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J. G. BRANCH.

MEANS FOR PRODUCING A PRESSURE ON THE HYDROCARBON IN PORTABLE
RESERVOIRS.

(Application filed Sept. 28, 1900.)

(No Model.)

Fig. 1.

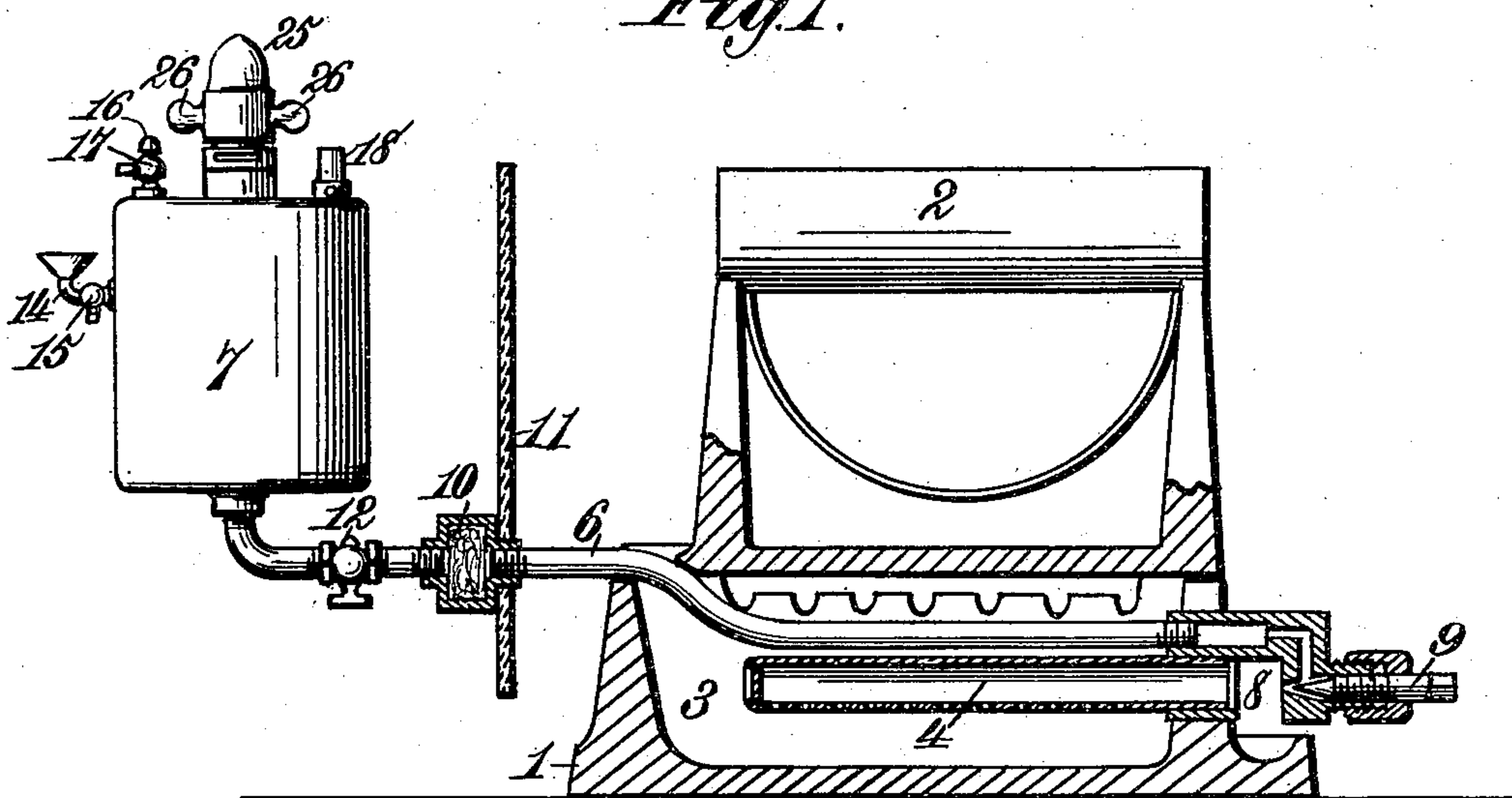


Fig. 2.

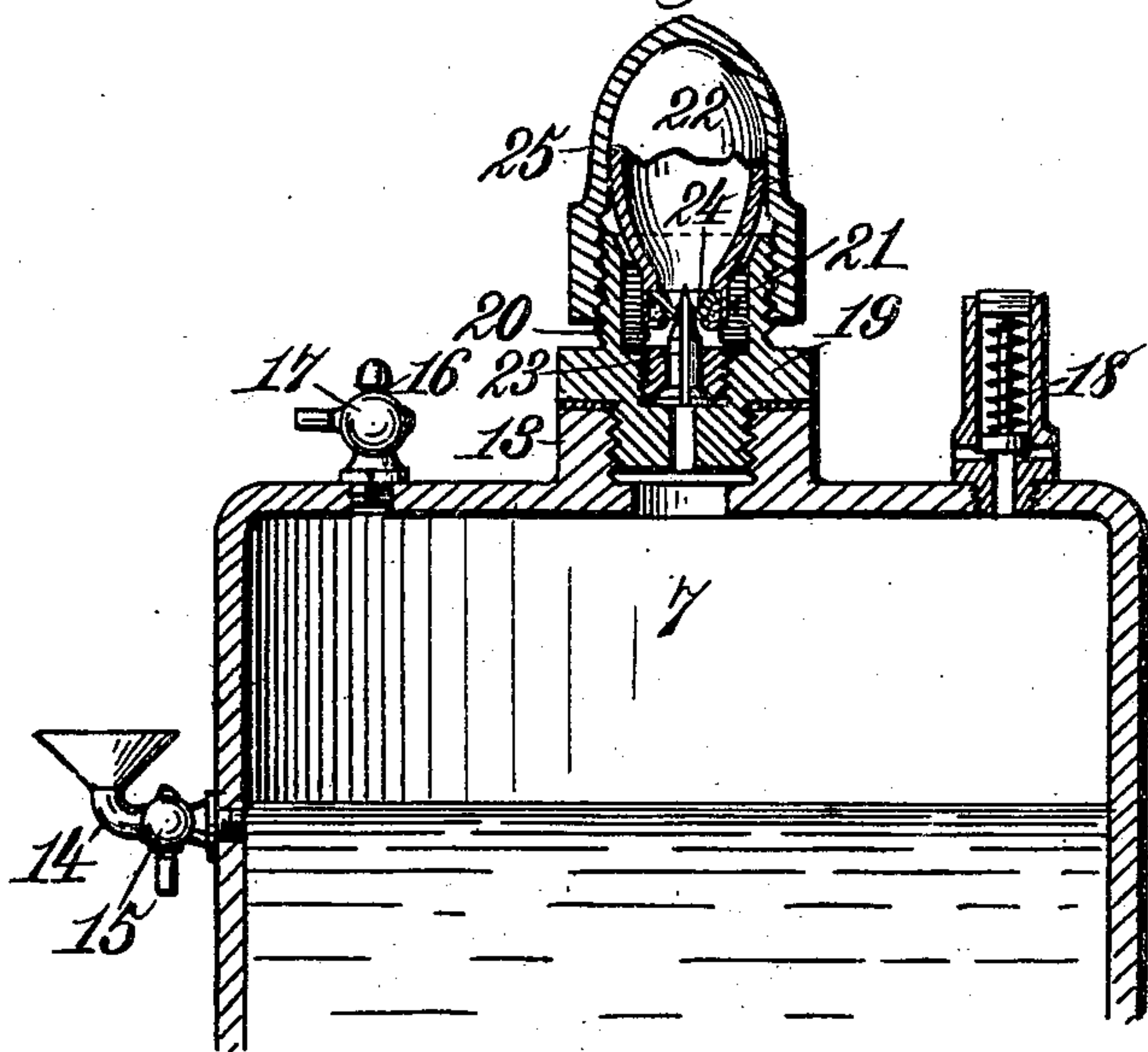
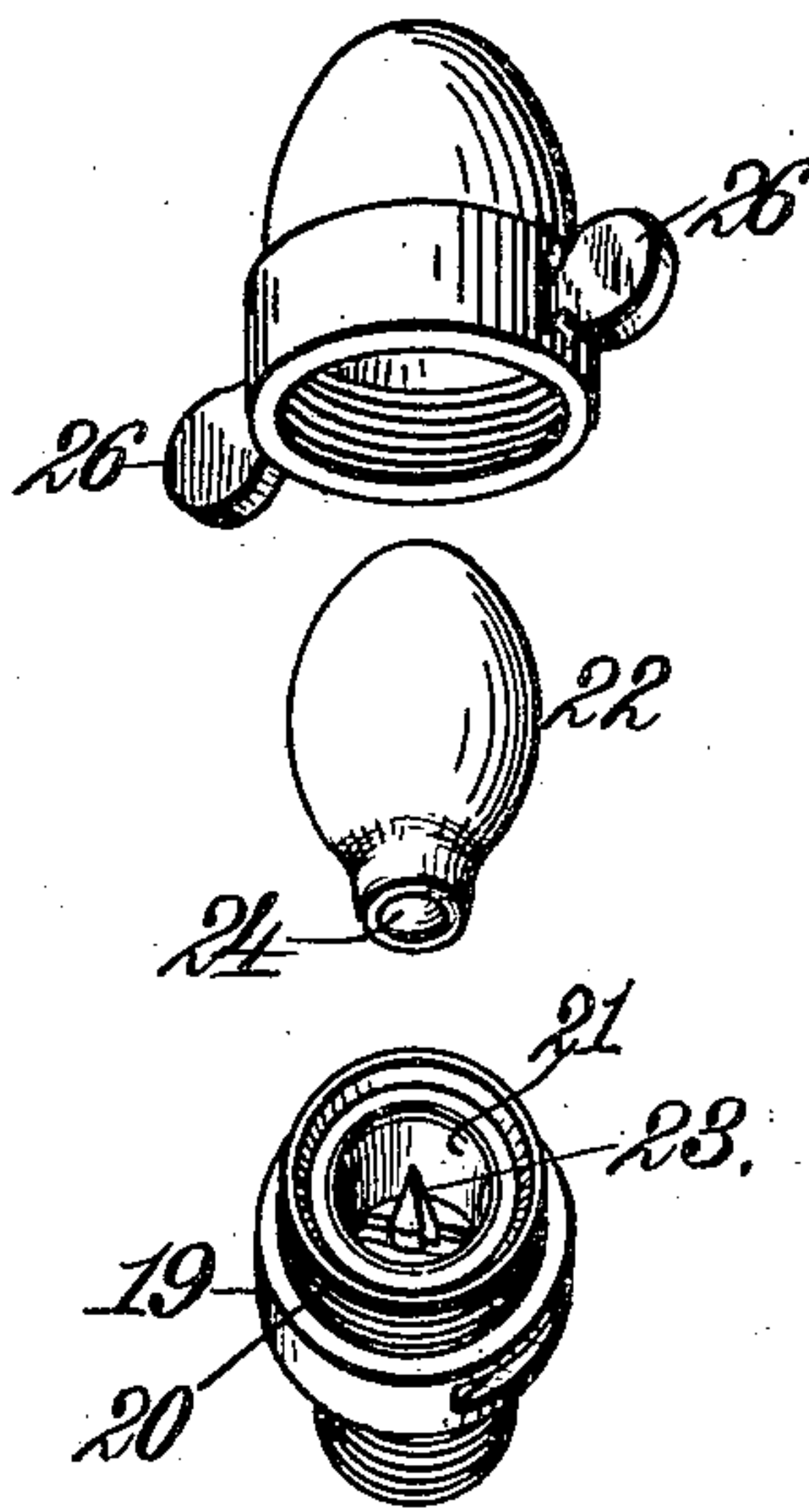


Fig. 3.



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JOSEPH G. BRANCH, OF ST. LOUIS, MISSOURI.

MEANS FOR PRODUCING PRESSURE ON THE HYDROCARBON IN PORTABLE RESERVOIRS.

SPECIFICATION forming part of Letters Patent No. 694,305, dated February 25, 1902.

Application filed September 26, 1900. Serial No. 31,336. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH G. BRANCH, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented new and useful Improvements in Means for Producing a Pressure on the Hydrocarbon in Portable Reservoirs, of which the following is a specification.

My invention relates to improvements in means for producing a pressure on the hydrocarbon in portable reservoirs, and has for its object the provision of a light, convenient, and very effective device of this nature, securing a uniform and constant feeding of the hydrocarbon to a burner and at the same time providing a simple and very convenient means of effecting the same.

In the following description of my invention, as well as in the illustration of the same upon the drawings, I will disclose the same as applied to a self-heating sad-iron, such being one of the many purposes to which my invention can be applied, though of course it is understood that my invention and the spirit thereof is not restricted to the employment thereof in connection with a sad-iron, as it may well be used in connection with any portable hydrocarbon tank and burner.

The invention consists of the features and details of construction and combinations of parts, which will be hereinafter more fully described and claimed.

In the drawings forming a part of this specification, Figure 1 is a sectional side elevation illustrative of my invention. Fig. 2 is an enlarged detail sectional view of the upper part of the gasoline-tank, and Fig. 3 represents details.

Like reference-numerals indicate like parts in the different views.

The base or body 1 of the sad-iron and the handle 2 may be of any suitable form and construction. Within a cavity 3 in the base or body 1 is located a perforated burner-tube 4, with which communicates a supply pipe or tube 6, leading from the tank or reservoir 7, for gasoline or other hydrocarbon liquid. Between the open lower end of the pipe or tube 6 and the rear end of the burner-tube 4 is an open space 8, into which air is free to enter for mixing with the hydrocarbon vapor. The passage in the tube 6 is controlled, as usual,

by an adjustable needle-valve 9. The pipe 6 is removably secured to the base or body 1 of the iron and serves as a support for the tank 7. In the pipe 6 is placed a filter 10, filled with any suitable fibrous substance, which filter serves the purpose of a strainer. Secured to said pipe 6 and located between the body 1 of the iron and the tank 7 is a shield or guard 11, of asbestos or other like non-conducting material, the said shield being provided for the purpose of protecting the contents of the tank 7 from the heat of the iron. A cut-off valve or cock 12 is located in the pipe 6 between the filter 10 and the lower end of the tank 7. The tank 7 is preferably cylindrical in form and has an internally-screw-threaded neck 13 upon its upper end. It is also provided with a funnel-mouthed filling-pipe 14, located at a point below the upper end of the tank 7 and provided with a cut-off valve 15. A vent-pipe 16, provided with a cut-off 17, is secured in the upper head of the tank 7. Also mounted in the upper head of the tank 7 is a safety-valve 18 of any suitable form and construction. The tank 7 being filled or partially filled with gasoline, the cock 12 and the needle-valve 9 being opened, and pressure applied behind or above the surface of the hydrocarbon in the tank 7, said hydrocarbon will be fed down into the burner-tube 4, where it may be ignited and the heat of the combustion of the same utilized for heating the body or base of the iron. If for any reason the pressure behind the oil ceases, the flow of the same will stop and the flame at the mouth of the burner-tube 4 will go out. It is therefore necessary to provide some means whereby a reliable and constant pressure may be applied behind the gasoline in the tank 7. It has heretofore been proposed to generate pressure in the tank 7 by heating the same from the body of the iron. This, however, is objectionable on account of the danger of explosions and for other reasons. It has also been proposed to apply an air-pump to the upper end of the gasoline-tank and force into said tank air under pressure, which will serve to feed the gasoline from the tank to the burner. This also is objectionable, first, because it is inconvenient, and, second, because an extremely-dangerous mixture is produced

from the vapors of hydrocarbon and air. According to my invention I utilize the pressure exerted by compressed carbonic acid or other incombustible gas, which may be obtained in metallic capsules or containers. Into the threaded neck 13 of the tank 7 I screw a short pipe-section 19, having external screw-threads 20 upon its upper end. Within the pipe-section is located a rubber gasket or check 21, into which the contracted neck of the capsule 22 is inserted. Below the gasket 21 is a pointed prong or pin 23, arranged in the passage through the lower end of the pipe-section 19. The capsule 22 contains carbonic-acid or other gas under pressure, the same being held in place by a puncturable seal 24, which lies directly opposite the pin or prong 23 when said capsule is in place within the gasket 21. Above the capsule 22 is a cap 25, provided with internal screw-threads adapted to engage the screw-threads 20 on the pipe-section 19 and also provided with wings 26, by means of which said cap may be turned. When the parts are in place, as above described, the turning of the cap 25 forces down the capsule 22 until the puncturable seal 24 thereof is brought into engagement with the pointed end of the prong or pin 23. Said seal is thereby broken and the contents of the capsule are released and pass down into the upper end of the tank 7 through the pipe-section 19 and the neck 13 of said tank. In this way pressure is obtained behind or above the hydrocarbon liquid in said tank, by means of which said liquid may be fed in a constant uniform stream to the burner-tube 4. In order to provide a space in the tank 7 for the released gas from the capsule 22, it is necessary that said tank be not filled to its extreme upper end. To prevent this being done, therefore, I locate the filling-tube 14 a short distance below the upper head of said tank. It is then impossible to fill the tank above the level of said tube. If from any cause too great a pressure should exist in the tank 7, the same may be relieved through

the safety-valve 18, and then the gas which is discharged is not explosive, as would be the case if air were utilized as the means for obtaining pressure in the tank. When the tank 7 has become exhausted, it is merely necessary in order to recharge the same to open the cocks 15 and 17 in the filling and vent tubes 14 and 16, respectively, and pour in gasolene through the pipe 14 until the proper level has been reached. The cocks 15 and 17 are then closed. The cap 25 is removed, the old capsule taken from its seat in the pipe-section 19, and a new one inserted therein. The cap 25 is then reapplied and the device operated in the manner heretofore described. Of course during the filling and recharging operation the cock 12 and needle-valve 9 are closed. When the same are opened, the pressure supplied by the compressed gas from the capsule 22 feeds the gasolene or other hydrocarbon from the tank 7 down through the pipe 6 to the burner-tube 4.

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

The combination with a portable hydrocarbon reservoir and burner, of a supply-pipe connecting the reservoir and burner, a compressed carbonic-acid capsule, a pipe secured to the upper end of and communicating with said reservoir having a prong in the passage therethrough and provided with a gasket above said prong, a closing-cap screwing upon the upper end of said pipe, the said gasket being adapted to receive the contracted neck of the capsule and the said prong to puncture the seal of the same, and a safety-valve in said hydrocarbon-reservoir, substantially as described.

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

JOSEPH G. BRANCH.

Witnesses:

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J. B. SMITH.