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GAS PILOT AND VALVE CONTROL

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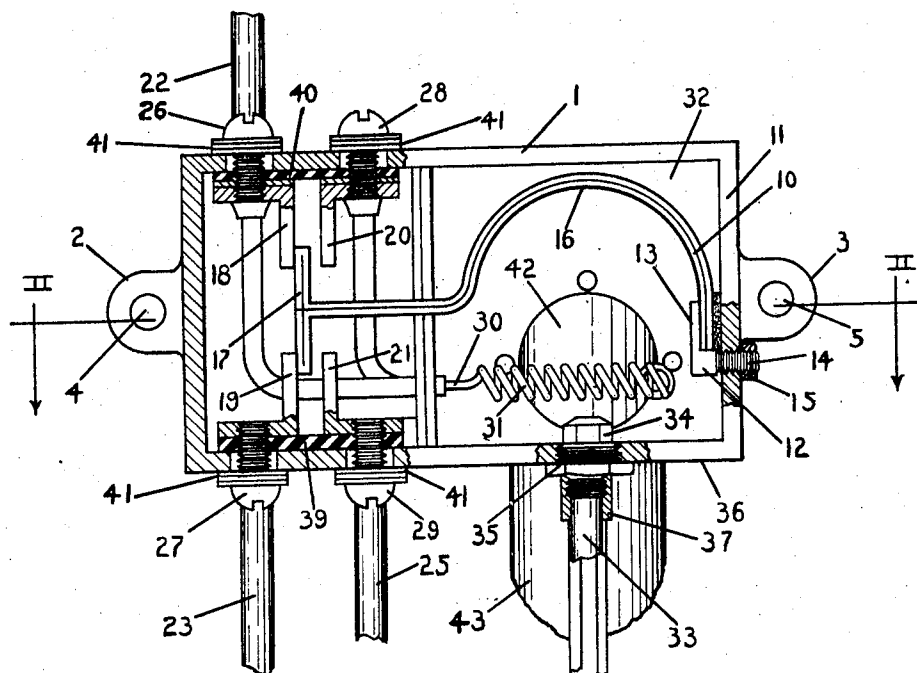


Fig. 1

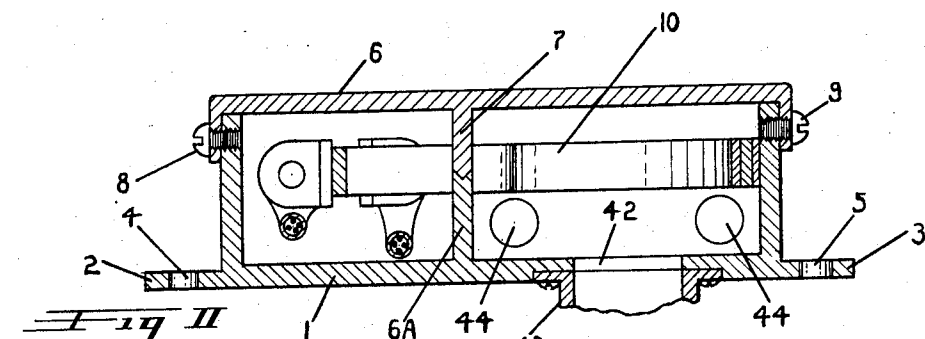


Fig. 2

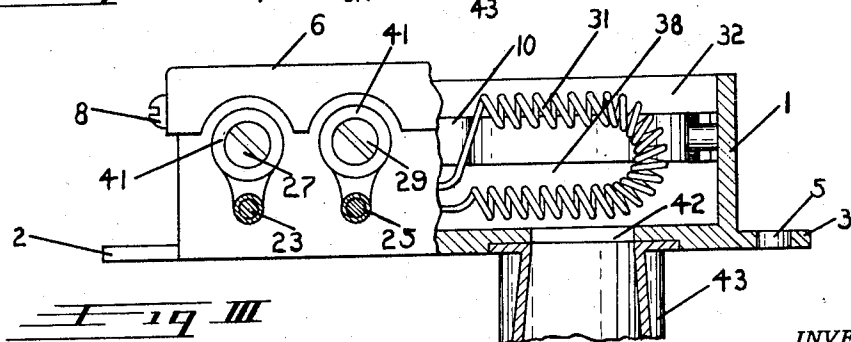


Fig. 3

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GAS PILOT AND VALVE CONTROL

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2 Claims. (Cl. 158—115)

My invention relates to improvements in gas pilot and valve control mechanism for use on gaseous fuel type burners.

The primary purpose and object of my invention is to provide automatic means for relighting the pilot light and for relighting the primary gas burner after the pilot light has been extinguished from any cause. After the primary gas burner has failed to light due to a drop in pressure or the gas fuel supply temporarily fails, automatic means is provided for igniting the pilot light as well as the primary gas burner. I provide a housing having a tube associated therewith that communicates a chamber of the housing in which the pilot light is disposed with that of the primary gas burner head.

A bi-metal electric circuit maker and breaker is disposed within the housing with one end of the bi-metal circuit breaker being fixed and with the opposite end of the bi-metal member carrying a T-head that is adapted for being moved into and out of contact with pairs of electric terminals. Electric circuit conductors are connected to the respective terminals and a heat resistance wire is disposed in one of the circuits with the heat resistance wire being placed in position within the chamber in which the bi-metal electric circuit maker and breaker is disposed so that in the event the pilot light becomes extinguished for any reason the T-head of the bi-metal circuit maker and breaker will be into engagement with the electric terminals to thereby pass the current through the resistance wire and to reignite the pilot light.

Fig. I is a sectional side view of the assembled device.

Fig. II is a transverse sectional plan view of the assembled device.

Fig. III is a top plan view of the assembled device. In this view the top coverplate is partially broken away to permit the illustration of the coiled resistance wire, and bimetal member and the split pipe.

I provide a box like housing 1. Ears 2 and 3 outwardly extend from the opposite ends of the housing with fastening holes 4 and 5 passing therethrough. Screws or other fastening means pass through the holes to secure the housing to any suitable fixed support.

A removable lid 6 is provided for the housing. A split partition comprised of a bottom member 8 and a top member 7 are placed transversely of the housing and it is disposed between the ends of the housing and it upwardly extends from the base of the housing. The top partition forming

member 7 is secured to the top lid. The top partition 7 downwardly extends from the top of the lid and the same is placed in registry with the partition 8 in order that a complete partition may be formed within the housing when the lid is secured to the housing. The lid is secured to the housing by suitable fastening means through the use of screws 9 and 9.

A bi-metal electric circuit maker and breaker 10 is provided. The bi-metal electric circuit maker and breaker is secured to the end 11 of the housing by any suitable means as through the use of a hook-bolt 12. The threaded end of the bolt passes through the end of the housing and locking relationship is developed between the end 13 of the hook-bolt and the base end of the bi-metal circuit maker and breaker by threading the outer end 14 of the hook-bolt and attaching thereto a nut 15. The bi-metal electric circuit maker and breaker is arched between its ends as illustrated at 16.

A T-head 17 terminates the circuit making and breaking end of the bi-metal circuit maker and breaker. The bi-metal circuit maker and breaker passes through the split partition 9 and 7 and this forms a bearing and maintains the normal longitudinal movement of the bi-metal circuit maker and breaker in suitable aligning position. Pairs of electric terminals 18 and 19, 20 and 21 are spaced apart and disposed in registry alignment with each other and the same are positioned so that the T-head of the bi-metal circuit maker and breaker may be moved into and out of registry engagement with the respective sets of the electric terminals. Electric conductors 22 and 23 conduct electric energy to the terminals 18 and 19 and electric conductor 25 conducts electric energy to the electric terminal 21. The connection made between the electric terminals and the conductors is accomplished in the conventional manner through the use of screws 26 and 27, 28 and 29.

The electric conductors lead to a source of electric energy not here shown. A heat resistance wire 30 is provided. The heat resistance wire is coiled as illustrated at 31 and the coiled portion of the wire is placed within the chamber 32 of the housing and looped in the form of a U as illustrated in Fig. III with the loop of the coil being spaced apart sufficiently to permit the flame emanating from the pilot light to pass therethrough so that the flame will not impinge directly upon the heat resistance wire 30. The heat resistance wire 30 is secured to the respective electric terminals 18 and 20. A gas supplying

tube 33 leads from a source of gas supply not here shown and terminates in a pilot light head 34. The pilot light head 34 is disposed within and terminates within the chamber 32. The burner head is threaded as illustrated at 35 to permit the same being threadedly engaged to the side wall 36 of the housing and the tube 33 is secured thereto by a clamping nut 37. The flame emanating from the burner head 34 passes through the space 38 that is formed by the U of the coil of the resistance wire and the arms 16 of the bimetal circuit maker and breaker are spaced apart sufficiently from the burner head 34 to prevent the flame emanation therefrom impinging directly upon the arched portion 16 of the bimetal circuit maker and breaker.

The housing 1 is preferably made of metal. The electric terminals 18, 19, 20 and 21 are also made of metal. To insulate the respective terminals from the housing, I provide suitable insulation gaskets 39 and 40. The screws 26, 27, 28 and 29 pass through the housing and in order to insulate the same from the housing, the holes in the side walls of the housing through which the screws pass are made larger.

Insulation washers 41 are placed beneath the heads of each of the screws to suitably insulate the same from the housing.

In order to communicate the chamber 32 with the primary fuel burner head I provide a relatively large port 42 in one of the walls of the housing and I connect a split pipe 43 to the housing and in registry with the port 42 so that any gas emanating from the gas burner head flows through the pipe 43 into the chamber 32 and in doing so it is ignited by the pilot light. The primary gas burner head is also lighted by the flame flowing down the split pipe 43. The purpose of splitting the tube 43 is to provide air for the tube. I provide ports 44 in the side walls of the housing to supply air to the pilot light.

When the T-head is in the position as shown in Fig. 1 the current flows from conductor 22 to conductor 23 and to a suitable main burner control device and in doing so the current does not flow through the resistance wire 30. When the pilot light is out for any reason the T-head 17 is retracted and contact is made with the terminals 20 and 21. The conductor 22 being the positive wire the current flows through conductor 22 to the resistance wire 30 and the coil 31 and continues to terminal 20 and to the conductor 25 and the current flowing through the coil 31 heats the same sufficiently to ignite any fluid fuel of a combustible nature flowing through the pilot light burner head 34 and in turn lights the primary burner head through the split pipe 43.

While the form of mechanism herein shown and described is admirably adapted to fulfill the objects primarily stated, it is to be understood that it is not intended to confine the invention to the embodiment herein shown and described, as it is susceptible of embodiment in various forms all coming within the scope of the claims which follow.

What I claim is:

1. In a device of the class described, the combination of a housing, a partition disposed between the ends of the housing and disposed transversely of the housing and secured on its bottom and ends respectively to the bottom and to the side walls of the housing to divide the housing into two independent compartments, a bi-metal member disposed longitudinally of the housing with the base end of the bi-metal part being secured to one end of the housing with an arch disposed in the bi-metal member between its base end and the partition, a T-head disposed upon the opposite end of the bi-metal member, a gas burner head secured to one of the walls of the housing and positioned to normally maintain a gas flame within the compartment of the housing in which the arch of the bi-metal member is disposed, pairs of electric terminals disposed in the normal line of travel of the T-head of the bi-metal member and one pair of said electric terminals being disposed in the path of the T-head when the bi-metal member is heated and adapted for being contacted thereby to complete one electric circuit and the other one of the pairs of electric terminals being positioned for being contacted by the T-head and for completing another electric circuit when the bi-metal member moves in the opposite direction, electric conductors attached to the respective electric terminals and a heat resistance wire connected in circuit with said other pair of terminals, said heat resistance wire being coiled and formed into a U and positioned within the compartment of the housing in which the arch of the bi-metal member is disposed and means for communicating a fluid fuel into the compartment of the housing in which the arch of the bi-metal member and the coil of the resistance wire is disposed and a lid removably securable to the housing.

2. In a device of the class described, the combination of a partitioned housing, a lid removably securable to the housing, pairs of electric terminals spaced apart and disposed within one of the compartments of the housing, a bi-metal member, said bi-metal member having a T-head with said T-head being disposed between the respective pairs of electric terminals and adapted for completing an electric circuit when the bi-metal member is hot and for completing another electric circuit when the bi-metal member is cold, a pilot gas burner head disposed within one of the compartments of the housing and positioned to heat the bi-metal member when the burner pilot head is lighted, and a heat resistance coil disposed within the housing and within the same compartment as the base end of the bi-metal member, said heat resistance coil being U-shaped and positioned so that the flame of the pilot light will pass through the U-formation of the coil of the heat resistance wire, and said heat resistance wire being secured on its ends to certain of the electric terminals.

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