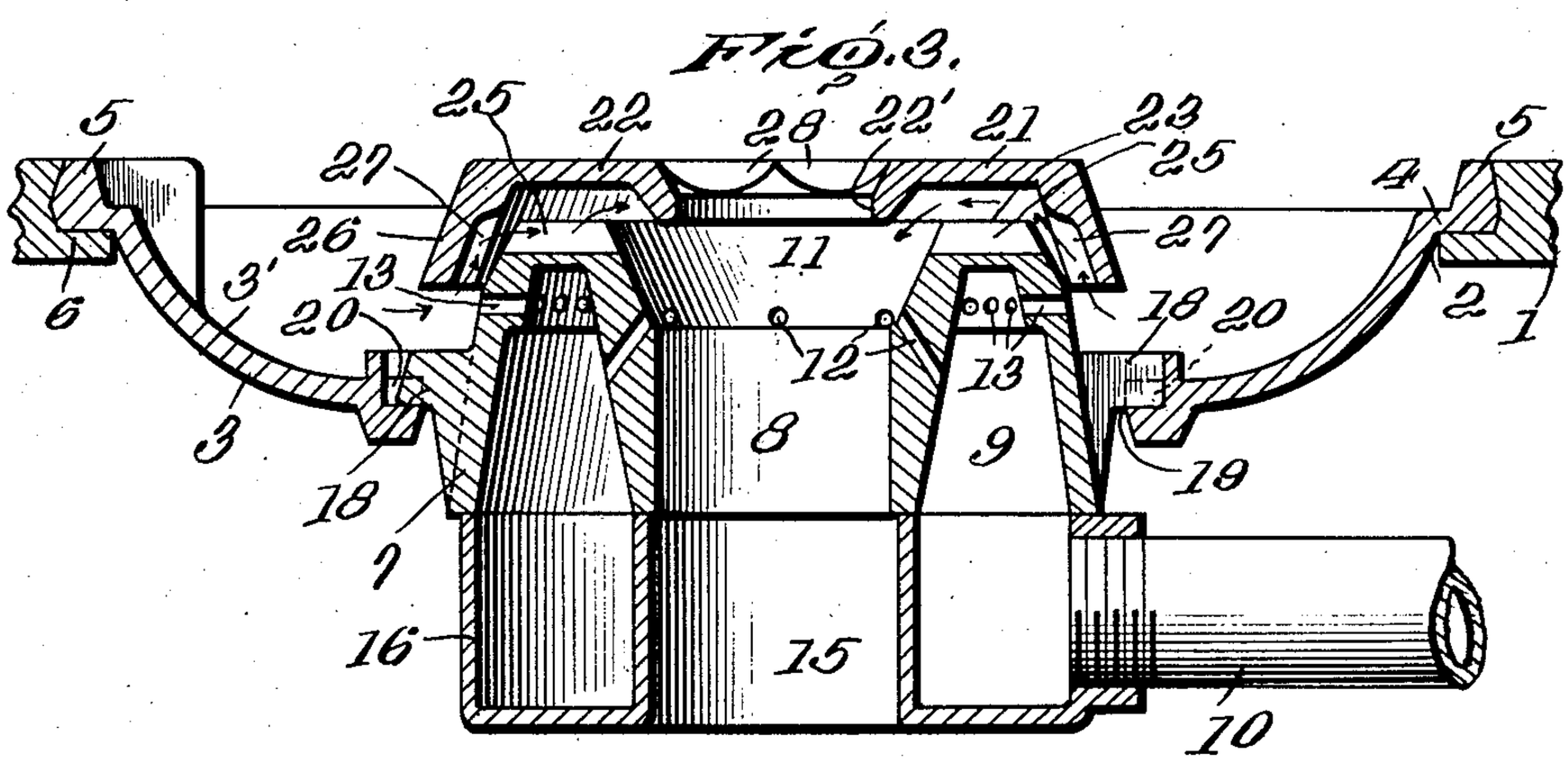
Fig. 3.



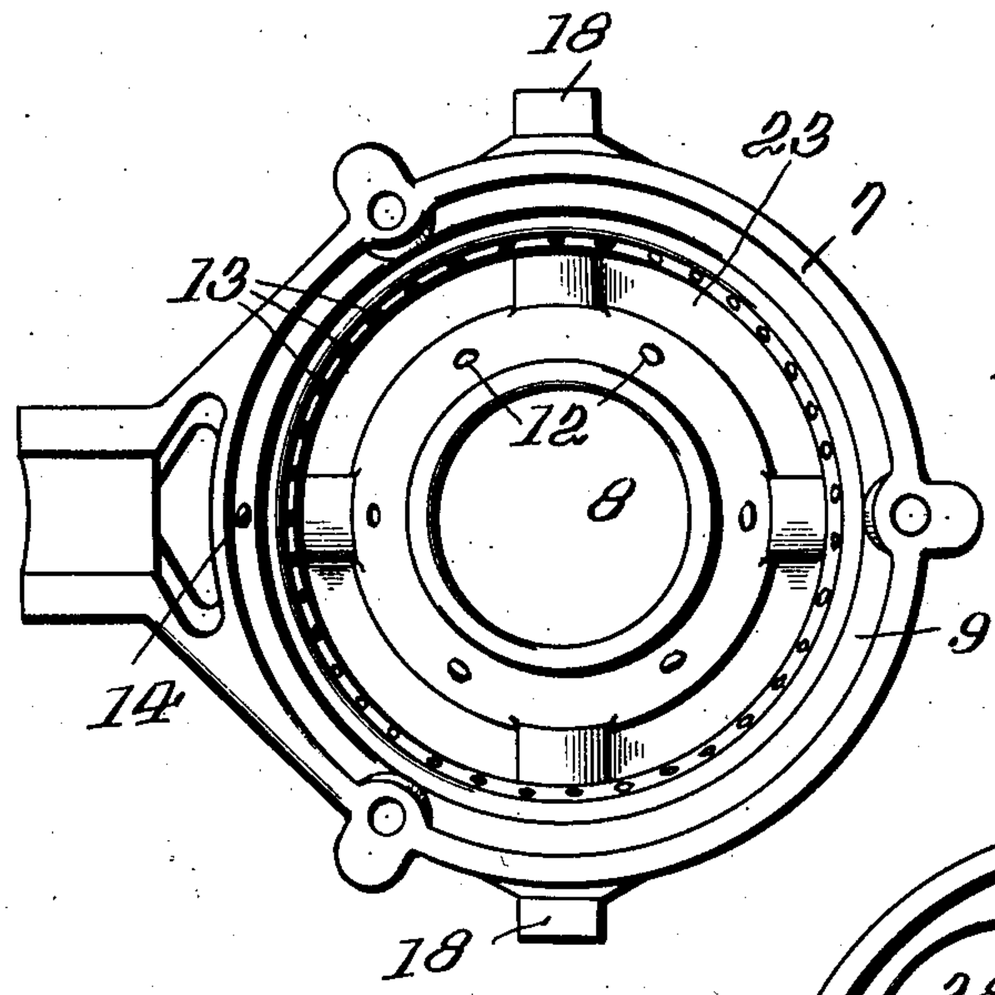




Fig. 4.

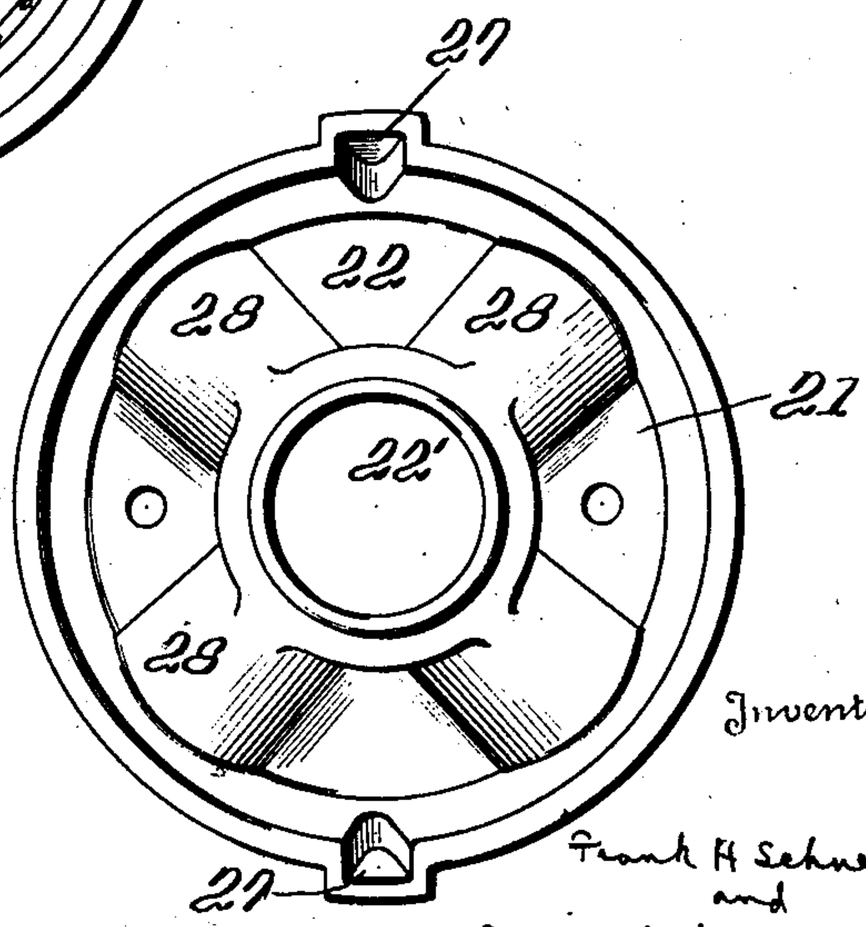



Fig. 5.

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# UNITED STATES PATENT OFFICE

2,148,777

## GAS BURNER AND SUPPORT THEREFOR

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Application November 6, 1937, Serial No. 173,244

4 Claims. (Cl. 158—99)

This invention relates to gas ranges and more particularly to gas burners and supports therefor.

The principal object of the present invention is the provision of a gas burner having an enlarged substantially flat top area for directly supporting and communicating a uniform and increased heat to the cooking vessel.

Another object is to provide a gas burner having a relatively large flat top cap wherein means is provided for stabilizing and holding down the burner flame so that the heating capacity of the burner is increased and also permitting a low turn down of the flame.

Another object is the provision of a spill over cup adapted to carry and support the burner on the stove cooking top whereby the vessel supporting grid of the cup and the flat top of the burner are in substantially the same plane thus constituting a relatively flat vessel supporting surface.

A further object is to provide a gas burner having a relatively large flat top so that heat stored therein will continue to heat the cooking vessel supported thereon after the gas has been turned off.

Still another object of the invention is to provide a construction of burner whereby the usual grid may be dispensed with and consequent elimination of all trouble and expense due to impingement of flame on such grid.

A further object is to provide a gas burner wherein annular relatively flat flanged cap means is provided for directing the heat downwardly to prevent the ports from becoming clogged in the case of a spill over.

An additional object is the provision of a burner having a relatively flat cap portion for supporting a cooking vessel thereon thus overcoming the necessity of providing separate grids or supporting members which members obstruct the flame and reduce the efficiency of the burner.

Other objects and advantages will be apparent as the following specification is considered in connection with the accompanying drawings, wherein:

Figure 1 is a plan view of the spill over supporting cup, spill over plate and burner casing in assembled position;

Figure 2 is a vertical cross section of the assembled device along the lines 2—2 of Figure 1;

Figure 3 is a vertical cross section of the assembled device along the lines 3—3 of Figure 1;

Figure 4 is a plan view of the burner casing with the spill-over plate removed; and

Figure 5 is a top plan view of the spill-over plate.

Referring more particularly to the drawings wherein similar reference characters designate like parts throughout the several views, numeral 1 designates a portion of the cooking top of a range, having an opening 2 therein for the reception of an annular metal concave cup or bowl 3. This bowl has integral utensil supporting grids or grid portions 4 formed on the upper peripheral rim 5, the latter seating in suitable depressions or recesses 6 in the edge of the stove top opening for supporting the cup in position within the opening. An annular tubular burner casing 7, provided with a central opening 8, is cored out to form a fuel chamber 9 to which fuel is fed by fuel pipe 10 leading from a source of fuel supply, not shown. The central opening 8 is enlarged at its upper end, as at 11, and a row of upwardly and inwardly inclined inner ports 12 are formed in the inner burner wall to discharge the gas into this enlarged opening or chamber 11. A row of outer ports or gas orifices 13 are also formed in the outer wall thereof. The usual ignition port 14 is formed in outer wall of the burner casing.

A central opening or air passage 15 formed in a tubular annular base plate 16, secured to the burner casing 7 by suitable bolts or the like 17, communicates with the opening 8 of the burner casing. Lugs 18 on the casing 7 seat in recesses 20 on the edge of a central opening 19 in the cup 3 and thereby maintain the burner casing in position on the cup.

A spill-over plate 21, having a substantially flat, utensil supporting face 22, level with or in the same plane as the grids 5, and a central opening 22′ of less diameter than that of the opening 8, is secured to the relatively flat top face 23 of the burner casing by screws or the like 24. Flash tube channels 25, one or more of which may be employed, are formed in the top face 23 of the casing to conduct the flame from a set of lighted ports to a set of unlighted ports. For example, if the inner burner ports 12 should become extinguished or fail to light, they would be lighted by flame passing from the outer lighted burner ports 13 through one or more flash tube channels 25 to the inner ports. The spill-over plate 21 has a depending annular flange 26 which overhangs the burner and terminates a short distance above the outer row of burner ports 13 and thereby acts as a spill-over flange for the casing, to prevent liquids and the like from entering the outer ports. As the lower edge of the annular flange is spaced from and terminates above the outer

row of ports, the flame emanating therefrom will be directed thereagainst and caused to be uniformly distributed around the side face of the flange, which permits the ports to remain lit when the fuel supply is turned down very low. This flange also reduces the velocity of gas flow and therefore increases the flame propagation. This annular flange **26** is also formed with channels **27** leading to the flash tube channels **25** to facilitate the lighting operation, previously described.

Two or more relatively shallow channels or grooves **28**, formed in the flat utensil supporting face **22** of the spill over plate, serve as flues and thereby enable the products of combustion to circulate over the entire area of the supporting face when a cooking utensil is placed thereon.

As the construction just described permits of the cooking utensil being directly supported on the flat top face of the burner spill over plate, and on the grids **5** it will be understood that the heat from the burner is conducted directly to the cooking vessel, it being unnecessary to provide separate supporting grids which would obstruct and cause the heat from the burner to be dissipated. In other words, the absence of supporting grids or ribs brings the cooking vessel closer to the burner outlet ports and thereby greatly increases the heating capacity and efficiency of the burner. In addition to supporting the burner casing, the concave cup **3** acts as a spill over basin to catch the drippings from the cooking vessel or spill over plate, and the curved face **3'** thereof also increases the efficiency of the burner by reflecting the heat from the burner upwardly and inwardly against the vessel.

The enlarged flat area of the burner spill over plate permits of a large quantity of heat being stored in the space between the plate and the top of the burner casing, which heat is communicated directly to the cooking vessel and permits of the latter being kept hot for a considerable length of time after the gas in the burner is turned off. Furthermore, the enlarged flat top face of the spill-over plate and the depending annular flange **26** thereon will become very hot from direct contact with the flame emanating from the burner outlet ports so that in the event of a spill over, the waste material will be evaporated before it reaches and clogs or blocks the ports.

While the spill over plate has been shown as being bolted to the burner casing, it is to be understood that the same may be merely supported thereon, or both the plate and casing may be cast as an integral unit, if so desired. In some cases it may also be desirable to support the burner casing on the burner tube rests or gas conducting pipes, rather than suspending and supporting the same on the spill over cup **3**, in the manner shown herein.

It should also be noted from the foregoing that the cooking utensil is supported directly on the face **22** of the plate **21** and the top face of the integral grid members **5**, formed on rim **4** of cup **3**, thus eliminating the initial expense of conventional grids. Furthermore, the trouble incident to flame impingement on the conventional grid is obviated as the integral grid portions **5** are so remote from the burner as to be entirely beyond the spread of the burner flame, and the burner seating recesses **20** being considerably below the burner ports **13** no flame impingement can occur at this point. The elimination of all obstruction to the flow of heat from the burners to the cooking utensil insures a substantially uniform distribution of heat which has proved impossible with the use of conventional grids.

The drawings and description have been directed to a preferred embodiment of the burner and supporting cup assembly but it is to be understood that various modifications and improvements may be made without departing from the scope and spirit of the appended claims.

Having thus described our invention, what we claim is:

1. In a gas burner, a hollow body portion having a fuel chamber and having ports communicating with said chamber on the inside and outside some distance below the upper end thereof, an annular substantially flat spill over plate secured on the upper end of the body portion and having small spaced channels between the bottom of the spill over plate and the top of the burner body and flash tube channels in the top of the casing communicating with said first mentioned channels and with said ports.

2. In a gas burner, a hollow body portion having a fuel chamber and having ports communicating with said chamber on the inside and outside some distance below the upper end thereof, an annular substantially flat spill-over plate secured on the upper end of the burner and extending beyond a vertical line with the inner and outer ports, an annular downwardly extending flange carried by the outer edge of the spill over plate and terminating at a point just above the outside ports and said spill-over plate having small spaced channels between the bottom thereof and the top of the burner and extending through said annular flange and flash tube channels formed in the top of the casing communicating with said first mentioned channels and with said inner and outer ports.

3. In a gas stove having a cooking top provided with an opening, an annular concave supporting cup mounted in said opening, a hollow gas burner having a fuel chamber provided with inner and outer burner openings and mounted in the lower end of the supporting cup and having passages between the same, an annular substantially flat spill-over plate secured on the upper end of the burner and its upper face in a plane with the upper edge of the supporting cup and inwardly extending grid portions carried by said cup shaped supporting means and in a plane with the upper flat face of the spill over plate.

4. In a gas burner, a hollow body portion having a fuel chamber, ports communicating with said chamber, a substantially flat annular spill over plate removably mounted on said body portion for supporting a cooking utensil thereon, said body having flash tube channels between the top thereof and said plate, said plate having a central opening therein, and shallow grooves formed in said plate communicating with said central opening, an annular cup shaped member adapted to be removably mounted in a cooking top of a stove, and formed with a central opening through which said hollow body portion projects.

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