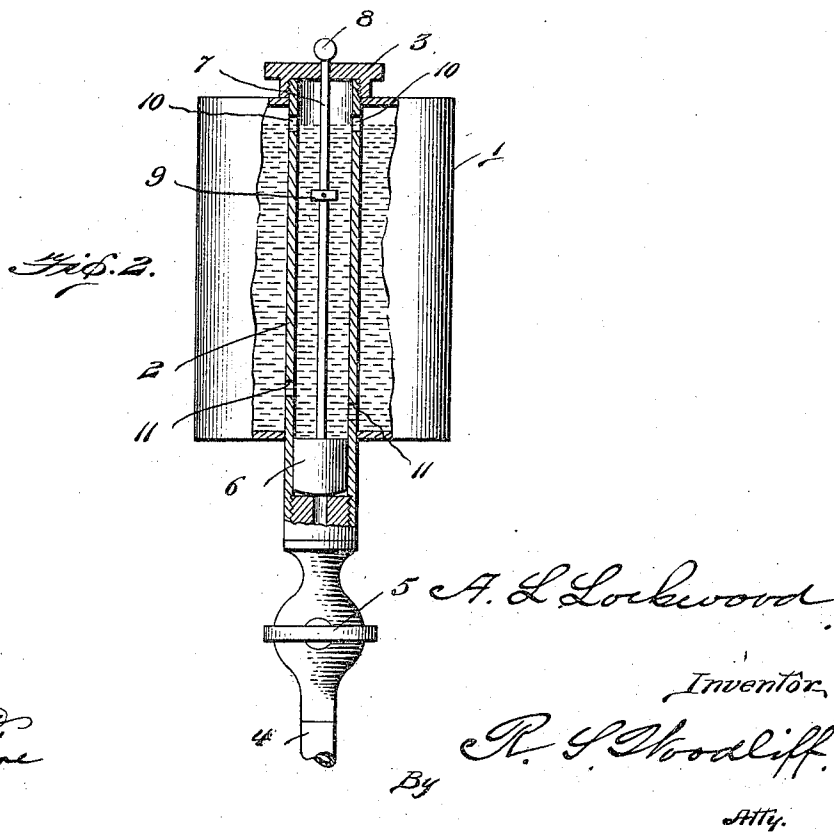
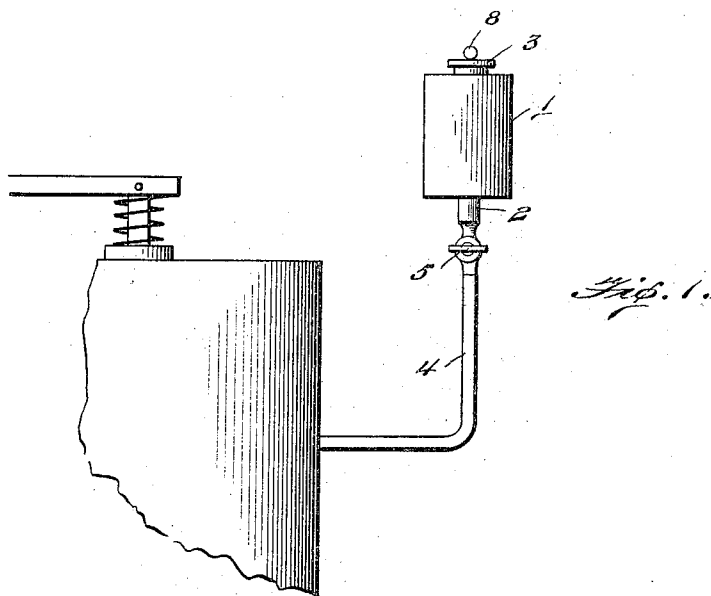


A. L. LOCKWOOD.
 PRIMING CUP FOR INTERNAL COMBUSTION MOTORS.
 APPLICATION FILED SEPT. 23, 1907. RENEWED DEC. 7, 1909.

953,478.

Patented Mar. 29, 1910.



Witnesses
B. M. Offutt.
M. E. Moore

UNITED STATES PATENT OFFICE.

ARTHUR L. LOCKWOOD, OF JACKSON, MICHIGAN.

PRIMING-CUP FOR INTERNAL-COMBUSTION MOTORS.

953,478.

Specification of Letters Patent. Patented Mar. 29, 1910.

Application filed September 23, 1907, Serial No. 394,089. Renewed December 7, 1909. Serial No. 531,884.

To all whom it may concern:

Be it known that I, ARTHUR L. LOCKWOOD, a citizen of the United States, residing at city of Jackson, in the county of Jackson and State of Michigan, have invented certain new and useful Improvements in Priming-Cups for Internal-Combustion Motors, of which the following is a specification.

My invention relates to improvements in priming cups for internal combustion engines, and has for its object, the provision of a priming device which may readily be mounted in any convenient position upon the engine and by means of which a quantity of the combustible liquid may be inserted direct to the intake valves or cylinder of the motor, thereby enriching the mixture in the cylinder so that it will fire upon the first revolution of the crank shaft. The usual delay in starting motors of this class is thus avoided as the piston receives an impulse at the first stroke and the cycle of operations is then continued automatically.

Another object of my invention is the provision of a device of the character set forth which shall be small and compact, of simple, durable and inexpensive construction, and which shall be thoroughly practical and efficient in every particular.

With the above and other objects in view, my invention consists of a cup or receptacle and a piston carried thereby adapted when operated to inject a quantity of explosive matter into the engine.

The invention further consists of a priming device embodying certain other novel features of structure, combination and arrangement of parts substantially as disclosed herein and as illustrated in the accompanying drawings, in which:

Figure 1, is a view showing my improved primer applied to an explosive engine of common construction. Fig. 2, is an enlarged broken sectional view of my improvements.

In the drawings, the numeral 1, designates the body of the device which is preferably in the form of a hollow cylindrical shell or casing to constitute a reservoir or container for a limited supply of the gasoline or other motive fluid. A tube or cylinder 2, is mounted in the reservoir and upon the upper extended end of the tube is mount-

ed a screw cap or closure 3. The lower extended end of the tube is connected by means of the pipe 4, with the intake valves of the engine or directly to the cylinder itself, and a suitable valve 5, is interposed in this pipe to regulate the flow of the liquid. A piston 6, is adapted to reciprocate in the cylindrical tube, the piston rod 7, extending up through the filler cap 3, and having a knob or operating handle 8, upon its upper end. A collar or abutment 9, is arranged upon the piston rod to serve as a check to the lift of the piston. Apertures 10, in the upper portion of the cylinder establish communication between the cylinder and the reservoir, and intake ports 11, in the lower portion of the cylinder admit a charge of liquid to pass from the reservoir into the cylinder. These intake ports in the cylinder are preferably offset in their relation to each other so as to allow a charge of the liquid to flow freely into the cylinder as the piston is withdrawn.

In operation, the reservoir of the priming cup is filled by removing the cap or closure on the upper end of the cylinder, the liquid passing from the cylinder through the apertures therein to the surrounding reservoir. This reservoir is preferably kept filled with liquid so as to be ready for use at any time. When it is desired to start the engine, the valve in the supply pipe leading to the cylinder of the motor is opened, the piston is lifted as far as the abutment on the piston rod will allow, thereby causing a certain amount of the liquid to be drawn into the cylinder below the piston by way of the inlets or perforations in the lower end of the cylinder, the piston is then pushed downward, forcing the charge of liquid before it into the cylinder of the motor. The crank shaft of the motor is then turned until the point of contact is reached and the electric spark produced, which ignites the enriched charge in the cylinder of the motor and causes an impulse to be given to the fly wheel of the motor. The cycle of operations is then continued automatically.

From the foregoing description taken in connection with the drawings, the operation and advantages of my improved priming cup will be readily understood and its many merits appreciated, and it will be obvious that I have produced such a device which

fully and satisfactorily accomplishes all the results herein set forth as the objects of my invention.

I claim:

- 5 1. In combination with a tube and a closure to one end thereof, a valved outlet pipe connected to the opposite end of the tube, a reservoir surrounding the tube, ports in the upper and lower ends of the tube
10 opening communication to the reservoir, and a piston arranged in the tube, the piston rod projecting up through the cover to the tube and a stop on the piston rod for limiting the movement thereof.
- 15 2. A priming cup comprising a tube and an outlet pipe leading therefrom to an engine cylinder, a valve in said outlet pipe, a reservoir mounted on and surrounding the tube, ports in the tube near the upper and
20 lower ends thereof to establish communication between the reservoir and interior of the tube, the ports in the lower end of the tube being arranged on different levels, a

piston in the tube, a closure on the upper end of the tube, and an abutment on the piston rod to limit the upward stroke of the piston. 25

3. A priming device for gas engines comprising a cylinder and a piston therein, a supply pipe leading from said cylinder to a gas engine, a valve in said supply pipe, a reservoir surrounding the cylinder, the cylinder having ports in the upper and lower ends thereof opening communication to the reservoir, the upper end of the cylinder being open and serving as a filling opening for the reservoir, a cover to said open end of the cylinder, the piston rod projecting up through said cover, and means for limiting the movement of the piston. 30 35 40

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

ARTHUR L. LOCKWOOD.

Witnesses:

EUNICE BARLOW,
R. S. WOODLIFF.