(Model.)

W. B. MACK.

INJECTOR.

No. 262,069. Patented Aug. 1, 1882.

Fig. 2.

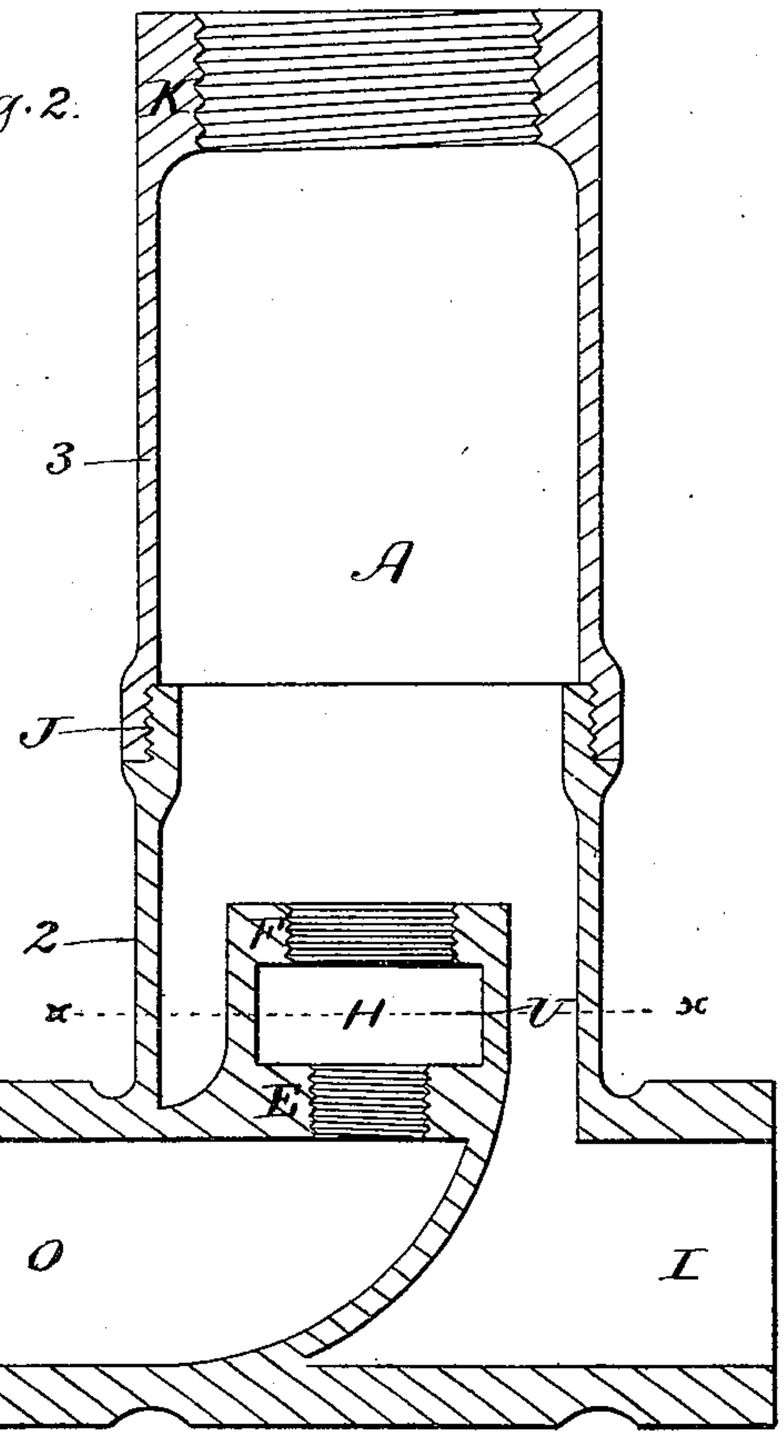


Fig. 3.

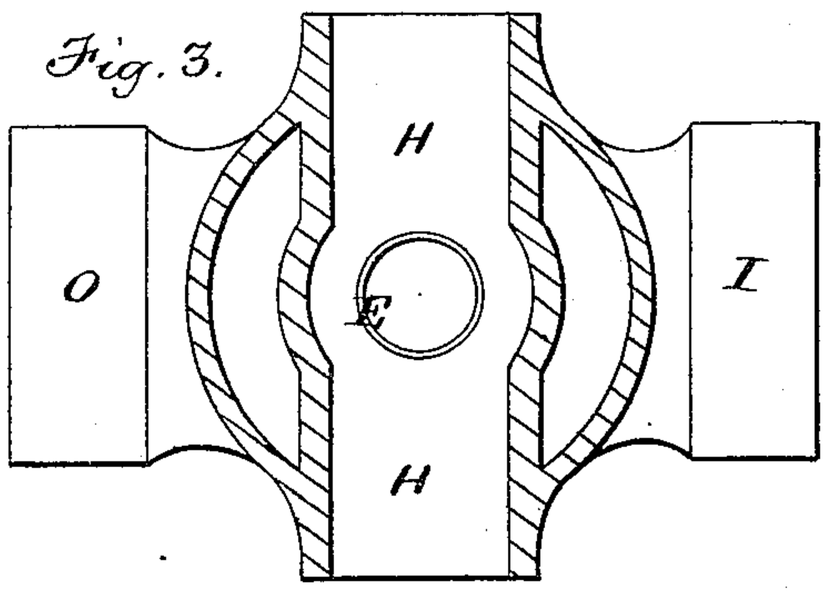
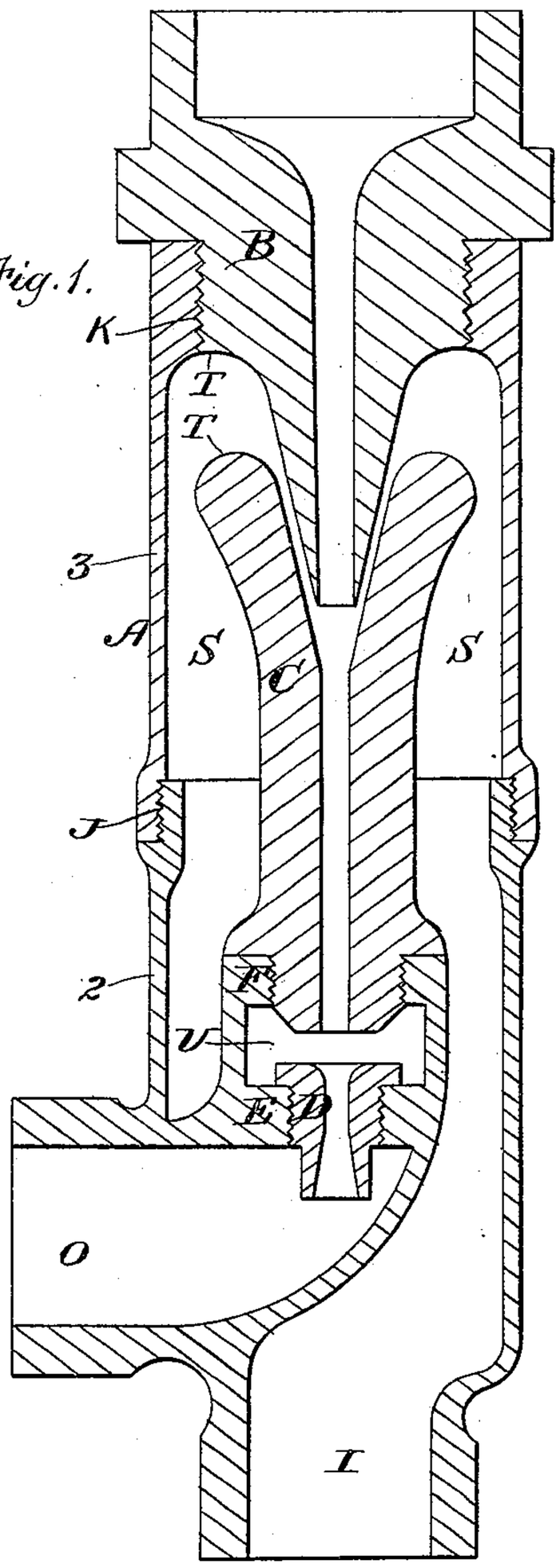


Fig. 1.



Witnesses.
J. F. Brown
A. L. White

Inventor.
W. B. Mack
by Wright & Brown
Attys

UNITED STATES PATENT OFFICE.

WILLIAM B. MACK, OF BOSTON, MASSACHUSETTS.

INJECTOR.

SPECIFICATION forming part of Letters Patent No. 262,069, dated August 1, 1882.

Application filed February 18, 1882. (Model.)

To all whom it may concern:

Be it known that I, WILLIAM B. MACK, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Injectors, of which the following is a specification.

This invention has for its object to provide certain improvements in the construction of boiler-feeding injectors, whereby the injector is adapted to be easily put together and taken apart for the renewal or repair of its parts, as I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a longitudinal central section of an injector embodying my improvements. Fig. 2 represents a similar section of the shell or casing of the same, the other parts being removed; and Fig. 3 represents a section on line *x x*, Fig. 2.

In the drawings, A represents the shell or casing, B the steam-nozzle, C the combining and condensing cone or chamber, and D the delivery-cone, of an injector, said parts being arranged for joint operation in the usual manner.

The chief feature of my invention lies in the hereinafter-described construction, whereby the combining-cone is adapted to be readily removed without defacement or injury.

In carrying out my invention I construct the shell or casing A in two parts, 2 3. The part 2 is formed with inlet and outlet passages I O, a seat and threaded socket, E, for the delivery-cone, a similar seat and threaded socket, F, for the combining-cone, and the overflow-passages H H, all embodied in one casting. The part 3 is screwed at J to the part 2, and has at its outer end a threaded socket, K, which receives the steam-nozzle B. It will be seen that the seats K F E support the steam-nozzle, combining-cone, and delivery-cone independently. The sectional construction of the casing and the independent seats F E enable the injector to be readily taken apart, the part 3 of the casing, with the steam-nozzle, being first removed, exposing the combining-cone, which can then be removed, thus enabling the delivery-cone to be removed. The combining-cone projects beyond the part 2, so that a considerable portion of it is exposed by the removal of the part 3. The combining-cone is tapered outwardly at its outer end, and its outer surface is rounded inwardly in cross-section to meet the conical inner surface, as shown in Fig. 1. This rounded surface from the point where it most nearly approaches the inner surface of the casing to the conical inner surface of the cone should be perfectly smooth, and should present an even curvature devoid of indentations and roughness, such as would be caused by the application of a wrench or other device to turn it. It will be seen that by the sectional construction of the casing a sufficient portion of the exterior surface of the combining-cone below the enlarged and rounded outer end is exposed by the separation of the parts 2 3, to enable a pipe-wrench to be applied without touching and defacing said rounded portion. The seats K, F, and E have the same central or axial line, so that the removal of the part B creates an opening through which the part C can be removed, and the removal of the part C creates an opening through which the part D can be removed. The utmost facility is therefore afforded for taking apart and putting together the parts of the injector.

The water-inlet I communicates with the combining-cone through an annular space, S, which turns inwardly around the steam-nozzle. The sides of the inwardly-turned part of the space S at the point where the turn is made are curved, as shown at T T, so that the water meets no opposing angles. The inlet I may be in line with the body of the shell or casing A, as shown in Fig. 1, or at right angles thereto, as shown in Fig. 2. The latter form is preferred, because it enables the connecting-pipe from the same water-supply to enter the casing without an upward turn, the pipe being therefore more easily attached.

Between the seats E F is an enlargement or chamber, U, into which the adjacent ends of the combining and delivery cones project, and with which the overflow-passages H H communicate. The overflow-passages extend to opposite sides of the casing, so that the same injector can be adapted for use either upon the right or the left side of a locomotive by plugging one or the other of the overflow-passages.

I claim—

In an injector, the combination, with the shell or casing made in two separable sections,

2 3, of the combining-cone C, screwed to its seat in the section 2 of the casing, and having its tapered end and a portion of its cylindrical body projecting beyond the joint of the sections, whereby when the sections are separated a pipe-wrench may be applied to the cylindrical portion of the combining-cone to unscrew it without liability of defacing or in any way injuring the flaring end portion of the cone, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 16th day of February, A. D. 1882.

WILLIAM B. MACK.

Witnesses:
C. F. BROWN,
A. L. WHITE.