

J. YOUNGMAN.
Steam Slide-Valves.

No. 149,822.

Patented April 14, 1874.

Fig. 1.

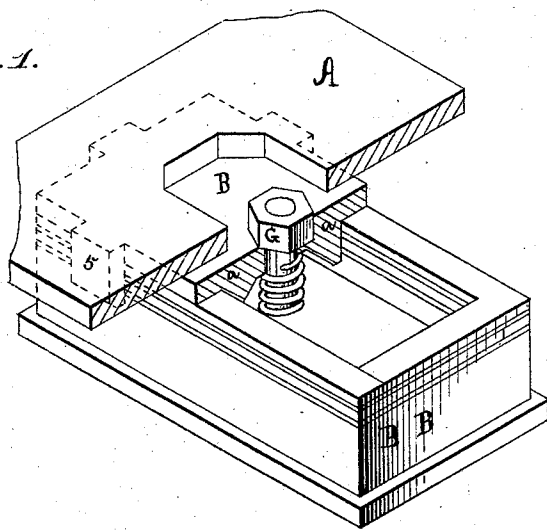


Fig. 2.

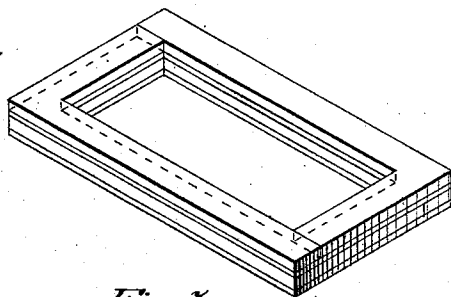
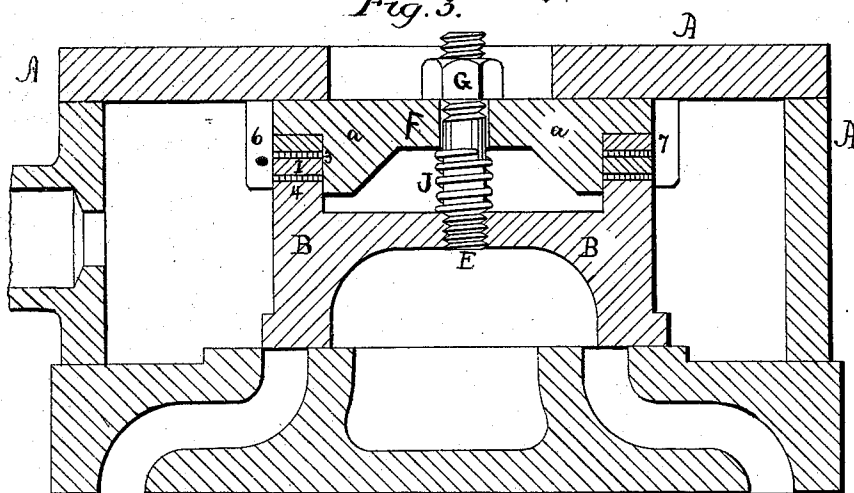


Fig. 3.



Witnesses:

J. H. Mason
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Inventor:

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UNITED STATES PATENT OFFICE.

JACOB YOUNGMAN, OF SUNBURY, PENNSYLVANIA.

IMPROVEMENT IN STEAM SLIDE-VALVES.

Specification forming part of Letters Patent No. **149,822**, dated April 14, 1874; application filed March 16, 1874.

To all whom it may concern:

Be it known that I, JACOB YOUNGMAN, of Sunbury, in the county of Northumberland and State of Pennsylvania, have invented a new and useful Improvement in Steam Slide-Valves, used in locomotives and stationary engines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings forming a part of this specification, in which—

Figure 1 is a plan of my improvement, as located within the steam-chest, the diagram marked A being a portion of the top of the steam-chest, that marked B B being the improved valve. Fig. 3 is a transverse vertical section of the same, A A A representing the steam-chest, B B the valve. Fig. 2 is a longitudinal representation of metallic packing, similar letters in each of the several figures indicating corresponding parts.

My invention relates to an improvement in the well-known steam slide-valve, commonly known as the D-valve, which, in height, occupies about one-half of the space of the steam-chest, and has bearing upon it the pressure of the steam forced from the boiler within the inclosure of the chest. The nature of my invention consists in occupying the whole of the chest vertically, with a combination of spiral springs, metallic or other packing, and an adjustable cap, a part of which is marked *a a*, as is represented in Figs. 1 and 3, in connection with the ordinary D-valve, thus preventing the steam from occupying that part of the chest which exists above the ordinary valve, thereby avoiding the pressure mentioned. The purpose of my combination of spring, cap, &c., is to render the valve elastic and flexible, to overcome the difficulties from the expansion of the metal when heated, which otherwise would cause the fastening of the valve between the top of the steam-chest and the seat, and at the same time renders every joint steam-tight, thus preventing the steam from getting on top of the valve. Its flexibility, produced

by being thus formed, also allows the cap to yield, which is necessary when air is being pumped into the chest through the motion of the piston-head produced by the impetus of the engine when the steam is shut off.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

E, Fig. 3, is a screw-bolt attached to the top of the valve, and passes through the adjustable cap, marked F, upon which the nut G operates. I is metallic packing, and J is a spiral spring. B, Fig. 1, is an opening in the top of the steam-chest of sufficient extent to allow the nut G, Fig. 1, to move the full extent of the movement of the valve, and for the purpose of giving access to the nut with a wrench whenever occasion requires.

The packing, Fig. 2, consists of four separate pieces of soft metal or other suitable material, formed in the shape of an ordinary carpenter's square, which are placed between the cap mentioned and the top of the valve, laid one on top of the other, so as to break joint, to the effect that when the steam is admitted into the steam-chest the packing is pressed downward and inward, closing the joints against the shoulder of the cap, (see Fig. 3, marked 3,) and the top of the valve, (see Fig. 3, marked 4,) thereby preventing the steam from pressing upon the valve. This packing lies loose when the steam is off, and is kept in place by a number of lugs descending from the adjustable cap, one of which is seen in Fig. 1, marked 5, and two in Fig. 3, marked 6 and 7.

I claim as my invention—

The combination, with the ordinary valve, of a bolt and nut, and a cap, spring, and packing, as described, and an opening in chest-head, constructed as and for the purpose set forth.

JACOB YOUNGMAN.

Witnesses:

C. J. BLAIR,
R. H. OGBURN.