

No. 722,767.

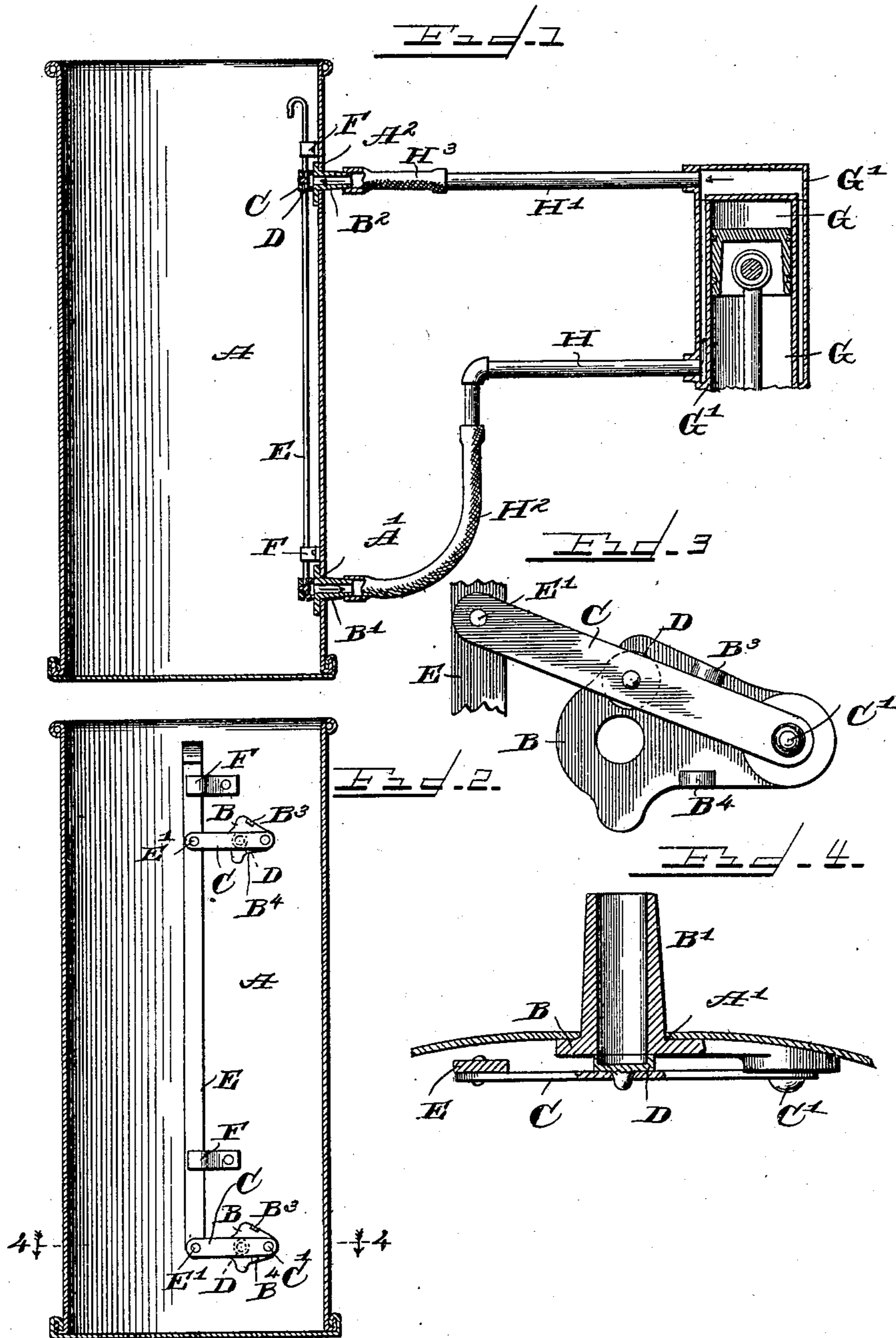
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D. C. STOVER.

APPARATUS FOR COOLING THE CYLINDERS OF GASOLENE ENGINES.

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NO MODEL.



WITNESSES.

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APPARATUS FOR COOLING THE CYLINDERS OF GASOLENE-ENGINES.

SPECIFICATION forming part of Letters Patent No. 722,767, dated March 17, 1903.

Application filed February 13, 1902. Serial No. 93,893. (No model.)

To all whom it may concern:

Be it known that I, DANIEL C. STOVER, a citizen of the United States of America, residing at Freeport, in the county of Stephenson and State of Illinois, have invented certain new and useful Improvements in Apparatus for Cooling the Cylinders of Gasolene-Engines, of which the following is a specification.

My invention relates to improvements in apparatus of the class above named, in which a water-tank is connected, by means of outlet and inlet pipes, with the interior of the jacket of a gasolene-engine, such tank being provided on the inside thereof with connected and simultaneously - operating valves for opening and closing the outlet and inlet of said pipes; and it consists of certain new and useful features of construction and combinations of parts especially devised and designed therefor, all as hereinafter fully described, and specifically pointed out in the claims.

Referring to the accompanying drawings, which form a part of this specification, Figure 1 is a central vertical section of the tank and the jacket and cylinder of a gasolene-engine connected therewith by means of outlet and inlet pipes. Fig. 2 is a central vertical section of the tank, taken at right angles to the section shown in Fig. 1. Fig. 3 is an enlarged detail view of one of the valves of the apparatus with parts for supporting and operating the same. Fig. 4 is an enlarged section at the line 4 4 in Fig. 2 of parts there shown.

Like letters of reference indicate corresponding parts throughout the several views.

A is a tank having openings A' A² there-through.

B represents base-plates, one provided with a transverse tubular outlet B' and the other with a transverse tubular inlet B², preferably integral with such base-plates and having projecting therefrom the stop-lugs B³ B⁴. The tubular outlet B' is inserted through the opening A' and the tubular inlet B² through the opening A² in the tank A and secured thereinto by riveting them thereto or in any other desired manner.

C represents arms jointed, by means of pivots C', to the base-plates B and limited in

their movements by means of the stop-lugs B³ B⁴ on the base-plates B.

D represents cut-off valves fast to the arms C for closing the tubular outlet and inlet B' B².

E is a bar connected, by means of the pivots E', with the movable ends of the arms C and mounted to slide vertically in the guides F, which are secured to the tank A.

G is the cylinder of a gasolene-engine.

G' is a water-jacket surrounding the upper and explosive end of the cylinder G.

H H' are pipes connecting the interior of the water-jacket G' through the pieces of flexible hose H² H³ with the tubular outlet and inlet B' B² of the tank A. Obviously the parts B' B² might be constructed of proper forms and lengths to connect the tank A directly with the water-jacket G'; but it will be found to be more convenient to construct the connections between those parts in the manner shown in Fig. 1. The employment of the pieces of hose H² H³ renders disconnection of the tank A from the jacket G' both expeditious and easy.

To use the apparatus, the tank A is filled with cold water up, say, to the upper guide F, and the valves D are opened by pulling the sliding bar E upward. The water will then pass from the bottom of the tank through the outlet-conduit into the interior of the jacket G' and thence through the inlet-conduit into the top of the tank, as indicated by the arrows in Fig. 1. The circulation of the water just described will be ample to keep the cylinder G at the required temperature.

Obviously it is desirable that the upper and lower valves should both be opened at the same time when it is desired to admit water into the jacket. This can be accomplished conveniently in my apparatus notwithstanding the fact that both valves are under water and the lower one so far under as to be practically inaccessible unless it is connected with some device that projects above the water in the tank. The advantages of having the valves inside instead of outside of the tank and of having them so arranged as to cover the inner ends of the conduits instead of working in transverse slots or open-

ings therein are also entirely obvious, for valves can be connected with and made operative on the ends of conduits more advantageously than in any other positions thereon or therein. Moreover, the pressure of water contained in the tank serves to press the valves against their seats, and thereby prevent leakage therefrom. When the engine is to be left out of use in a freezing temperature, the valves should be left open, and the lower end of the hose H² should be disconnected from the outlet B', so as to permit the water to escape both from the jacket and tank.

What I claim as new, and desire to secure by Letters Patent, is—

1. In combination, in apparatus of the class described, a tank, provided with outlet and inlet pipes, and connected and simultaneously-operating cut-off valves therefor, such valves and their supporting connecting and

operating means being located and arranged within said tank, substantially as and for the purpose specified.

2. In combination, a tank having openings A' A² therethrough, base-plates B, one provided with a transverse tubular outlet B' and the other with a transverse tubular inlet B², arms C jointed to the base-plates B, cut-off valves fast to the arms C for closing the tubular outlet and inlet B' B², a bar connected, by means of pivots, with the movable ends of the arms C and guides for slidably supporting such bar, substantially as and for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DANIEL C. STOVER.

Witnesses:

W. A. MERRIFIELD,
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