

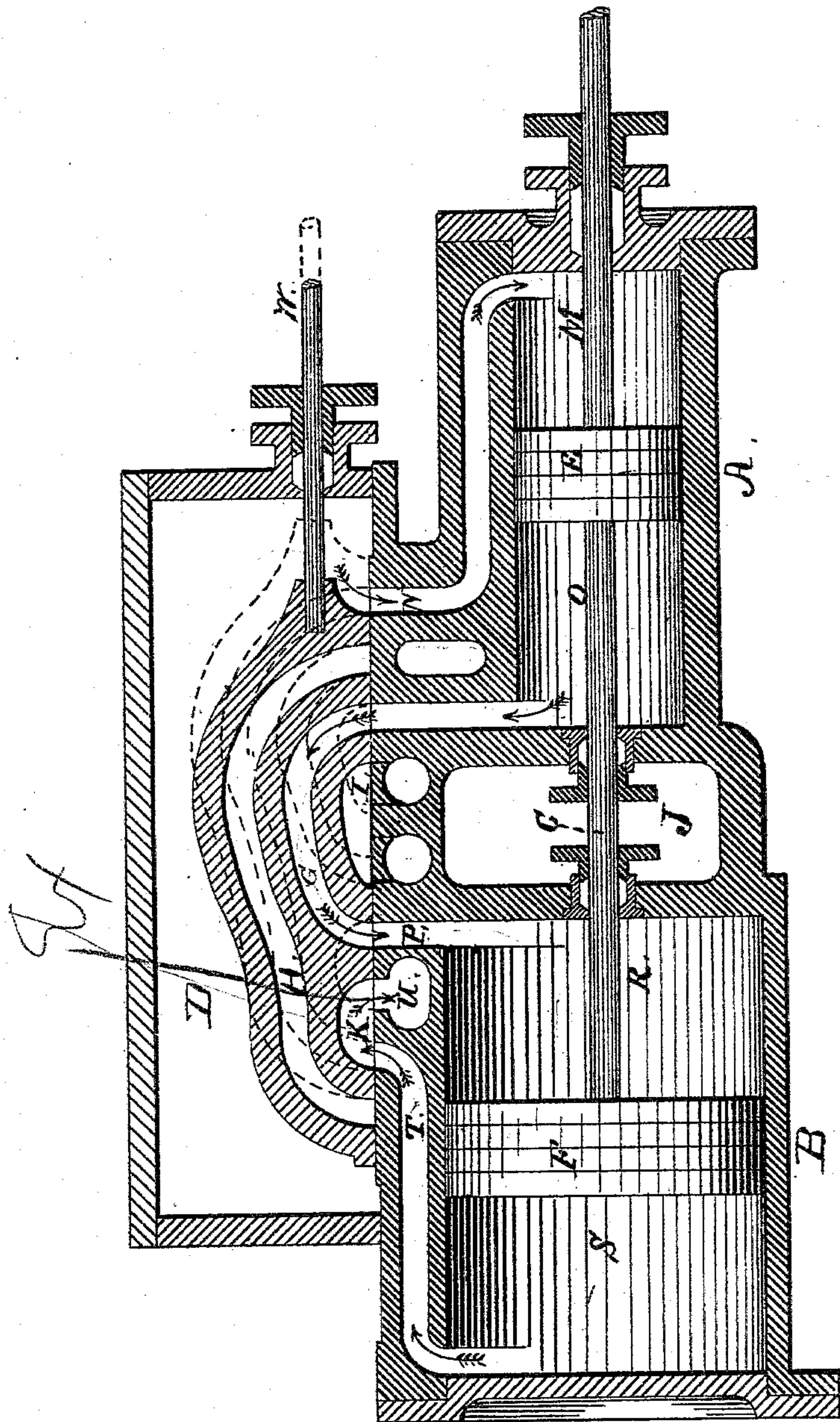
(No Model.)

E. G. DAVIS.

SLIDE VALVE FOR COMPOUND ENGINES.

No. 274,571.

Patented Mar. 27, 1883.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

EDWARD G. DAVIS, OF ST. LOUIS, MISSOURI.

## SLIDE-VALVE FOR COMPOUND ENGINES.

SPECIFICATION forming part of Letters Patent No. 274,571, dated March 27, 1883.

Application filed January 22, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD G. DAVIS, a citizen of the United States, residing at the city of St. Louis, and State of Missouri, have  
5 invented certain new and useful Improvements in Slide-Valve for Compound Steam-Engines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the  
10 art to which it appertains to make and use the same, reference being had to the accompanying drawing, and to the letters and figures of reference marked thereon, which form a part of this specification.

15 This invention relates to compound steam-engines where the steam expands in two stages in separate cylinders; and it consists in an improved slide-valve arranged to feed live steam to the first cylinder, to lead the partly-  
20 expanded steam to the second cylinder, and to lead the fully-expanded steam from that to the exhaust. This is made substantially as set forth hereinafter, and as shown in the drawing, which shows a vertical section.

25 The two cylinders A B are of unequal cross-section, but of like lengths. They are arranged end to end in one line, and have one piston-rod, C, extending centrally through both, with piston-heads E F, as shown. The steam-  
30 chest D extends partly over each cylinder, and contains the valve V, arranged to move from the position shown to that indicated by dotted lines, so as to connect the several ports, as shown and as will be further set forth. The  
35 valve V bears passages G H K, and a cross-channel, I, which connects at the sides with the open space of the steam-chest. As shown, the live steam from the steam-chest D enters the  
40 outer end, M, of cylinder A by port and passage N, so as to push the piston-head E to the other end. At the same time the partly-expanded steam from chamber O of cylinder A  
45 passes from port Q, by passage G and port P, to chamber R in cylinder B, to push the piston-head F in the same direction with force equal to the difference in cross-section of the  
50 two cylinders, and at the same time the expanded steam in chamber S will pass, by passage and port T, passage K, and port U, to the exhaust. At the end of the stroke the  
valve V is shifted to the position shown in dotted lines, so as to change the registry of the passages with the ports. Then the live steam will pass, by channel I, from the steam-

chest D and port Q to chamber O of cylinder 55 A, to push the piston-head E to the other end again by expansion. The partly-expanded steam will pass from chamber M, by port N, passage H, and port T, to the outer end of cylinder B to chamber S, so as to push piston-  
60 head F back again, while the expanded steam will pass from chamber R, by port P and passage K, to port U, to escape to the exhaust, when the valve returns to first position. The same arrangement can be made if two separate  
65 pistons are used instead of one. The several ports are all on one level, so the fitting is simple. The several passages in the valve V are each separate and simple. The passage of the  
70 steam in each case is as short and direct as possible, and there are no idle ports to the passages in use to leak steam.

Various modifications can be made in the valve and the arrangements.

The two cylinders are set apart with bridge-  
75 connections to hold them together, and with interspace J to permit the use and adjustment of separate packing on the piston-rod for each, as shown.

I reserve the privilege of using any of the  
80 subject-matter shown in this case in one or more future applications, and to claim therein anything which might be, but which may not be, fully patented in this case.

I claim—

85 1. In a compound engine, a slide-valve having independent passages H G, arranged to transfer partly-expanded steam from one cylinder to the other, passage K, to transfer expanded steam from cylinder R to the exhaust,  
90 and channel I, to admit live steam to chamber O, substantially as and for the purposes set forth.

2. In a compound engine having two cyl-  
95 inders connected in line, end to end, on one piston-rod, a slide-valve having its working-face and its passage-ports in one plane, and provided with independent passages H and G, to connect the ports of the two engines, pas-  
100 sage K, to connect the ports of the second engine to the exhaust, and arranged to admit live steam to the first engine, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

Witnesses: EDWARD G. DAVIS.

ALPHONSE F. PERRIER,

SAML. S. VAIL.