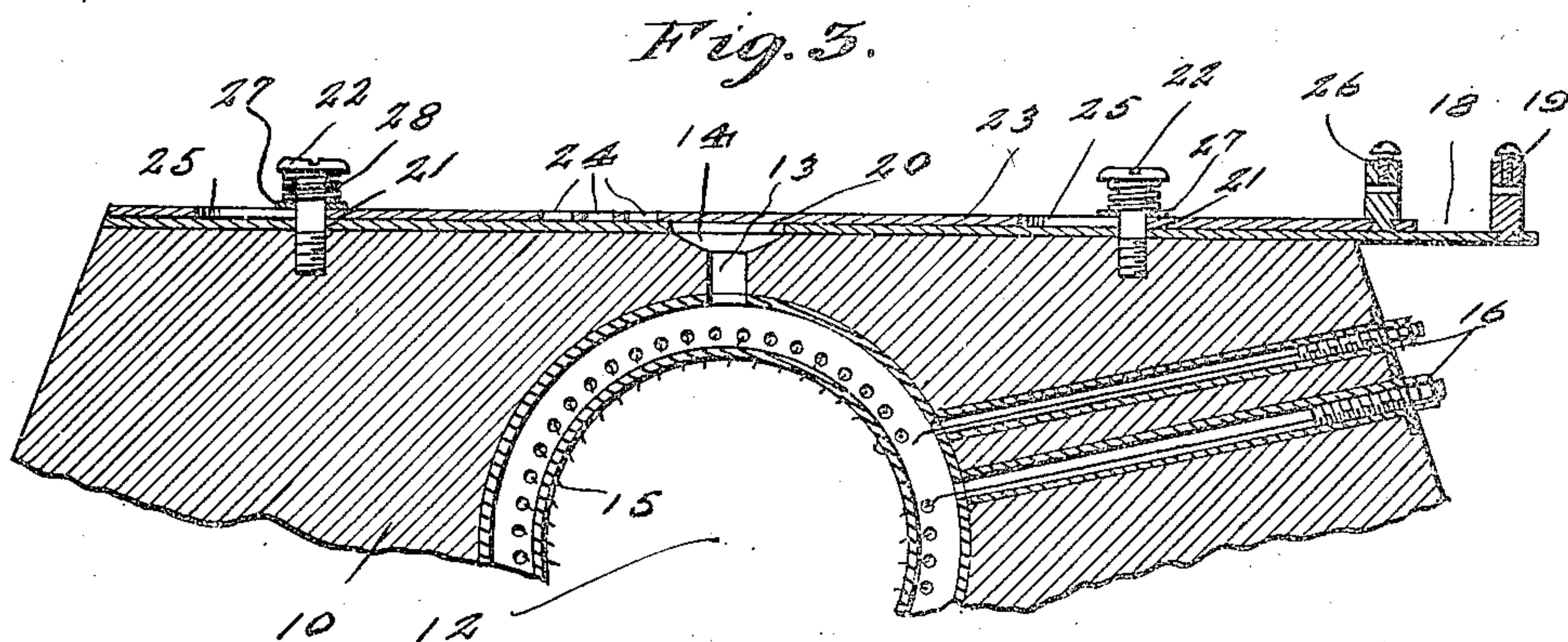
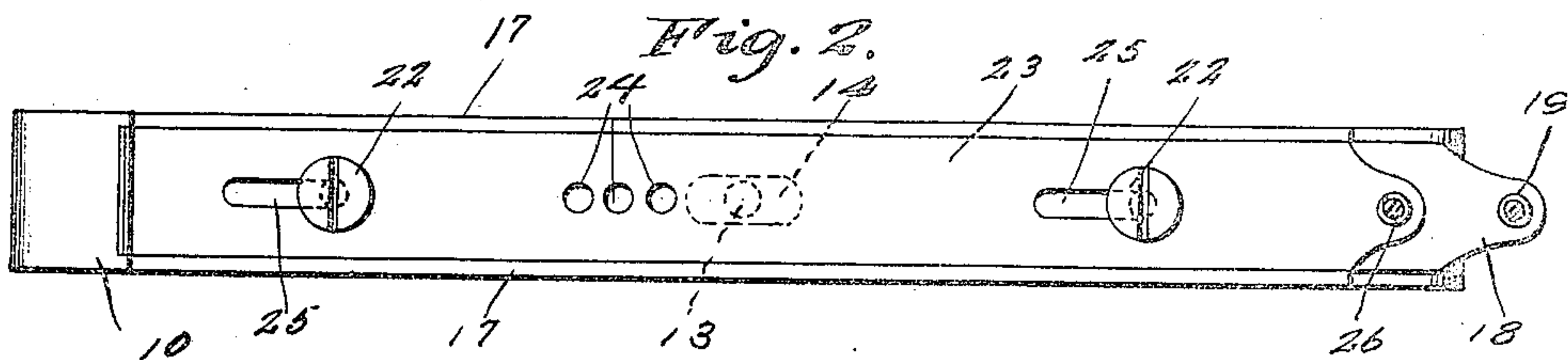
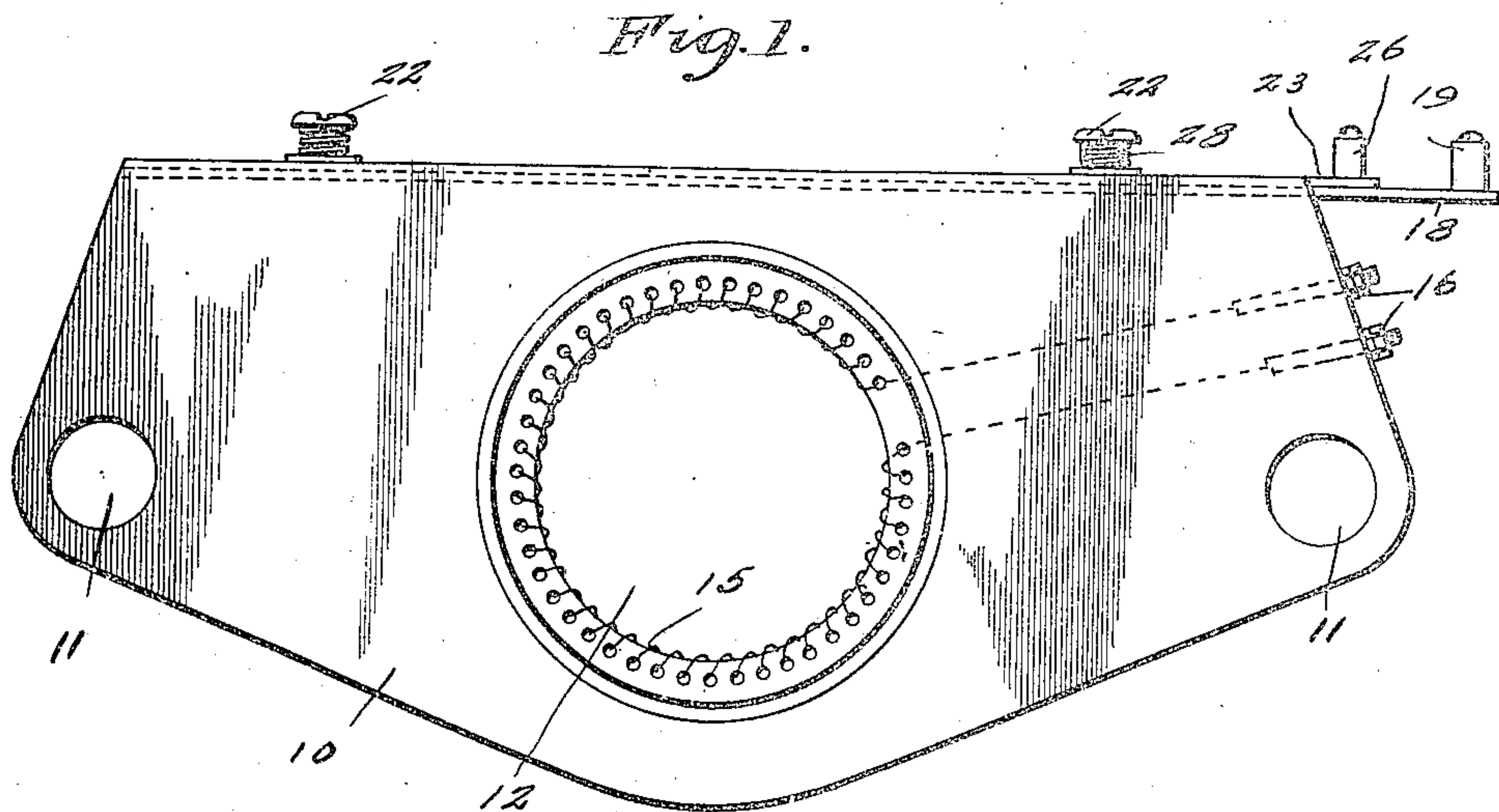


Jan. 2, 1923.

H. C. ABERN.  
VAPORIZER.  
FILED MAY 24, 1921.

1,440,811.



R. A. Thomas

WITNESSES

Halsey C. Abern

BY *Victor J. Evans*

INVENTOR

ATTORNEY



Patented Jan. 2, 1923.

1,440,811

# UNITED STATES PATENT OFFICE.

HALSEY C. ABERN, OF NORWICH, NORTH DAKOTA.

## VAPORIZER.

Application filed May 24, 1921. Serial No. 472,276.

*To all whom it may concern:*

Be it known that I, HALSEY C. ABERN, a citizen of the United States, residing at Norwich, in the county of McHenry and State of North Dakota, have invented new and useful Improvements in Vaporizers, of which the following is a specification.

This invention relates to attachments for internal combustion engines, and has for its object the provision of an electrically operated heating device adapted for interposition between the carbureter and the intake manifold of an internal combustion engine whereby to heat the vaporized fuel for the purpose of increasing the explosive quality or combustibility of the mixture.

An important object is the provision of a device of this character which is provided with means whereby to admit air into the manifold, a peculiar construction being employed for regulating the quantity of air admitted.

An additional object is the provision of a device of this character which will be simple and inexpensive in manufacture and installation, highly efficient in use, durable in service, and a general improvement in the art.

With the above and other objects and advantages in view, the invention consists in the details of construction to be hereinafter more fully described and claimed and illustrated in the accompanying drawings in which

Figure 1 is an elevation of my device,

Figure 2 is a plan view, and

Figure 3 is a longitudinal detail section through the upper portion thereof.

Referring more particularly to the drawings, I have shown my device as comprising a body 10 formed of any suitable material and of a size and shape to be interposed between a carbureter and the intake manifold of an engine, the body being provided at its end portions with holes 11 for the passage of the usual bolts employed in connecting the carbureter outlet with the intake manifold.

This body is also formed centrally with a circular hole 12 which is relatively large and through which the mixture from the carbureter may pass. Leading into this hole 12 is a passage 13 formed in the upper portion of the body and having its upper end flared, as indicated at 14.

The heating means consists of a resistance coil 15 arranged within the opening 12

at the periphery thereof and connected with the terminals of this coil are suitable binding posts 16 located at one end of the body and adapted for connection with current carrying wires leading from any suitable source which might conveniently be the storage battery of an automobile.

Secured upon the top of the body 10, which incidentally is formed with longitudinal guide flanges 17, is an elongated plate 18 provided with a knob 19 and this plate is formed centrally with an elongated slot 20 registering with the flared entrance opening 14 of the passage 13. This plate is also formed near its ends with holes 21 through which pass studs or screws 22 which are threaded into the top of the body. Disposed upon the top of the plate 18 is a plate 23 which is formed centrally with a series of holes 24 any one or more of which may be brought into registration with the slot 20. This plate 23 is slidable and is provided with slots 25 guidably engaging the screws 22. One end of this plate 23 is provided with a knob 26 constituting a handle whereby it may be moved. Disposed upon the screws 22 are washers 27 which engage upon the top of the plate 23 and surrounding the screws and engaging these washers are springs 28 which engage against the undersides of the heads of the screws 22.

In the operation of the device it will be seen that in starting the engine it is preferable, if not actually necessary, to move the plate 23 so that the holes 24 therein will be out of registration with the slot 20 so that no air can enter through my device. When starting in cold weather it is advisable to connect current carrying wires to the binding post 16 whereupon the resistance coil 15 will become hot from the passage of current therethrough and will effectually heat the mixture passing into the manifold so that the mixture will be more easily exploded. When the engine is warmed up it is no longer necessary to operate the heating coil though such might be continued if found advisable or preferable. When the engine is running strongly it is of advantage to move the plate 23 so as to bring one or more of the holes 24 into registration with the slot 20 so as to permit auxiliary air to pass into the intake manifold and this will result usually in more even running of the engine with the expenditure of less fuel.

While I have shown and described the



preferred embodiment of my invention, it is of course to be understood that I reserve the right to make such changes in the form, construction and arrangement of parts as  
5 will not depart from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. A device of the character described  
10 comprising a body adapted for interposition between a carburetor and the intake manifold of an internal combustion engine, said body being provided with a central hole for the passage of the mixture from the carburetor and being further provided with a  
15 passage leading from said hole to one side of the body, heating means within said hole and a perforated plate slidable upon said side of the body for partially covering or  
20 uncovering the outer end of said passage.

2. A device of the character described comprising a body adapted to be interposed between a carburetor and the intake manifold of an internal combustion engine, said  
25 body being provided with a central hole for the passage of the mixture from the carburetor and being further provided with a passage leading from said hole to one side of the body, heating means within said hole,  
30 and a plate movably mounted upon said side of the body for partially covering or uncovering said passage.

3. A device of the character described comprising a body adapted to be interposed

between a carburetor and the intake manifold of an internal combustion engine, said  
35 body being provided with a central hole for the passage of the mixture from the carburetor and being further provided with a passage leading from said hole to the top  
40 of the body, means for partially closing said passage comprising a plate secured upon the top of the body and formed with a slot registering with said passage, and a second  
45 plate guidably slidable upon said first named plate and formed with a plurality of holes adapted to be brought into registration with said slot.

4. A device of the character described comprising a body adapted to be interposed  
50 between a carburetor and the intake manifold of an internal combustion engine, said body being provided with a central hole for the passage of the mixture from the carburetor and being further provided with a  
55 passage leading from said hole to the top of the body, means for partially closing said passage comprising a plate secured upon the top of the body and formed with a slot registering with said passage, a second plate  
60 guidably slidable upon said first named plate and formed with a plurality of holes adapted to be brought into registration with said slot, and heating means within the hole in  
65 said body.

In testimony whereof I affix my signature.

HALSEY C. ABERN.