

(No Model.)

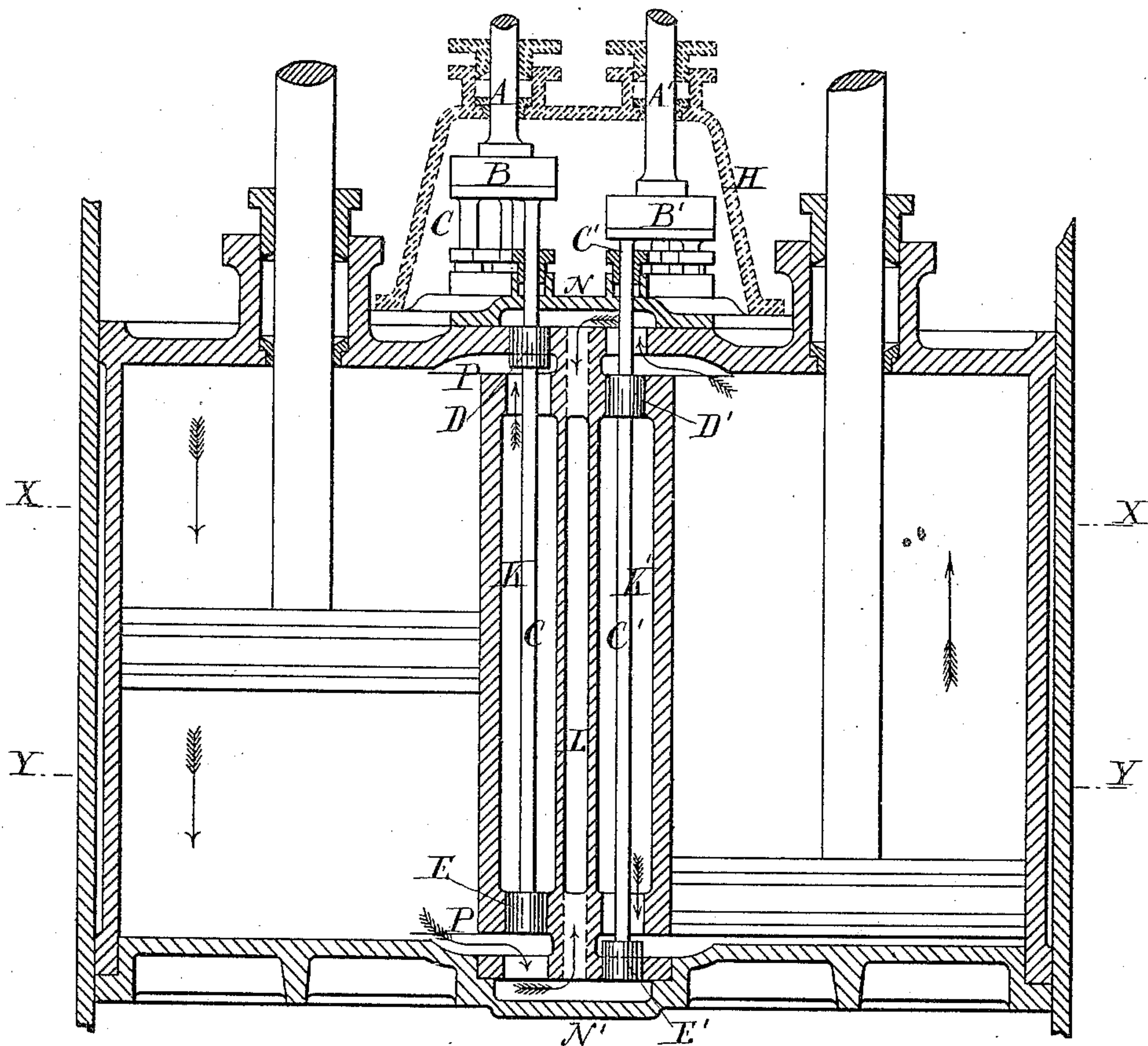
2 Sheets—Sheet 1.

P. BROTHERHOOD.
VALVE FOR ENGINES.

No. 436,694.

Patented Sept. 16, 1890.

Fig. 1.



Witnesses:
J. A. Rutherford.
Row. Lea.
Inventor:
Peter Brotherhood
By James L. Norris.
Attorney

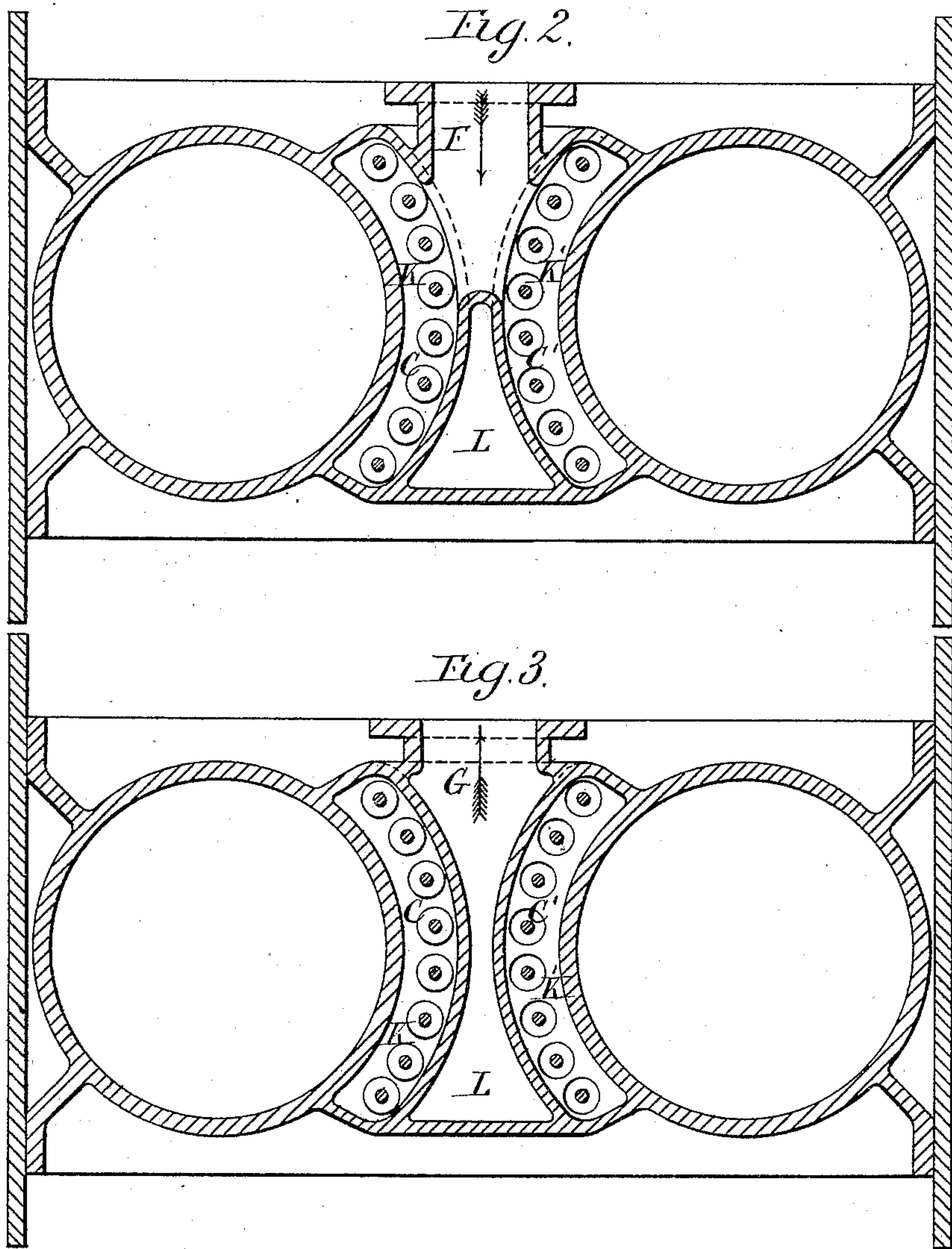
(No Model.)

2 Sheets—Sheet 2.

P. BROTHERHOOD.
VALVE FOR ENGINES.

No. 436,694.

Patented Sept. 16, 1890.



Witnesses:
J. A. Rutherford
Grouha.
Inventor:
Peter Brotherhood.
By James L. Norris.
Attorney.

UNITED STATES PATENT OFFICE.

PETER BROTHERHOOD, OF LAMBETH, ENGLAND.

VALVE FOR ENGINES.

SPECIFICATION forming part of Letters Patent No. 436,694, dated September 16, 1890.

Application filed June 25, 1890. Serial No. 356,627. (No model.) Patented in England March 4, 1890, No. 3,485; in France March 4, 1890, No. 204,139; in Belgium March 4, 1890, No. 89,699, and in Italy April 1, 1890, LIII, 158.

To all whom it may concern:

Be it known that I, PETER BROTHERHOOD, a citizen of England, residing at Belvedere Road, Lambeth, in the county of Surrey, England, have invented an Improvement in Slide-Valves for Locomotive or other Twin Engines, (for which I have obtained patents in Great Britain, dated March 4, 1890, No. 3,485; in France, dated March 4, 1890, No. 204,139; in Belgium, dated March 4, 1890, No. 89,699, and in Italy, dated April 1, 1890, Vol. LIII, No. 158,) of which the following is a specification.

In an application for patent of even date with the present I have described a construction of slide-valves for steam or other fluid pressure engines, according to which construction I divide the slide-valve into a number of separate parts, each part being a pair of connected pistons governing holes through partitions adjacent to the cylinder-ports. In the specification to the said application I have described several different arrangements showing slide-valves of this kind applied to engines under different conditions, one of these arrangements being for a pair of cylinders placed side by side, as those of a locomotive or other twin engine. It is to this construction and arrangement of slide-valves that my present invention relates.

Figure 1 is a longitudinal section; and Figs. 2 and 3 are transverse sections on X X and Y Y of Fig. 1, respectively.

The two cylinders are placed side by side, having between them a central space L for an exhaust-passage, and on each side of it a space K K', forming the supply-passages for the working fluid. On each side of each port P is a partition through which a number of circular holes are bored, the holes on the one side of each port opening to the spaces K K' and those on the other side opening into the interior hollows of caps N N', which are in free communication with the space L. The circular holes in these partitions are fitted with pistons D D' for the upper holes, connected, re-

spectively, to pistons E E' for the lower holes. The rods of all these pairs of connected pistons pass through stuffing-boxes in the cap N, and are connected, the rods of pistons D and E to a cross-head B, and those of pistons D' and E' to a cross-head B'. The cross-heads B and B' are attached, respectively, to the main slide-rods A A', which are worked in the usual way by eccentrics or otherwise.

Instead of providing a small cap N with a number of separate stuffing-boxes for the separate valve-rods passing through it, the cap might be made large enough, as indicated by the dotted lines H, to accommodate both the cross-heads B and B', and to have only two stuffing-boxes, one for each of the main slide-rods A and A'.

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

For a locomotive or other twin engine having two cylinders placed side by side, partitions separating the cylinder-ports from the supply and exhaust passages, and having through them a number of circular holes, a corresponding number of pairs of connected piston-valves fitted to these holes, and all the pairs of piston-valves for each cylinder connected to one cross-head and main slide-rod, so as to operate together as a slide-valve for that cylinder, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 9th day of June, A. D. 1890.

PETER BROTHERHOOD.

Witnesses:

OLIVER IMRAY,
Patent Agent, 28 Southampton Buildings,
London, W. C.

JNO. P. M. MILLARD,
Clerk to Messrs. Abel & Imray, Consulting
Engineers and Patent Agents, 28 South-
ampton Buildings, London, W. C.