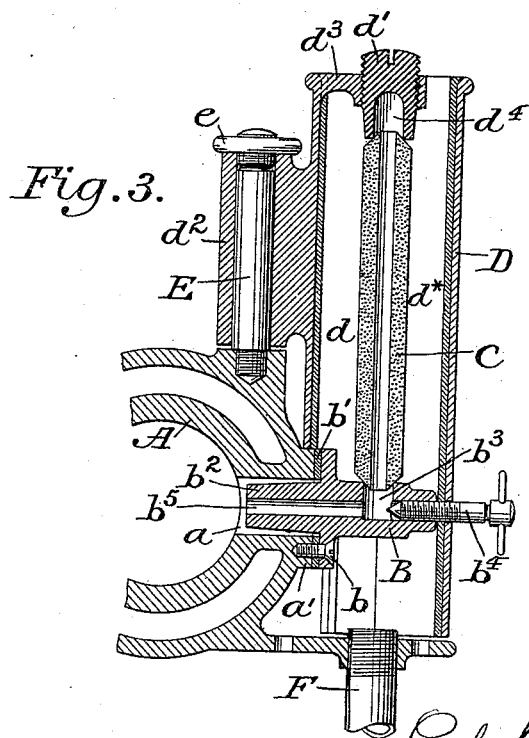
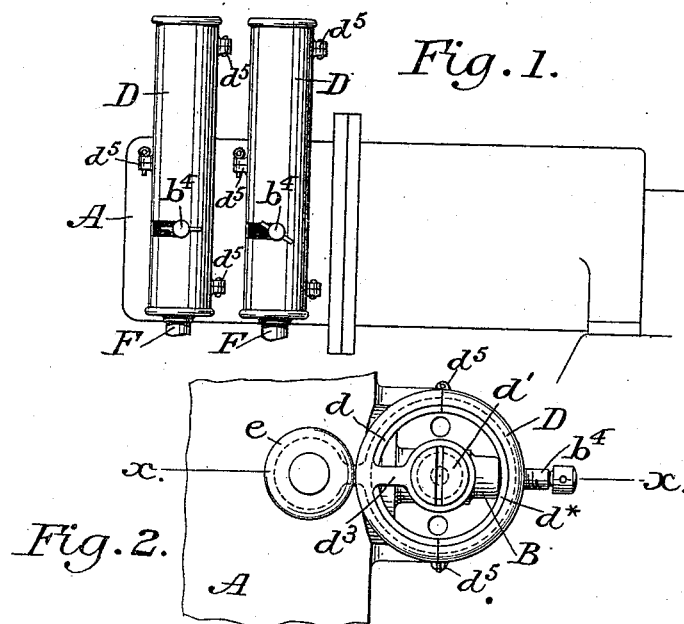


(No Model.)

C. W. WEISS.  
IGNITOR FOR GAS ENGINES.

No. 492,126.

Patented Feb. 21, 1893.



Witnesses:  
A. H. Jespersen  
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# UNITED STATES PATENT OFFICE.

CARL W. WEISS, OF BROOKLYN, NEW YORK.

## IGNITOR FOR GAS-ENGINES.

SPECIFICATION forming part of Letters Patent No. 492,126, dated February 21, 1893.

Application filed November 27, 1891. Serial No. 413,206. (No model.)

### *To all whom it may concern:*

Be it known that I, CARL W. WEISS, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Ignitors for Gas-Engines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

My invention relates to incandescent ignitors for gas-engines and has for its object to provide improved means for holding the ignitor tubes whereby a broken tube may be replaced by a new one readily and quickly and whereby when one ignitor is disabled it may be immediately cut off from connection with the cylinder and the explosions may continue to be produced by a second ignitor, thereby avoiding the stopping of the engine to put in a new tube: A further object is to prevent as far as possible the conduction of heat from the incandescent tube.

In the accompanying drawings, wherein I have illustrated my invention, Figure 1 is a side elevation of a portion of a gas-engine with two ignitors in position. Fig. 2 is a top view of one of the improved ignitors showing also a portion of the valve cylinder, and Fig. 3 is a vertical central section on the line  $x-x$  of Fig. 2.

The cylinder A may be of any usual or preferred form or construction. It is formed with a hole  $a$  and a seat  $a'$  for the reception of an independent tube B which may be secured to the cylinder by any convenient means, as a screw  $b$ , with an intervening packing  $b'$  of non-conducting material and has an inner end  $b^2$  of less diameter than the hole  $a$ . The outer end of the tube B is formed with a seat  $b^3$  for one end of the incandescent tube C and is fitted with a valve  $b^4$  to close when necessary the bore  $b^5$  of the tube B. As usual, the incandescent tube is surrounded by a jacket D, but I have improved the construction of the jacket to enable a broken tube to be more easily removed and replaced. To this end the jacket is divided longitudinally into two parts  $d$  and  $d^*$ . The part  $d$  may be supported by any convenient means but I prefer to form it with a sleeve  $d^2$  to fit upon a stud E fixed to the cylinder. The outer end of the stud is

screw-threaded to receive a nut  $e$  to hold the jacket in place and to permit removal and adjustment of the jacket when necessary. The upper end of the jacket  $d$  is provided with an arm  $d^3$  into which is tapped a screw  $d'$  to form a seat for the upper end of the incandescent tube C. The screw is chambered as at  $d^4$  to receive the dead gas as it is compressed by the inrush of the live gas into the tube and thereby to enable a short tube to be used. The outer part,  $d^*$ , of the jacket may be secured to the fixed part  $d$  by any suitable means which will prevent its ready removal, as by perforated lugs and pins as shown at  $d^5$ .

A Bunsen burner F is placed, as usual, in a position to maintain the tube C in a condition of incandescence.

The tube B, which supports the incandescent tube C and conducts the ignited gas to the cylinder A is made independent of the cylinder and is insulated therefrom in order to prevent as far as possible the conduction of heat from the ignition tube and the consequent reduction of its temperature. The valve  $b^4$  may be operated from the outside to close the passage way  $b^5$  between the ignition tube and the cylinder, and thereby to prevent the escape of gas and the stopping of the engine whenever a tube breaks. As shown in Fig. 1 I prefer to fit two independent ignitors to the cylinder and to keep both in operation at the same time whereby the possibility of a failure to ignite the gas is very much diminished and whereby, if one tube breaks, its valve may be closed immediately and the other may continue in operation without checking the operation of the engine.

Whenever any incandescent breaks the jacket may be opened, the broken pieces removed and a new tube put in place by adjusting the screw seat  $d'$ , with great readiness and without necessitating the handling of any of the hot parts.

I claim as my invention—

1. In an incandescent ignitor for gas-engines, the combination with the cylinder and the incandescent tube, of an independent tube communicating with said cylinder and having a lateral seat for the incandescent tube, a jacket surrounding said incandescent tube and a valve-rod screw-threaded into the outer end of said independent tube and adapted to

close its bore between its inner end and the seat for the incandescent tube whereby the latter may be removed and replaced without permitting the escape of gas from the cylinder, substantially as shown and described.

5 2. In an incandescent ignitor for gas-engines, the combination with the cylinder, the incandescent tube and a seat for one end of said tube, of a longitudinally divided jacket to surround said tube, one part of said jacket  
10 being fixed and having a seat for the other end of the tube and the other part of said jacket being removable, substantially as shown and described.

3. In an incandescent ignitor for gas-engines, the combination with the cylinder and the incandescent tube, of a fixed arm having its end in line with said tube, and a chambered screw carried by said arm and forming a seat for the outer end of said tube, substantially as shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CARL W. WEISS.

Witnesses:

A. N. JESBERA,  
A. WIDDER.