T. W. HEINTZELMAN & J. G. CAMP.

OIL SUPERHEATER FOR STEAM BOILER FURNACES.

APPLICATION FILED MAY 22, 1906.

920,570. Patented May 4, 1909.

FIG. 2.

FIG. 1.

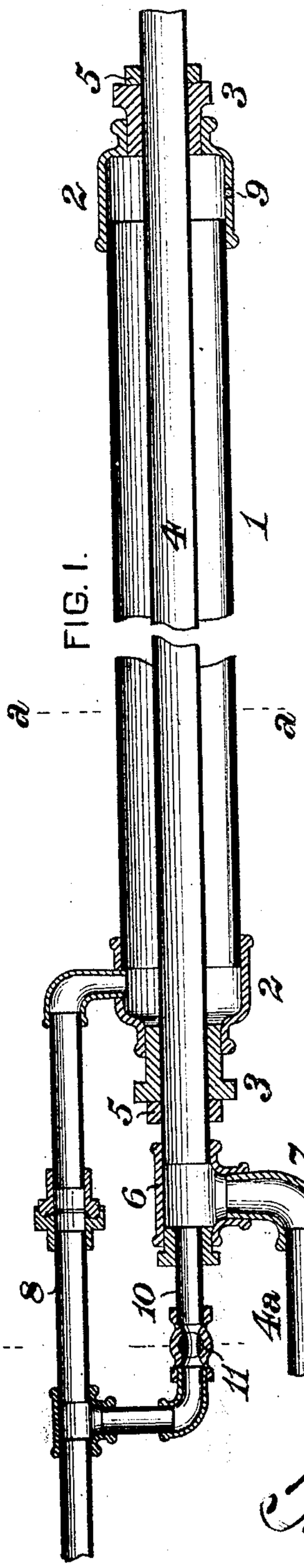
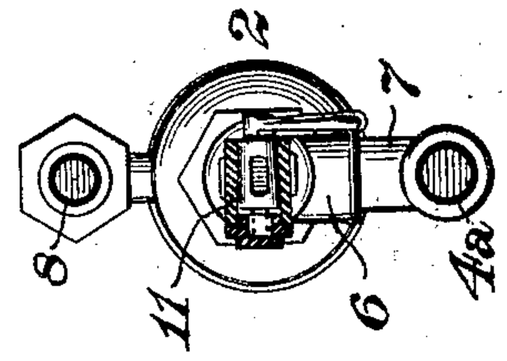


FIG. 3.



WITNESSES

James C. Herron.

S. R. Bell.

INVENTORS

Taylor W. Heintzelman

James G. Camp.

by J. Howard Bell, Att'y.

UNITED STATES PATENT OFFICE.

TAYLOR W. HEINTZELMAN AND JAMES G. CAMP, OF SACRAMENTO, CALIFORNIA.

OIL-SUPERHEATER FOR STEAM-BOILER FURNACES.

No. 920,570. Specification of Letters Patent. Patented May 4, 1909.

Application filed May 22, 1906. Serial No. 318,137.

To all whom it may concern:

Be it known that we, TAYLOR W. HEINTZELMAN and JAMES G. CAMP, both of Sacramento, in the county of Sacramento and State of California, have jointly invented a certain new and useful Improvement in Oil-Superheaters for Steam-Boiler Furnaces, of which improvement the following is a specification.

The object of our invention is to provide simple and efficient means whereby oil fuel used in steam boiler furnaces may be heated to the temperature desirable for effective and economical utilization, either in its traverse to the burner, or while contained in the storage tank from which it is supplied thereto, and the supply valve and burner may be readily and completely freed from accumulations of foreign matter tending to impede the free flow of oil to and through the burner, whenever required.

The improvement claimed is hereinafter fully set forth.

It is familiar to operators of oil burning steam boilers, that the oil used as fuel therein should be heated before passing into and through the burner, and also that it is frequently the case, particularly in locomotives operated in cold climates, that the oil becomes thoroughly chilled in the supply tank and time is lost in heating it to the proper temperature by the ordinary tank heater. Further, more or less carbon or other foreign matter will often be deposited at or near the discharge nozzle of the burner, and, with heavy crude oil, foreign matter will accumulate around the tank supply valve, the result being, in either case, to impede the flow of oil from the supply tank to the opening of the discharge nozzle, and to correspondingly impair the effective operation of the oil burning appliances employed.

Our invention is designed to fulfil the requirements and overcome the objections above indicated, and has, in continued regular service, been found to operate satisfactorily to these ends.

In the accompanying drawings: Figure 1 is a longitudinal central section through an oil superheater embodying our invention; and, Figs. 2 and 3, transverse sections through the same, on the lines *a a* and *b b*, respectively, of Fig. 1.

In the practice of our invention, we provide a superheater casing or chest, 1, which is preferably formed of tubing of proper strength to sustain the pressure of steam carried in the boiler, and is closed, at its ends, by heads, which are in the form of reducer sockets, 2, 2, in the outer ends of which are fitted and attached in any suitable manner bushings, 3, 3. An oil supply pipe, 4, forming a portion of the conduit through which oil is led from a supply tank to a burner, passes through the bushings, 3, 3, and is made to suitably engage therewith, making steam and oil tight joints, and being secured in position by any suitable means as 5, 5, abutting against the outer ends of the bushings. The end of the oil supply pipe, 4, nearer the oil supply tank, is connected to one end of a T fitting, 6, to the central nozzle of which another section, 4^a, of pipe, leading to the oil supply tank, is connected by an elbow, 7. A steam supply pipe, 8, leading to a connection with the steam space of the boiler, and controlled by any suitable regulating means, leads into the superheater casing, 1, near the end adjoining the T fitting, 6, or into the head, 2, of the casing, as may be preferred, and a vent or steam discharge opening, 9, is formed in the head, 2, at the other end of the casing. A blow back pipe, 10, controlled by a cut out cock, 11, leads from the steam supply pipe, 8, into the outer end of the T fitting, 6. Said pipe 10 is so arranged as to be in direct line with oil supply pipe 4 whereby a direct blast through the supply pipe 4 may be effected and enabling one by opening the cock 11 to quickly and thoroughly clean out all obstructions that might accumulate in said pipe 4.

In the operation of the appliance, the cut out cock, 11, is normally closed, and upon the admission of steam from the boiler to the supply pipe, 8, the steam passes into the superheater casing, 1, and around the oil supply pipe, 4, therein, heating the oil which passes through the pipe, 4, to the desired temperature, and escaping from the casing through the small vent or discharge opening, 9. In case the oil supply pipe, oil tank supply valve, or burner should become obstructed, they can be quickly and readily blown out, and the obstruction removed, by opening the cut out cock, 11, and thereby supplying steam directly to the oil supply pipe, through the T fitting, 6, the firing valve which controls the supply to the burner being closed if the obstruction should be in the oil supply pipe or tank supply valve, or if it should be desired to heat the oil in the tank.

The appliance may be used with any known and preferred form of burner and tank supply valve, and as these devices are well known to those skilled in the art, and do not in and of themselves, form part of our present invention, they are not illustrated herein.

We claim as our invention and desire to secure by Letters Patent:

The combination, in an oil superheater, of an oil supply pipe section, a superheater casing surrounding a portion of the length of said pipe section, heads connected to the ends of the casing and to the oil supply pipe section, a steam supply pipe leading into the casing, a fitting connected longitudinally to the oil supply pipe section, a lateral connection on said fitting for another oil supply pipe section, a blow back pipe in direct line with the first-mentioned supply pipe section and connected directly to the steam supply pipe and to the end of the fitting opposite the first mentioned oil supply pipe section, and a cut out cock controlling the blow back pipe.

TAYLOR W. HEINTZELMAN.
JAMES G. CAMP.

Witnesses:
WM. H. DULIN,
MALCOLM C. GLENN.