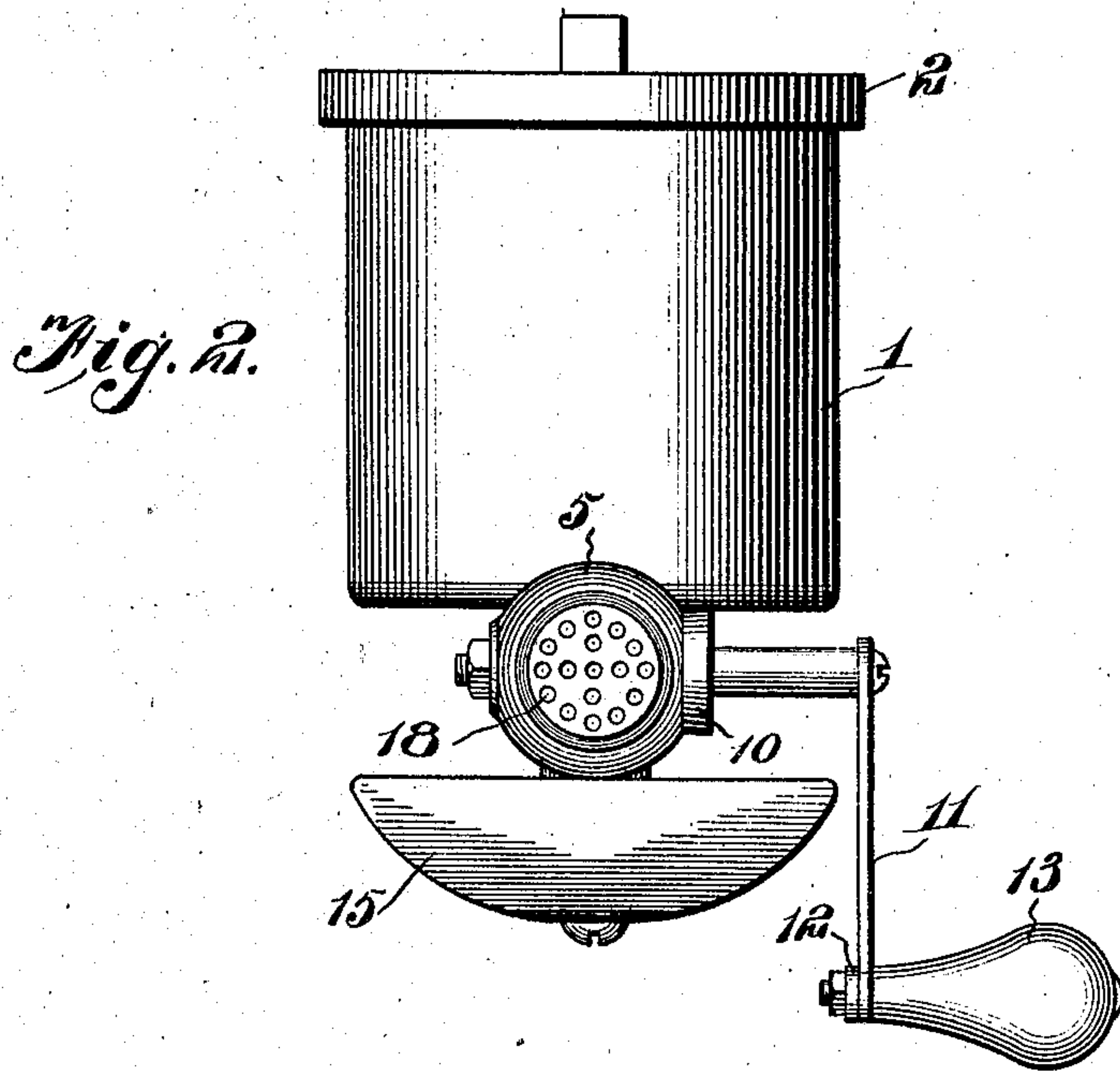
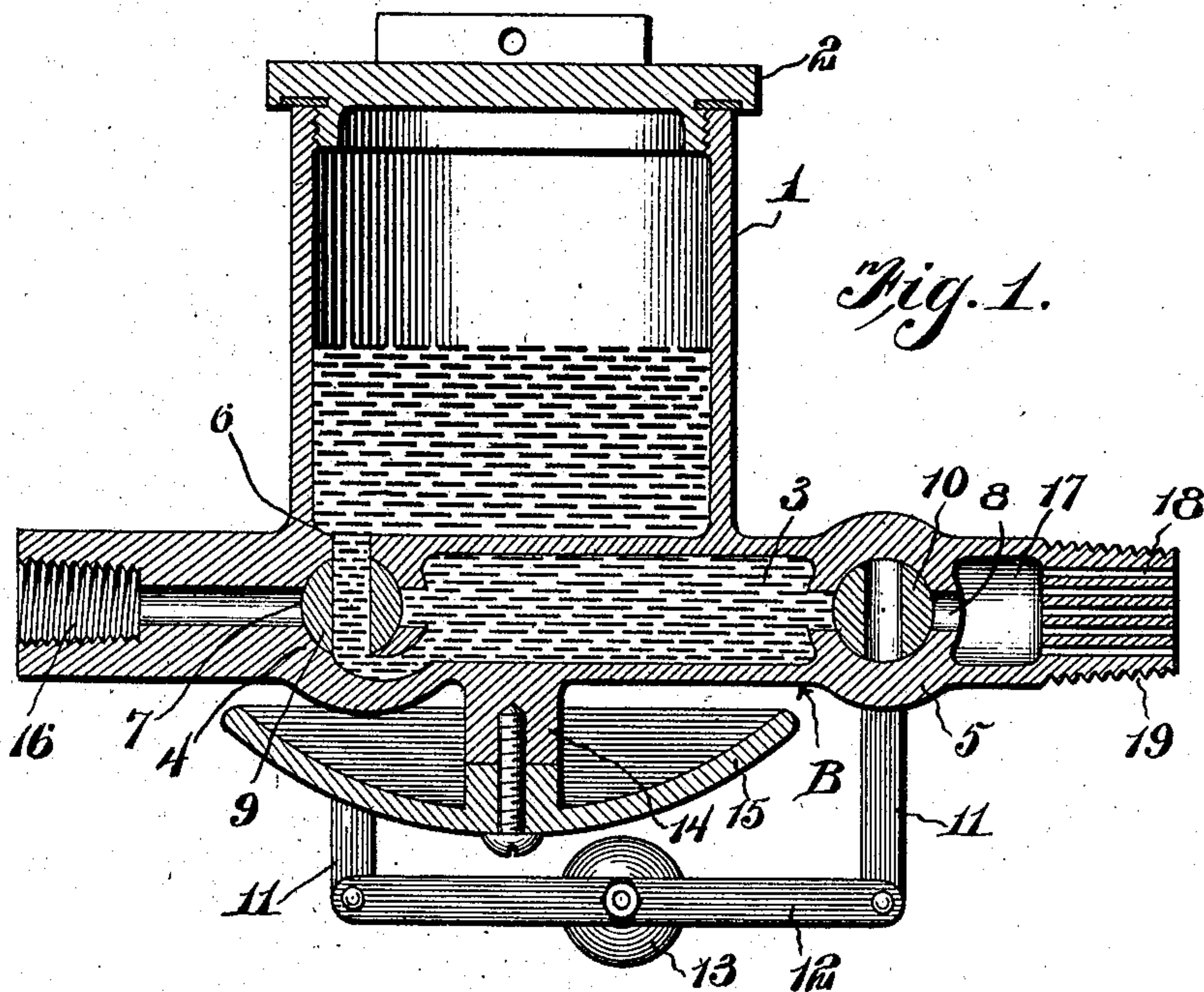


R. W. GODFREY.
GAS ENGINE STARTER.
APPLICATION FILED AUG. 7, 1907.

900,518.

Patented Oct. 6, 1908.



Witnesses

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RALEIGH W. GODFREY, OF OBERLIN, OHIO.

GAS-ENGINE STARTER.

No. 900,518.

Specification of Letters Patent.

Patented Oct. 6, 1908.

Application filed August 7, 1907. Serial No. 387,478.

To all whom it may concern:

Be it known that I, RALEIGH W. GODFREY, a citizen of the United States, residing at Oberlin, in the county of Lorain and State of Ohio, have invented new and useful Improvements in Gas-Engine Starters, of which the following is a specification.

This invention relates to starters for gasoline and other explosive engines; and it has for its object to provide an improved device whereby a suitable charge of gasoline or other motive fluid may be injected into the engine cylinder in a suitably heated condition and with an admixture of atmospheric air, the mixture forming an explosive gas, ready to be ignited by the igniting mechanism of the engine.

Special objects of the present invention are to simplify and improve the construction and operation of this class of devices.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction, and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawing has been illustrated a simple and preferred form of the invention; it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations, and modifications within the scope of the claims may be resorted to when desired.

In the drawing: Figure 1 is a vertical sectional view of the improved starter. Fig. 2 is an end view of the same.

Corresponding parts in both figures are denoted by like characters of reference.

The improved starter comprises a suitable cup or reservoir 1 having a conveniently detachable cap or cover 2 and provided with a measuring chamber 3 of elongated tubular form located adjacent to the bottom thereof and preferably extending diametrically across said bottom. The tube or barrel B which contains the measuring chamber is provided adjacent to the ends of the latter with valve casings 4 and 5, the former of which communicates with the reservoir 1 through a port 6; the casing 4 also communicates with the inlet end of the tube B through a port 7 and the casing 5 communicates with the outlet end of the tube B through a port 8. The casings 4 and 5 are provided with ordinary two way

valves 9 and 10 which may be simultaneously turned to cut the measuring chamber 3 off from the ends of the tube while said measuring chamber is at the same time placed in communication with the reservoir 1 through the port 6, this being the position illustrated in Fig. 1 of the drawings; it will be readily seen that by a quarter turn of the valves, the measuring chamber will be cut off from the reservoir, while the ports connecting the measuring chambers with the ends of the tube or valve will be thrown open. The movement of the valves may be simultaneously effected by means of cranks 11 suitably connected with the stems of the valves, and connected with each other by means of a link 12 having a handle 13. A lug 14 extending downwardly from the barrel B carries a pan 15 in which a small quantity of liquid fuel, such as alcohol, may be placed and ignited for the purpose of heating the measuring chamber and its contents.

The inlet end of the barrel B is threaded, as shown at 16, for the reception of a connecting pipe or duct whereby it may be conveniently connected with a storage tank, not shown, wherein atmospheric air is kept in a suitable state of compression. The discharge end of the barrel B is provided adjacent to the valve casing 5 with a chamber 17, the outer wall of which has a plurality of small apertures 18; the outlet end of the barrel B is exteriorly threaded or tapped, as shown at 19, for convenient connection with the engine cylinder upon which it is mounted adjacent to the relief cock or in any suitable and convenient location.

In the operation of this device, the measuring chamber is normally and initially in communication with the reservoir 1 which latter may be filled by removing the lid or cap 2. The contents of the measuring chamber may be heated by igniting a small quantity of liquid fuel, such as alcohol, placed in the tank 15. The handle 13 is now manipulated to partially rotate the valves 9 and 10, whereby the measuring chamber will be cut off from the reservoir 1, and the contents of said measuring chamber will be ejected by the current of compressed air from the source of supply previously referred to. The contents of the measuring chamber will first enter into the chamber or space 17 and, with a free admixture of air, will be forcibly projected through the apertures 18 into the firing end of the engine cylinder. Being pre-

viously heated, the fluid will readily combine with the atmospheric air to form an explosive mixture which will be ignited in the usual manner, thus starting the engine.

5 The improved device is simple in construction, and it has been found to be thoroughly efficient for the purposes for which it is provided.

I claim:

10 1. A device of the class described comprising a reservoir, a tube or barrel adjacent thereto and containing a measuring chamber communicating with the reservoir through a port or duct, and two way valves in the tube
15 or barrel adjacent to the ends of the measuring chamber, one of said valves being adapted to obstruct the port leading to the reservoir.

2. In a device of the class described, a
20 reservoir, a tube containing a chamber communicating with said reservoir, valves in the tube to cut off communication between the chamber and the ends of the tube, one of said valves being adapted to cut off communication
25 between the chamber and the reservoir, a compressed air chamber at one end of the tube and a perforated wall at the opposite end of the tube.

3. In a device of the class described, a

reservoir, a tubular barrel extending diamet- 30
rically across the bottom thereof and having a chamber communicating therewith through a port or duct, valves or closures adjacent to the ends of the chamber, one of said valves being adapted to obstruct the port leading 35
to the reservoir, cranks connected with the valve stem, a link connected to said cranks, and a heating pan supported beneath the chamber in the tube or barrel.

4. In a device of the class described, a 40
reservoir, a tubular barrel extending diametrically across the bottom thereof and having a chamber communicating therewith through a port or duct, valves adjacent to the ends of the chamber, one of said valves being 45
adapted to obstruct the port leading to the reservoir, a lug depending from the said tubular barrel and arranged intermediate the ends thereof, a heating pan connected to the said lug, and a crank for effecting simul- 50
taneous movement of the valves.

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

RALEIGH W. GODFREY.

Witnesses:

HAYDEN BINFORD,
B. O. DURAND.