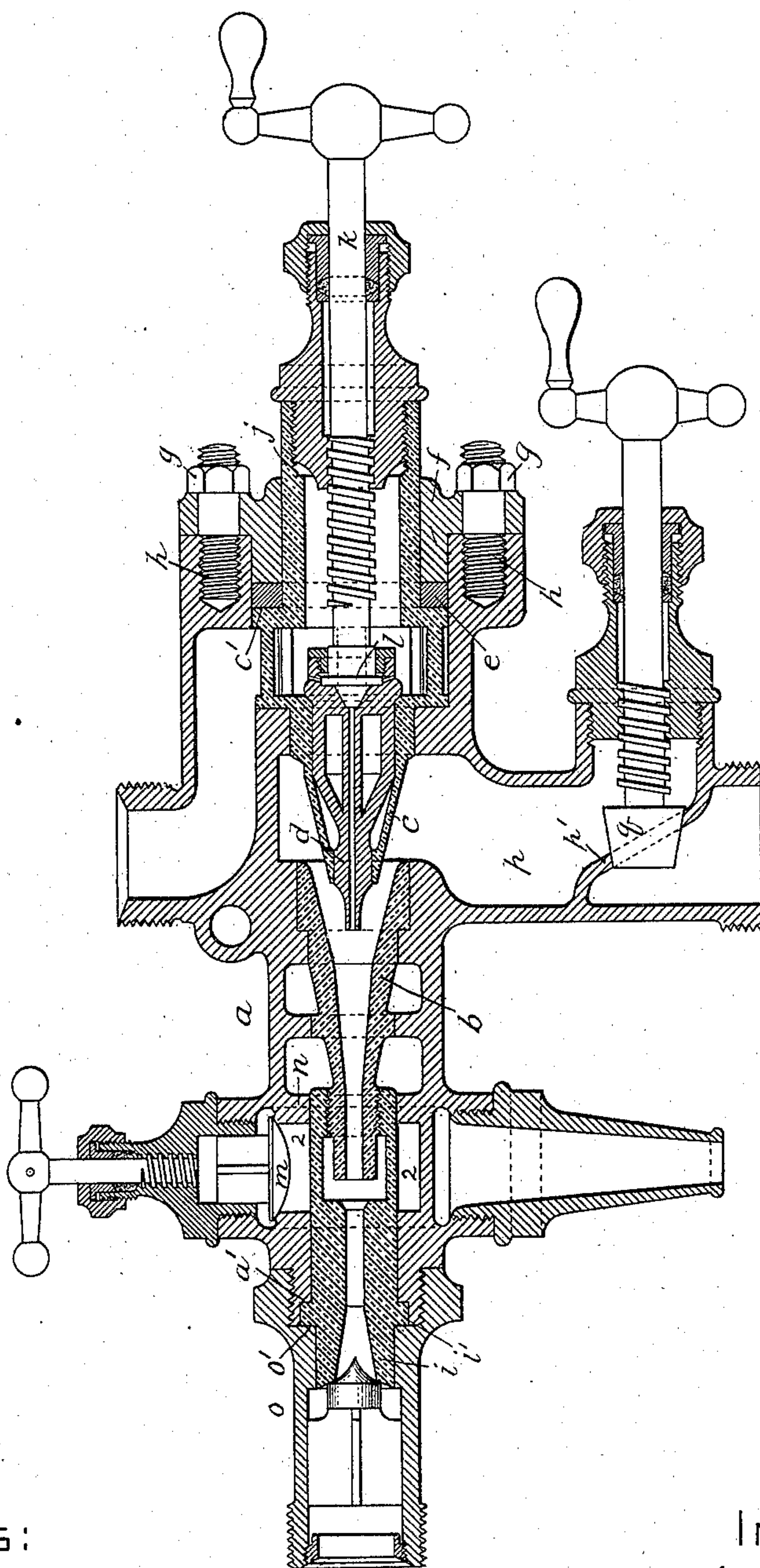


(Model.)

W. B. MACK.  
INJECTOR.

No. 575,363.

Patented Jan. 19, 1897.



WITNESSES:

*C. F. Brown*  
*A. W. Harrison*

INVENTOR:

*W. B. Mack*



# UNITED STATES PATENT OFFICE.

WILLIAM B. MACK, OF BOSTON, MASSACHUSETTS.

## INJECTOR.

SPECIFICATION forming part of Letters Patent No. 575,363, dated January 19, 1897.

Application filed December 6, 1895. Serial No. 571,225. (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 new and  
5 useful Improvements in Injectors, of which the following is a specification.

This invention relates to injectors for steam-boilers, and has for its object, first, to provide an improved internal construction whereby  
10 access may be readily had thereto for the purpose of repair or renewal of parts or the removal of any obstructions that may have entered with the feed-water by a sliding movement without rotation.

15 Another object of my invention is the production of an injector having an improved construction of overflow-chambers to reduce the deposit of lime or scale.

The invention consists in the construction  
20 and combination of parts substantially as hereinafter described and claimed.

In the accompanying drawing the figure represents a longitudinal section of an injector embodying my improvements.

25 In general appearance this present injector resembles that shown in United States Patent No. 457,514, granted to me August 11, 1894, and in some of the details there is a similarity in construction, and such features  
30 as are well known will not be described herein, it being sufficient to describe only such as are directly connected with or have relation to the elements of novelty.

The casing *a* contains the combining-tube  
35 *b*, the cone *c*, the steam-nozzle *d*, and the delivery-tube *i*, which constitute a continuation of the combining-tube. The cone *c* has an integral tubular extension, forming the spindle-supporting stand *j*, said integral cone  
40 and stand having an enlarged section, the rear portion of which forms a shoulder *c'*, between which and the gland *f* is interposed a packing-ring *e*.

Screw-threaded studs *h h* are carried by the  
45 casing and project through ears or a flange of the gland *f*, and nuts *g g* serve to secure the gland in place. By removing the nuts *g g* the gland can be removed and then the spindle-stand and cone, and also the nozzle *d*,  
50 spindle *k*, and valve *l*, can all be withdrawn together. The advantage of this construction is that it enables access to be had to the interior of the casing to remove any obstructions, or for other purposes, without relatively

disarranging or separating the parts contained in that end of the casing. 55

By reference to the above-mentioned patent it will be seen that the space surrounding the delivery-cones and communicating with the overflow-valve is larger than that  
60 shown in my present invention. In the present instance the space 2, which surrounds the tube or cone *i* and communicates with the overflow or starting valve *m*, is reduced by shortening the delivery-tube *i* and casing between the overflow-valve and the outer end  
65 or nozzle of the casing, and providing a partition *n* in the casing, through which the tube *i* passes, so that only a small space is formed leading to the overflow-valve. In consequence of this construction there is no deposit  
70 of lime or other sediment in such quantity as would be likely to injure the cones or tubes when they are being removed from the casing.

The delivery cone or tube *i* is formed with  
75 an external annular rib *i'*, which is clamped between a shoulder *a'* of the casing and a shoulder *o'* of the tip or nozzle *o* when the latter is in place. By unscrewing the nozzle  
80 *o* the delivery cone or tube *i* can be removed at that end of the injector.

The water-inlet *p* has an inclined partition  
85 *p'*, provided with a seat for the valve *q*, thus providing for a direct flow of water to the combining-tube when the valve is open without deflection or change in the direction of flow.

Having now described my invention, what I claim is—

1. In an injector, the combination with the  
90 casing *a*, of the cone *c* and valve-stand *j* formed integral with each other and having an external shoulder, the gland *f*, and packing *e*, substantially as described.

2. An injector having the water-inlet provided with an inclined partition and valve-  
95 seat, and a valve fitted to said seat, the inclination being substantially at an angle of forty-five degrees so as to afford a substantially direct passage for the water, substantially  
100 as described.

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

WILLIAM B. MACK.

Witnesses:

C. F. BROWN,

A. W. HARRISON.