

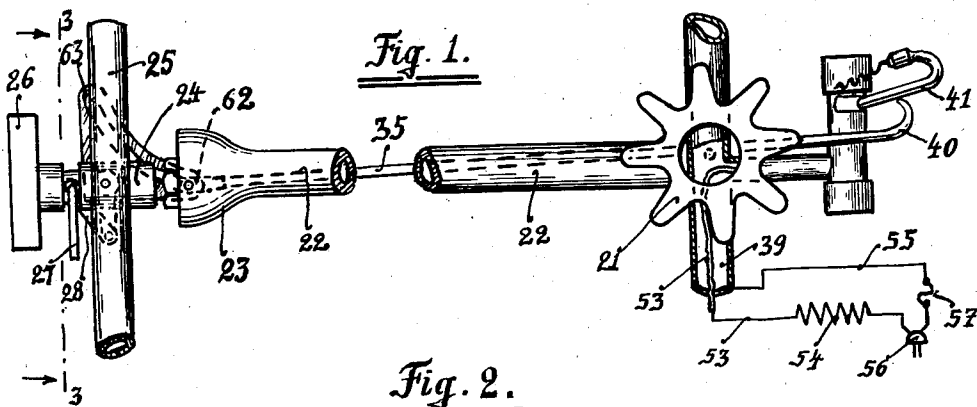
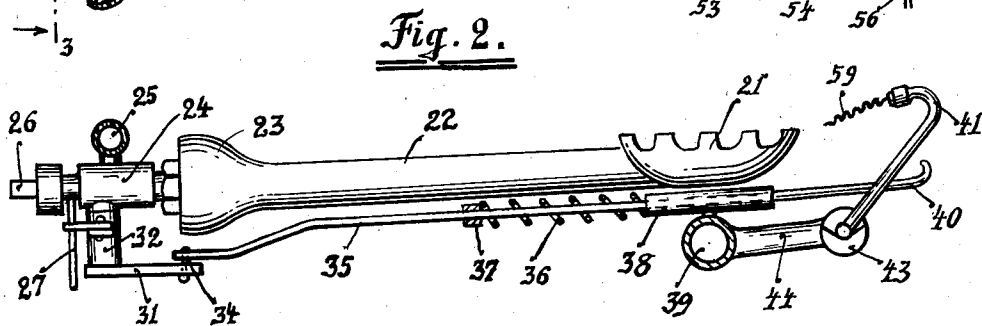
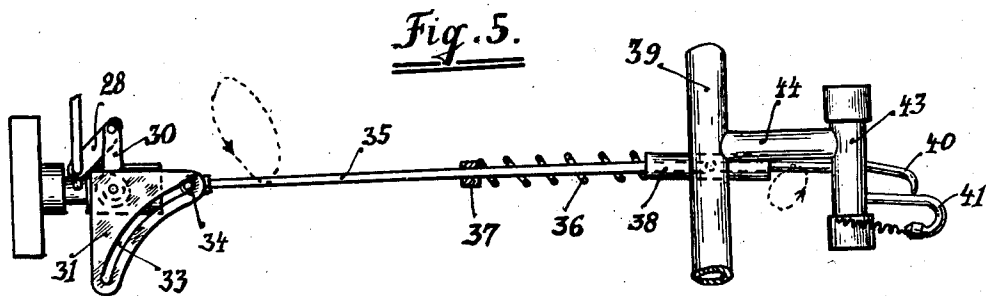
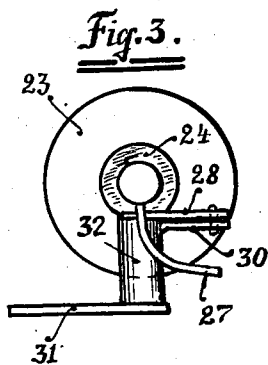
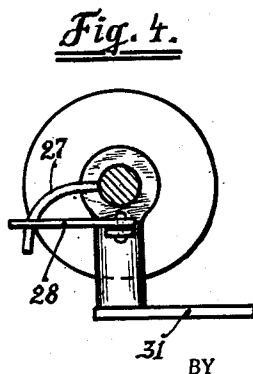
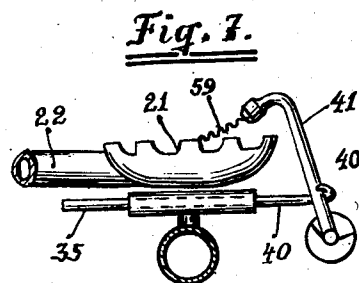
April 26, 1938.

P. F. CABRERA
GAS STOVE AND APPLIANCES

2,115,007

Filed July 14, 1934

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 6.

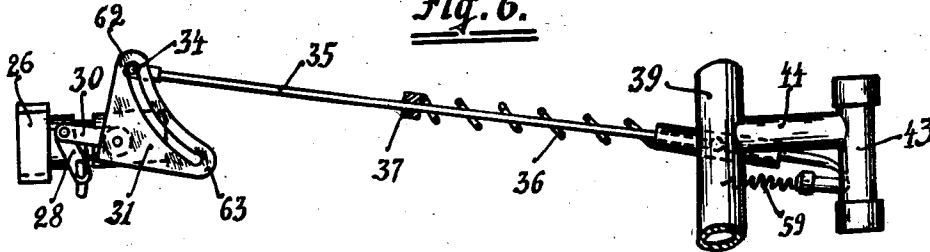


Fig. 8.

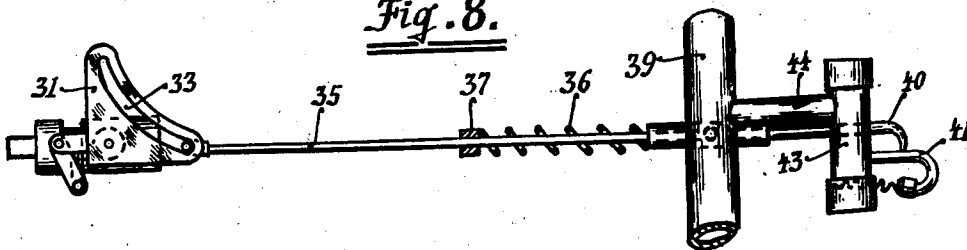


Fig. 9.

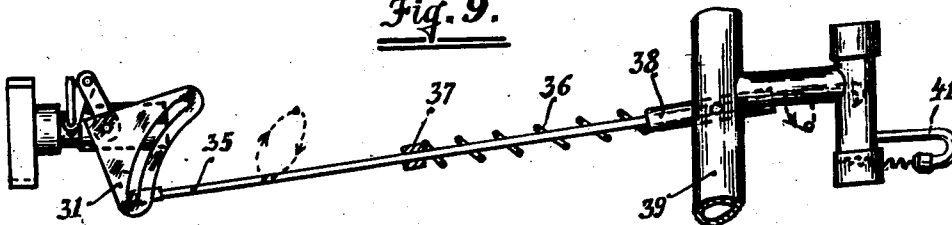


Fig. 10.

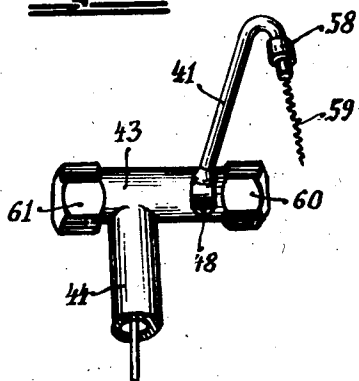
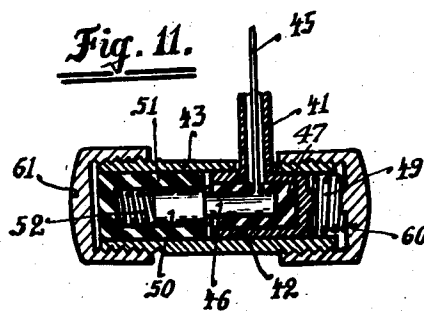


Fig. 11.



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2,115,007

GAS STOVE AND APPLIANCES

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Application July 14, 1934, Serial No. 735,157

3 Claims. (Cl. 175-115)

This invention relates to an improved device for igniting gas burners of stoves or other equipment, in which gaseous fuel is consumed, and its leading object is to provide a device, which will produce a spark, when the gas or fuel valve is turned on, but which will remain neutral or inactive, when the gas valve is turned off.

Another object of the invention is the provision of a gas burner igniter, which may be wired directly to the service wires of a house or to another source of electric energy, to operate on current of any available standard voltage, and which will, when operated, cause an electric sparking member to swing across the burner to produce an electrical spark in the zone of the gas flowing from the burner, and will then swing out of the flame zone.

A still further object of the invention is the provision of a gas burner igniter with a mechanical movement, which will function to reciprocate the movable electric contact member, to produce a sparking action over the burner, and which will actuate certain connecting parts transferring motion to the movable electric contact member in such manner, that the gap-sparking contact member will be operated only, when opening the gas valve, but will not be operated when the gas valve is shutting off the gas or fuel flow.

Still another object of the invention is the provision of a resilient sparking electrode, which will effect a wiping action against the gas burner, so as to produce sparks when moved across the burner.

With the above and other objects in view the invention relates to certain new and useful constructions, combinations and arrangements of parts, clearly described in the following specification, and fully illustrated in the drawings, in which:

Figures 1 and 2 are a top view and a side elevation respectively of a burner provided with an igniter according to the present invention;

Figures 3 and 4 are vertical sections through the device in the line 3-3 in Figure 1, seen in the direction of the arrows, Figure 3 showing the parts in a position corresponding to Figure 1, and Figure 4 showing them after turning the cock for 90° from valve closing to valve opening position;

Figures 5, 6, 8, 9 are views from below against the new igniting device, Figure 5 showing the position of the parts when the gas valve cock is closed; Figure 6 showing their position when the valve cock is partly opened; Figure 8 showing their position when the valve cock is fully opened;

Figure 9 showing their position when the valve cock is being closed, but not yet fully closed;

Figure 7 is a side elevation of the sparking device in a position, which corresponds to Figure 6, shortly before the sparking action;

Figure 10 shows in perspective the electric gap sparking member and the parts carrying it;

Figure 11 shows a longitudinal section through the parts, carrying the electric gap sparking member.

Referring now in detail to the accompanying drawings, which illustrate a preferred embodiment of the invention, the gaseous burner 21 of a standard type is supplied with fuel through the pipe 22, from the Bunsen burner 23. The gaseous fuel flows to the bunsen 23 through the valve 24, which receives the fuel from the main supply pipe 25. The valve 24 is turned by means of the handle 26, and the shaft of the valve is equipped with an arcuate arm or pin 27, which is hooked into the one end of the link member 28. This link 28 is pivotally connected at 29 with the arm 30, which is rigidly attached to the triangular shaped cam 31, respectively to its column shaped hub 32, mounted to pivot on the housing of the valve 24. Preferably the cam 31 is mounted so that it will rock in a horizontal plane.

The cam 31 is formed with a curved slot 33, which receives the end pin 34 of the pull and push rod 35. This pin is adapted to slide in the slot from its one end to the other end, if the cam is swung reciprocatingly around its pivotal axis. The push and pull rod is surrounded in its middle part by a coiled spring 36, which is secured with its one end to the rod or to a stop 37 thereon, whereas the other end of the coiled spring engages a bearing forming sleeve 38, which is mounted for pivotal movement on a supporting cross pipe 39, forming part of the stove or burner frame. The push and pull rod 35 extends through and beyond this bearing sleeve 38, and its end is provided with a terminal hook 40, which is adapted to engage the swingable arm 41. This arm 41 is fixed on an arm-carrying sleeve 42 Fig. 11, which is turnable within the capsular member 43, which is supported by the extension 44 of the supporting cross pipe 39.

The swingable arm 41 is tubular and contains an insulated electrical wire 45, which is soldered or otherwise electrically connected to the metal contact block 46, which is enclosed by the insulating sleeve 47 within the arm carrying sleeve 42. The capsular member 43 is formed with a slot 48, to permit the arm 41 together with its sleeve 42 to swing for a limited angle, and a coiled

spring 49 within the capsular member and fixed with its ends to this member 43 and to the sleeve 42 is adapted to exert torsional tension in the arm carrier member 42, so as to hold the swingable arm 41 normally in one of its two extreme positions, so that it is normally located distantly of the burner 21, where it is inoperative. The block 46 is engaged by a countercontact block 50, which is enclosed by the insulating sleeve 51, and is pressed into good electrical contact with the first block 46 by the means of the coiled pressure spring 52. An electrical wire 53 (Fig. 1) extends through the cross pipe 39 and is electrically connected to the counter-contact block 50, so that the electrical current will flow from the wire 53 to the wire 45. By turning the two caps 60, 61 on the two ends of the capsular member 43 the tension of the springs 49 and 52 in this member may be regulated so as to ensure good contact between the blocks 46 and 50, and to regulate the swinging movement of the arm 41.

The outer part of the wire 53 is provided with a resistance 54 of any suitable type, and it belongs to the ignition circuit branched from any suitable electric energy system, which circuit includes the plug 56, the wire 53, the other wire 56, having a suitable fuse 57 and being electrically connected to the cross pipe 39, the burner 21, and the gap sparking device. This gap sparking device comprises the swinging arm 41, the end of which is bent and equipped with a sleeve 58, to which an extremely flexible metal coil spring 59 is detachably connected. This spring 59, being fed electrically by the wire 45, serves as an ignition sparking electrode, which presents a series of helical contact points, when by a swinging movement of the arm 41 this coil scratches on the discharge mouthpiece of the burner 21.

From the described construction follows the following working of the new igniting device according to this invention:

When the fuel flow controlling valve 24 is in a closed position, the different parts will occupy the positions shown in the Figures 1, 2, 3, and 5. In particular it is to be denoted, that then the link 28 rests, as Figure 3 shows, on that part of the arc shaped arm or pin 27, which is nearest to the shaft of the valve 24, and the end 34 of the push and pull rod 35 rests in that end of the slot 33, which is at the corner 62 of the cam 31. The hook 40 at the other end of the rod 35 is close behind the swingable arm 41 of the sparking device. When by the handle 26 the cock of the gas valve 24 is turned into flow opening position (change from Figure 3 to Figure 4), then the link 28, gliding towards the remote end of the arc-shaped arm of pin 27, swings the arm 30 with the column 32 and the cam 31 for 90° round their pivotal axis; in consequence of this the pin 34 with the rod 35 hinged to it is pulled from the position of Figure 5 to the position of Figure 6, whereby the rod 35, besides shifting longitudinally swings round the pivot of the sleeve 38. The hook 40, gripping the arm 41, swings it over the burner 21 into the position of the Figure 7. The finishing of the valve opening operation brings the arm 31 from the position of the Figure 6 into the position of Figure 8; the pin 34 slides in the slot 33 into the other corner of this slot at the other corner 63 of the cam 31, as the rod 65 is under the pull of the spring 36, and the hook 40, snapping back into the rear position shown on Figure 2, whereby the electrode 59 moves scratchingly over the burner 21 and produces the gas igniting sparks. Then during the time as the

burner 21 is burning, the delicate electrode 59 is again in the position shown in Figure 2, out of the way of the flames issuing from the burner. When the burner is to be shut, then the shifting of the valve handle 26 shifts the cam 31 with the rod 35 from the position of Figure 8 into the position of Figure 9; but this time the rod 35 with the hook 40 at its end swings out to the other side as indicated by the dotted and arrowed curves in Figure 9, so that this time the hook 40 does not catch the arm 41, and the arm 41 with the electrode 59 remain in rest and inoperative, away from the flames and from the hot burner head. At the end of the valve closing operation the pin 34 with the rod 35 and the hook 40 have snapped back into their original positions shown in the Figures 1 and 2.

I claim:

1. An ignition device for gas burners, comprising: a swinging arm; a flexible spring electrode, carried by the end of the arm; means for supporting the arm for swinging movement, so that the electrode will have wiping contact with the upper side of the burner; a bearing, pivotally mounted and adapted to swing round its pivot; a push and pull rod, mounted to slide through the bearing, and adapted to swing together with the bearing during its sliding movement through the bearing; a gas valve; a cam-like plate, pivotally mounted and having a curved slot spaced from the pivotal axis of the plate, so that the ends of the slot are approximately at equal distance from said axis, and the intermediate portion of the slot is nearer to the axis than the ends of the slot; means connecting the valve with the plate, so as to cause swinging movements of the plate in correspondence to turning movements of the valve; a slidably engaging connection of the one end of the said rod with the slot in the said plate; and a hook on the other end of the rod, to engage the swinging arm and to actuate the same to ignition position.

2. An ignition device for gas burners, comprising: a swinging arm; a flexible spring electrode, carried by the end of the arm; means for supporting the arm for swinging movement, so that the electrode will have wiping contact with the upper side of the burner; a bearing, pivotally mounted and adapted, to swing round its pivot; a push and pull rod, mounted to slide through the bearing, and adapted to swing together with the bearing during its sliding movement through the bearing; a spring, causing the longitudinal sliding movement of the rod; a gas valve; a plate mounted on and operatively connected with the valve, so as to make swinging movements in correspondence with the movements of the valve; means connecting the one end of the said rod slidably with the plate, so as to transform the swinging movement of the plate into a longitudinal sliding movement of the rod and into a swinging of the rod first in the one direction and then in the opposite direction; and a hook on the other end of the rod, to engage the swinging arm and to actuate the same to ignition position.

3. An ignition device for gas burners, comprising: a swinging arm; a flexible spring electrode, carried by the end of the arm; means for supporting the arm for swinging movement, so that the electrode will have wiping contact with the upper side of the burner; a bearing, pivotally mounted and adapted to swing round its pivot; a push and pull rod, mounted to slide through the bearing, and adapted to swing together with the bearing during its sliding movement through the bearing; a spring to cause the longitudinal sliding

ing movement of the rod; a gas valve; a cam-
like plate pivotally mounted and having a curved
slot spaced from the pivotal axis of the plate, so
that the ends of the slot are approximately at
5 equal distance from said axis and the interme-
diate portion of the slot is nearer to the axis,
than the ends of the slot; an arcuate pin extend-
ing from the turning part of the valve; an arm
consistent with the camlike plate, so as to be
10 adapted to swing it round its pivotal axis; a con-

necting link pivoted with its one end to the last
said plate-swinging arm, and hooked with its eye-
formed other end on the said arcuate pin; a slid-
ably engaging connection of the one end of the
said rod with the slot in the camlike plate; and 5
a hook on the other end of the rod, to engage
the swinging arm and to actuate it to ignition
position.

PEDRO F. CABRERA. 10