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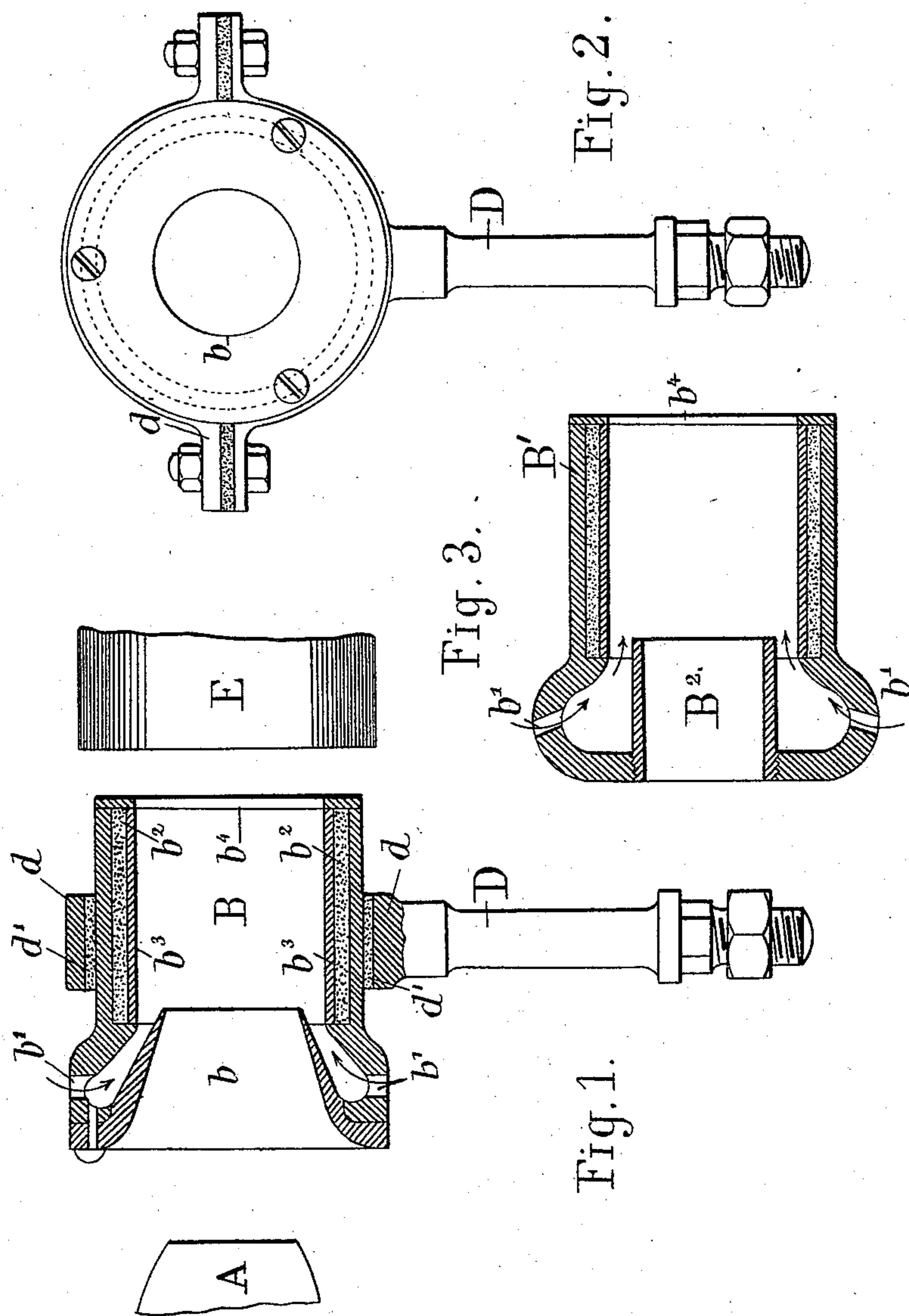
2 Sheets—Sheet 1.

A. SEIGLE.

AUTOMATIC REIGNITION APPARATUS FOR HYDROCARBON FURNACES.

No. 571,076.

Patented Nov. 10, 1896.



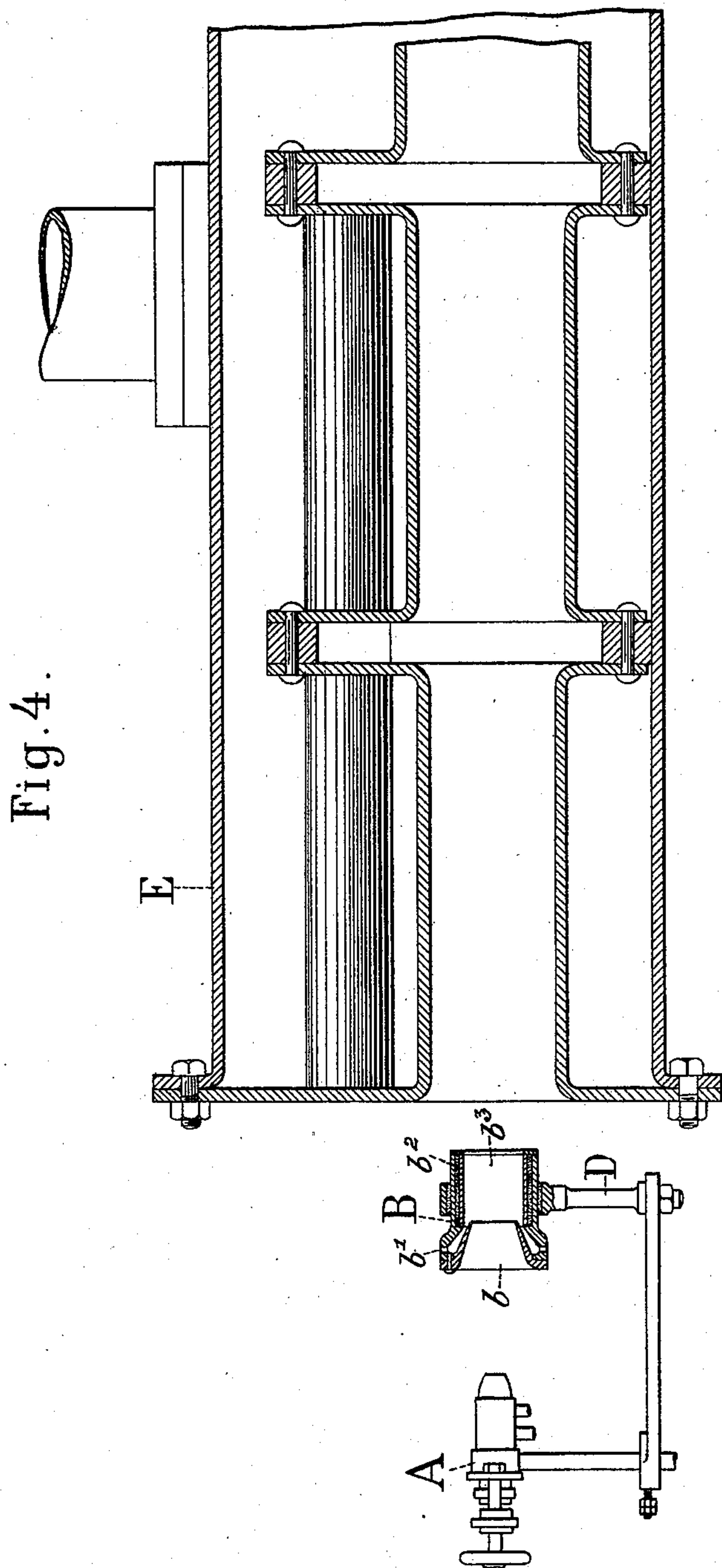
Witnesses:
Thomas M. Smith.
Richard C. Maxwell.

Inventor:
Adolphe Seigle,
By J. Walter Douglas
Attorneys.

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UNITED STATES PATENT OFFICE.

ADOLPHE SEIGLE, OF PARIS, FRANCE, ASSIGNOR TO COMPAGNIE INTERNATIONALE DES PROCÉDÉS ADOLPHE SEIGLE, OF SAME PLACE.

AUTOMATIC REIGNITION APPARATUS FOR HYDROCARBON-FURNACES.

SPECIFICATION forming part of Letters Patent No. 571,076, dated November 10, 1896.

Application filed May 9, 1896. Serial No. 590,829. (No model.) Patented in England March 10, 1896, No. 5,409.

To all whom it may concern:

Be it known that I, ADOLPHE SEIGLE, a citizen of France, residing at Paris, France, have invented certain new and useful Improvements in Automatic Reignition Apparatus for Hydrocarbon-Furnaces, (for which I obtained English Letters Patent No. 5,409, dated March 10, 1896;) and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The principal objects of my invention are, first, to provide in a hydrocarbon-furnace, in connection with an atomizer or sprayer and a combustion flue or flues, a reignition apparatus of simple construction interposed between the atomizer and flue and adapted to automatically reignite the hydrocarbon in its passage from the atomizer to the flue or flues if, by reason of accident, the flame shall be extinguished, and, second, to provide a reignition apparatus consisting of a double-walled hollow cylinder, the interior and exterior walls being preferably of metal or similar conducting material and insulated or separated by a layer of refractory non-conducting material placed between said walls, that end of the cylinder which is adjacent to the flame being funnel-shaped or reduced in size, so as to cause the flame to converge from the atomizer to the interior of the hollow cylinder, the funnel-shaped or reduced end being double-walled and provided with air inlets and outlets arranged so that the passage of flame through the reduced or funnel-shaped end will inject fresh air into the hollow cylinder B.

The nature and characteristic features of my invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, in which—

Figure 1 is a longitudinal central sectional view of the apparatus. Fig. 2 is an end view of the same. Fig. 3 is a central sectional view of a modified form of the apparatus; and Fig. 4 is a reduced central vertical section of the combustion-flues and reignition

apparatus, together with a side elevational view of the atomizer or sprayer, all arranged in operative position.

Referring to the drawings, A represents a sprayer or atomizer for burning hydrocarbon oils, and is of any preferred form. The automatic reignition apparatus consists of a hollow double-walled cylinder or duct B, to one end of which is preferably secured a funnel-shaped injecting-hood *b*, located in line with the sprayer or atomizer A and adapted to converge the flame issuing therefrom and to conduct the same to the interior of the cylinder or duct B. The hood *b* is double-walled, and the space between the outer and inner walls communicates with the interior of the hollow cylinder B, and it is also in communication with the atmosphere through the air holes or openings *b'*.

Between the inner wall or shell *b*³ and the outer shell of the cylinder B is placed a layer of non-conducting material *b*², preferably of cement, fire-brick, asbestos, and the like, and serving as an insulating medium to preserve the inner wall *b*³ at a high temperature caused by the passage of the flame through said shell or wall *b*³. This layer of cement is confined in the walls by means of the funnel-shaped hood and a washer *b*⁴, as illustrated in Fig. 1. The hollow cylinder B is supported upon a standard D by means of a clip *d*, between which clip and the outer wall of the cylinder B a layer of insulating material *d'* is placed.

The combustion-flues E may be of any desired construction, but by preference are of the form illustrated in Fig. 4.

In the modified form of apparatus illustrated in Fig. 3 a tube B² of reduced diameter throughout is secured to the end of the shell B'; but this tube B² performs the functions of and is arranged in a manner similar to the funnel *b* illustrated in Fig. 1.

In operation the flame from the sprayer or atomizer A, rushing through the funnel *b* or reduced tube B², sucks air into the shell B or B' through the inlets *b'*, as indicated by the arrows in Figs. 1 and 3. The flame is thereby partly consumed in the interior of the duct or shell B or B' and heats the interior wall *b*³, which by preference is of thin steel, to incandescence or to a temperature at which the

hydrocarbon issuing from the sprayer will be caused to ignite. Should now the flame from the sprayer or atomizer A be extinguished for an instant by accident, the duct or shell 5 will instantly and automatically reignite the gas as it passes through the highly-heated interior of the duct and before it reaches the combustion-flues E. The ring or lining b^2 of cement preserves the highly-heated condition 10 of this interior wall b^3 for several moments and all stoppage of the furnace due to the accidental extinguishment of the flame, which was heretofore of frequent occurrence, is now avoided.

15 Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination with a sprayer and combustion-flues, of a hydrocarbon-furnace, a 20 hollow double-walled tube or duct arranged in alinement with the sprayer and flues, a funnel-shaped hood adapted to inject air and flame into the interior of the duct, and a layer

of heat-non-conducting material located between the double walls of the duct to confine 25 the heat of the flame from the sprayer to the interior wall of said duct, substantially as and for the purposes described.

2. In an apparatus of the character described, a double-walled hollow cylinder or 30 duct, a layer of heat-non-conducting material located between the walls of the duct, and an air-injector located at one end of the duct, in combination with a sprayer located in alinement with the duct in front of the injector 35 and adapted to highly heat the interior of the duct prior to the passage of its flame to the combustion-flues, substantially as and for the purposes described.

In testimony whereof I affix my signature 40 in presence of two witnesses.

ADOLPHE SEIGLE.

Witnesses:

G. DE MESTRAL,
CLYDE SHROPSHIRE.