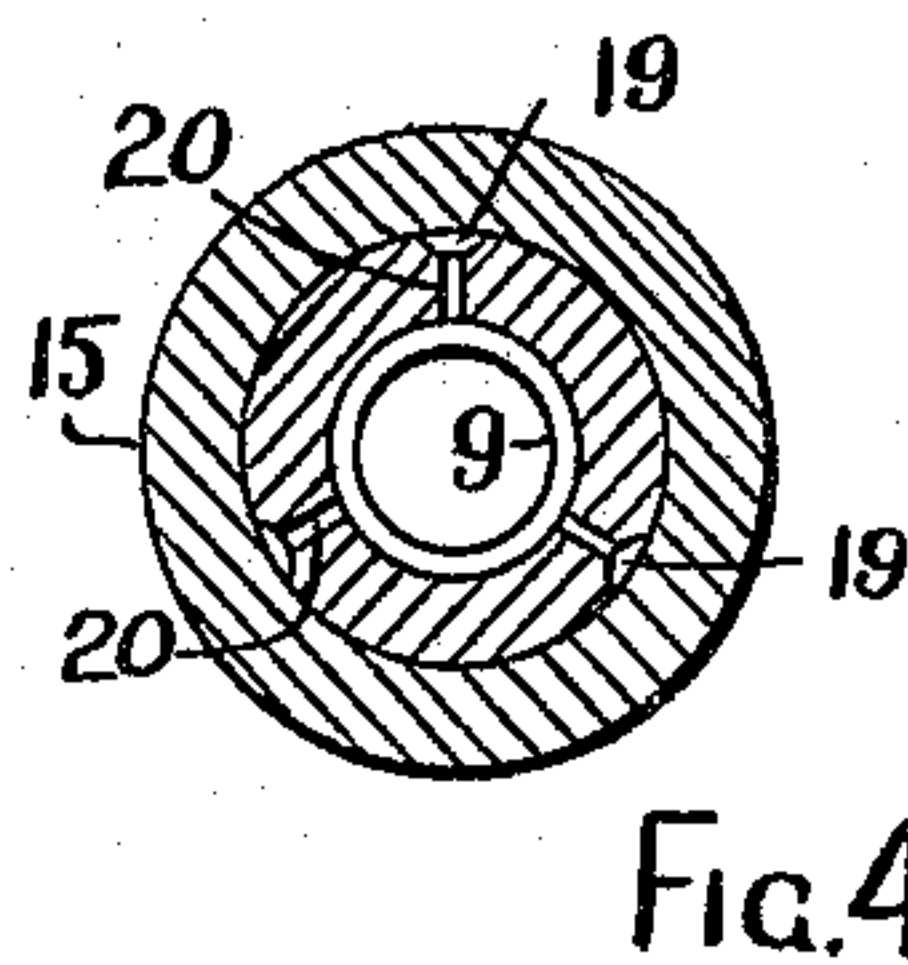
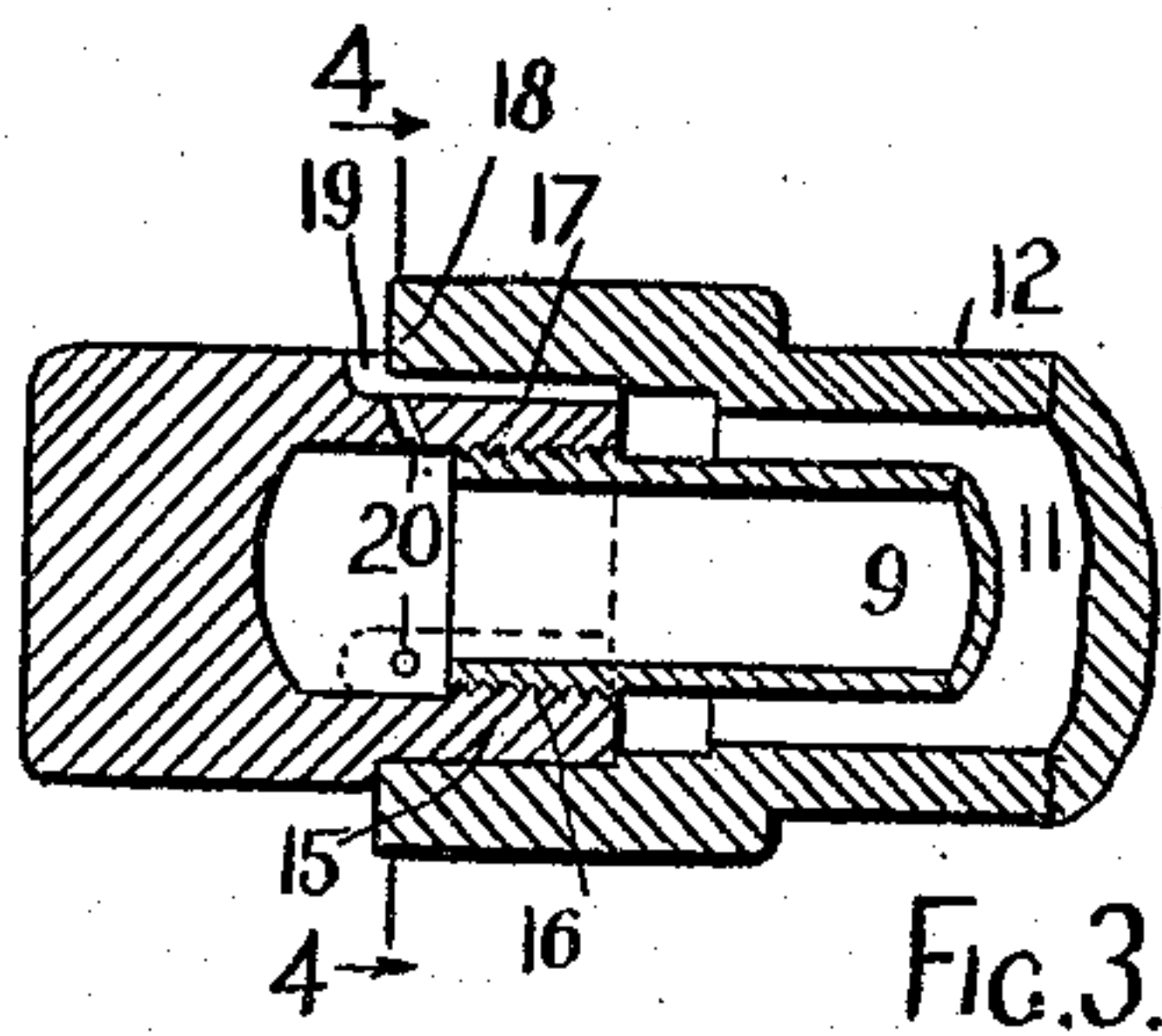
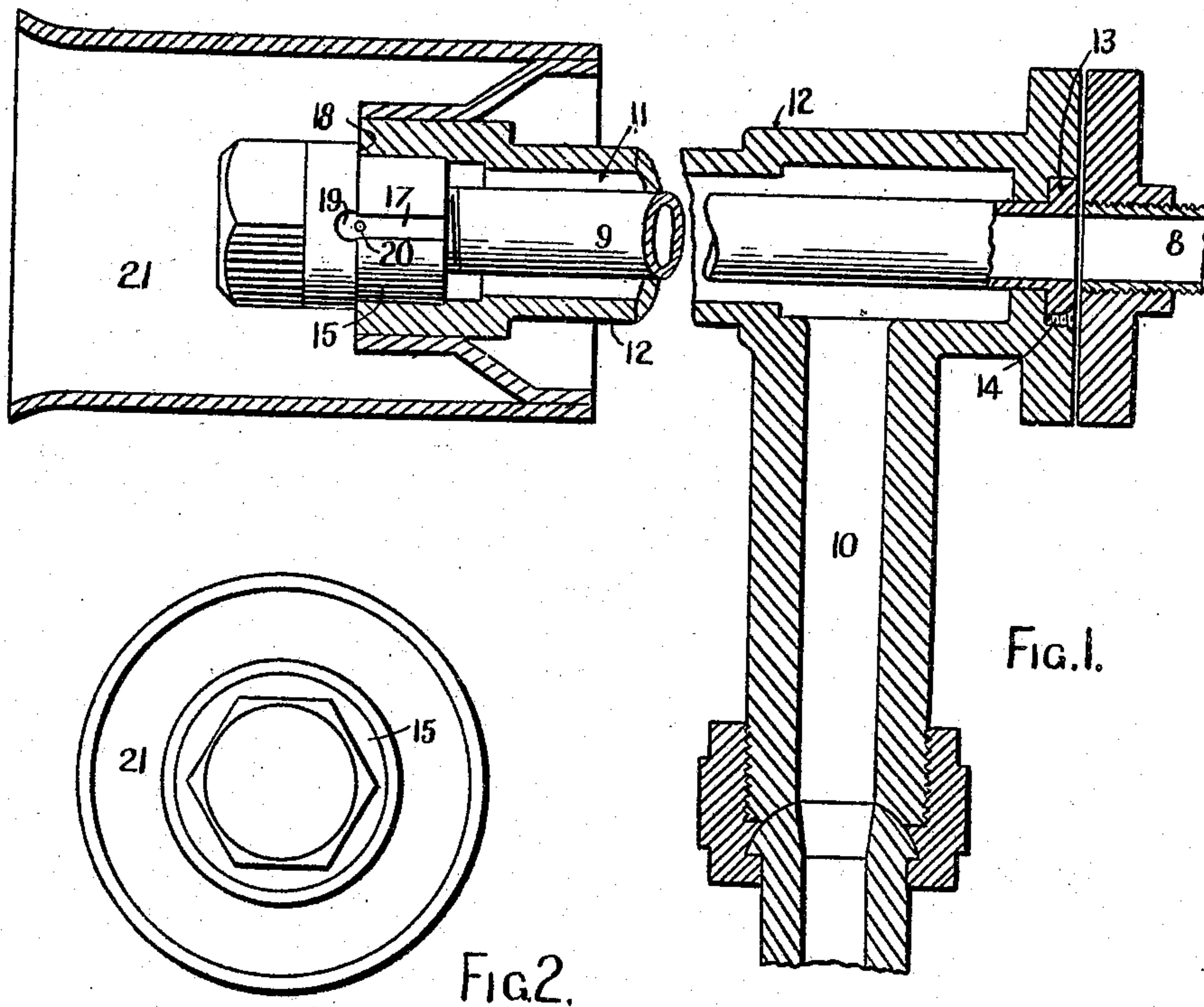


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 APPLICATION FILED JAN. 22, 1907.

930,346.

Patented Aug. 10, 1909.

2 SHEETS—SHEET 1.



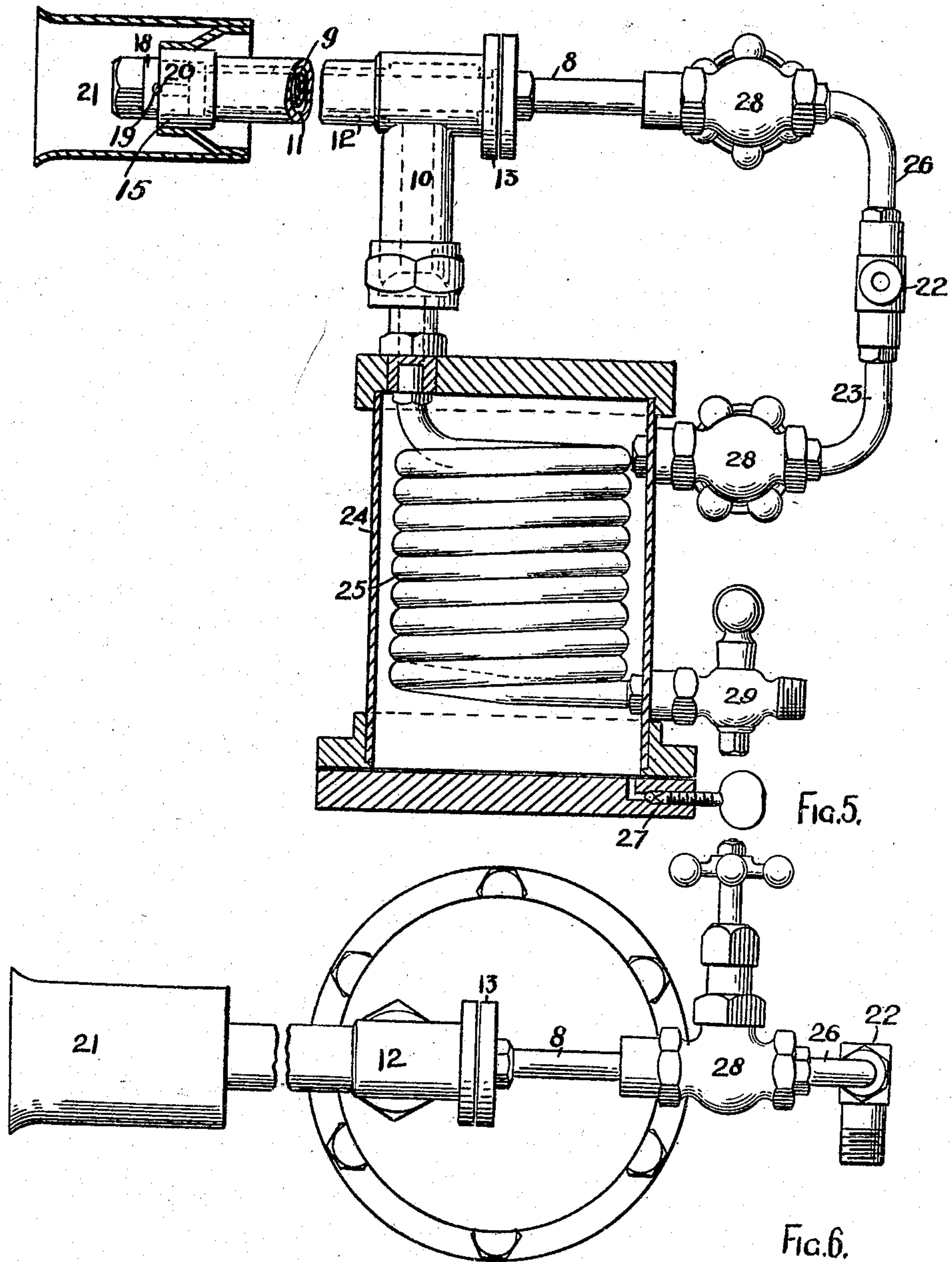
Witnesses:
 Chas. Heuler
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UNITED STATES PATENT OFFICE.

HENRY BRABY, OF SYDNEY, NEW SOUTH WALES, AUSTRALIA.

ATOMIZER OR BURNER FOR LIQUID FUEL.

No. 930,346.

Specification of Letters Patent.

Patented Aug. 10, 1909.

Application filed January 22, 1907. Serial No. 353,514.

To all whom it may concern:

Be it known that I, HENRY BRABY, a subject of the King of Great Britain, residing at 96 Harris street, Sydney, in the State of New South Wales, Commonwealth of Australia, have invented certain new and useful Improvements in and Relating to Atomizers or Burners for Liquid Fuel, of which the following is a specification.

10 This invention relates to improvements in atomizers for use in burning liquid fuel and is especially adapted for burning cheap residual oils.

My invention consists particularly in the construction of the nozzle whereby the oil is ejected practically without noise by the aid of steam (preferably superheated) or by air or a suitable gas under pressure and is such that the steam air or gas (hereinafter referred to as steam for convenience) does not come in contact with the oil until it reaches the actual point of ejection, and in the event of there being a difference in the pressure in the steam and oil passages steam will not enter the oil passage nor oil into the steam passage, thereby avoiding the possibility of the passages being choked. This is effected by means of concentric steam and oil passages from the latter of which a series of grooves or ways lead to the points of ejection opposite each of which is an orifice leading from the steam passage. The orifices and the ends of the grooves are so formed as to cause the atomized oil to be forced in a slightly forward direction against a shoulder or the edge of the shell or casing. The power of the burner may be increased or decreased by varying the number of oil grooves and corresponding orifices from the steam passage.

40 A further part of my invention lies in the construction of a simple yet compact apparatus by means of which the oil and steam are utilized to the best advantage obviating the use of an oil pump.

45 Referring to the accompanying drawings, I will now describe my invention in order that same may be clearly understood.

Figure 1 is an elevation partly in section of the nozzle showing connections to the oil and steam supplies. Fig. 2 is an end view of the atomizer. Fig. 3 is a central section of the nozzle, while Fig. 4 is a section through the line 4—4 Fig. 3. Fig. 5 is a partial sectional

elevation of the complete apparatus, while Fig. 6 is a plan of same.

The same numerals indicate the same or corresponding parts.

8 represents the steam inlet pipe leading to the passage or pipe 9 while 10 is the oil inlet pipe in communication with the concentric oil chamber or passage 11 between the pipe 9 and the shell or casing 12. On the end of the pipe 9 is screwed a nipple 15 provided with an internal female thread 16 the strain being taken by the collar 13 on said pipe the collar being keyed by means of the pin 14. The said nipple has oil grooves or ways 17 each ending in the shoulder 18 where the grooves are flared or spread as at 19. In each of the said grooves and adjacent to the shoulder is an orifice 20 communicating with the steam pipe 9. The nipple 15 is screwed on the pipe 9 until the orifices 20 are in a line or almost so with the end of the shell or casing 12. The said orifices are at a slight angle toward the end of the nipple and an open ended hood or cover 21 may direct the atomized oil in a forward direction toward the object to be heated and at the same time permit the free entrance of air. The effect of this construction of atomizer is that the oil after passing along the grooves 17 is ejected by steam from the orifices 20 so that the atomized oil strikes against the edge or shoulder 18 on the casing practically without noise.

It will be observed that there is no possibility of the oil being carbonized in any of the passages as it is free of same before the steam comes in direct contact with it.

In Figs. 5 and 6, 22 is the main steam pipe having a branch 23 leading to the chamber 24 containing the oil coil 25 also a branch 26 communicating with the steam inlet 8. 27 is a draining valve while 28, 28, represent suitable steam valves. 29 is a cock controlling the passage of oil from a reservoir which is preferably under a slight pressure when gravity cannot be utilized.

In operation steam is first passed into the chamber 24 so as to heat the oil in the coil 25. Steam is then turned into the passage 9 and the oil flow regulated by means of the cock 29 to suit the flame required.

When a gas under pressure is used instead of steam the heating coil may be dispensed with.

Having now fully described and ascertained my said invention and the manner in which it is to be performed, I declare that what I claim is:—

5 1. In an atomizer of the class described, a steam supply pipe, an oil chamber surrounding a portion of the same, an oil supply pipe in communication with said chamber, a nipple secured to the free end of the steam pipe
10 and having a closed outer terminal, said nipple being provided with a series of exterior grooves extending beyond the terminal of the oil chamber and terminating at their outer extremities in enlargements, a plurality of
15 openings leading from the grooves inwardly through the nipple to the interior of the latter and also setting up communication with the steam pipe, the outer terminals of the openings being adjacent to the enlargements
20 of the grooves, and a casing around the nipple and supported by the oil pipe, the inner grooved end of the nipple extending within the oil pipe.

2. In a device of the class described, a

chamber, a coiled pipe in said chamber, an oil 25 supply pipe in communication with the coil at one end thereof, an oil chamber having communication with the other end of the coil, a steam pipe passing through said oil chamber and having communication with 30 the first mentioned chamber, a nipple carried by the free end of said steam pipe and having a plurality of grooves longitudinally thereof, one terminal of each being flared and in communication with the oil chamber, said nipple 35 further provided with a plurality of orifices forming communication between the steam pipe and the grooves beyond the oil chamber, a casing supported by the oil chamber for surrounding the nipple, and cut-off valve for 40 the steam and oil pipes.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HENRY BRABY.

Witnesses:

CHARLES EDWARD GRAHAM,
HENRY WATCHORNE CLARKE.