

Nathan P. Stevens' Impt. in Steam Engine Valves.

116370

PATENTED JUN 27 1871

Fig. 1.

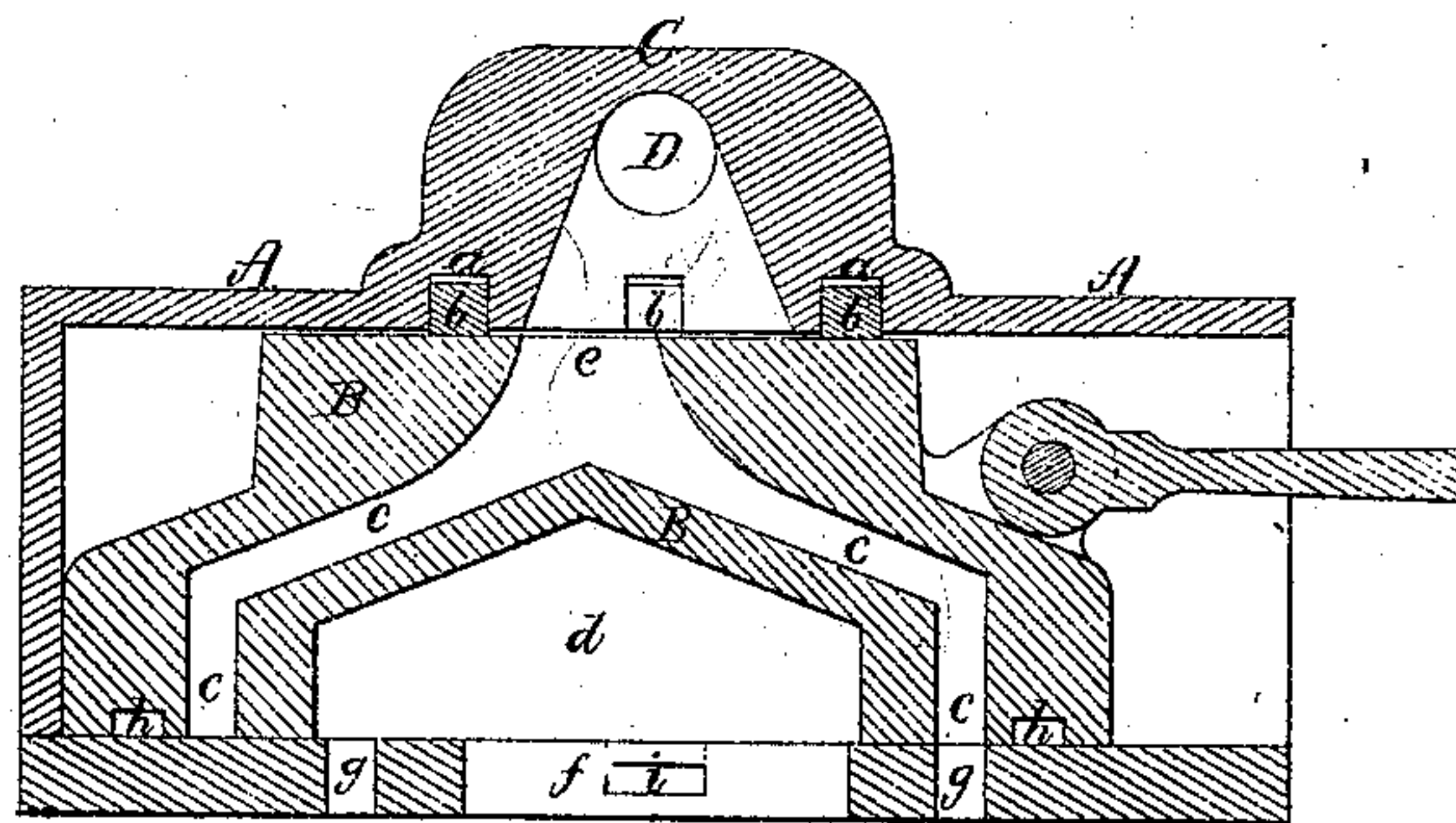


Fig. 2.

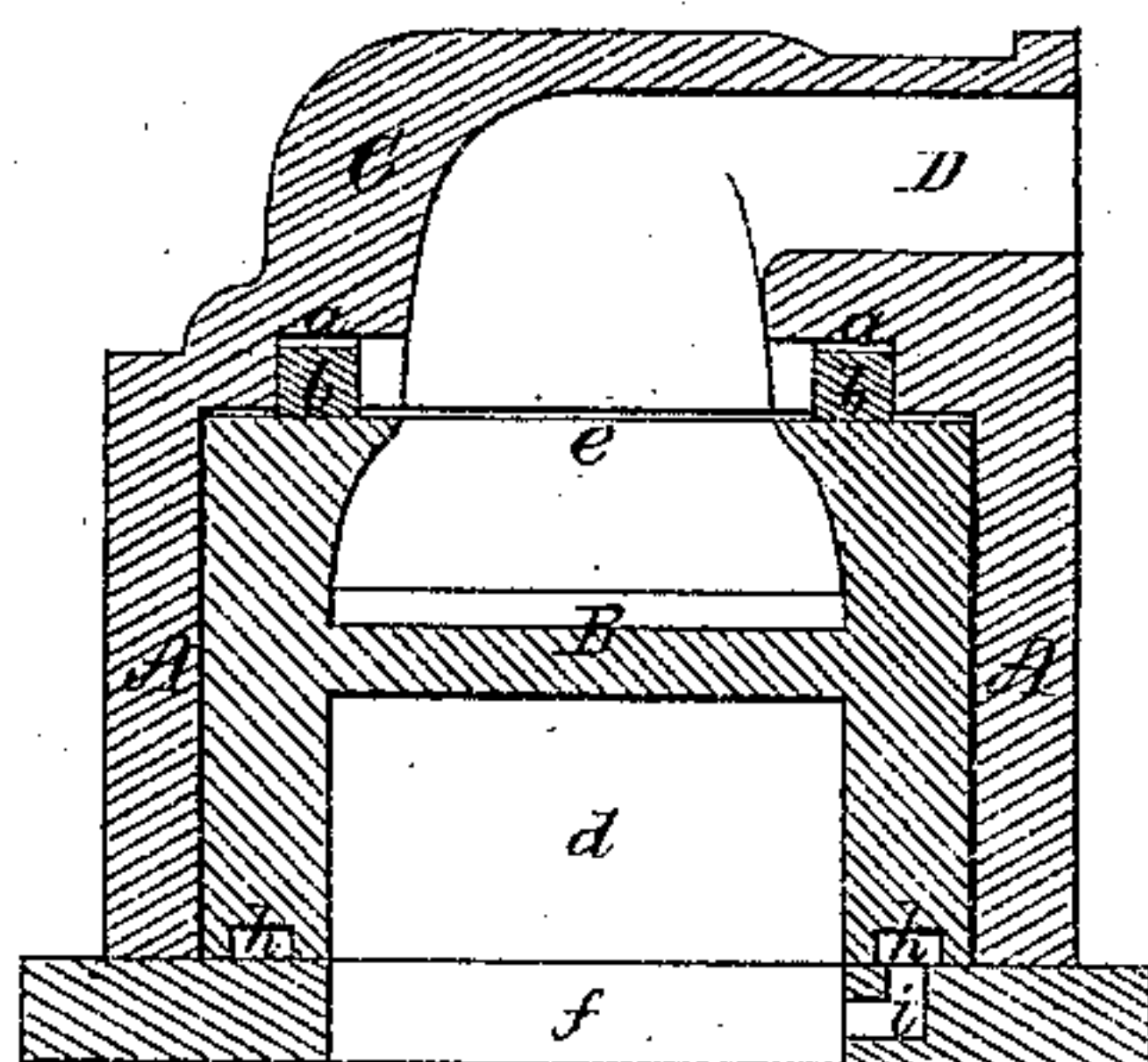
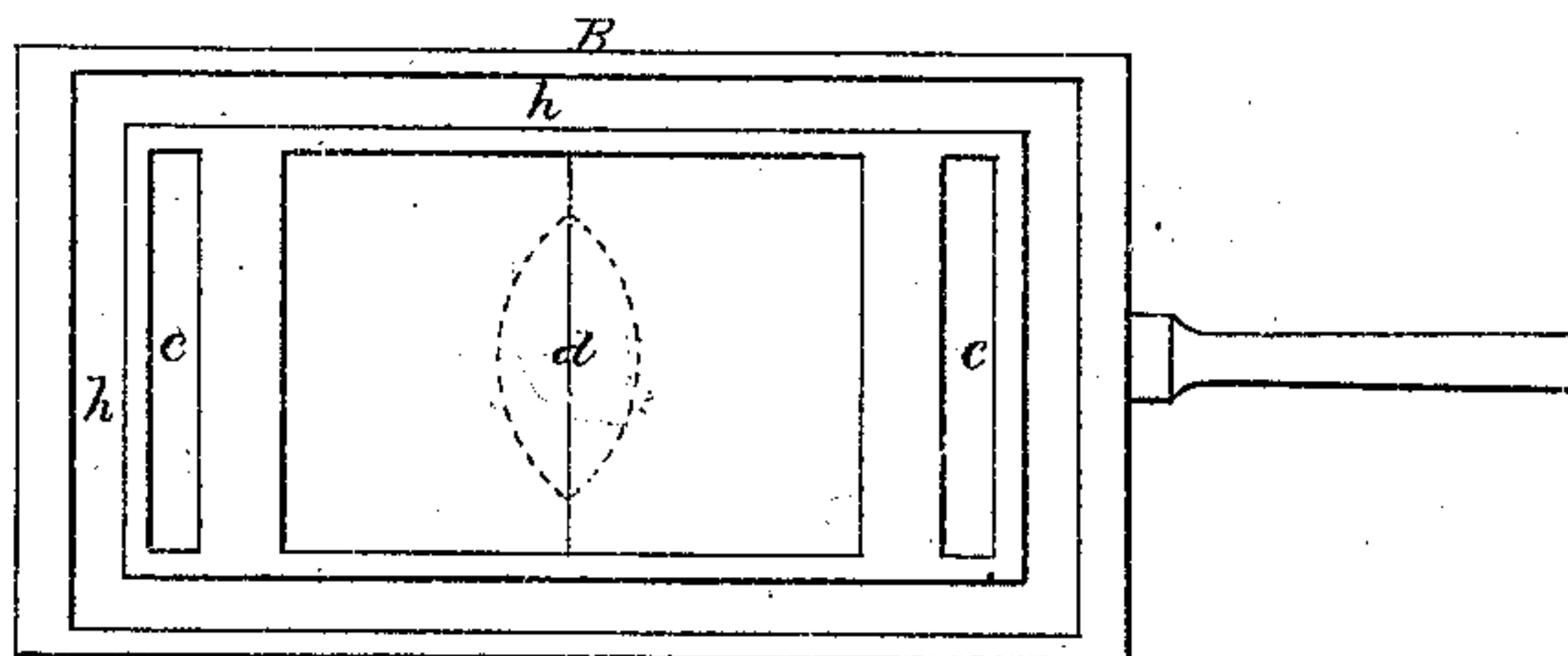


Fig. 3.



Witnesses.

S. A. Piper

L. N. Mollen

Nathan P. Stevens.

by his attorney.

R. H. Eddy

UNITED STATES PATENT OFFICE.

NATHAN P. STEVENS, OF HOPKINTON, NEW HAMPSHIRE.

IMPROVEMENT IN STEAM-ENGINE VALVES.

Specification forming part of Letters Patent No. 116,370, dated June 27, 1871.

To all whom it may concern:

Be it known that I, NATHAN P. STEVENS, of Hopkinton, in the county of Merrimack and State of New Hampshire, have invented a new and useful Improvement in Steam-Engine Valves; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawing, in which—

Figure 1 is a longitudinal section, and Fig. 2 a transverse section of a valve and its chest or case as provided with my improvement, which consists in a special construction of the said valve, and in the arrangement of an auxiliary exhaust-passage in its seat, whereby the leakage of steam, while the valve is in use, is interrupted and discharged into the main exhaust-passage.

The valve-chest A is surmounted with a hollow dome, C, and is made open at one or both of its opposite ends, in manner so that the valve B may be introduced into and drawn out of the chest through the open end thereof, the said valve being flat on its upper and lower faces, and the two being parallel, as shown. The dome C receives the steam through an induct, D, leading into it, and is encircled at its base by a groove, *a*, to contain a packing, *b*, which may be a metallic ring to rest on the upper surface of the valve. The valve is provided with two ports, *c c*, and a central exhaust-chamber, *d*, the latter being arranged between the ports, which also are extended over the said chamber, and to a common opening, *e*, at the top and middle of the valve, all being as shown in Fig. 1. The valve-seat has an exhaust-passage, *f*, arranged between the ports *g g* that lead to the ends of the cylinder. Furthermore, there is in the bottom of the

valve a rectangular groove, *h*, which encompasses the openings of such bottom, the same being as shown in Fig. 3, which is an under-side view of the valves, and also in Figs. 1 and 2. Where this groove *h* rests over the valve-seat there is an auxiliary passage, *i*, which is extended down from the seat into the main exhaust-passage *f*, all being as represented. With the valve and chest so made the steam is in both of the oblique ports *c c* at once, and while the valve is in movement the steam will be alternately delivered into the ports *g g* of the seat, and exhausted into the chamber *d*, and thence into the main exhaust-passage *f*, the steam that may leak from the valve on its lower surface being received into or interrupted by the groove *h*, and caused to escape through the auxiliary passage *i* into the main exhaust-passage *f*. The valve, by such a construction, becomes a balanced valve, and is simpler and less expensive than that for which I have recently applied for a patent, and besides, has all its useful features and can be applied to a cylinder at much less expense.

I claim—

The valve, as provided with the opening *e* in its top, the branch ports *c c* leading therefrom, the exhaust-chamber *d*, and the circumscribing groove *h*, arranged as explained, in combination with the main ports *g g*, and main and auxiliary exhaust-passages *f i*, all constructed and arranged, substantially as set forth, for operation in a chest, as described.

NATHAN P. STEVENS.

Witnesses:

R. H. EDDY,
J. R. SNOW.