

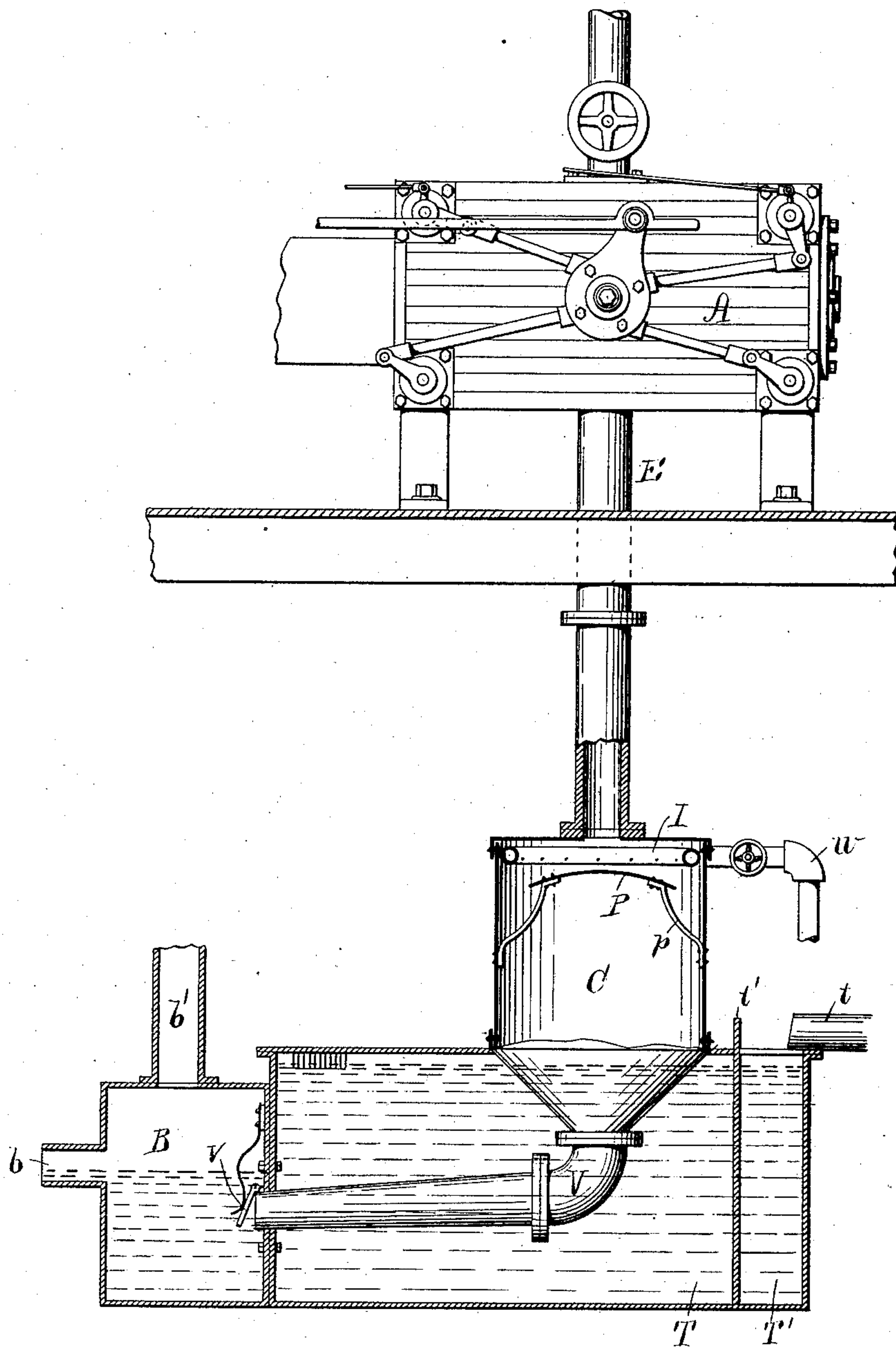
(No Model.)

R. LEES.

CONDENSER FOR STEAM ENGINES.

No. 333,763.

Patented Jan. 5, 1886.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ROBERT LEES, OF PROVIDENCE, RHODE ISLAND.

CONDENSER FOR STEAM-ENGINES.

SPECIFICATION forming part of Letters Patent No. 333,763, dated January 5, 1886.

Application filed September 29, 1885. Serial No. 178,497. (No model.)

To all whom it may concern:

Be it known that I, ROBERT LEES, of the city and county of Providence, and State of Rhode Island, have invented a certain new and useful Improvement in Condensers for Steam-Engines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification.

It is customary to employ with condensing-engines a separate pump of some character to free the condensers from the air and water of condensation.

My invention looks to the provision of an automatic condenser, which performs the offices of condenser and pump both, the said automatic action of which is derived from the vacuity resulting from the process of condensing the exhaust-steam by a cold-water injector. The same is in the nature of a peculiar construction and arrangement of the condenser and its adjuncts.

The accompanying drawing shows the cylinder A and the exhaust-pipe E of an ordinary engine with my improved condenser attached thereto. To the exhaust-pipe E of the cylinder A is attached my improved condenser. In the upper part of the condensing-chamber C is a deflector, P, supported by the brackets p. The exhaust-pipe E debouches directly onto the deflector, thereby diffusing the exhaust-steam somewhat uniformly about the said deflector, above and around which is placed the pipe-coil I, having perforations therein, and forming a cold-water injector, which is supplied by the pipe w. The base of the chamber C is funnel-shaped, leading into the eduction-pipe V, which passes through the cold-water tank T and into the hot-water tank B, where its opening is provided with a spring-actuated valve, v. The body of the pipe V and the base of the chamber C are submerged in the cold-water tank T, having therein the perforated partition t', forming the compartment T', into which leads the supply-pipe t. The outlet of the eduction-pipe V

is below the overflow of the tank B, so that it is always submerged, thus preventing the access of the air to the pipe V, the presence of which would destroy the automatic action of the condenser. The pipe b' forms an exit for any steam that may happen to find its way into the tank B. On an influx of exhaust-steam through the pipe E the steam is diffused by the deflector and rapidly condensed by the cold-water spray directed toward the deflector. This condensation produces a partial vacuum in said condenser, and the water from the injector and from the condensation flows down into the pipe V, where it remains, the said vacuity keeping the outlet-valve v closed until the next influx of exhaust-steam, which opens said valve and drives the air and water out of said pipe V, when the vacuity again closes the valve v, and the operation is repeated.

The condenser is a very simple and durable one, and should any defect occur therein the engine connected therewith is in no wise affected.

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

1. A steam-condenser consisting of a condensing-chamber having a deflector, above and around which is disposed the perforated pipe-coil of an injector, said deflector and injector both located near the exhaust-port, and the base of said condensing-chamber connecting with a valved eduction-pipe passing through the cold-water tank and into the hot-water tank, all for the purpose described.

2. The combination, with the exhaust-pipe E, of the condensing-chamber C, having the deflector P, the injector I, and the eduction-pipe V, provided with the valve v, and leading from the chamber C, through the tank T, into the tank B, for the purpose described.

ROBERT LEES.

Witnesses:

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