No. 740,711. PATENTED OCT. 6, 1903.

J. W. SUTTON.

COOLING ATTACHMENT FOR INTERNAL COMBUSTION ENGINES.

APPLICATION FILED MAR. 3, 1903.

NO MODEL.

Fig. 1.

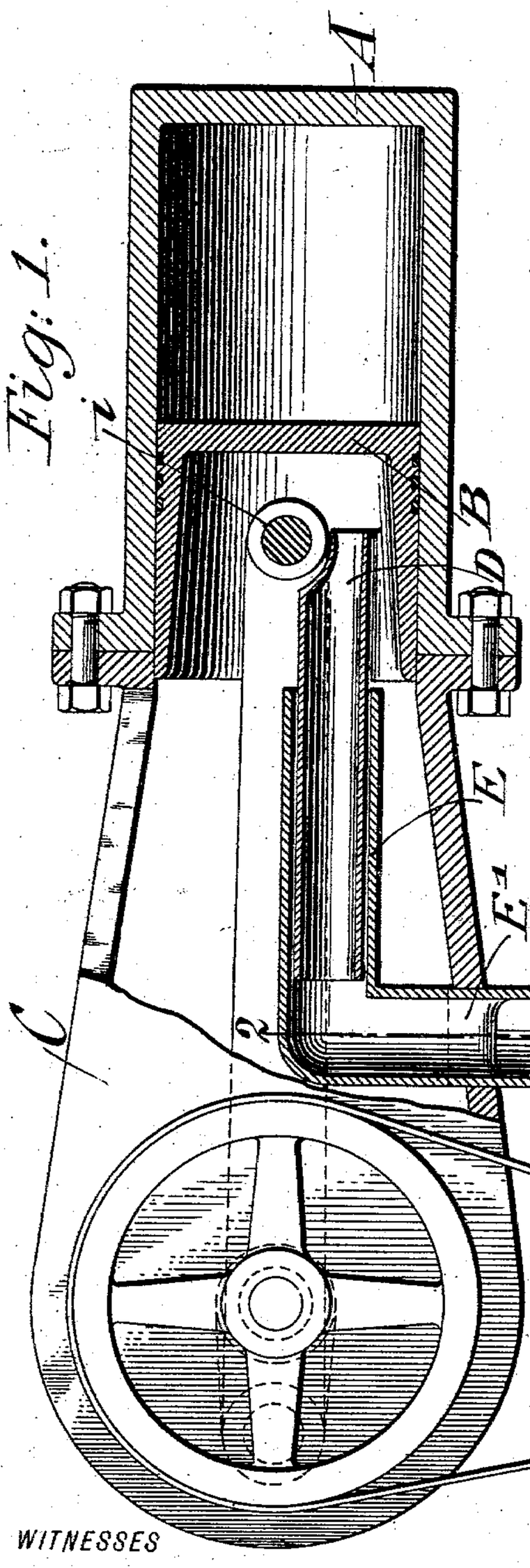
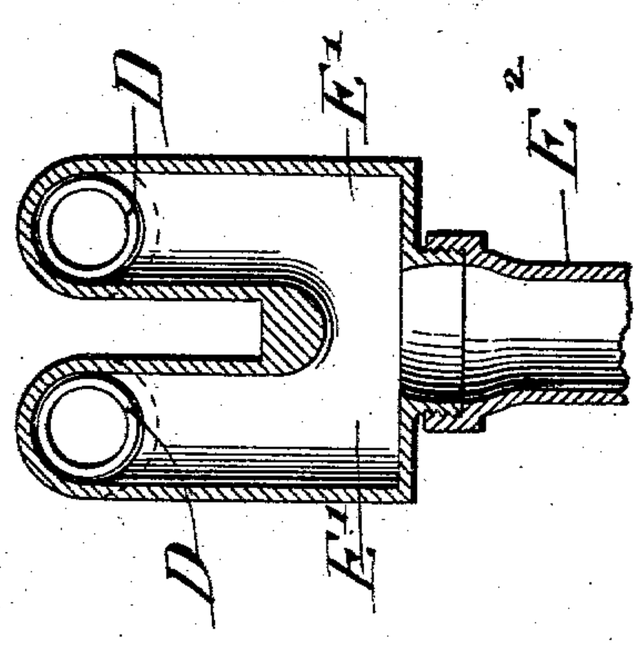


Fig. 2.



WITNESSES

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No. 740,711. Patented October 6, 1903.

UNITED STATES PATENT OFFICE.

JOHN W. SUTTON, OF NEW YORK, N. Y.

COOLING ATTACHMENT FOR INTERNAL-COMBUSTION ENGINES.

SPECIFICATION forming part of Letters Patent No. 740,711, dated October 6, 1903.

Application filed March 3, 1903. Serial No. 145,960. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. SUTTON, a citizen of the United States, residing in New York, borough of Brooklyn, and State of New York, have invented certain new and useful Improvements in Cooling Attachments for Internal-Combustion Engines, of which the following is a specification.

This invention relates to an improved cooling attachment for internal-combustion engines, by which the interior of the piston and the adjacent interior surface of the cylinder are effectively cooled by a continuous current of air that is supplied to the piston whatever be its position, so that an effective and reliable cooling action is produced; and the invention consists of an internal-combustion engine the piston of which is provided at both sides of the connecting-rod with pipes which participate in the motion of the piston and the upper ends of which open into the piston at one side of the wrist-pin of the piston, while the opposite ends of the pipes are guided in stationary cylinders in the crank-case in line with said pipes, said guide-cylinders being connected by an elbow at right angles to the cylinder with a pipe connecting it with a fan, by which a continuous current of air is supplied to one side of the piston, then around the wrist-pin and head of the piston to the other side of the piston, and through the crank-case to the outside, as will be more fully described hereinafter, and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a vertical longitudinal section of an internal-combustion engine with my improved cooling attachment, and Fig. 2 is a vertical transverse section on line 2 2, Fig. 1.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the cylinder, B the piston, and C the crank-case, of my improved internal-combustion engine. The crank-case C is open at one side, so as to permit the free egress of the air from the same. To the interior of the piston B are attached at one side of the wrist-pin or piston-pin *i*, by which the piston is connected with the connecting-rod, at each side of the connecting-rod, two parallel pipes D, the ends of which are located at one side of the piston B and wrist-pin *i*. The parallel pipes D are guided in stationary cylinders E, which are located in line therewith, said stationary cylinders being connected at their ends with a connecting-pipe E′, arranged at right angles thereto and extending to the outside of the crank-case C, as shown in Fig. 1. The pipes D are fitted snugly into the stationary cylinders E, so that they are freely reciprocated in the same, following the motion of the piston. The outer end of the elbow-pipe E′ is connected by a pipe E^2 with the casing F′ of a fan F, the shaft of which is operated from the fly-wheel on the crank-shaft of the engine, so that a continuous current of air is supplied to the interior of the piston throughout the reciprocating motion of the same. The continuous current of air that is forced by the fan to the interior of the piston passes from one side of the piston over the wrist-pin *i* and along the head of the piston to the opposite side and then down and out through the opening in the crank-case to the outside, so as to exert a continuous cooling action on the piston and on the interior adjacent surface of the cylinder.

In place of the pipes D described pipes of flexible hose may be substituted, one end of each being then attached to the piston B or to a pipe similar to pipe D, but shorter, and one end to the elbow-pipe E′. This would make the attachment lighter in weight, but not as durable as the described pipes D.

The pipes D, that are attached to the interior of the piston and connect with the stationary cylinders E, which are connected with the fan-casing, form a continuous channel for the air-current from the fan to the interior of the piston and secure thereby an uninterrupted current of air that exerts a continuous cooling action on the interior of the piston and on the adjacent interior surface of the cylinder, so as to exert thereby a reliable and effective cooling action on these parts.

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

1. A cooling attachment for internal-combustion engines, consisting of a pair of pipes attached to the interior of the piston, at one side of the wrist or piston pin, stationary guide-cylinders in the crank-case, a fan, and a pipe connecting said guide-cylinders with

the casing of the fan for supplying a continuous current of air to the interior of the cylinder and piston, substantially as set forth.

2. A cooling attachment for internal-combustion engines, consisting of two parallel pipes attached to the interior of the piston at one side of the wrist or piston pin, stationary guide-cylinders in the crank-case, in which said pipes are reciprocated, an elbow connection for said cylinders passing through the crank-case, and means connecting with said elbow for supplying a continuous current of air to the interior of the piston and cylinder, substantially as set forth.

3. A cooling attachment for internal-combustion engines, consisting of parallel pipes attached to the interior of the piston, at both sides of the connecting-rod, stationary guide-cylinders in the crank-case of the engine, an elbow extending at right angles to said guide-cylinders to the outside of the crank-case, a fan, and a pipe connecting said fan-casing with said elbow for conducting a continuous supply of air to the interior surface of the cylinder and piston, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JOHN W. SUTTON.

Witnesses:

PAUL GOEPEL,

C. P. GOEPEL.