

No. 776,586.

PATENTED DEC. 6, 1904.

J. V. EBEL & W. J. HUDSON.  
HOT TUBE FOR GAS ENGINES.

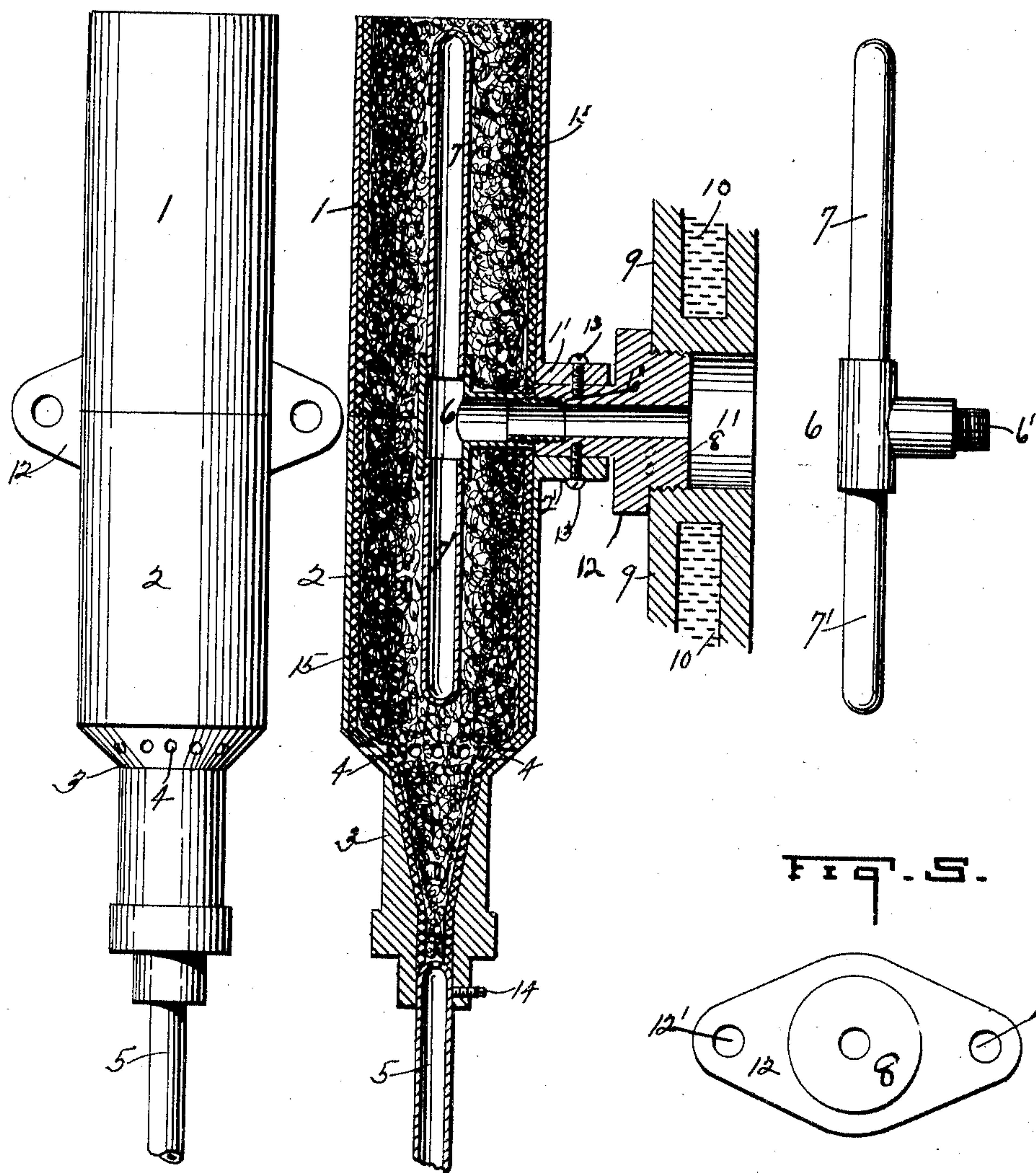
APPLICATION FILED JAN. 7, 1904.

NO MODEL.

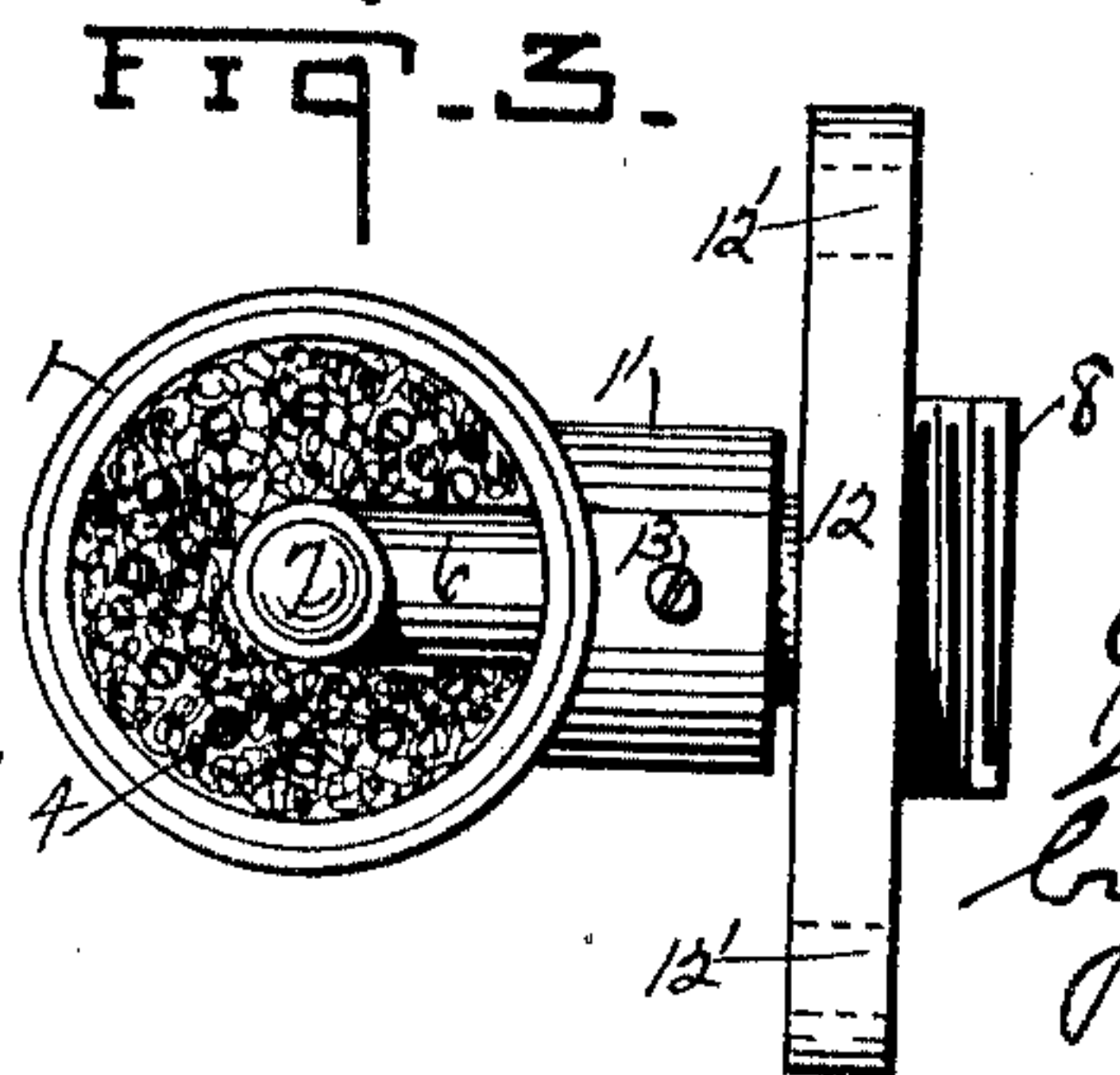
FIG. 1.

FIG. 2.

FIG. 4.



Witnesses:  
*R. Hoffman,*  
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Inventors  
*John V. Ebel,*  
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*att'y.*



## UNITED STATES PATENT OFFICE.

JOHN V. EBEL AND WALTER J. HUDSON, OF PITTSBURG, PENNSYLVANIA.

## HOT TUBE FOR GAS-ENGINES.

SPECIFICATION forming part of Letters Patent No. 776,586, dated December 6, 1904.

Application filed January 7, 1904. Serial No. 188,146. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN V. EBEL and WALTER J. HUDSON, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Hot Tubes for Gas-Engines, of which the following is a specification.

This invention relates to a new and useful improvement in a hot tube for use as a sparker on gas-engines, the object of our invention being to provide a means whereby ignition of the gas in a cylinder will be more perfectly and regularly exploded.

In the accompanying drawings, forming a part of this specification, we have illustrated our invention by several views, in which—

Figure 1 is an exterior view of the burner. Fig. 2 is an interior sectional view of our invention. Fig. 3 is a top plan view of the same. Fig. 4 is a view of the double tube used in our invention. Fig. 5 is the bracket used in fastening the burner to the cylinder.

The numerals of reference used in the drawings designate like parts throughout the several views, in which—

The numeral 1 is the upper section of the burner. 2 is the lower section, having the reduced portion 3, in which are a series of air-holes 4.

5 is the gas-pipe supplying fuel to the burner, its position being regulated by the set-screw 14.

6 is a three-way T-pipe uniting the hollow tubes 7 and 7', these latter being closed at one end.

6' is a short nipple connecting the T-pipe with the plug 8, the latter having a threaded end where it enters the cylinder.

9 represents the exterior of the cylinder surrounding the water-jacket 10.

11 is the ignition-chamber in the piston-cylinder.

12 is the supporting-bracket, having screw-openings 12' for fastening to the cylinder.

13 represents screws passing through the extensions 1' and 2', formed on the upper and lower sections, respectively, of the burner and into the plug 8.

15 is an asbestos lining throughout the interior of the burner.

When in position and attached to the cylinder of a gas-engine, the double tube inside the burner is heated to a cherry-red by means of the gas-flame issuing from the pipe 5. This assures a reliable and efficient means of igniting the gas introduced into the piston-cylinder, a steady and regular heat being admitted through the opening in the plug to the point of ignition within the piston-cylinder.

Our invention may be attached to any size or variety of gas-engine employing a sparking or igniting device by changing the size of the plug.

Having thus explained and shown our invention, what we claim as new, and desire to secure by Letters Patent, is—

In a device of the character described, a tube comprising an upper and lower section, the lower section being provided with a reduced portion and having air-ports arranged adjacent to the upper end of the reduced portion, said reduced portion being provided with a central bore, a fuel-supply tube secured in the lower end of the bore of the projection, means for securing the same therein, a series of tubes arranged within the main tube and open at one end, a three-way connecting member uniting said tubes, a nipple mounted in said member and projecting therefrom, integral projections formed upon the main tube upon each section thereof forming an attaching means, a block adapted to enter between the said projections of the main tube and to receive said nipple therein, means for securing the same in said position, and an attaching bracket provided with reduced apertured portions for securing the tube to the cylinder of an engine, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN V. EBEL.  
WALTER J. HUDSON.

Witnesses:

J. A. BLEICHNER,  
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