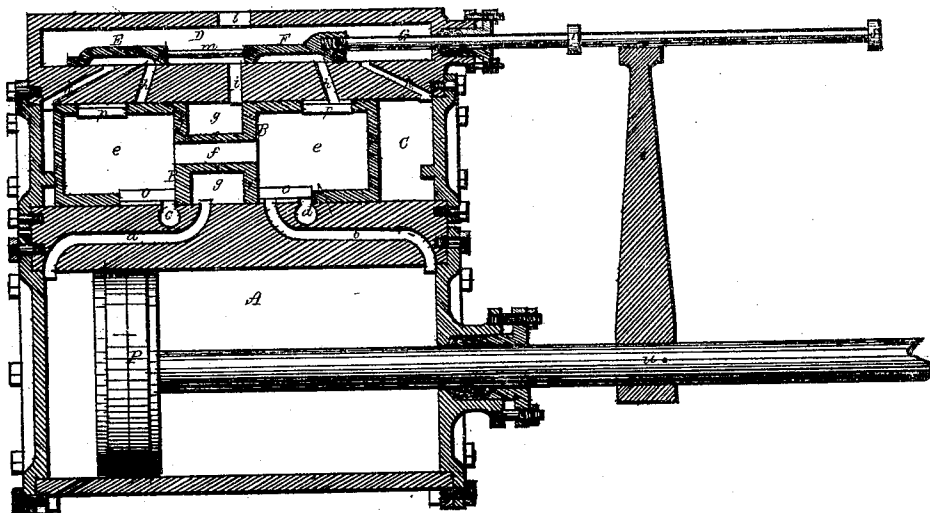


E. Fast,

Slide Valve.

No. 107.098,

Patented Sept. 6. 1870



Witnesses.

S. N. Piper

L. N. Miller

Elting Post.

by his attorney.

R. H. Emery

UNITED STATES PATENT OFFICE.

ELTING POST, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN STEAM-ENGINES.

Specification forming part of Letters Patent No. **107,098**, dated September 6, 1870.

To all persons to whom these presents may come:

Be it known that I, ELTING POST, of Boston, of the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Steam-Engines; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawing, which denotes a longitudinal section of a steam-engine cylinder with its piston, valves, and valve-chest, and their ports or passages as combined and arranged in accordance with my invention.

In such drawing, A denotes the said cylinder as furnished with the piston P, and having ports or passages *a b*, for conducting steam to opposite ends of the cylinder, and also having exhaust ports or passages *c d*, such being arranged as represented. Over the cylinder is another or auxiliary cylinder or cylindrical chamber, C, into which the inner ends of the ports *a b* open.

Within the chamber C is a hollow or double headed balanced valve or piston, B, having two chambers, *e e*, disposed in its heads, and connected or made to communicate with each other by means of a passage, *f*, leading lengthwise through the connection-rod *x* of the two heads *y y*, such connection-rod being surrounded by a space, *g*. There is an opening, *o*, leading out of the lower part of such chamber *e*, and arranged in manner as represented. There is also another opening, *p*, leading out of the upper part of such chamber, and being arranged as shown.

Furthermore, over the cylinder C is a valve-chest, D, containing two slide-valves, E F, which are connected by a rod, *m*, one of such valves, F, having a stem, G, extending from it through the head of the chest, and being provided with two shoulders or projections, *r s*, arranged on it in manner as shown in the drawing. These shoulders are to operate with an arm, *t*, which extends upward from the rod *u* of the main piston P.

Through the seat of the valve-chest there are led into the auxiliary cylinder C five ports or passages, *k h i h k*, they being arranged with reference to the two valves E F, the cylinder C, and its valve-piston B, in manner as represented. The chest D is also provided with a passage, *l*, for the reception of steam or its supply to the said chest.

In carrying out my invention I have added the openings *p p* and the ports *h h* to other parts, as described, the main purpose of such additions being to effect the cushioning by the steam of the balanced valve at the termination of each of its longitudinal movements. I also effect by such additions the exhaust of the steam from the balanced valve-cylinder by causing such steam, while escaping, to pass through the passage *k*, thence into the valve, and from thence down the next passage *h*, and thence into the chamber *e* immediately underneath, and from thence out of either or both the exhaust-passages *c d*.

During the reciprocating movements of the main piston the slide-valves will be so operated as to cause the steam to actuate the balanced piston-valve in a manner to cause the steam to pass alternately into and from the ends of the main cylinder, the balanced piston-valve being cushioned at each stroke made by it.

I claim—

The arrangement and combination of the openings *p p* and the ports *h h* with the auxiliary cylinder C, its balanced piston B, the valve-chest D, the two connected slide-valves E F, the main cylinder A, its piston P, the steam-passages *a b c d o o e f e k k i l*, and with mechanism, as described, for operating the slide-valves by the main friction-rod, the whole being substantially as specified.

ELTING POST.

Witnesses:

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