

No. 624,130.

Patented May 2, 1899.

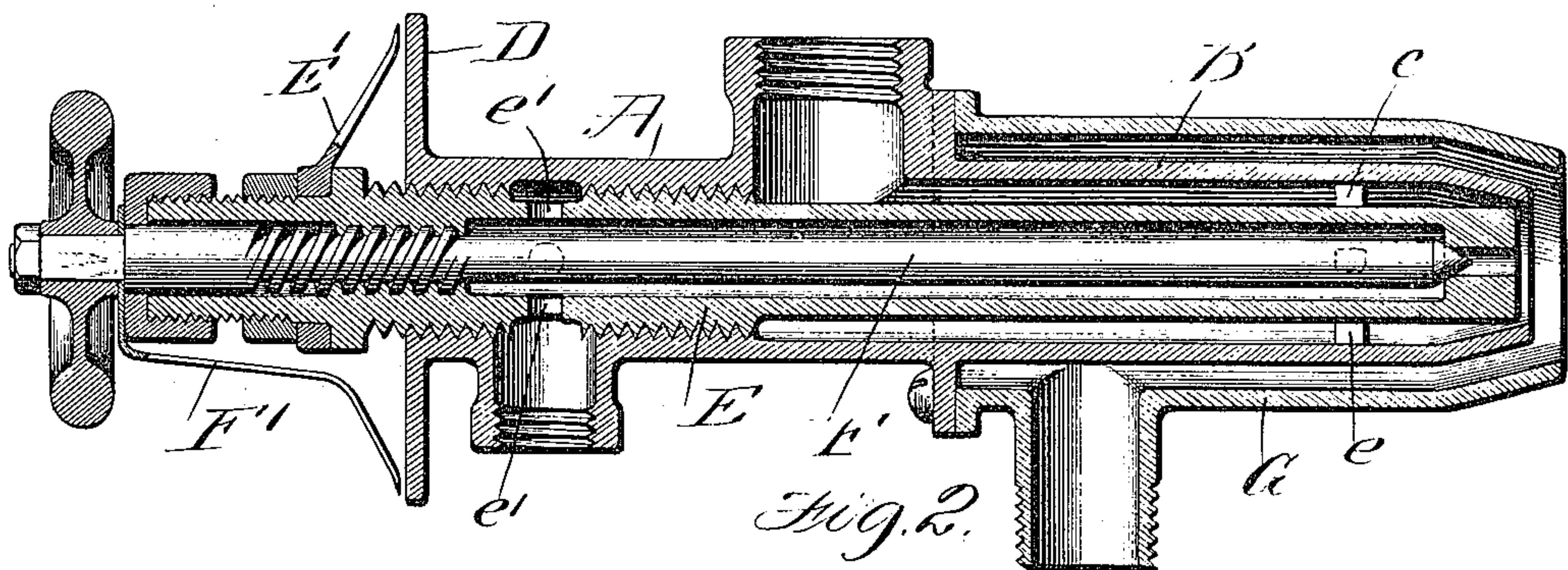
J. S. THURMAN.

OIL BURNER.

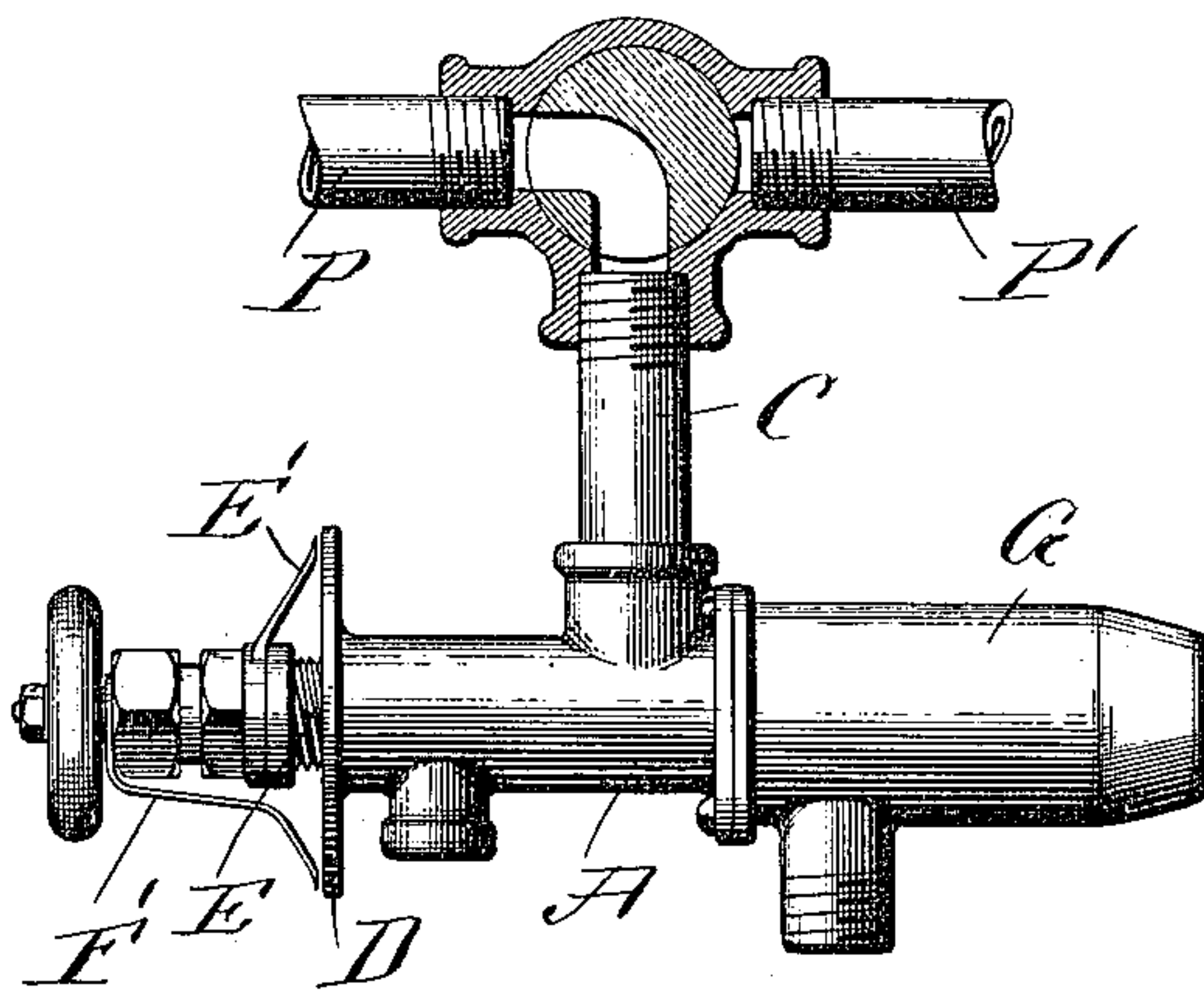
(Application filed Feb. 12, 1898.)

(No Model.)

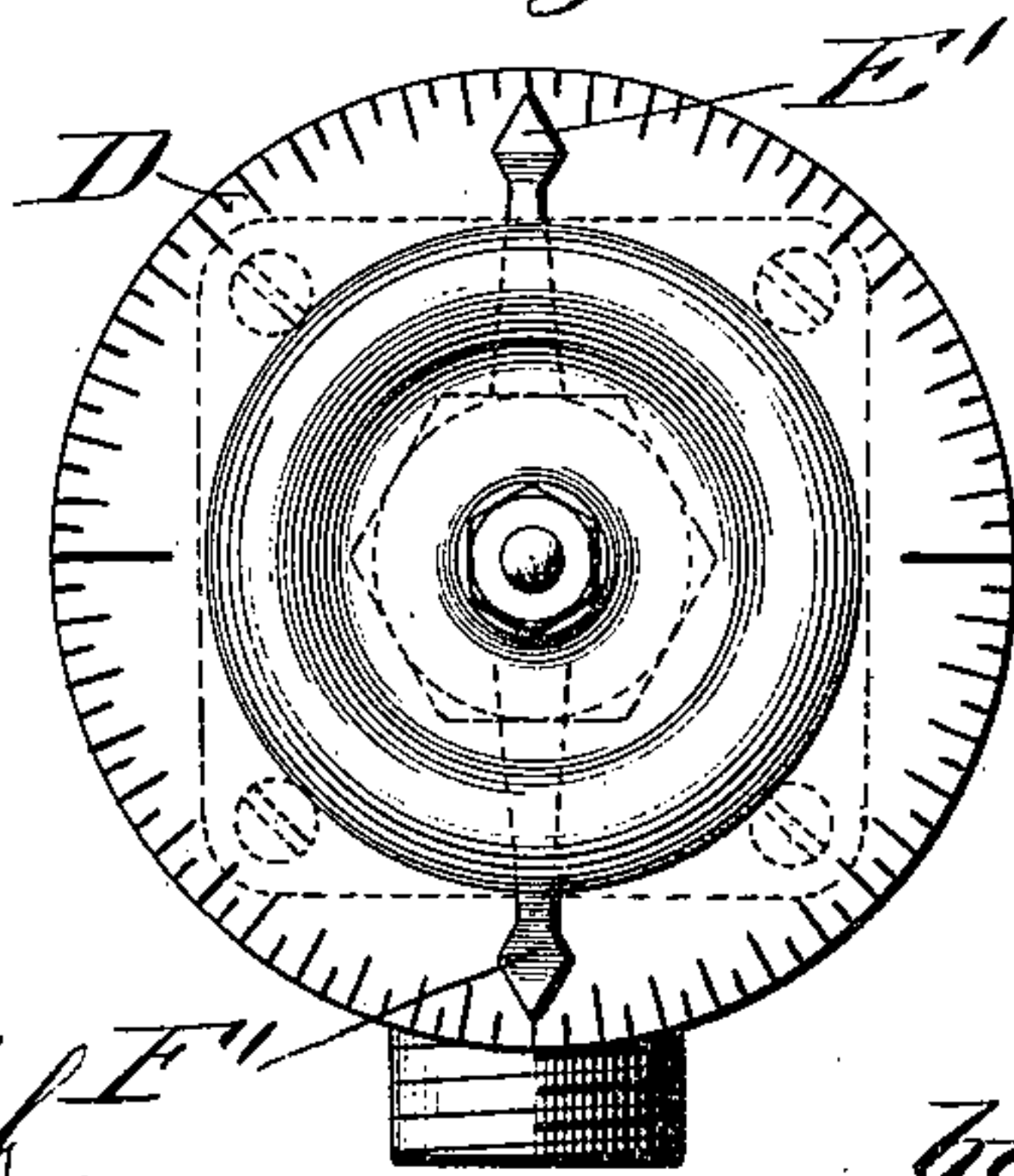
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



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# UNITED STATES PATENT OFFICE.

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## OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 624,130, dated May 2, 1899.

Application filed February 12, 1898. Serial No. 670,032. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN S. THURMAN, a citizen of the United States, residing at the city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Oil-Burners, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a longitudinal sectional view through my improved oil-burner. Fig. 2 is a side elevational view of the same, showing one form of controlling-valve in position. Fig. 3 is an end elevational view showing the scale-plate.

This invention relates to a new and useful improvement in oil-burners especially adapted for use in locomotives on railroads, though it is obvious that the same can be used in stationary boilers or for such other purposes as may be desired.

This invention consists in the construction, arrangement, and combination of the several parts, all as will hereinafter be described and afterward pointed out in the claim.

In the drawings, A indicates a suitable casting, one end of which terminates in a cylindrical nozzle B, whose mouth is contracted, as shown. Into this nozzle B leads a pipe C. The opposite end of casting A is preferably formed with a flange D, on the face of which are suitable markings, forming a scale on which is indicated the position of the movable parts of the burner.

E indicates a tube which is threaded into the casting A, its forward end being slightly reduced to form a space therebetween and the nozzle B for the passage of the compressed air or steam. Suitable projections *e* may be arranged on the end of this sleeve E to properly space the same from the nozzle B. I prefer to double-thread the plug E into the casting A, so that a slight rotary movement communicated to the same will move said plug a considerable distance. This is to control and regulate the passage of steam or compressed air through the nozzle B.

On the rear end of tube E, I arrange an indicator E', by which, with reference to the

scale on flange D, the amount of steam or compressed air ejected from nozzle B may be determined.

The threads on tube E are preferably interrupted or mutilated to form a space into which leads an oil-pipe from any suitable source of supply, said tube being also formed with openings *e'*, leading from said space into its interior.

F indicates a needle-valve which extends through the tube E, said needle-valve having a tapered end cooperating with a contracted opening in the front end of said tube E. This needle-valve F controls the emission of oil from the burner and is provided with a double thread at its rear end, which engages corresponding threads in the interior of tube E. An indicator F' is also arranged on the needle-valve, whose position relative to the scale on the flange D determines the amount of oil consumed by the burner per any given space of time.

An inclosing sleeve G preferably surrounds nozzle B, forming a space into which may be introduced hot air from the furnace to assist combustion of the fuel.

In Fig. 2 I have shown a three-way valve for controlling the steam or compressed air to the burner. Into this valve I prefer to lead a pipe from the boiler (marked P) and a pipe P' from a source of compressed-air supply. The object of this is to utilize air-pressure in starting the furnace when there is no steam in the boiler, said air-pressure inducing a flow of oil through the burner and a thorough intermixture of the oxygen with the oil to start combustion.

I am aware that many minor changes in the construction, arrangement, and combination of the several parts of this burner can be made and substituted for those herein shown and described without in the least departing from the nature and principle of my invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

In an oil-burner, the combination with a casting A formed with a flange D at its rear end, the front end forming a nozzle B, of a steam or compressed-air supply pipe C leading into said casting about midway its length,

an oil-supply pipe leading into said casting  
near its rear end, a tube E threaded in said  
casting and communicating with the oil-sup-  
ply, the forward end of said tube serving as  
5 a valve for the steam by coöperating with the  
front end of nozzle B, a needle-valve F thread-  
ed into tube E for closing the passage of oil  
through said tube, means for rotating the tube  
and needle-valve independently of each other,  
10 and a sleeve G secured to the casting A and

inclosing the front end of nozzle B, said sleeve  
having an opening in its rear end for the pas-  
sage of hot air, substantially as described.

In testimony whereof I hereunto affix my  
signature, in the presence of two witnesses, 15  
this 17th day of January, 1898.

JOHN S. THURMAN.

Witnesses:

F. R. CORNWALL,  
HUGH K. WAGNER.