

No. 893,668.

PATENTED JULY 21, 1908.

F. E. & P. O. STANLEY.
BURNER FOR STEAM GENERATORS.
APPLICATION FILED OCT. 28, 1902.

Fig. 1.

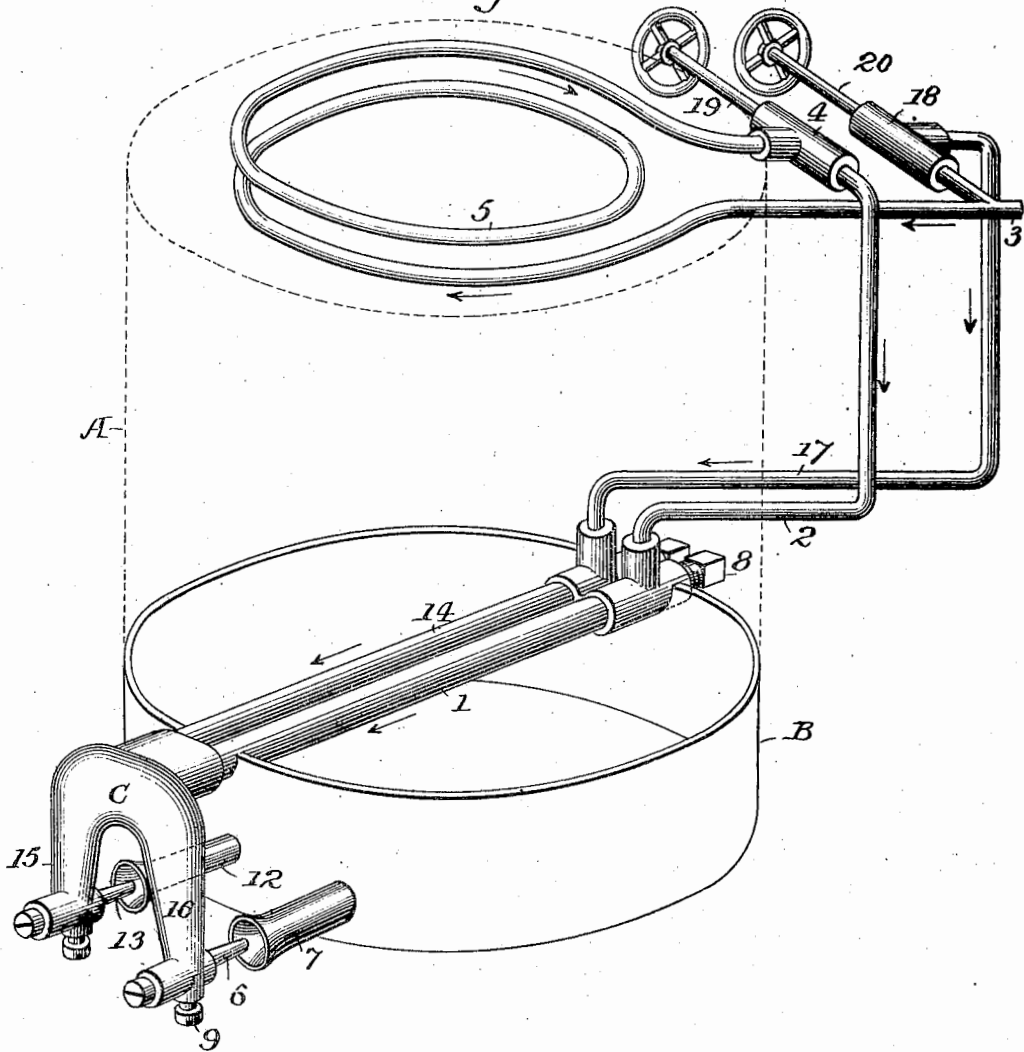
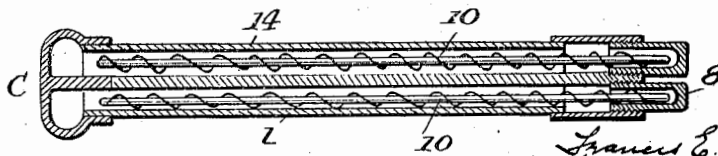


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

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TO STANLEY MOTOR CARRIAGE COMPANY, A CORPORATION OF MASSACHUSETTS.

BURNER FOR STEAM-GENERATORS.

No. 893,668.

Specification of Letters Patent.

Patented July 21, 1908.

Application filed October 28, 1902. Serial No. 129,136.

To all whom it may concern:

Be it known that we, FRANCIS E. STANLEY and FREELAN O. STANLEY, citizens of the United States, residing at Newton, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Burners for Steam-Generators, of which the following is a specification.

Our invention relates to that class of vapor burners used with boilers for generating steam and in which oil is vaporized to produce a jet of vapor which is mixed with air to form a burning mixture, and our invention consists in certain improvements in the vaporizing means, in providing an independent vaporizer for the pilot light, in means for cleaning the vaporizer and in controlling the supply of oil, and in details of construction as fully set forth hereinafter and as illustrated in the accompanying drawing, in which—

Figure 1 is a perspective view showing in outline the burner casing, the boiler in dotted lines, and the construction and arrangement of vaporizers, pipes and adjuncts embodying our invention; Fig. 2 is a sectional plan of the vaporizers.

The details of the burner are not shown as any suitable burner may be used, the arrangement illustrated being that used with a burner having a pilot light supplied from a separate nozzle from that supplying the main burner.

The main vaporizer 1 is shown in the form of a tube, but it may be of any required construction, communicating at one end with a pipe 2, the flow of liquid fuel to which from the main supply pipe 3 is controlled by a valve 4. A preliminary heating of the oil is secured by interposing a coil 5 between the main supply pipe 3 and the valve 4, said coil being arranged above the boiler A so as to be heated by the products of combustion passing from the boiler. By this preliminary heating of the oil, the vaporizing action in the vaporizer is quickened while the coil constitutes an extended heating surface, which will be heated by the air flowing up through the boiler tubes and the oil will be heated thereby when the motor is at rest. The vaporized condition of the oil is thus maintained for a time by heat from the boiler even if the main burner in the casing B is not lighted.

The vaporizer communicates at one end

with a nozzle 6 from which vapor is injected into the mixing tube 7 of the main burner.

It is not infrequent that from the use of a poor quality of oil or other causes, carbon is deposited in the vaporizer and the necessity of removing the vaporizer, disconnecting the attachments, etc., involves objectionable labor and consumption of time, while also putting the whole apparatus out of use. To avoid these difficulties we connect the pipe 2 with the side of the vaporizer, and insert in the end of the vaporizer a detachable screw plug 8, the removal of which permits ready access to the interior to clean the same, this operation being facilitated by providing an opening communicating with the opposite end of the vaporizer, which is closed by a detachable screw plug 9, so that said plug can be removed and the end of the flexible tube of an air pump may be attached, and a forcible blast of air passed lengthwise through the vaporizer, carrying all particles out of the opposite end.

To further facilitate the cleaning of the vaporizer, it may contain a scraper 10 in the form of a rod with a wire wound spirally around it. The plug 8 is made with a recess so that the end of the scraper, when the plug is in place, may extend into the same but project beyond the end of the vaporizer to be readily seized by a pair of pincers when the plug is removed. There is a pilot light which is supplied with a burning mixture from a nozzle 13 arranged opposite a supplemental mixing tube 12, and the vapor is supplied to the latter from a separate vaporizer 14, and we place this second vaporizer in such close proximity to the main vaporizer 1, that both will be heated simultaneously, but if there is no oil in the vaporizer 13 the heat extracted in vaporizing the oil in the vaporizer 14 will so reduce the temperature of the main vaporizer that it will not burn out.

The two vaporizers may consist of a bar with two channels bored longitudinally through the same or of two parallel tubes brazed together.

The supplemental vaporizer may be provided with end openings closed by detachable plugs and scraper for cleaning as in the case of the main vaporizer.

By the use of an independent vaporizer with the pilot light nozzle the latter is supplied with vapor from its own vaporizer and

it is possible to run the pilot light part of the burner independently of the main burner or its vaporizer in every respect.

5 A desirable construction is that shown where a casing C has two branches 15, 16, each with a nozzle and connected with both vaporizers. This avoids an objectionable number of joints and facilitates manufacture.

10 The vaporizer 14 communicates through a pipe 17 with a valve casing 18 to which oil flows through a branch from the main supply tube 3, and the stems 19, 20 of the valves controlling the flow to the vaporizers extend through the side of the vehicle and are provided with suitable external handles so that
15 the driver can manipulate them from the seat with facility.

Without limiting ourselves to the construction shown, we claim as our invention:—

20 1. The combination with a burner having a plurality of independent mixing tubes, of a plurality of independent vaporizers arranged in close contact side by side to permit the

conduction of heat from one to the other for the purpose set forth. 25

2. The combination with a vapor burner, mixing tube and nozzle for supplying the burner with a mixture of vapor and air, of a supplemental mixing tube and nozzle, and independent vaporizers supplying the two nozzles independently, and arranged in close contact, whereby the presence of oil in one will prevent the burning of the other, substantially as and for the purpose set forth. 30 35

3. The combination with the parallel contiguous vaporizers, of the casing C, having two branches and two nozzles, and a main and a supplemental mixing tube supplied from said nozzles, substantially as described. 40

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

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Witnesses:

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