

THOMAS H. HOLLIS.
 Improvement in Balanced Slide Valves.
 No. 123,260. Patented Jan. 30, 1872.

Fig. 1.

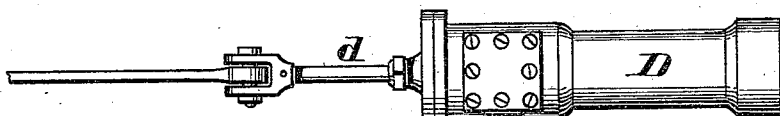
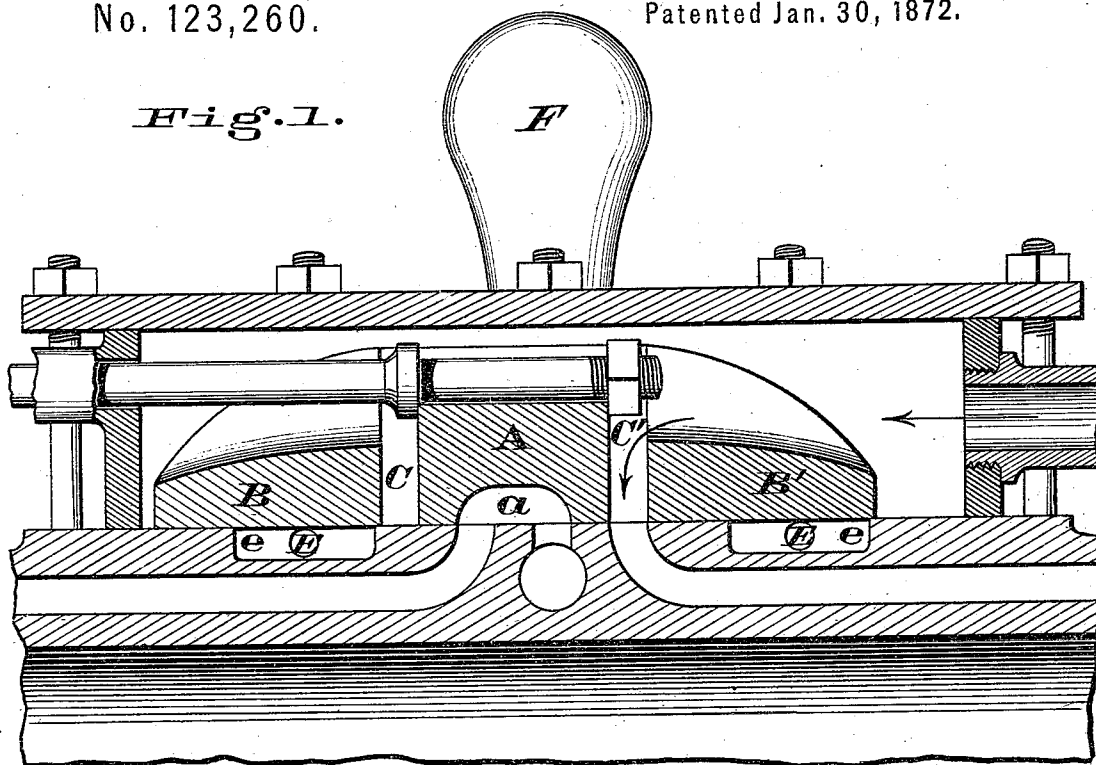
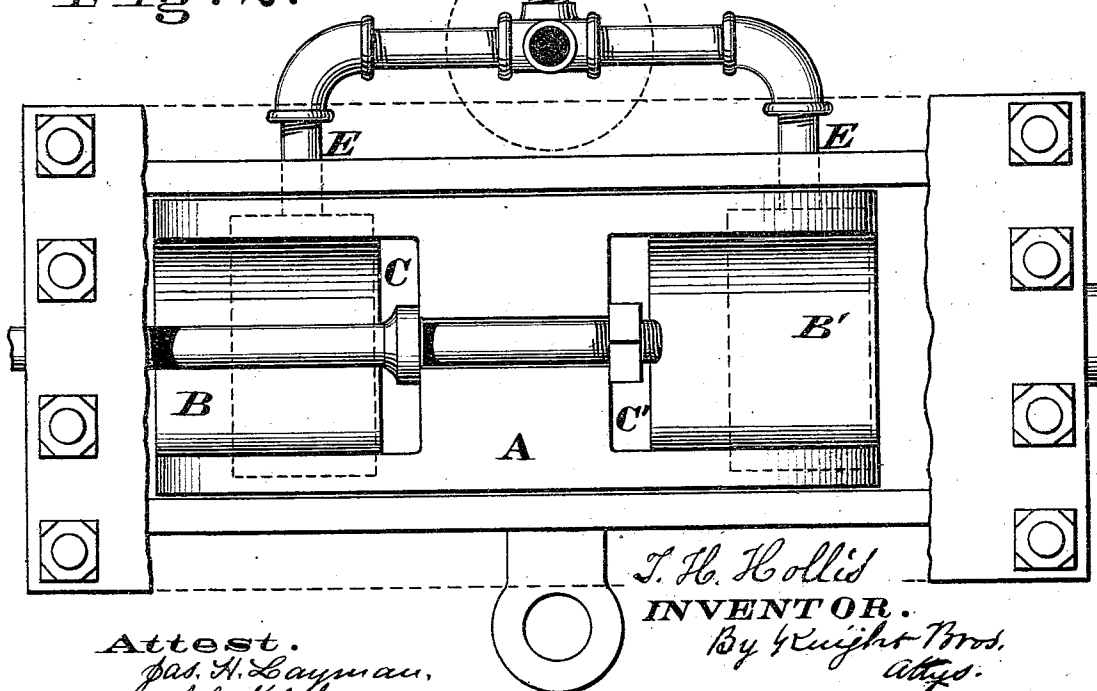


Fig. 2.



Attest.
 Jas. H. Layman,
 John Kiloh.

T. H. Hollis
 INVENTOR.
 By Knight Bros.
 Atty.

UNITED STATES PATENT OFFICE.

THOMAS H. HOLLIS, OF MOUNT VERNON, INDIANA, ASSIGNOR OF ONE-HALF HIS RIGHT TO ALVIN P. HOVEY, OF SAME PLACE.

IMPROVEMENT IN BALANCED SLIDE-VALVES.

Specification forming part of Letters Patent No. 123,260, dated January 30, 1872.

I, THOMAS H. HOLLIS, of Mount Vernon, Posey county, Indiana, have invented a new and useful Balanced Slide-Valve, of which the following is a specification:

With the slide-valve as commonly used in high-pressure steam-engines much power is wasted in overcoming the severe friction of the valve on its seat; and the object of my improvement is to remedy this defect by providing means for a counterpressure underneath the valve.

Figure 1 is a longitudinal section of a valve and seat embodying my invention, and Fig. 2 is a plan view of the same.

My valve A has the customary central cavity *a*, which serves to connect the two ends of the cylinder successively with the exhaust. My valve has two longitudinal extensions, B B', whose sliding faces are flush with the main or central portion. Between the central and external portions are passages C C' for the live steam to the respective ends of the cylinder alternately. D is an air-pump, whose piston-rod *d* may be worked with varying speed, as required, by suitable connection with the engine. This pump operates to propel air into passages E, which terminate under the valve-extensions B B' so as to oppose to the downward stress of the steam a counteracting pressure

of compressed air, and thus to relieve the valve of the friction otherwise incident to its use. The compressed-air passages E may, at their discharging-ends, take the form of chambers *e*, so as to give a greater effective area of counter pressure, or the faces of the extension B B' may be chambered for that purpose. The passages E may communicate with a reservoir, F, in order to preserve a uniform pressure.

Claims.

I claim as new and of my invention—

1. The provision of air-pressure pipes or chambers underneath the slide-valve of a steam-engine, substantially as and for the purpose set forth.

2. The described arrangement of extended slide-valves A B B' C C', air-passages E, pump D, and reservoir F, as and for the purpose explained.

3. In combination with the elements of the preceding clause, I claim the chambers or enlargements *e*.

In testimony of which invention I hereunto set my hand.

THOS. H. HOLLIS.

Witnesses:

GEO. H. KNIGHT,
ALVIN P. HOVEY.