

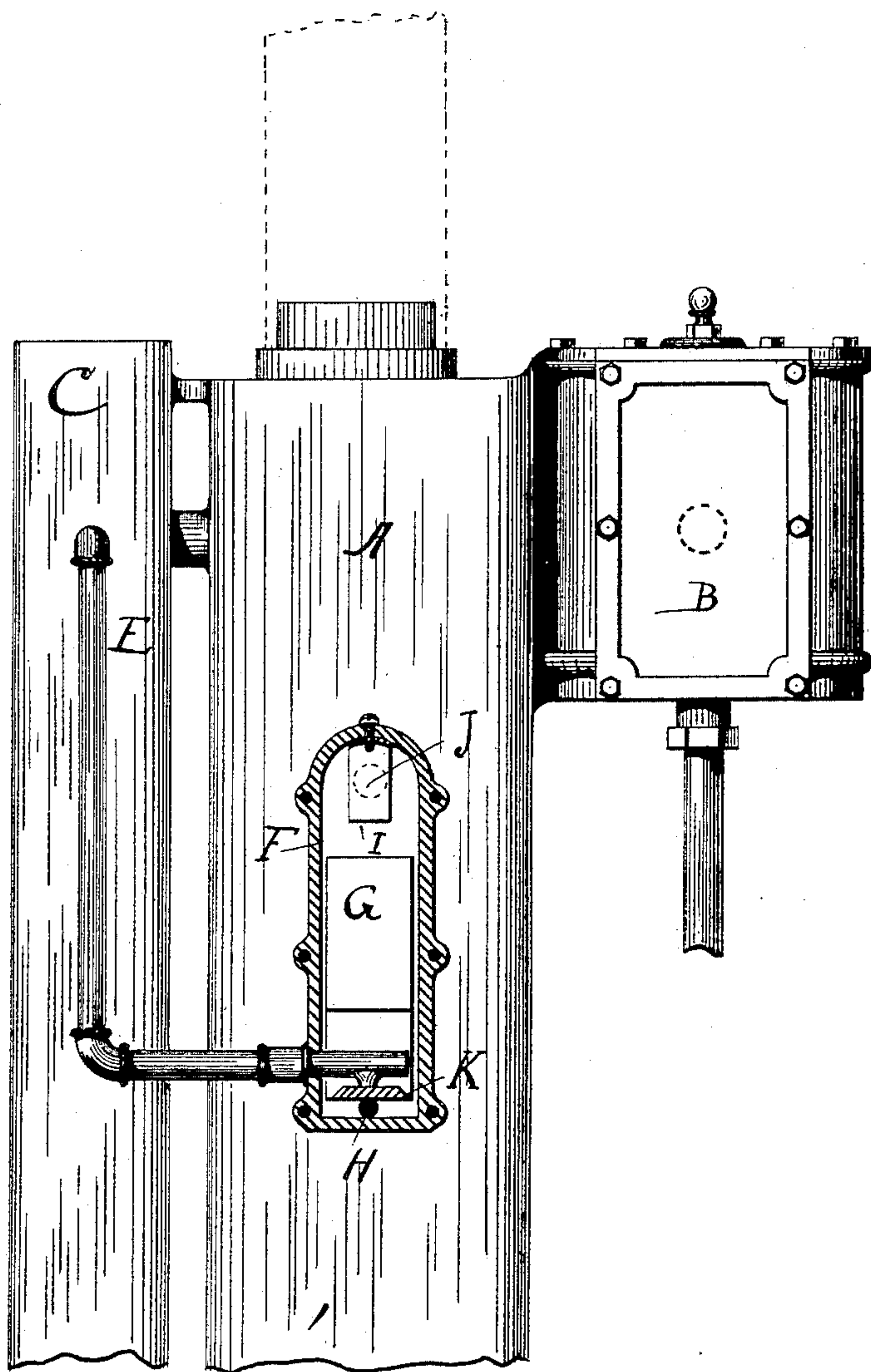
(No Model.)

H. DAVEY.

LOW PRESSURE STEAM MOTOR.

No. 338,934.

Patented Mar. 30, 1886.



WITNESSES

*as. Jare*  
Mason Bros.

INVENTOR

*Henry Davy,*  
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# UNITED STATES PATENT OFFICE.

HENRY DAVEY, OF LEEDS, COUNTY OF YORK, ENGLAND.

## LOW-PRESSURE STEAM-MOTOR.

SPECIFICATION forming part of Letters Patent No. 338,934, dated March 30, 1886.

Application filed August 20, 1885. Serial No. 174,856. (No model.) Patented in France May 31, 1884, No. 162,504; in Germany June 17, 1884, No. 30,101; in Belgium June 23, 1884, No. 65,559, and in England November 18, 1884, No. 15,185.

*To all whom it may concern:*

Be it known that I, HENRY DAVEY, a citizen of England, residing at Leeds, county of York, England, have invented a new and useful Improvement in Low-Pressure Steam-Motors, of which the following is a specification.

My invention relates to the device for feeding the water into the boiler of a low-pressure steam-engine, which is worked at a pressure rarely exceeding that of the atmosphere, so that no feeding against pressure is required; and my invention consists in the features of construction hereinafter described.

In the drawings, A represents the section of the boiler of a low-pressure steam-engine; B, the cylinder; C, a section of the condenser-tank; E, a pipe leading from near the top of the condenser-tank to the lower part of a steam-boiler; F, a box or gage communicating with the steam-boiler, and covered with glass to permit the amount of water in the boiler from time to time to be ascertained; G, a float within the box or portion of the boiler covered with glass, which rises and falls with the water; H, a hole at the bottom of such box, through which the water passes into the boiler as used; I, a plate, shield, or piece of metal within such box, placed immediately in front of a hole communicating between the boiler and the box or water-gage near its top, and through which steam from the steam-space in the boiler may freely enter the box or gage; and J, such hole.

In constructing my improved low-pressure steam-motor I take the motor described and shown in the English Letters Patent to me, No. 15,185, of November 18, 1884, which shows all the substantial features of my invention.

At the side of the boiler, which I preferably make upright, as shown, with the fire-box and flue located within the same, I locate a steam-condensing tank. (Marked C in the drawings.) This condenser is to be provided with pipes, placed in a vertical or other suitable position, through which exhaust-steam from the boiler passes and circulates. Cold water is introduced into the condenser-tank, so that it may surround the steam-condenser pipes. These pipes, being heated by the passage of the exhaust-steam through them, heat the water in the

condensing-tank. As the exhaust-steam enters the condensing-tank near its top, it will necessarily be of a much higher temperature at that point than after having passed down and through the condensing-pipes to the bottom of the tank, where it is permitted to escape. This higher temperature of the condensing-pipes near the top of the condensing-tank, together with the fact that as the particles of water become heated they naturally rise to the top, causes the water in the top of the condensing-tank to be heated to a very much higher degree than the water in the middle or near the bottom of such tank. To avail myself of these facts the inflow-pipe leading from the condensing-tank to the boiler is attached to such tank near its top, and the water to replenish the boiler drawn from that point. I carry the pipe down as far as desired, and sufficient to cause the water to flow by gravity, and insert the lower end of it into a box, receptacle, or gage bolted to the side of the boiler and communicating therewith, and covered with a strong glass front, so that by a mere glance the amount of water in the boiler can always be ascertained. The hole H through the shell of the boiler forms the means of communication between the boiler and the gage, so that the water can flow into the boiler as needed. Another hole through the shell of the boiler communicates with the gage near its top, to permit the steam to freely pass out of the boiler and into the gage above the water, to exert such pressure as it may be able to do, and thus facilitate the inflow of the water into the boiler. A float is placed in this gage, that rises and falls with the water. On the lower end of this float G is placed a piece, K, that is located under the inflow-pipe and under the orifice in such pipe, by which the water is admitted into the gage. This float G and valve K are arranged so that when the water flowing into the gage F rises to a certain height, so that the float is raised up, carrying with it the valve, the valve rests against the orifice through which the water flows, and cuts off the supply until the water has become sufficiently exhausted in the boiler to cause the float to descend again, carrying the valve down with it, and thus automatically permit



another inflow of water. In this way the amount of water supplied to the boiler is constantly and automatically provided for.

I am not aware of any upright condensing-tank used in connection with a low-pressure steam-engine, nor any arrangement for feeding the water from the top of an upright condensing-chamber, as described above, prior to the patenting of the same to me in the English Letters Patent above mentioned, and I find this arrangement to possess some very decided advantages over any other kind that I have ever seen or used.

In this application I do not wish to claim anything which is already claimed in my application filed December 18, 1844, Serial No. 150,610, but confine myself to the particular subject-matter claimed in this application.

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

The combination of a low-pressure steam-motor, an upright exhaust-steam condensing-tank, and an inflow-feed pipe leading from near the top of the condensing-tank and entering the boiler at a point much lower down, whereby the water at the highest temperature in the condensing-tank is drawn by gravity into the boiler, substantially as described.

HENRY DAVEY.

Witnesses:

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