

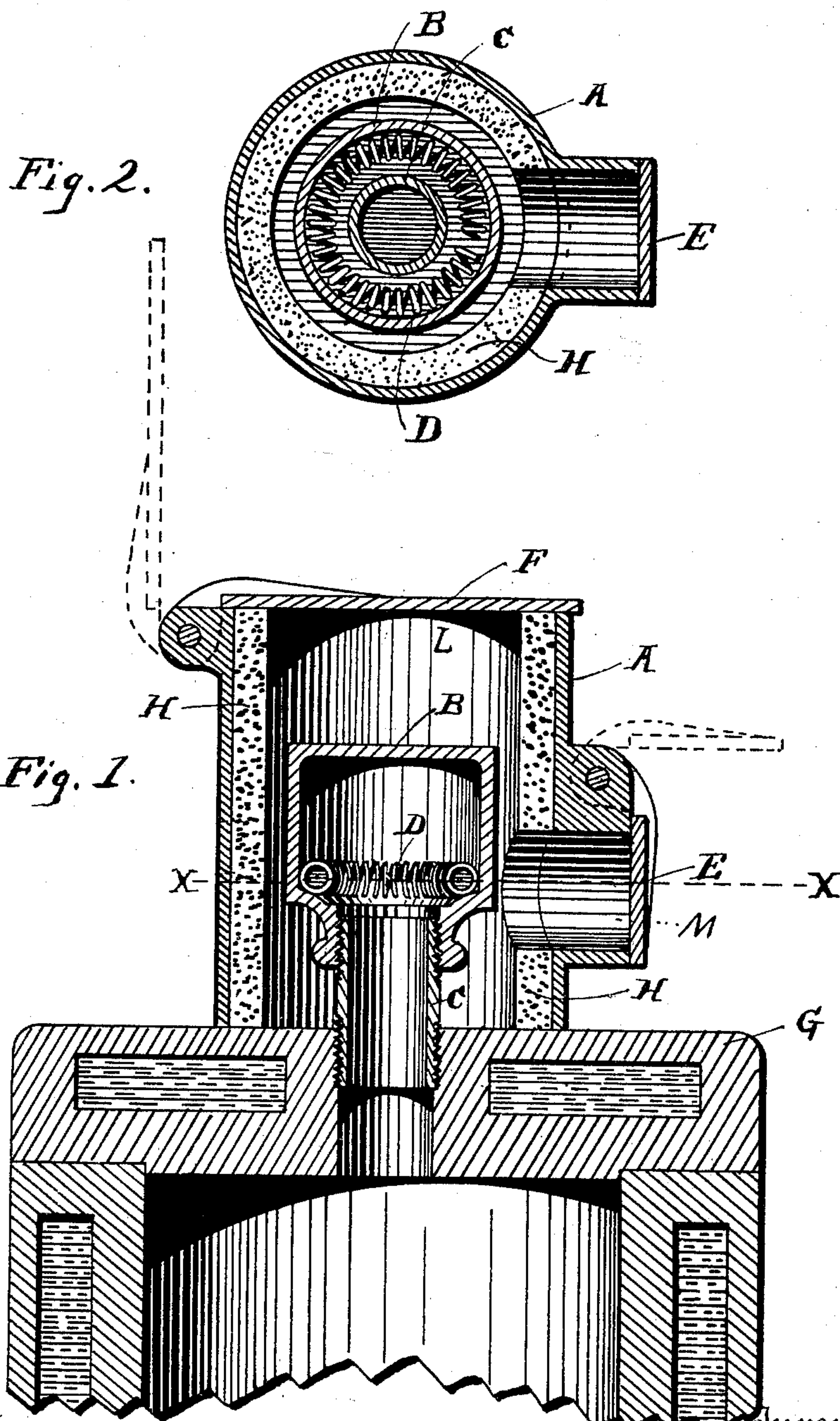
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Patented Feb. 14, 1899.

C. R. BOLLING.
INCANDESCENT IGNITER FOR EXPLOSIVE ENGINES.

(Application filed Dec. 7, 1897.)

(No Model.)



Witnesses

Harry J Perkins.

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UNITED STATES PATENT OFFICE.

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INCANDESCENT IGNITER FOR EXPLOSIVE-ENGINES.

SPECIFICATION forming part of Letters Patent No. 619,384, dated February 14, 1899.

Application filed December 7, 1897. Serial No. 661,072. (No model.)

To all whom it may concern:

Be it known that I, CHARLES R. BOLLING, a citizen of the United States, residing at the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Explosive-Engines, of which the following is a specification.

This invention relates to certain new and useful improvements in explosive-engines; and the invention consists in combining with the cylinder of an explosive-engine an inclosed bulb or chamber having an opening into the upper end of the cylinder, said bulb or chamber containing a metal filling, preferably formed from coiled wire, adapted to be heated by means of a flame, torch, or other suitable means in the first instance, and to be kept in a heated condition thereafter by the gas explosions of the engine while in operation; and the objects of my invention are, first, to furnish an efficient heat gas-exploder which will remain at a sufficiently high temperature to explode the charge of gas when compressed by the operation of the engine to the suitable point for explosion, and, second, to furnish a cheap and convenient method of giving the required amount of heat in the first instance to the heat-exploder. These objects I accomplish by means of the mechanism and arrangement of parts described in this specification and illustrated in the accompanying drawings, in which—

Figure 1 shows a vertical sectional view through the center of the main cylinder and gas-exploding device, and Fig. 2 shows a horizontal sectional view on line X X of Fig. 1.

Like letters refer to like parts throughout the views.

The cylinder is shown by G and is constructed in the ordinary manner and operated as in ordinary explosive-engines.

B shows the shell of the bulb-chamber. This chamber is connected by a tube C to the upper end of the cylinder G, the tube having a screw-thread at its lower end adapted to engage with the head of the cylinder G and is also provided with a screw-thread at its upper end adapted to engage with the bulb-chamber. This tube furnishes a passage for the compressed gas to enter the bulb-chamber. Instead of using the screw-threaded tube any

other suitable means may be employed for the purpose of forming the connection between the bulb-chamber and the cylinder.

A is a metal shell inclosing the bulb-chamber, leaving a suitable space between the bulb-chamber and the inner wall of the inclosed casing. This chamber is shown by L. A lining of asbestos or other suitable material (shown by H) is used within the outer casing. I provide a filling for the bulb-chamber preferably composed of coiled wire, as shown by D in Fig. 1. In the drawings I have shown but a single coil; but more than one may be used, if found desirable. The chamber L has an opening, (shown by M,) which opening is closed by the lid E, said lid being preferably hinged so that it will close by its own gravity. This lid in the example of my invention shown in the drawings is strengthened by means of the flange I; but this flange may be dispensed with and any other well-known means used. The dotted lines at the right of Fig. 1 show the lid raised. The chamber L is also provided with an opening at the top, which is closed by the lid F. The dotted lines at the top of Fig. 1 show the position of the lid when open.

The operation of my invention is as follows: The lids E and F are opened and the flame is introduced into the opening M, which flame will pass inward and upward around the bulb-chamber B, quickly heating said bulb-chamber and its inclosed coil or filling. When the same has reached a temperature sufficient to ignite the compressed charge of gas, the lids are closed and the engine is put in motion in the ordinary manner. The successive explosions of gas will keep the contents of the bulb-chamber sufficiently heated to explode the gas at the proper time and to continue the movement of the engine. This device is adapted for use in connection with gas and naphtha engines or any engine propelled by explosions.

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

In combination with a cylinder, a bulb-chamber opening into the cylinder, suitable metallic filling within the bulb-chamber, a non-heat-conducting chamber surrounding the said bulb-chamber and having an open-

ing at one side for the purpose of insertion
of the flame for heating the bulb-chamber
and an opening above the bulb-chamber for
insuring a draft through said outer chamber,
5 and suitable lids for covering said openings,
substantially as and for the purpose de-
scribed.

In witness whereof I have hereunto set my
hand and seal in the presence of two witnesses.

CHARLES R. BOLLING. [L. S.]

Witnesses:

D. MULHALL,
ADOLF BUNDSSEN.