

J. A. WISE.
IGNITION TUBE HEATER.
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1,028,412.

Patented June 4, 1912.

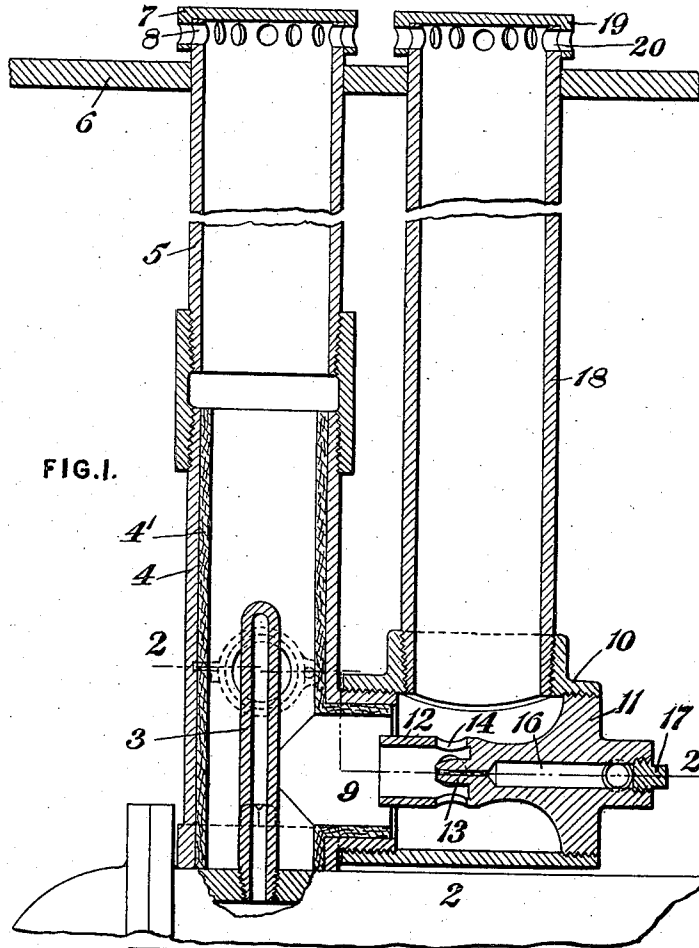


FIG. 1.

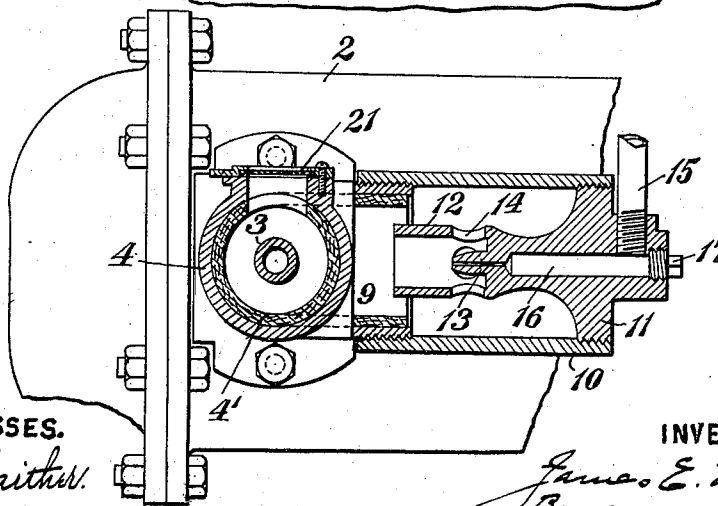


FIG. 2.

WITNESSES.

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IGNITION-TUBE HEATER.

1,028,412.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JAMES E. WISE, a resident of Butler, in the county of Butler and State of Pennsylvania, have invented certain new and useful Improvements in Ignition-Tube Heaters, of which the following is a specification.

The object of this invention is to provide heating means for the ignition-tube of an explosive engine which is completely closed to the immediate surroundings of the engine, so that if gas leaks from the latter or from its supply connections it cannot be exploded by the tube heater. It is not uncommon for such explosions to be started in this way, and such explosions have done considerable damage even where not followed by destructive fires. Ordinarily, ignition-tube heaters or furnaces are open quite close to the engine for the admission of air to support combustion, there being a very appreciable inward draft which tends to draw into the heater any gas that may escape from the engine or its connections. The conditions recited are frequently present in oil and gas well equipment, there being often much free gas in the engine inclosure which frequently causes explosions as above indicated. With the furnace herein proposed, wherein the tube heating means is completely closed to the immediate surroundings of the engine, air for sustaining combustion being drawn from outside the engine room and the heater flue or chimney also extending to the outside, it is quite impossible for any free gas to enter and cause trouble.

In the accompanying drawings, Figure 1 is a vertical section of a heater constructed in accordance with the invention, the same being mounted on an engine cylinder. Fig. 2 is a sectional plan on the broken line 2—2 of Fig. 1.

Referring to the drawings, 2 designates an engine cylinder, and 3 an ignition-tube of usual construction.

4 is the flue-like furnace which is secured to the engine cylinder and fully incloses tube 3, the furnace being provided with asbestos or other suitable lining 4'. Instead of the furnace-forming tube 4 being fully open a short distance above the ignition-tube, and thus open to the engine room, as is usually the case, it is extended by chimney 5 through the roof or other wall 6 of the engine in-

closure, with its outer end closed by cap 7, the latter and the chimney formed with registering apertures 8. At the base or furnace tube 4 is the usual L-branch 9 to which connects the T-fitting 10. The outer end of this fitting is closed by head 11 carrying a Bunsen burner 12, the latter having the gas discharging tip 13, and also formed with the air admitting or mixer openings 14. Gas may be supplied through side connection 15 to bore 16 of the burner head, the outer end of the bore being closed by plug 17 which may be removed for cleaning tip 13. Instead of sustaining the combustion by air drawn into the heater from the immediate vicinity of the engine, it is admitted thereto through inlet pipe 18 connected to fitting 10, and is shown extended through roof or other wall 6, the same as chimney 5, and provided with a similar cap 19 and apertures 20. Cap 19 is rotatable on pipe 18, and it and cap 7 may be turned as desired to vary the rear of passages 8 and 20, and thereby adjust the inflowing and outflowing drafts as required.

The flame from burner 12 is directed toward and impinges ignition-tube 3, the draft being upward through furnace tube 4 and chimney 5, while air in requisite quantity feeds downward through inlet pipe 18. The heater may be lighted through the pivoted mica-covered door 21, the latter also serving as a sight opening for observing the condition of the ignition-tube.

With the construction here shown the tube heater communicates only with the outer air so that no gas that may accumulate around or in the vicinity of the engine can be drawn into the heater and cause explosion.

I claim:—

1. The combination of engine house or inclosure, an explosive engine, an ignition-tube therefor, a heater casing inclosing the tube, a burner within the casing, an air inlet extending to the exterior of the engine inclosure, and a similarly extended outlet for the heater products.

2. The combination with an engine inclosure, an explosive engine within the inclosure, and an ignition-tube for the engine, of a heater casing inclosing the ignition-tube, a burner within the casing, said casing being closed to the admission of air from within the engine inclosure, and an air inlet

and a products outlet for the casing extending and open to the exterior of the engine inclosure.

3. The combination of an explosive engine, an inclosure in which the engine is located, an ignition-tube for the engine, a tubular heater having a flue extension through a wall of the engine inclosure and open to the exterior thereof, the base of the tubular heater having a lateral branch, a burner mounted therein, and an air inlet pipe connected to the lateral branch and extending through a wall of the furnace inclosure and open to the exterior thereof.
4. The combination of an explosive engine, an inclosure in which the engine is located, an ignition-tube for the engine, a heater for the ignition-tube which is entirely closed to the engine inclosure, and two flues for the heater extending through a wall of

the inclosure and open only at the exterior of the latter, one flue supplying air to the heater and the other flue providing the draft and discharging the products of combustion.

5. The combination of an explosive engine, a roofed inclosure in which the engine is located, an ignition-tube for the engine, a heater for the ignition-tube which is entirely closed to the engine inclosure, and flues extending from the heater through the roof of the inclosure and open at the exterior of the latter, one flue admitting air to the heater and the other flue providing the draft and discharging the products of combustion.

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

JAMES E. WISE.

Witnesses:

L. P. HAZLETT,

S. W. MCCOLLOUGH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."