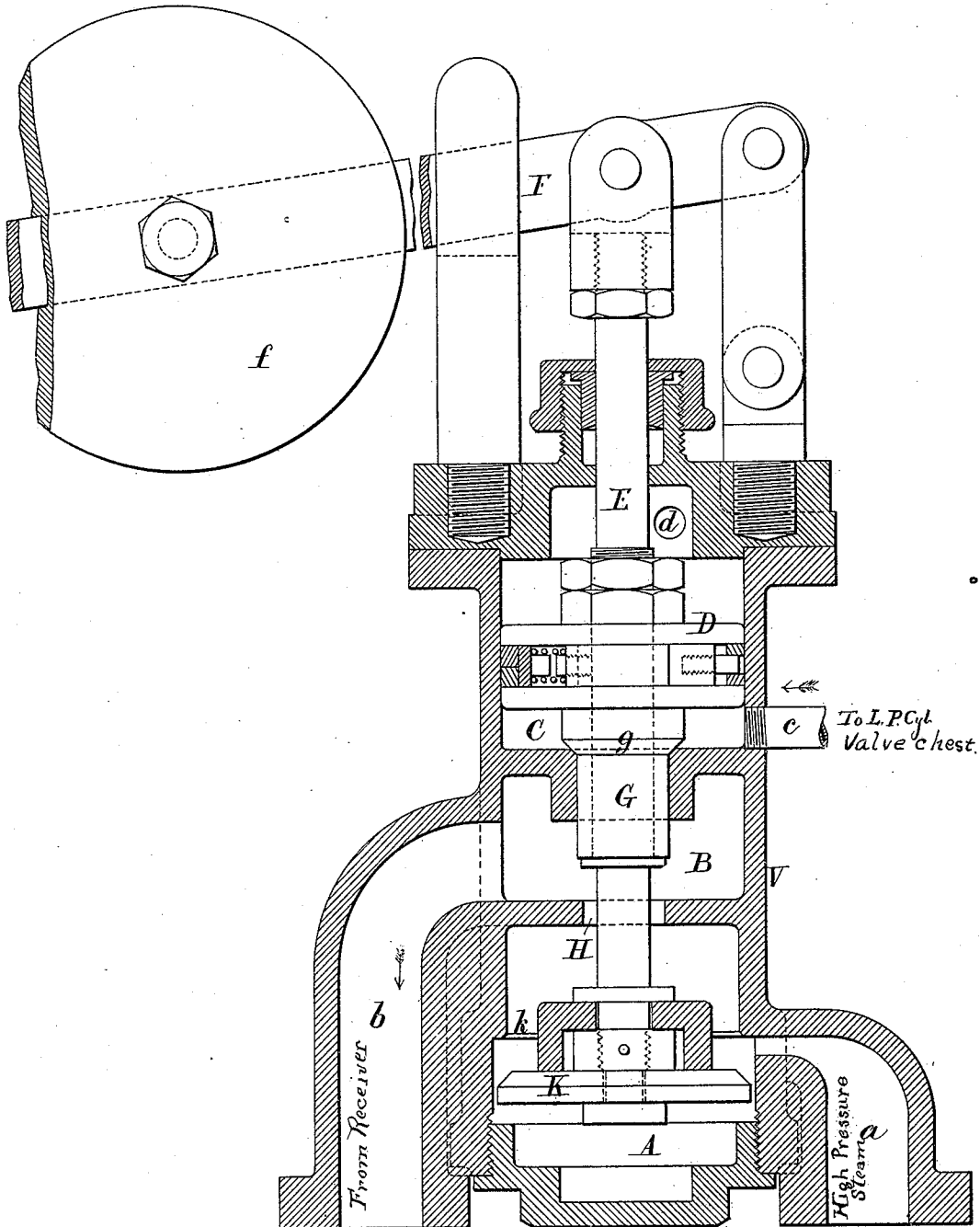


(No Model.)

A. H. WALLIS.
STARTING VALVE FOR COMPOUND ENGINES.

No. 466,026.

Patented Dec. 29, 1891.



Witnesses:

H. de Vos
J. C. Hebert.

Inventor.

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UNITED STATES PATENT OFFICE.

ARTHUR H. WALLIS, OF BASINGSTOKE, ENGLAND.

STARTING-VALVE FOR COMPOUND ENGINES.

SPECIFICATION forming part of Letters Patent No. 466,026, dated December 29, 1891.

Application filed April 23, 1891. Serial No. 390,804. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR HERBERT WALLIS, a citizen of England, residing at North Hants Iron Works, Basingstoke, in the county of Hampshire, England, have invented a new or Improved Starting-Valve for a Compound Engine, of which the following is a specification.

My invention relates to an automatic valve arrangement whereby on the occasion of starting a compound engine steam from the boiler is supplied to the low-pressure as well as to the high-pressure valve-chest, thus enabling the engine to start even when, owing to the position of the high-pressure piston or of the slide-valve of the high-pressure cylinder, the high-pressure piston is not effective for moving the engine.

The accompanying drawing is a longitudinal section of a valve arrangement according to my invention.

The valve-box V has one compartment A, to be connected by a passage *a* with the high-pressure valve-chest, (not shown;) another compartment B, to be connected by a passage *b* with the reservoir, (not shown,) which receives the exhaust from the high-pressure cylinder, and a third compartment C, to be connected by a pipe *c* to the low-pressure valve-chest. (Not shown.) The compartment C is a cylinder fitted with a piston D, and it might be open; but as there might be leakage past the piston D, I prefer to provide the compartment C with a cover, as shown, and an escape-pipe *d* to the open air.

The piston-rod E extends in the one direction through a stuffing-box in this cover, and is linked to a lever F, loaded adjustably with a weight *f*. The piston-rod E extends, also, in the other direction, and has fixed on it a boss G, which passes through a hole in the partition between B and C, fitting that hole. In order, however, to provide against leakage around G, I form part of G as a valve *g*, seating on the edge of the hole. On the rod E is also fixed a valve K, which is usually in equilibrium, as shown, in the compartment A, but can seat itself on a seating *k*, thereby closing communication between the compartments A and B, which usually communicate by a hole H through their separating partition.

In starting the engine, the valve K being open, steam from the high-pressure valve-chest flows by *a* into A, and thence through

H into B, and by *b* to the reservoir and low-pressure valve-chest, supplying the low-pressure cylinder. When the pressure in the low-pressure valve-chest, communicated through the pipe *c*, is sufficient to move the piston D in opposition to its load, the valve K is closed and the reservoir is no longer supplied with high-pressure steam. Even if the engine be worked with early cut-off or throttled supply, the pressure in A will keep the valve K closed.

When the engine is stopped by closing the steam-supply to the high-pressure valve-chest or to both that and also the low-pressure valve-chest, the pressure on both sides of the valve K shortly becomes equalized; and this same pressure, much reduced, acting on the piston D, is overcome by the load on that piston, so that the piston is moved, opening the valve K.

Although I have shown in the drawing the valve-box with its axis vertical and the lever F a straight lever, obviously changes can be made in the construction and arrangement of some of the parts without departing from the spirit of my invention.

Having thus described the nature of this invention and the best means I know of carrying the same into practical effect, I claim—

A starting-valve for a compound engine, consisting of the casing V, divided by partitions into three compartments A B C, and having a channel *a* to effect communication between a high-pressure valve-chest and compartment A, a channel *b* to effect communication between compartment B and a reservoir, and a channel *c* for effecting communication between compartment C and a low-pressure valve-chest, in combination with a piston-rod carrying a valve K in the compartment A, and a loaded piston D in compartment C, and having a boss fitting to an opening in the partition between compartments B and C, said boss having a valve *g*, substantially as and for the purposes set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 13th day of March, A. D. 1891.

ARTHUR H. WALLIS.

Witnesses:

H. J. HOFMEYER,
Not. Pub.

H. W. MAUR.