

L. G. BARTLETT.
 AUTOMATIC GAS IGNITION AND CONTROL.
 APPLICATION FILED MAY 11, 1909.

953,985.

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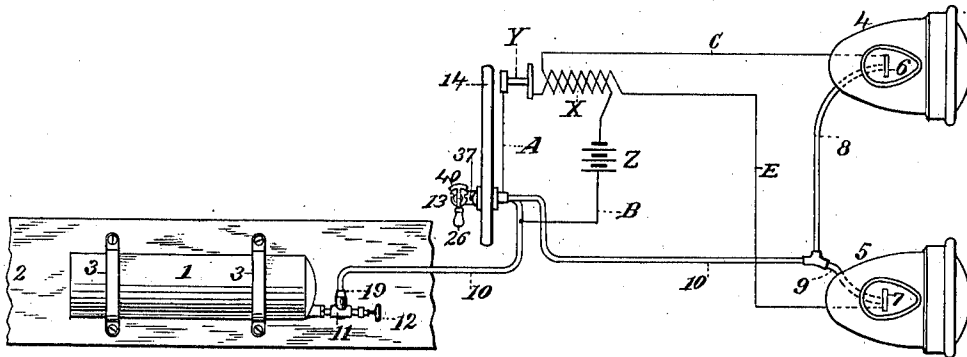


Fig. 1

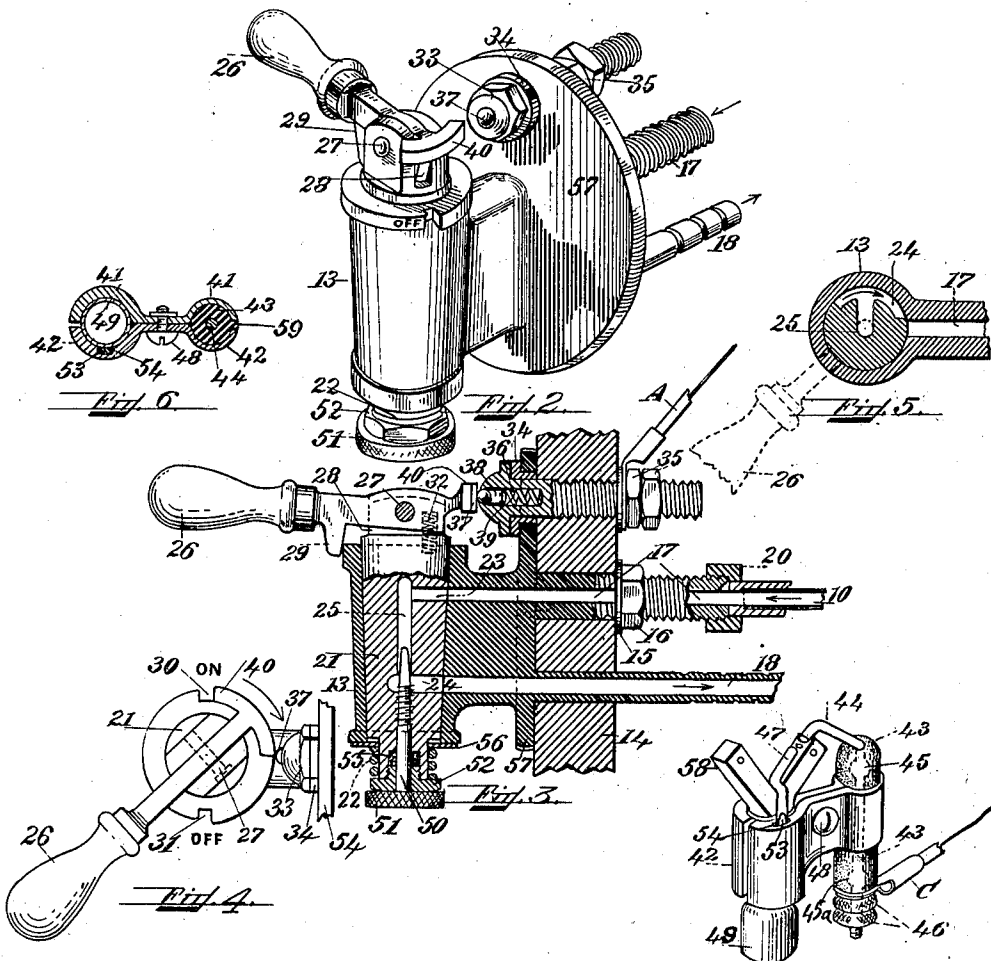


Fig. 6

Fig. 2

Fig. 5

Fig. 3

Fig. 4

Fig. 7

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UNITED STATES PATENT OFFICE.

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AUTOMATIC GAS IGNITION AND CONTROL.

953,985.

Specification of Letters Patent.

Patented Apr. 5, 1910.

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To all whom it may concern:

Be it known that I, LOUIS G. BARTLETT, of Somerville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Automatic Gas Ignition and Control, of which the following is a specification.

My invention relates to improvements in automatic gas ignition and control and is especially adapted for controlling and igniting the gas in the search lights of an automobile directly from the seat.

The object of this device is to provide a controller which is adapted to turn on and off the gas, and to ignite the same at the burner or burners simultaneously when the controller is turned on. This arrangement prevents the liability of an explosion in the lamps owing to the fact that the ignition or electric spark is thrown into operation previous to admitting the flow of gas to the burner or burners so that the gas is ignited immediately it reaches the burner or burners.

In the accompanying drawings which illustrate a construction embodying my invention, Figure 1 is a diagrammatic view showing the acetylene head lights connected with the usual charged gas tank and a controller or ignition mechanism interposed therein and suitably mounted on the dash board of the automobile. Fig. 2 is a perspective view of the controller device showing the position of the same with the gas burning at the lights and the electric circuit opened. Fig. 3 is a vertical sectional view showing the controller in intermediate position with the electric circuit closed and the ports in position to admit gas to the burners. Fig. 4 is a top plan view showing the main portion of the controller with the handle in initial position for closing the electric circuit. Fig. 5 is a sectional view through the valve showing the relative position of the gas ports with the controller in the position shown in Fig. 4 and the circuit closed previous to the admission of gas to the lights. Fig. 6 is a central cross sectional view of the burner shown in Fig. 7. Fig. 7 is a perspective view of one of the acetylene burners showing the manner of mounting the electrodes.

Like characters of reference refer to like parts throughout the several views.

1 represents the usual charged acetylene

gas tank located on the running board or step 2 and secured thereon by straps 3.

4 and 5 represent the usual head lights carrying the burners 6 and 7 therein respectively, and connected with the gas tank 1 through branch tubes 8 and 9 and the main conduit 10. The usual needle valve 11 is located on the tank and has a handle 12 to turn on or off the gas.

13 is a controller mounted on the dash board 14 and secured thereon by the washer 15, nut 16 and plate 57.

17 is a gas inlet port and 18 is a gas outlet port. The main conduit 10 is comprised preferably of a piece of suitable copper tubing, one end connected with the valve 11 by suitable union 19, and the other end being connected with the union 20 on the controller 13. The outlet port 18 is connected with the remainder of the main conduit 10 leading to the branches 8 and 9. Mounted in the casing of the controller 13 is a taper valve 21 held firmly seated by the helical spring 22. Ports 23—24 connected by port 25 are located in the valve 21 and adapted to be moved into communication with the gas inlet 17 and gas outlet 18 when the valve 21 is in a certain position, thereby permitting the flow of gas from the tank through the main conduit 10, inlet 17, ports 23, 25 and 24 through outlet port 18 and into the main conduit 10 thence through branches 8—9 to burners 6—7.

26 is a handle mounted on the pivot 27 in the slot 28 in the upper part of the taper valve 21 to cause the operation of said valve.

29 is a latch located on the lower part of the handle 26 and adapted to engage the notches 30—31 to lock the valve in open or closed position.

32 is a spring mounted in a slot in the handle 26 and in the taper valve 21 adapted to apply upward pressure to the inner end of handle 26 to hold the latch 29 within the notches 30—31. The contact 33 mounted on the face plate 57 and insulated therefrom by the insulating bushing 34 and wooden dashboard 14 and secured in position by nuts 35, is connected by wire A with the primary winding of an ordinary induction coil X having the usual interrupter or vibrator Y located in the primary circuit of the same. The opposite end of the primary winding of the coil X is connected with one

pole of the battery Z while the opposite pole of said battery Z is grounded on the copper tubing or conduit 10.

C and E are wires connecting each end of the secondary winding of the coil X with an insulated electrode on the burners 6—7 respectively, each of said burners 6 7 carrying a grounded electrode completing the secondary circuit through the frame of the automobile.

The contact 33 carries the recess 36 in which is mounted the ball 37 held outwardly against the contracted opening in the recess by means of a cup 38 and spring 39 forming a yielding rolling contact. The handle 26 carries the segmental arm 40 adapted to engage with the ball contact 37 intermediate the open and closed positions of the valve 21 thereby closing the primary circuit through the coil X and securing a jump spark at each of the burners 6—7. The cup 38 between the ball 37 and the spring 39 prevents the ball from wedging into the open end of the spring forming an unreliable contact.

Each burner comprises a lava tip 58 with the usual gas vents therein and a metal stem 49 securing the same to the lamp.

41, 42 are metal clamps adapted to be mounted over the stem of the burner and also over the insulated support 43 holding same in suitable position.

44 is an electrode molded in the support 43 and flattened at 45 and 45^a to prevent the same from turning therein. The lower end of electrode 44 is threaded and the nuts 46 are mounted thereon forming a binding post for either of the secondary wires C and E as the case may be. The rib 59 on the insulating support 43 is adapted to be mounted between the two corresponding outer ends of the clamps 41, 42 to position and prevent the same from turning therein. It is found to be essential that the terminal electrodes shall be in and maintain an exact alinement with the gas vent, so that the spark will be projected through the path of the escaping gas to ignite the same, as otherwise, if the electrodes were displaced from their maintained position, the gas would accumulate in the lamps and an explosion would subsequently take place. The electrode 47 is flattened at its lower end at 53 and is grounded on and positionally mounted in the flat recess 54 in the clamp 42 which prevents the electrode from turning. 48 is a screw for securing the clamps 41, 42 firmly around the burner itself and insulating support 43.

The arrangement illustrated in Figs. 6 and 7 is not claimed in this application but is claimed in my applications Ser. Nos. 427,997 and 519,344 filed respectively Apr. 20, 1908 and Sept. 24, 1909.

Threaded in port 25 is a needle valve 50

adapted to be operated by the thumb nut 51 to restrict or enlarge the passage port 25 and reduce or increase the volume of gas flowing through the outlet 18 to the burners when the valve 21 is turned on.

52 is a packing nut threaded into the lower end of the valve 21 and adapted to hold the packing 55 tightly around the valve stem 50 to prevent leakage.

22 is a helical spring mounted over the lower end of the valve 21 and between washer 56 resting against controller 13, and packing nut 52, and is adapted to hold the valve 21 on its seat.

The operation is as follows: The handle 26 is lifted from the notch 31 against the tension of the spring 32 and is thrown from the "off" position shown in Fig. 1 to the intermediate position shown in Fig. 3 causing the ports 23—24 to be connected through port 25, so that the gas may be permitted to flow to the burners 6—7. At the same time the segmental arm 40 engages the ball contact 37 making the circuit through the coil X and causing a jump spark to be projected between the terminals at each burner 6, 7. The operator now opens the valve 11 at the tank by means of the handle 12 when the gas may flow and be ignited by the jump spark. If it is desired that the lights remain burning, the handle is thrown to the extreme open position (Fig. 2) when same is locked in the notch 30 by means of the spring 32. This movement of the handle breaks the circuit but without cutting off the flow of gas from the tank 1 to burners 6, 7. If it is found that the gas is burning too high in the lamps, the needle valve 50 may be operated from the seat and by means of the thumb nut 51 the volume of gas may be reduced; in case the lights dim after using a few hours, the thumb nut 51 may be turned slightly opening the needle valve 50 and allowing a greater volume of gas to flow to the lights. The lights may now be extinguished by a reverse movement of the handle 26 to "off" position. It is obvious, that the gas being properly regulated by valve 11, the lights may be turned on or off at will without leaving the seat of the automobile and by a single movement of the controller handle in each case. To obviate the danger of accumulation of gas in the lamps and consequent explosion by subsequent closure of the circuit and sparking at the burners,—the controller is so constructed and arranged, that when the handle 26 is turned and reaches the position shown in Figs. 4 and 5, the circuit will be closed and the spark obtained at the burners previous to the flow of gas through the ports 23, 25 and 24 to the lamps. The segmental arm 40 is adapted, on continued movement of handle 26, to hold the circuit closed producing a spark at the burners during an in-

terval necessary for the ports 23, 24 and 25 to be thrown into communication and the gas to reach the burners whereby the ignition of same is insured. The further movement of the handle 26 to "on" position (Fig. 2) will break the circuit but leaves the ports 23, 25 and 24 in communication permitting the gas to remain flowing to the lamps.

When it is desired to turn out the lights temporarily as in passing through villages, or to avoid frightening animals or dazzling people, the handle 26 is thrown from the position shown in Fig. 2 to that shown in Fig. 1, without leaving the seat, and at will the lights may be relighted by throwing the handle back to "on" position.

A saving of gas is also provided by this device in that when the car is waiting the lights may be turned off, as explained, and when the car is started again, the lights may be turned on without leaving the seat, and thus avoid burning the head lights all the time the car is waiting.

Having thus described the nature of my invention and set forth a construction embodying the same, what I claim as new and desire to secure by Letters Patent of the United States is—

1. In an apparatus of the character described, one or more burners, a gas receptacle, a gas conduit between said burner or burners and said gas receptacle, a valve located in said conduit for turning on or off the supply of gas to said burner or burners, a normally open electric circuit, electrodes in said circuit and located at said burner or burners for the passage of a spark and adapted to ignite the gas at said burner or burners, a switch for closing said circuit, and co-acting mechanism for closing said switch and subsequently opening said valve and adapted to insure the passage of a spark at said burner or burners previous to the admission of gas thereto.

2. In an apparatus of the character described, one or more burners, a gas receptacle, a gas conduit between said burner or burners and said gas receptacle, a valve located in said conduit for turning on or off the supply of gas to said burner or burners, a normally open electric circuit, electrodes in said circuit and located at said burner or burners for the passage of a spark and adapted to ignite the gas at said burner or burners, a switch for closing said circuit, co-acting mechanism for closing said switch and subsequently opening said valve and adapted to insure the passage of a spark at said burner or burners previous to the admission of gas thereto, and means for maintaining the closure of said circuit to insure said spark until the gas is admitted to said burner or burners.

3. In an electrical contact, an insulated

supporting member having a restricted opening, a ball contact movably mounted in and adapted to project through said restricted opening, a spring mounted behind said ball contact, and a member interposed between said ball contact and said spring to transmit the tension of said spring to said ball whereby said ball contact is held in position in said restricted opening and prevented from wedging into said spring.

4. In an electrical contact, an insulated supporting member having a restricted opening, a ball contact movably mounted in and adapted to project through said restricted opening, a spring mounted behind said ball contact, a member interposed between said ball contact and said spring to transmit the tension of said spring to said ball whereby said ball contact is held in position in said restricted opening and prevented from wedging into said spring, and means for securing said insulated supporting member.

5. In an apparatus of the character described, one or more burners, a gas receptacle, a main gas conduit leading from said receptacle to said burner or burners, a valve located in said main gas conduit for turning on or off the supply of gas to said burner or burners, a normally open electric circuit, electrodes in said circuit and located at said burner or burners for the passage of a spark and adapted to ignite the gas at said burner or burners, a switch for closing said circuit, and co-acting mechanism carrying said switch and valve for operating said switch to close said circuit and adapted to open said valve to allow the gas to flow to said burner or burners subsequently to the closing of the circuit at the burner or burners.

6. In an apparatus of the character described, one or more burners, a gas receptacle, a main gas conduit leading from said receptacle to said burner or burners, a valve located in said main gas conduit for turning on or off the supply of gas to said burner or burners, a normally open electric circuit, electrodes in said circuit and located at said burner or burners for the passage of a spark and adapted to ignite the gas at said burner or burners, a switch for closing said circuit, and a handle on which said switch is mounted for operating said switch to close said circuit and adapted to open said valve to allow the gas to flow to said burner or burners subsequently to the closing of the circuit at the burner or burners.

7. In an apparatus of the character described, one or more burners, a gas receptacle, a main gas conduit leading from said receptacle to said burner or burners, a valve located in said main gas conduit for turning on or off the supply of gas to said burner or burners, a normally open electric circuit, electrodes in said circuit and located at said

burner or burners for the passage of a spark and adapted to ignite the gas at said burner or burners, a switch for closing said circuit, co-acting mechanism carrying said switch and valve for operating said switch to close said circuit and adapted to open said valve to allow the gas to flow to said burner or burners subsequently to the closing of the circuit at the burner or burners, and a latch device for retaining said co-acting mechanism in the open or closed position of said valve.

8. In an apparatus of the character described, one or more burners, a gas receptacle, a main gas conduit leading from said receptacle to said burner or burners, a valve located in said main gas conduit for turning on or off the supply of gas to said burner or burners, a normally open electric circuit, electrodes in said circuit and located at said burner or burners for the passage of a spark and adapted to ignite the gas at said burner or burners, a switch for closing said circuit, a handle on which said switch is mounted for operating said switch to close said circuit and adapted to open said valve to allow the gas to flow to said burner or burners subsequently to the closing of the circuit at the burner or burners, and a latch device for retaining said handle in the open or closed position of said valve.

9. In an apparatus of the character described, one or more burners, a gas receptacle, a main gas conduit leading from said receptacle to said burner or burners, a valve located in said main gas conduit for turning on or off the supply of gas to said burner or burners, a valve casing for said valve, a support independent of the conduit for said valve casing, means for detachably securing said valve casing to said support, a normally open electric circuit, electrodes in said circuit and located at said burner or burners for the passage of a spark and adapted to ignite the gas at said burner or burners, a switch for closing said circuit, a handle on which said switch is mounted for operating said switch to close said circuit and adapted to open said valve to allow the gas to flow to said burner or burners subsequently to the closing of the circuit at the burner or burners, and a latch device for retaining said handle in the open or closed position of said valve and located on said handle and on said valve casing.

10. In an apparatus of the character described, one or more burners, a gas receptacle, a gas conduit leading from said receptacle to said burner or burners, a valve located in said gas conduit for turning on or off the gas to said burner or burners, a normally open electric circuit including a yielding contact, electrodes in said circuit and located at said burner or burners for the passage of the spark and adapted to light

the gas at said burner or burners, a segmental switch for closing said circuit, and a handle for operating said switch to close said circuit and adapted to open said valve to allow the gas to flow to said burner or burners subsequently to the closing of the circuit at the burner or burners.

11. In an apparatus of the character described, one or more burners, a gas receptacle, a gas conduit leading from said receptacle to said burner or burners, a valve located in said gas conduit for turning on or off the gas to said burner or burners, a normally open electric circuit including a yielding contact, electrodes in said circuit and located at said burner or burners for the passage of the spark and adapted to light the gas at said burner or burners, a segmental switch for closing the circuit, and a handle on which said switch and valve are mounted for operating said switch to close said circuit and adapted to open said valve to allow the gas to flow to said burner or burners subsequently to the closing of the circuit at the burner or burners.

12. In an apparatus of the character described, one or more burners, a gas receptacle, a main gas conduit leading from said receptacle to said burner or burners, a valve located in said main gas conduit for turning on or off the supply of gas to said burner or burners, a normally open electric circuit, electrodes in said circuit and located at said burner or burners for the passage of a spark and adapted to ignite the gas at said burner or burners, a switch for closing said circuit, and co-acting mechanism for operating said switch to close said circuit and for opening said valve to allow the gas to flow at the burner or burners subsequently to the closing of the circuit.

13. In an apparatus of the character described, one or more burners, a gas receptacle, a main gas conduit leading from said receptacle to said burner or burners, a valve located in said main gas conduit for turning on or off the supply of gas to said burner or burners, a normally open electric circuit, electrodes in said circuit and located at said burner or burners for the passage of a spark and adapted to ignite the gas at said burner or burners, a switch for closing said circuit, and a handle for operating said switch to close said circuit and for opening said valve to allow the gas to flow at said burner or burners subsequently to the closing of the circuit.

14. In an apparatus of the character described, one or more burners, a gas receptacle, a main gas conduit leading from said receptacle to said burner or burners, a valve located in said main gas conduit for turning on or off the supply of gas to said burner or burners, a normally open electric circuit, electrodes in said circuit and located at said

burner or burners for the passage of a spark and adapted to ignite the gas at said burner or burners, a switch for closing said circuit, and a handle on which said switch and valve are mounted for operating said switch to close said circuit and for opening said valve to allow the gas to flow at the burner or burners subsequently to the closing of the circuit.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses, this tenth day of May A. D. 1909.

LOUIS G. BARTLETT.

Witnesses:

A. L. MESSER,
W. H. WINDE.