

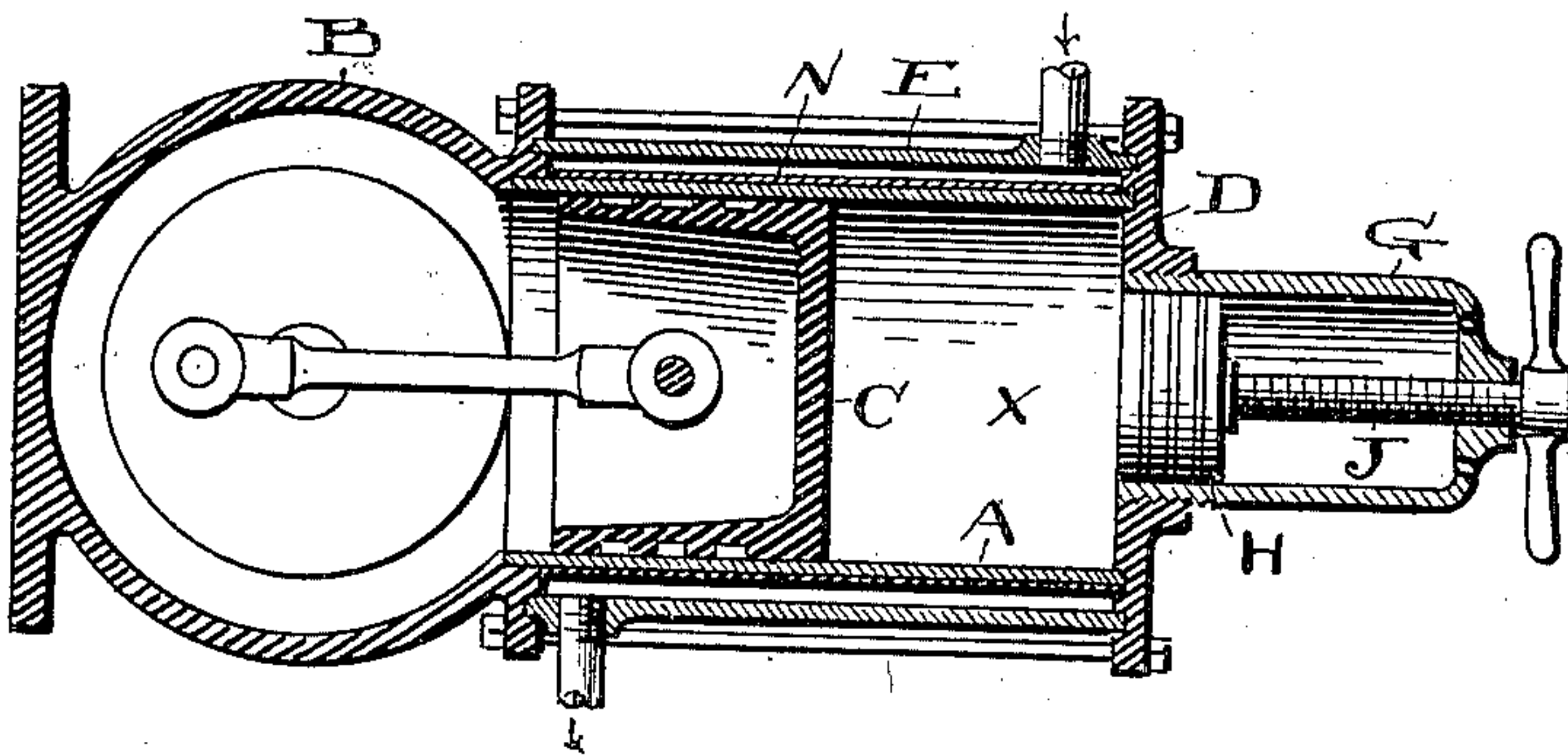
No. 679,367.

R. R. DARLING.
GAS ENGINE.

Patented July 30, 1901.

(Application filed Dec. 30, 1899.)

(No Model.)



ATTEST

T. B. Moore

H. E. Mydra

INVENTOR:

Rolla R. Darling

BY

W. F. Fisher

ATTY

UNITED STATES PATENT OFFICE.

ROLLA R. DARLING, OF CLEVELAND, OHIO, ASSIGNOR TO THE BEARDSLEY & HUBBS MANUFACTURING COMPANY, OF MANSFIELD, OHIO.

GAS-ENGINE.

SPECIFICATION forming part of Letters Patent No. 679,367, dated July 30, 1901.

Application filed December 30, 1899. Serial No. 742,130. (No model.)

To all whom it may concern:

Be it known that I, ROLLA R. DARLING, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Gas-Engines; and I do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to gas-engines; and the object of the invention is to protect the explosion-cylinder from sudden or excessive cooling through or by reason of the water-jacket; and the invention therefore consists in the construction, combination, and arrangement of parts substantially as shown and described, and particularly pointed out in the claim.

In the accompanying drawing the invention is illustrated in a longitudinal sectional view of my improved engine.

A represents the explosion-cylinder, B its base or support, and C the piston in the cylinder.

D is the head of the cylinder, and E is the casing about cylinder A and between which and said cylinder there is a water-jacket with the necessary pipe connections to keep up circulation of the water, whereby I keep the cylinder A cool or relatively cool, it being neither possible nor desirable to keep it absolutely cool during operation. There is also associated with this engine, but not of this invention, a substantially bell-shaped pocket or relief member G, screwed into the head or end plate D and of dimensions or capacity corresponding somewhat to the space between piston C and head D when said parts are in position relatively as shown, and in this pocket or chamber there is shown an adjustable stop H, resembling a piston and which has a threaded stem J entering through the outer extremity of the said pocket and adapted to be run back and forth as occasion may require to move said stop out or in.

Normally and when the engine is at work the stop or valve H is run inward, so that its inner face is flush with the face of the head-plate D, and the engagement of screw-rod J

in the pocket-wall is such as to withstand any pressure that may come against the stop H by reason of the explosions and operations of the engine, thus making shifting room for the air in the explosion-cylinder.

N represents a covering of asbestos or other like non-conducting porous wrapper about cylinder A. This covering preferably is a heavy asbestos paper, because such material is unaffected by heat and is a good non-conductor of cold, thus preventing sudden cooling of the cylinder when cold or cool water is supplied to the water-jacket enveloping the said cylinder. In the case of thin cylinders, particularly such as sheet-steel, it is noticeably hurtful to the operation of the engine to have cool water come into direct contact with the cylinder, as it materially affects the power of the explosions by excessive condensation of the explosive mixture. Hence I have provided a covering which will protect the cylinder from possible chilling and promote the most satisfactory working conditions therein, it being desirable not to have the cylinder cooled at any time to a condensing temperature and also to have it as nearly uniform in temperature as possible all the time. Any wrapping or winding of the cylinder that will have this effect and endure the wear and tear that will come upon it, especially in road service, may be employed.

From the foregoing it will be seen that I surround the piston chamber or cylinder A wherein I do my work with an asbestos or similar porous covering, which though it be penetrated by the water in the jacket has a retarding tendency both ways—that is, it insulates the heat from within and the water from without and helps to maintain a somewhat equal temperature within said chamber and such a temperature as enables me to avoid the condensation of my explosive mixture or gas, notwithstanding the comparatively light or thin shell of the cylinder which I prefer to use and which is shown in this case.

What I claim is—

In gas-engines for automobiles, a piston-cylinder A formed of sheet metal and having an outer covering of non-conducting porous

material, and an inclosing casing E about said
cylinder provided with water inlet and out-
let openings and constructed and arranged to
form a water-jacket around said cylinder,
5 whereby a substantially uniform temperature
of the piston-cylinder is maintained during
operation, substantially as described.

Witness my hand to the foregoing specifi-
cation this 19th day of December, 1899.

ROLLA R. DARLING.

Witnesses:

H. E. MUDRA,

R. B. MOSER.