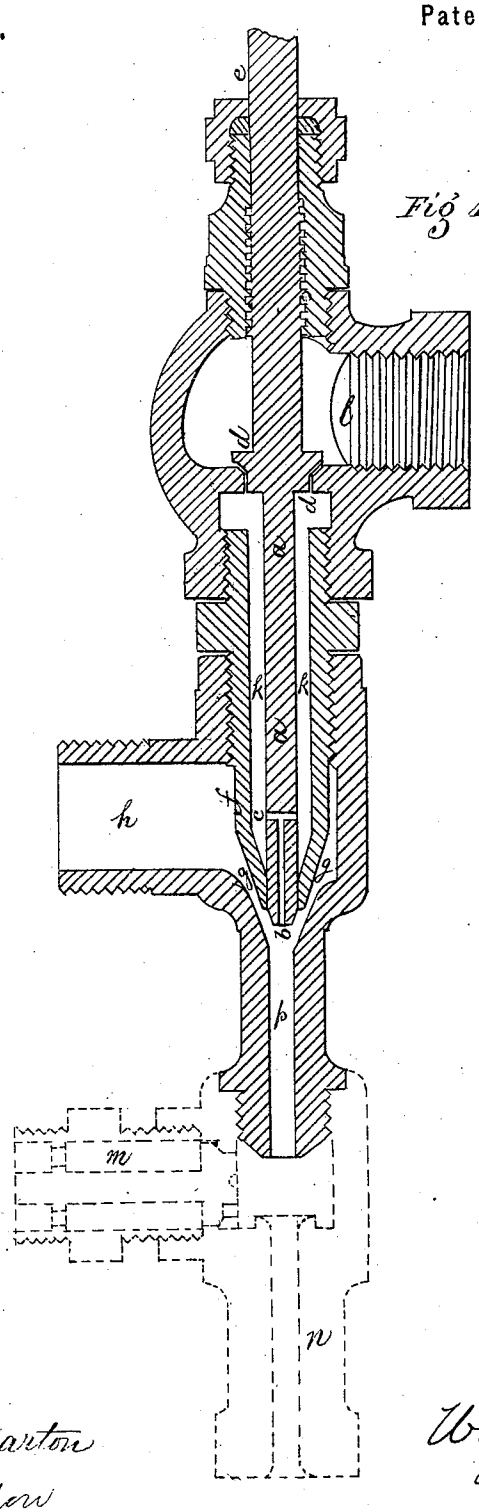
WILLIAM B. MACK.

Improvement in Injector and Ejector Valve-Rods.

No. 128,232. Patented June 25, 1872.

Fig 1



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM B. MACK, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN INJECTOR AND EJECTOR VALVE-RODS.

Specification forming part of Letters Patent No. 128,232, dated June 25, 1872.

SPECIFICATION.

I, WILLIAM B. MACK, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Injector and Ejector Valve-Rods, of which the following is a specification:

Figure 1 is a central longitudinal section of my improved valve-rod.

The present invention relates to certain new and useful improvements by which a regular flow of steam is by a single movement admitted into an injector or ejector through the so-called steam-nozzle of a pipe, in such a manner that the action of the water in the water-pipe is not violently impinged on and driven back.

My improvements consist mainly in so forming a rod in connection with an ordinary angle-valve, as will be hereinafter more fully explained, as to allow both to be operated at one and the same time by the same movement, the rod being arranged to permit a gentle and even flow of steam through one end, so that when the steam comes in contact with the water entering through its proper channel, the latter is not driven by the sudden pressure of the steam against it, and the operation of the valve, &c., is not otherwise interfered with.

In the drawing, *a a* represent a rod formed at one end with a longitudinal aperture, *b*, and a transverse aperture, *c*, and attached at its other end to an ordinary steam-valve, *d*, which, together with the rod *a a*, is operated by a wheel or other suitable device connected with a stem, *e*, of the valve *d*. The rod *a a* plays longitudinally within the bore of the steam-nozzle *f*, and impinges against, at one end, the inner periphery of the mouth of the nozzle *f*. Around the outside of the mouth of the nozzle *f* a passage, *g g*, is formed for the admission of water which is introduced through the pipe *h*. A passage, *k k*, tapering toward the end of the rod *a a*, is formed by the bore of the nozzle *f*, around the rod *a a*, for the entrance of the steam, which is introduced through the pipe *l*.

By the above arrangement, as shown by the firm lines of the drawing, my invention is used as an ejector; but when the above is combined with the overflow valve-pipe *m*, and boiler valve-pipe *n*, already patented by me, it is used as an injector.

Reference being had to the drawing, it will readily be seen that by operating the wheel, or other device connected with the stem *e* of the valve *d*, to which the rod *a a* is attached, both are actuated by one and the same movement, which admits the steam through the pipe *l* into the passage *k k*, and thence through the transverse aperture *c* and longitudinal aperture *b*, where it is contracted in volume, and gently comes in contact with the water, which is introduced through the pipe *h*, and flows through the narrow passage *g g*, out of the mouth of the combination pipe *p;* or acting in connection with the overflow valve-pipe *m*, and the boiler valve-pipe *n*, shown by the dotted lines, the above arrangement of devices acts as an injector.

Having thus fully described my improvements, what I claim as my invention, and desire to have secured to me by Letters Patent, is—

1. A steam injector or ejector, having a rod, *a a*, provided with a longitudinal aperture, *b*, and a transverse aperture, *c*, at one end, and attached at the other end to a steam-valve, *d*, the said rod *a a* and steam-valve *d* being operated by one and the same movement, substantially as specified.

2. The longitudinal aperture *b* and transverse aperture *c* formed in the end of the rod *a a* attached to the steam-valve *d*, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WM. B. MACK.

Witnesses:
SAML. M. BARTON,
CARROLL D. WRIGHT.