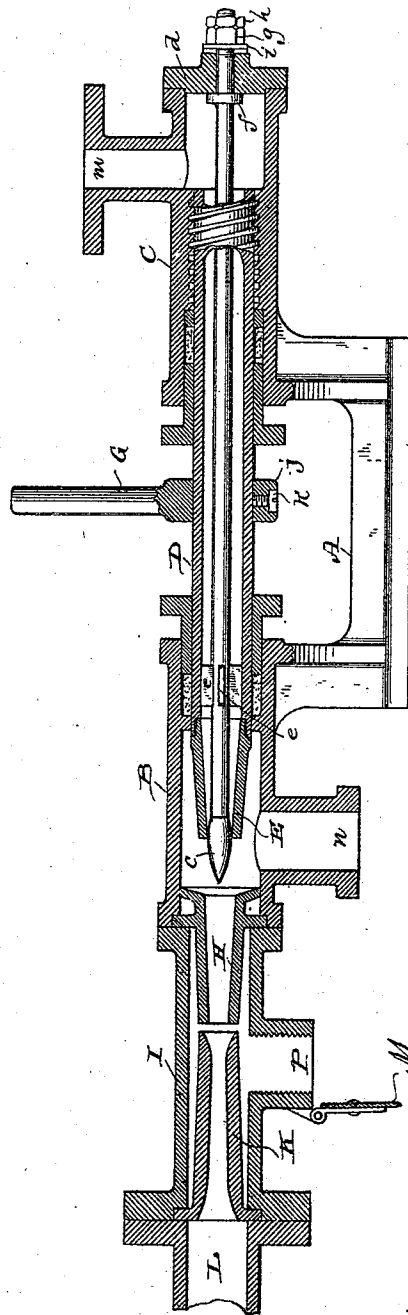


(Model.)

F. FUNKE.
INJECTOR.

No. 501,271.

Patented July 11, 1893.



Witnesses
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UNITED STATES PATENT OFFICE.

FRANZ FUNKE, OF MILWAUKEE, WISCONSIN.

INJECTOR.

SPECIFICATION forming part of Letters Patent No. 501,271, dated July 11, 1893.

Application filed March 18, 1893. Serial No. 466,641. (Model.)

To all whom it may concern:

Be it known that I, FRANZ FUNKE, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Injectors; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has for its object to provide a simple, economical injector, and it consists in certain peculiarities of construction and combination of parts hereinafter described with reference to the accompanying drawing and subsequently claimed.

The drawing represents a vertical longitudinal section of an injector constructed according to my invention, and referring by letter to said drawing A represents a stand having tubular extensions B, C, projecting in opposite directions and provided at their inner ends with ordinary stuffing boxes for a tube D that has a screw-threaded connection with the latter of said extensions of the stand. That portion of the tube D extended into the stand-extension B has a screw-thread connection with a tapered nozzle E normally closed by a conical valve *c* on a rod F, the latter being fast to a head *d*, that closes the outer end of the tubular stand-extension C, and the rod provided with radial centering wings *e* impinged against the interior of said tube. As herein shown the rod F has a collar *f* impinged against the head *d*, above specified, and this collar and jam-nuts *g*, *h*, on a portion of said rod extended through said head, serve to clamp the aforesaid rod in place, it being preferable to interpose washers *i* between the nut *g* and adjacent surface. Fast on the tube D is a hand-lever G and by actuating this lever the nozzle E is opened or closed incidental to the resultant screw-action of said tube. The hand-lever is preferably terminated at its lower end in an eye *j* that engages the tube D, and a set-screw *k* in the eye serves to lock the lever in place at any angle to which it may be adjusted to suit the convenience of the operator. The tubular stand-extension C is provided with a steam-entrance *m*, and the other tubular stand-extension B has a water-inlet *n* in rear of a combining-tube H, the latter being in line with

the nozzle of tube D above specified. The combining-tube H extends into a shell I fitted to the outer end of the tubular stand-extension B, this shell being provided with a drain-outlet *p* and also inclosing a delivery-pipe K that discharges into a boiler-connection L, as is usual in the art to which my invention belongs, a sufficient overflow space *q* being left intermediate of said combining and delivery-pipes as is also usual in the art. The outlet *p* of the shell I is shown as provided with a flap-valve M by which it is closed when there is sufficient suction in the injector.

In the operation of the above described injector, the escape of steam through the nozzle E is regulated by the longitudinal adjustment of the tube D, under control of the lever G, but otherwise the action is similar to various other injectors now in use.

By the construction and arrangement of parts herein described for regulating the escape of steam, the nozzle may be thrown wide open or tightly closed with but little expenditure of power, and there are no small parts liable to break or get out of order, while at the same time there is no appreciable wear or liability of leakage.

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

1. An injector having a tubular portion provided with internal screw-threads, a rotative tube that communicates with the steam-entrance and has screw-threads engaging those aforesaid, a nozzle at that end of the tube farthest from the steam-entrance, a stationary rod inclosed by said tube, a valve that forms part of the rod and engages the nozzle, and a hand lever on the aforesaid tube, substantially as set forth.

2. An injector comprising a stand having tubular extensions projecting in opposite directions, one of these extensions provided with a steam-entrance and the other with a water-inlet, stuffing-boxes at the inner ends of both of said stand-extensions, a rotative longitudinal tube that engages the stuffing-boxes, and is screw-threaded in one of the aforesaid stand-extensions, a nozzle at that end of the tube farthest from the steam-entrance, a stationary rod inclosed by said tube,

a valve that forms part of the rod and engages
the nozzle, a shell fitted to the tubular stand
extension that is provided with the water-in-
let, and combining and delivery pipes oppos-
5 ing each other in the shell, substantially as
set forth.

In testimony that I claim the foregoing I

have hereunto set my hand, at Milwaukee, in
the county of Milwaukee and State of Wis-
consin, in the presence of two witnesses.

FRANZ FUNKE.

Witnesses:

E. FUNKE,

N. E. OLIPHANT.