

S. RUE.  
INJECTOR.

No. 176,199.

Patented April 18, 1876.

Fig. 1.

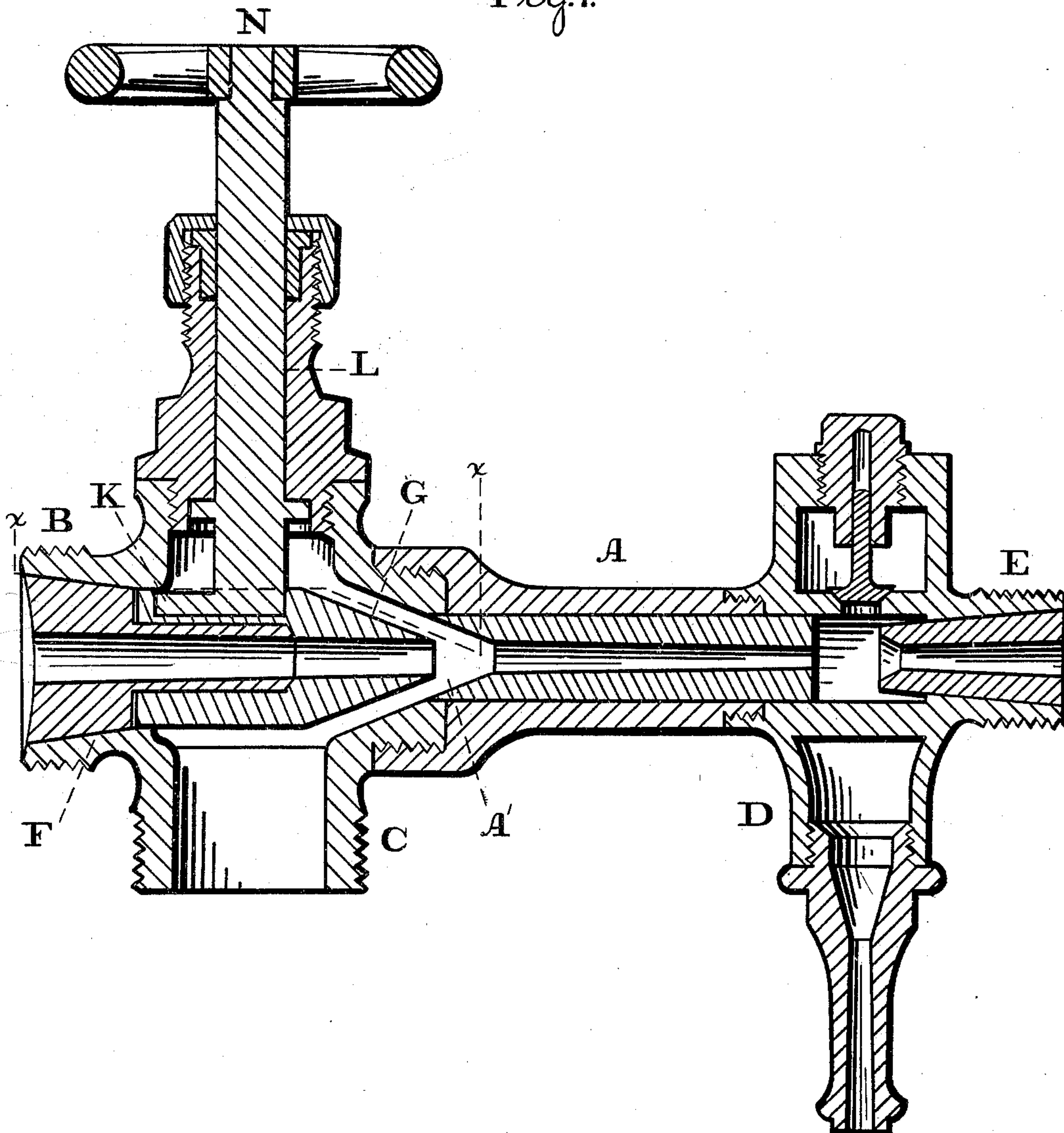
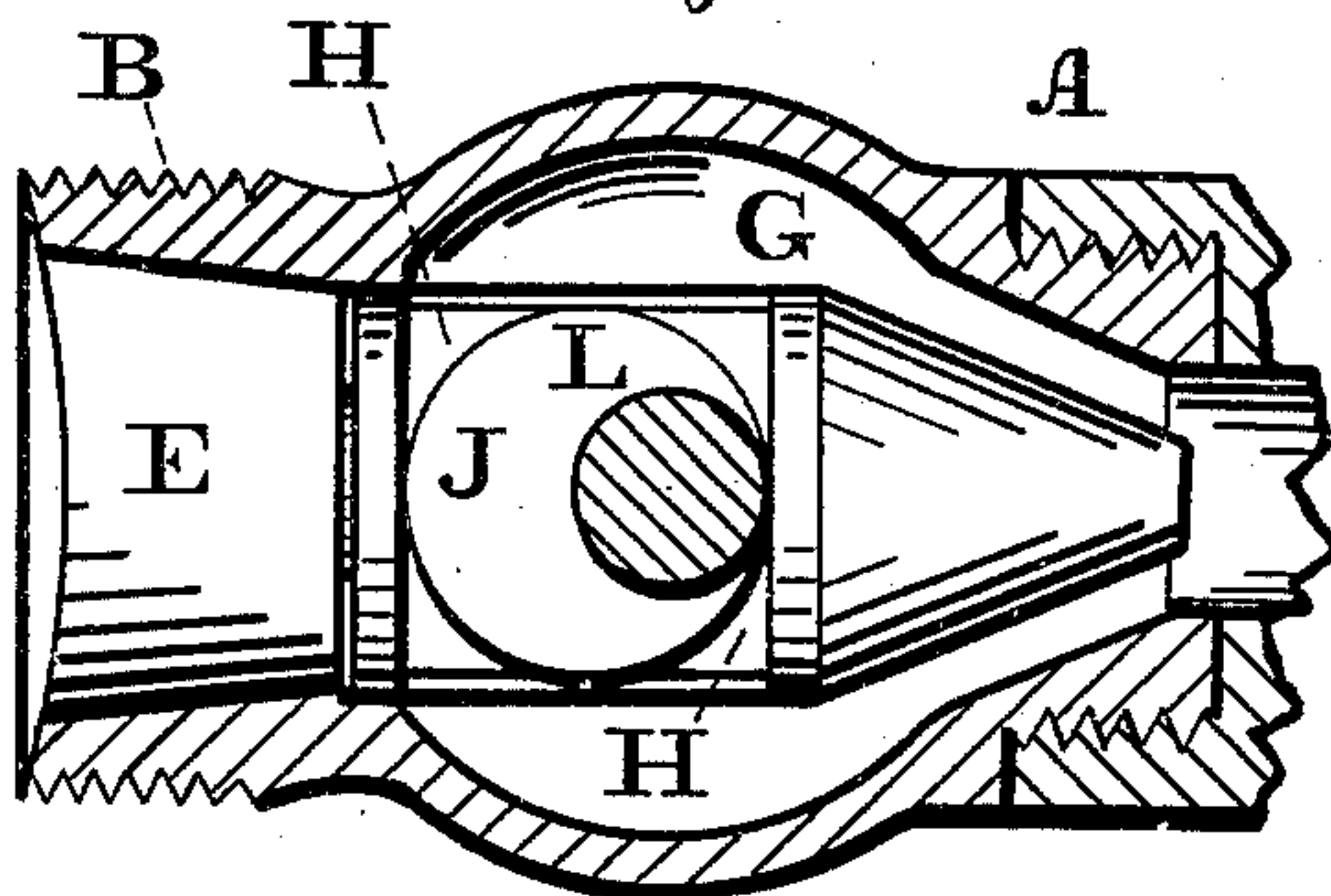


Fig. 2.



Witnesses:

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN INJECTORS.

Specification forming part of Letters Patent No. **176,199**, dated April 18, 1876; application filed May 31, 1875.

*To all whom it may concern:*

Be it known that I, SAMUEL RUE, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Injectors; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand, make, and use the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a central longitudinal vertical section of the device embodying my invention. Fig. 2 is a top view of a detached section, which is below the line *xx* of Fig. 1.

Similar letters of reference indicate corresponding parts in the two figures.

In injectors it is advantageous to have the steam-pipe so attached that the steam cannot get to the water-chamber excepting through the steam-plug, and also that the regulation of the greater or less amount of water in proportion to the steam should be made at the point where the steam and water first come in contact.

My invention consists in means whereby a closed partition is made between the steam-pipe and water-chamber, and the regulation of the space through which the water flows to the mouth of the combining-tube is enlarged or contracted by the steam-tube being moved toward or from the same, and the mechanism for actuating the same operates directly on the steam-tube inside of the water-chamber. To accomplish this I make the steam plug or nozzle in two parts, one part of which is fixed in the end of the injector, and the other part is telescoped on this fixed part, which acts as a guide therefor.

Referring to the drawings, A represents the casing or shell, which is provided with the nozzles B for attachment of the steam-pipe, C for attachment of the water-pipe, D for attachment of the overflow, and E for attachment of the pipe leading to the generator. F represents a steam plug or nozzle, which, fixed in the nozzle B of the injector, projects into the water-chamber A' of the shell A, and the

projecting portion is contracted, and has fitted thereon telescopically for part of its length another plug or nozzle, G, so that the part G has a sliding motion on the part F, and projects beyond the end thereof, and both are bored out so as to produce a continuous steam-plug, which forms a closed partition between the steam-pipe and water-chamber, excepting through the steam-plug. On the upper face of the plug or part G there is formed a way or slot, H, which extends horizontally, and in the same is fitted an eccentric disk, cross-head, or other operative piece, K, which, connected to a spindle, L, passing through stuffing-boxes on the shell, and operated by a lever, crank, wheel, or otherwise, as at N, will impart a sliding motion to the plug G.

The operation is as follows: When the spindle L is rotated the head or piece K will move the plug G a greater or less distance in the chamber A', so as to regulate the space through which the water flows, and consequently regulate the proportionate amount of water and steam; and this is accomplished at the point where the steam and water first come in contact.

It will also be seen that the two-part plug forms a closed partition between the steam-pipe and water-chamber, so that the steam cannot get to the water-chamber excepting through said plug.

The way or slot H has a flat surface, and the under face of the head or piece K is similarly formed, so that the movable plug G will be prevented from rotating on the fixed plug, and said head and piece are entirely within the water-chamber.

The part F may be cast with and form part of the shell of the injector, and the projecting portion turned down smaller, so that the part G may slide on it, in which case the plug would consist of the one part—the sliding part G.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An injector in which the steam-plug is made of a fixed plug and a sliding plug, which are fitted to each other telescopically, the slid-

ing plug being adjustable relatively to the mouth of the combining-tube, substantially as and for the purpose set forth.

2. An injector in which the steam-plug is made in two parts, fitted to each other telescopically, whereby the distance that the end of the plug projects into the water-chamber can be regulated by mechanism inside of the water-chamber, substantially as and for the purpose set forth.

3. The adjustable steam-plug G, formed with the way H, and the operating head or piece K, combined and operating therewith, substantially as and for the purpose set forth.

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