

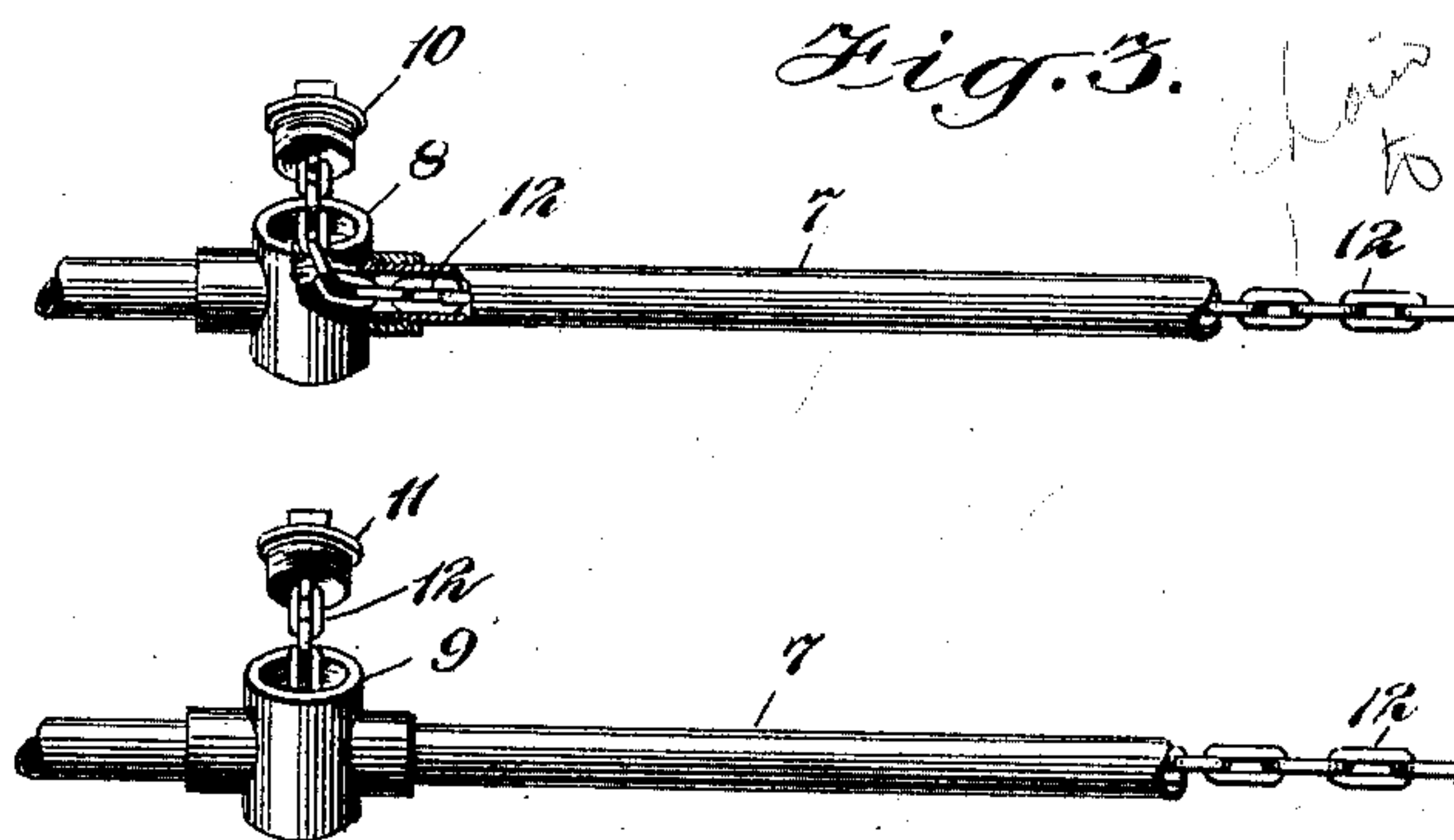
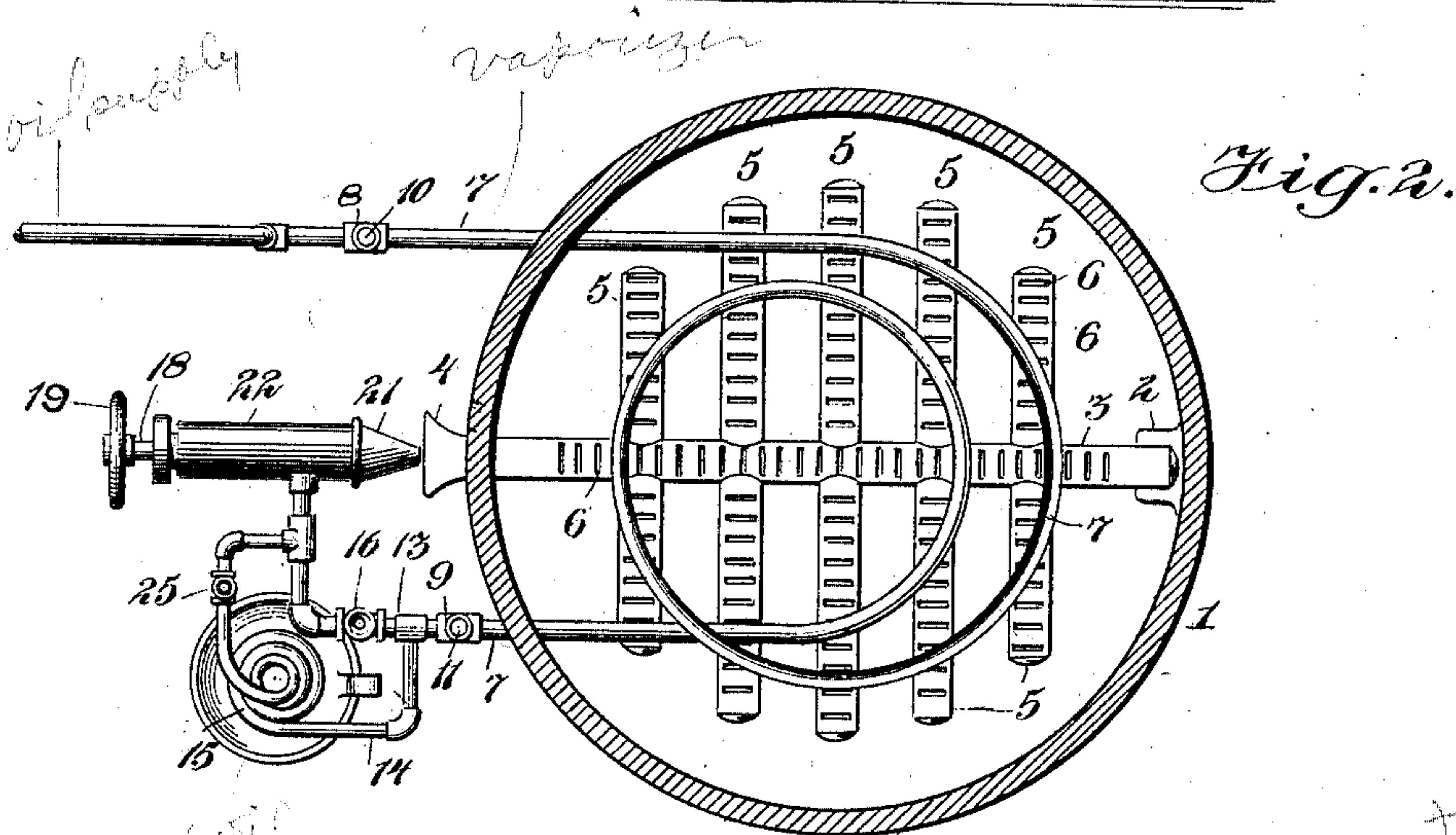
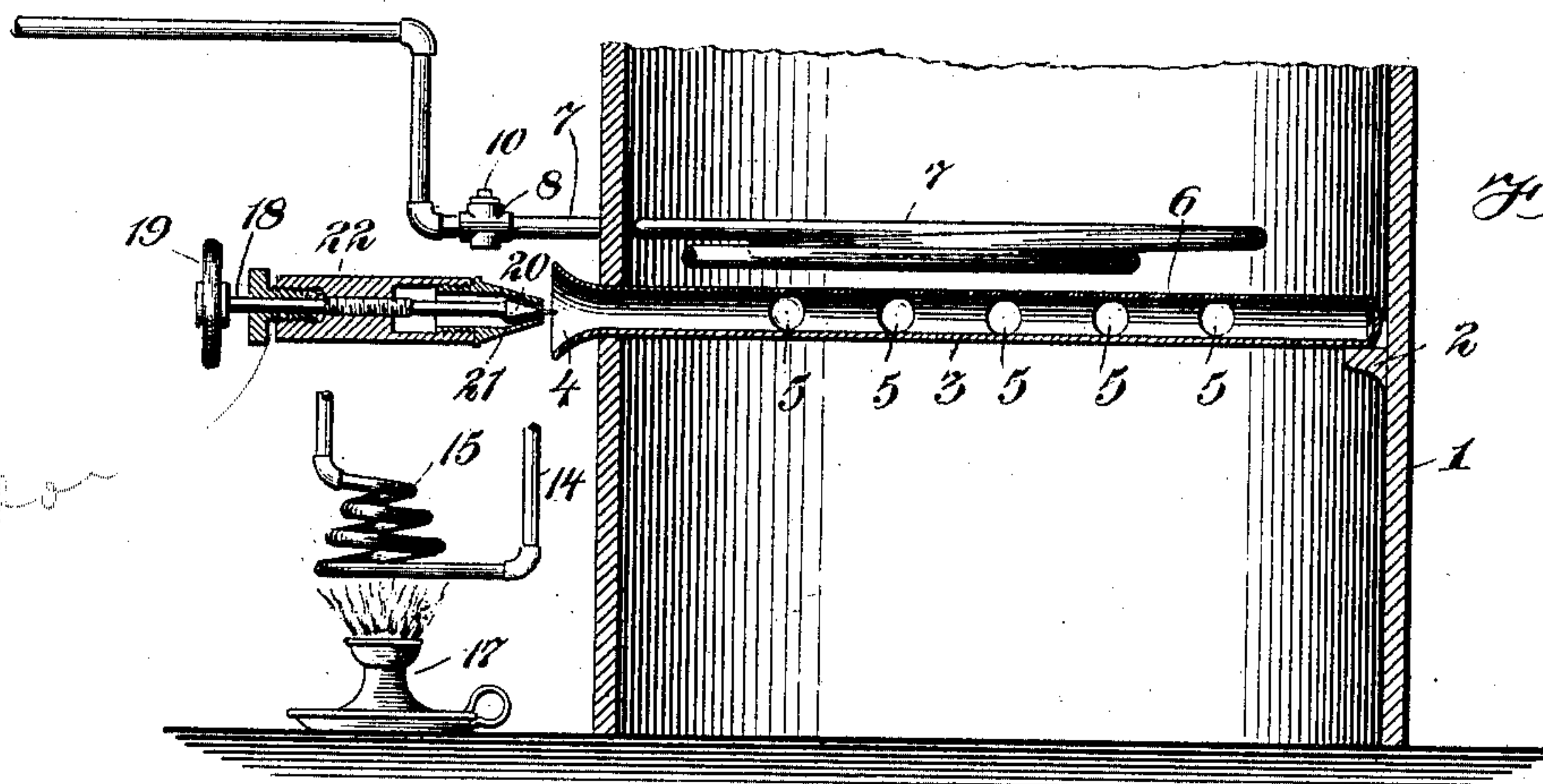
No. 756,410.

PATENTED APR. 5, 1904.

G. S. RIDER.
OIL VAPORIZER AND BURNER.

APPLICATION FILED APR. 3, 1903.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

GRANVILLE S. RIDER, OF ELMHURST, NEW YORK, ASSIGNOR OF ONE-FOURTH TO LEO TAUSSIG, OF NEW YORK, N. Y.

OIL VAPORIZER AND BURNER.

SPECIFICATION forming part of Letters Patent No. 756,410, dated April 5, 1904.

Application filed April 3, 1903. Serial No. 150,875. (No model.)

To all whom it may concern:

Be it known that I, GRANVILLE S. RIDER, a citizen of the United States, residing at Elmhurst, in the county of Queens and State of New York, have invented certain new and useful Improvements in Oil Vaporizers and Burners, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to hydrocarbon-burners, and particularly to that class known as "hydrocarbon-vapor" burners, and has for its object a simplification of the operative parts, effectiveness in the operation of the vaporizing parts, and facility in cleaning the oil-supply tube.

According to my invention I employ a burner of suitable form provided with one or more flame-orifices and located within a heating-chamber. According to my invention the oil-supply pipe penetrates into the heating-chamber and is exposed therein to the flame of the burner, and within the supply and vaporizing pipe means are provided for breaking any carbon deposits and cleaning the pipe, such cleaning means comprising a plurality of connected parts movable relatively to each other. This cleaning means also assists in the vaporization of the oil.

My invention contemplates, further, improvements in construction and in the combination of parts more fully hereinafter set forth.

I will now describe the construction of hydrocarbon-burner shown in the accompanying drawings and embodying my invention and will thereafter point out my invention in claims.

Figure 1 is a sectional elevation of the burner. Fig. 2 is a plan view of the same. Fig. 3 represents the ends of the oil-vaporizing pipe, showing the cleaning means.

My device is shown as a heater for an upright boiler. The boiler-casing 1 is provided with a rest 2, upon which the rear end of the supporting central tube 3 of the burner rests. The other support is formed by the penetration of the tube through the casing of the boiler, and the front end of the tube projects

forward slightly from the boiler and is enlarged to form a flaming-mouth 4. The central tube 3 is provided with branching tubes 5, which are arranged to cover the heating area of the boiler, and the central tube 3 and the branches 5 are provided with flame-orifices 6. The oil supply and vaporizing pipe 7 penetrates the boiler-casing and has one or more turns within the heating-chamber directly above the flame-orifices of the burner and passes out of the heating-chamber to connect with the injector and other parts of the apparatus and is provided with couplings 8 and 9, located outside of the heating-chamber, and each coupling is provided with a screw cap or plug 10 and 11, respectively, and to these plugs are attached the ends of a chain 12, which extends completely through the vaporizing-pipe. The functions of this chain are to provide a ready means for breaking any carbon deposits in the vaporizing-pipe and cleaning out this pipe and also to separate the oil into thin layers and to force the oil to flow in contact with the walls of the tube in thin layers, so as to be more quickly vaporized. By the irregularity of its shape it sets up currents in the oil flowing through the pipe, so that all portions of the fluid oil will be moved about in contact with the heated walls of the pipe, and it also acts as an interior metallic heating means. When it is desired to clean out the vaporizing-pipe, the plugs 10 and 11 are unscrewed, and the eyes connecting the chain to these plugs are fitted to freely swivel, so that the chain will not interfere with the unscrewing or screwing up of the plugs. After the plugs have been removed the chain may be pulled first at one end and then at the other, and thus the chain will be reciprocated in the pipe. The several links are capable of independent lateral movement, and the chain will act as a highly-effective cleaning device, breaking up all carbon deposits and rubbing clean the interior of the pipe.

The vaporizing-pipe 7 is provided with a coupling 13 outside of the combustion-chamber, to which is attached a pipe 14, which includes a coil 15, and the pipe 14 joins the main

supply-pipe prior to its entrance into the injector. The pipe 7 is also provided with a valve or cock 16, located just beyond the point at which the pipe 14 branches therefrom, and this cock 16 regulates the supply of oil-vapor to the injector and burner. The branch pipe 14 is also provided with a valve or cock 25 beyond the coil 15. When the burner is started, the coil 15 is heated by any suitable means, such as the lamp or torch 17, (shown in Fig. 1,) and the branch-pipe cock 25 is then turned on, the main-pipe cock 16 remaining closed, and this operation is continued until the burner has sufficiently heated the vaporizing-pipe 7 to vaporize the oil therein, and then the torch is removed, the main-pipe cock 16 opened, and the branch-pipe cock 25 closed.

The injector comprises a valve-stem 18, having a threaded engagement with its casing 22 and having a governing-wheel 19 at the front end thereof and a tapering valve 20 at the rear end thereof, this valve being shaped to the contour of the nozzle 21 and having a needle-point. The nozzle 21 is detachably connected to the casing 22 and is shown as threaded thereto, so that the nozzle may be readily removed for cleaning the nozzle and valve.

It is obvious that various modifications may be made in the construction shown in the drawings and above particularly described within the spirit and scope of my invention.

What I claim, and desire to secure by Letters Patent, is—

1. A burner having one or more orifices constituting a flaming part, a supply and vaporizing tube exposed to the heat of the flaming part and cleaning means composed of a plurality of connected parts movable relatively to each other and located within the supply and vaporizing tube.

2. A burner having one or more orifices constituting a flaming part, a supply and vaporizing tube exposed to the heat of the flaming part, and a cleaning-chain located within the supply and vaporizing tube.

3. A burner having one or more orifices constituting a flaming part, a supply and vaporizing tube exposed to the heat of the flaming part, a cleaning-chain located within the supply and vaporizing tube, and removable closures for such tube, secured to the ends of such chain.

4. The combination of a casing forming a heating-chamber, a burner in such heating-chamber having one or more orifices constituting a flaming part, a supply and vaporizing tube exposed to the heat of such flaming part and extending out from the heating-chamber at its ends, cleaning means composed of a plurality of parts movable relatively to each other and located within the supply and vaporizing tube, and removable closures for such tube located outside of the heating-chamber and secured to the cleaning means.

5. The combination of a casing forming a heating-chamber, a burner in such heating-chamber having one or more orifices constituting a flaming part, a supply and vaporizing tube exposed to the heat of such flaming part and extending out from the heating-chamber at its end, a cleaning-chain located within the supply and vaporizing tube, and removable closures for such tube located outside of the heating-chamber and secured to the ends of such chain.

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

GRANVILLE S. RIDER.

Witnesses:

HENRY D. WILLIAMS,
LEO TAUSSIG.