

S. E. GAMBLE.  
 AUTOMATIC FIRE LIGHTER.  
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908,851.

Patented Jan. 5, 1909.

Fig. 1.

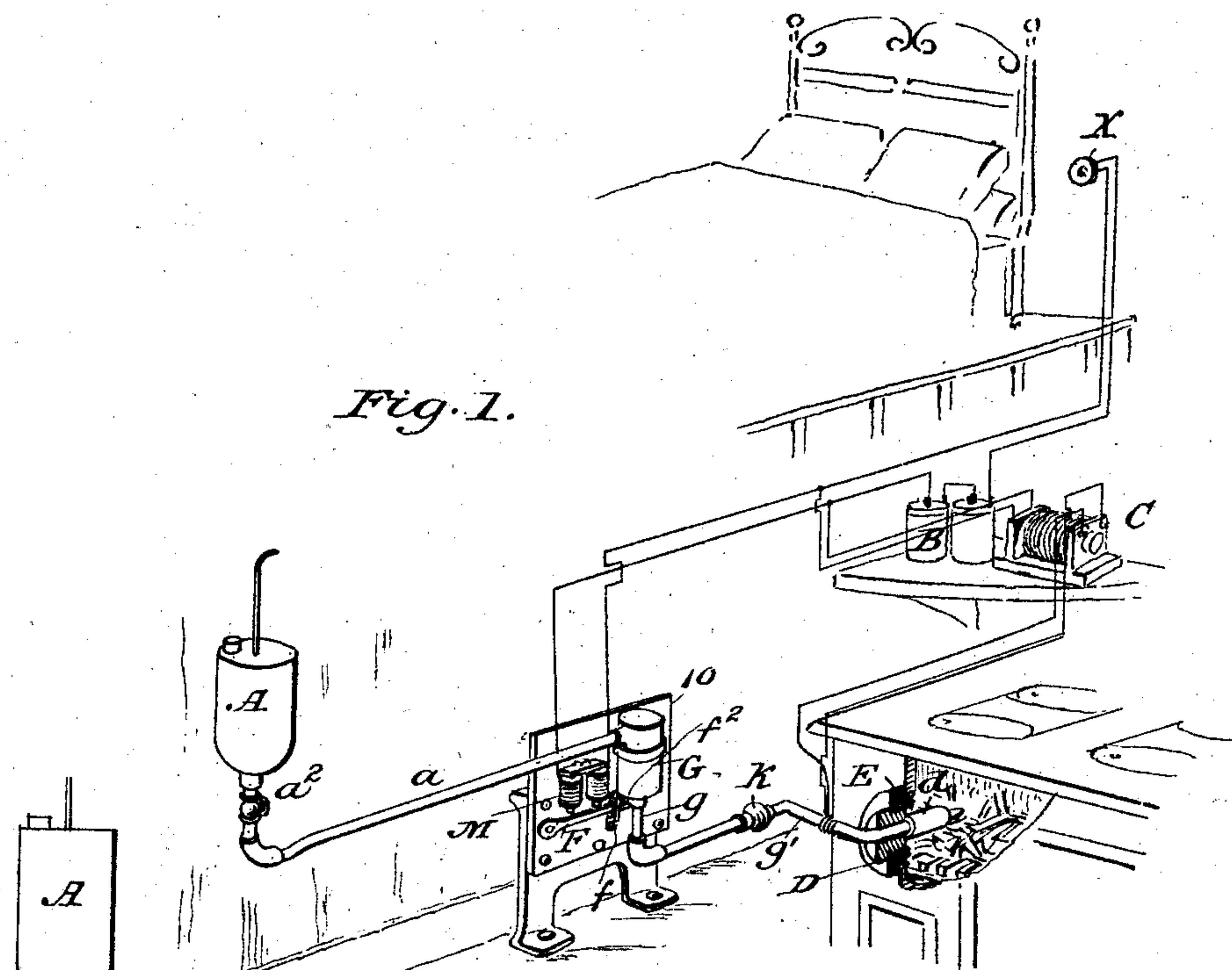


Fig. 2.

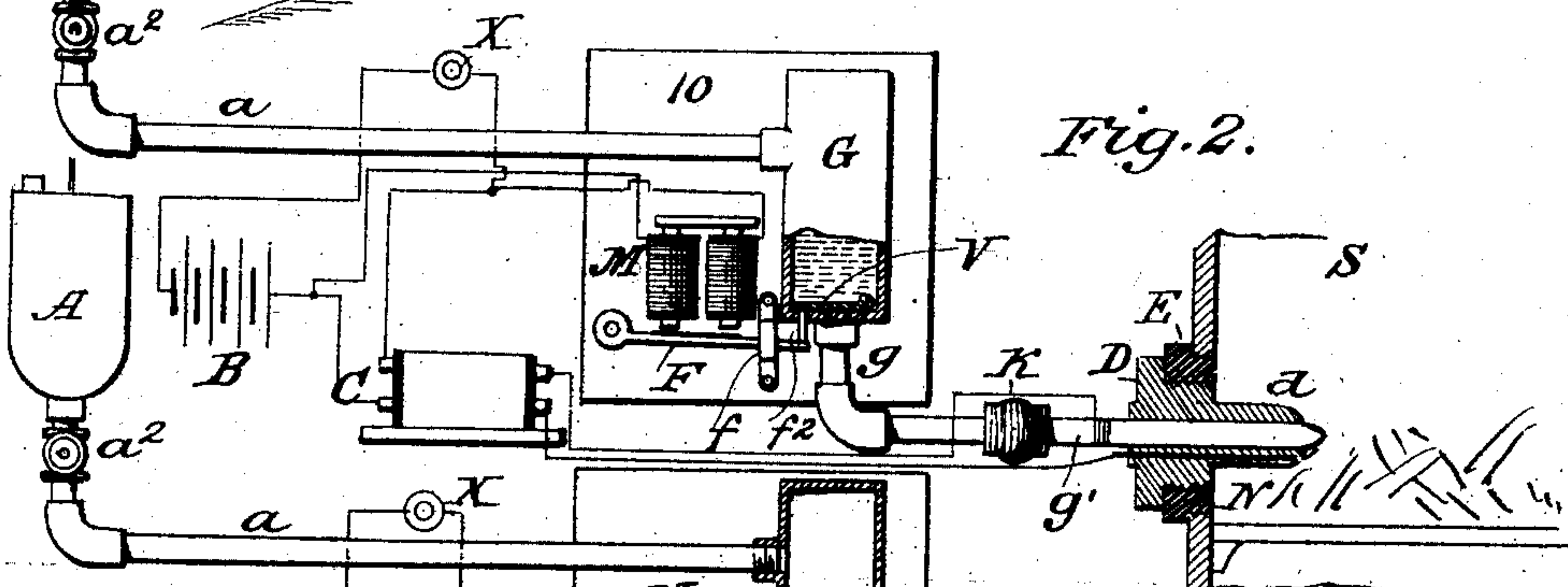


Fig. 3.

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# UNITED STATES PATENT OFFICE.

STEPHEN EVERETT GAMBLE, OF SEBASTOPOL, CALIFORNIA.

## AUTOMATIC FIRE-LIGHTER.

No. 908,851.

Specification of Letters Patent.

Patented Jan. 5, 1909.

Application filed December 10, 1907. Serial No. 405,971.

*To all whom it may concern:*

Be it known that I, STEPHEN EVERETT GAMBLE, residing at Sebastopol, in the county of Sonoma and State of California, have invented a new and Improved Automatic Fire-Lighter, of which the following is a specification.

My invention is in the nature of an improved construction of fire lighting means, especially arranged, when energized or set in operation, for automatically feeding the fuel into a stove on the inflammable matter contained therein and simultaneously igniting the said fuel so as to set fire to the said inflammable matter.

My invention comprehends an attachment adapted for being readily connected to a fire box of a stove or range and comprising generally a fuel holder, a charging chamber that communicates with the said holder having an outlet that leads the fuel therefrom into the fire box, a valve for normally closing the said outlet, a valve opening device and an electric battery, and a sparking coil device arranged, when energized for opening the valve and creating a jump spark at the discharge end of the outlet for igniting the fuel charge for firing the inflammable material in the fire box.

My invention, in its more subordinate features, consists in the combination of certain details of construction and peculiar arrangement of parts, all of which will be hereinafter fully described, pointed out in the appended claims and illustrated in the accompanying drawing, in which:—

Figure 1, is a view that illustrates the general coöperative arrangement of the parts that constitute my invention. Fig. 2, is a vertical, longitudinal section of the fuel holding and charging mechanism, the charging chamber valve being shown closed and the magnet controlled valve tripping device in the normal or "dead" position. Fig. 3, is a similar view, parts being in their active or fuel feeding and firing condition.

In the practical application of my invention, an apertured plug E of insulating material is fixedly inserted in the side of the fire box portion of the stove or range indicated by S in the drawing, through which passes a tubular extension *d* of a plug D hereinafter termed the "jump spark plug".

10 designates a base board or plate which in practice, is suitably mounted at a safe distance from the stove or range and upon which

is held a charging chamber or reservoir G, with which connects a feed pipe *a* from the tank A that holds the gasolene or other volatile fluid.

To the bottom of the chamber or reservoir G is secured an outlet pipe *g* that is connected by an insulating joint K with the feed pipe *g'* that extends through the tubular extension *d* of the jump spark plug D and discharges into the fire box N on the inflammable material therein.

V designates a flap valve in the bottom of the chamber or reservoir G that is normally held closed by the fluid pressure thereon and which serves to cut off the fuel from the stove.

B designates dry batteries for generating electric energy for a magnet M mounted on the base member 10, the armature F of which forms a lever for engaging a trip finger *f*<sup>2</sup> that slidably moves through the bottom of the reservoir G and engages the free end of the valve V, the parts being so arranged that when the circuit through the batteries is closed, the armature F (which is guided in a slotted bracket *f*) raises the finger *f*<sup>2</sup> and lifts the valve V sufficiently to allow for the outflow of the fluid to the stove fire box, it being understood that the valve V will be held open so long as the magnet M remains energized. For admitting fluid to be held in the chamber or reservoir G, a valve *a*<sup>2</sup> is located in the pipe *a* as shown.

C designates a jump spark coil of any approved construction which is in circuit with the batteries B and with the sparking plug D, it being understood that when the circuit of the batteries is closed by the switch X suitably located, for example, in a bed room as shown in Fig. 1, the magnet M and the jump spark coil are simultaneously energized.

From the foregoing description taken in connection with the accompanying drawing, it is believed the advantages and the manner in which my invention operates will be readily apparent.

By pressing the switch button X the batteries B are connected, which simultaneously energizes the magnet M, shifts the armature F and opens the valve V so as to allow a charge of the volatile fluid passing through the jump plug D into the fire box N where it is instantly ignited by the electric spark or sparks caused by the energizing of the jump coil C which operation instantly



ignites the inflammable matter in the fire box.

By providing a charging compartment fed from the tank A and operating the valve thereon as stated, the operation of feeding the fluid into the fire box is made positive and danger of leakage through the valve chamber is thereby reduced to the minimum since the lighting mechanism may be set by charging the chamber G from the reservoir with the required fluid necessary for lighting the fire and then cutting off the tank A from the said chamber or reservoir G by proper manipulation of the valve  $a^2$ .

Having thus described my invention, what I claim and desire to secure by Letters Patent, is:—

1. A fire lighting means comprising a reservoir for holding a charge of fluid, an off-take therefrom, a feed pipe connected with said off-take and adapted to be projected into a fire box of a stove, a valve for the off-take pipe normally closed by fluid pressure in the reservoir, magnetically controlled means for opening the valve, a spark plug surrounding the projecting end of the feed pipe, a spark coil in circuit with the delivery end of the feed pipe and with the spark plug and a switch controlled means for energizing the magnet and coil.

2. The combination with a spark plug adapted to be inserted through the side of a stove or range, a charging reservoir for holding fluid, an offtake therefrom, a feed pipe that extends through the spark plug, an in-

ulator joint that connects the said offtake and the feed pipe, an automatically closed valve for controlling the outflow into the off-take, electro magnet devices for opening said valve or coil in circuit with the spark plug, and switch controlled source of electric energy in circuit with the electro magnet and the spark coil, as set forth.

3. In combination with a gasoline tank having a valved discharge pipe, a charging reservoir that connects with the discharge pipe, an off-take from said charging reservoir, a jump spark plug adapted to be projected into a fire-box of a stove, a feed pipe connected with said off-take pipe from the charging reservoir and projected through the spark plug, an insulator joint connecting the feed pipe with the off-take pipe from the charging reservoir, a valve for closing said off-take pipe from the charging reservoir, said last named valve being normally closed by fluid pressure, a magnetically operated tripping device for opening said last named valve, a spark coil in circuit with the spark plug and the feed pipe, a source of electric energy in circuit with the spark coil and the magnetically operated tripping devices, a switch for controlling the action of said source of electric energy, all being arranged substantially as shown and described.

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Witnesses:

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