

(Model.)

L. KACZANDER.
STEAM INJECTOR.

No. 532,563.

Patented Jan. 15, 1895.

Fig. 1

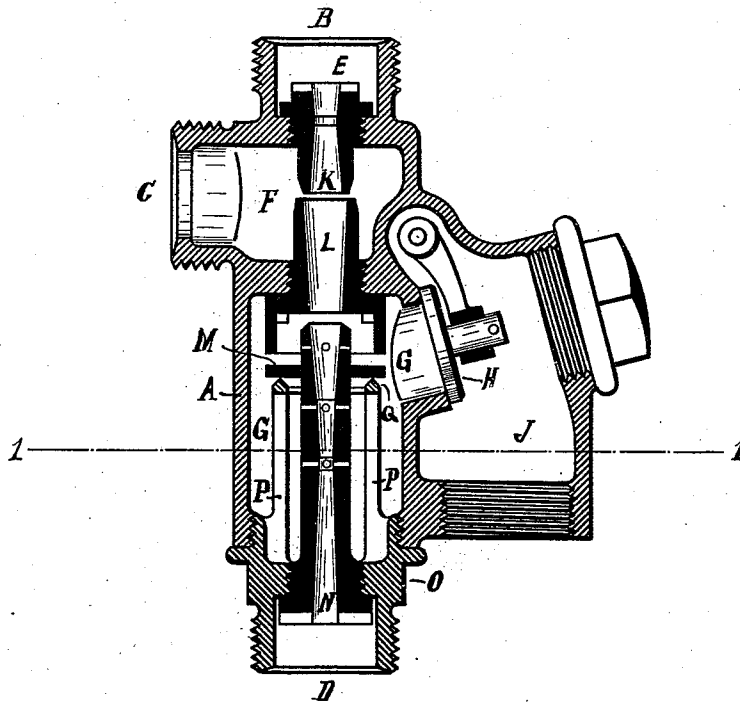
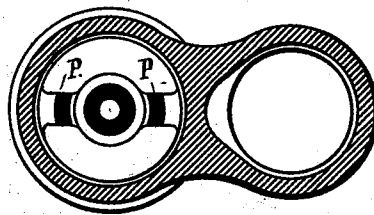


Fig. 2



Witnesses
Robert Ruddy
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Inventor
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UNITED STATES PATENT OFFICE.

LEOPOLD KACZANDER, OF NEW YORK, N. Y., ASSIGNOR TO THE NATHAN MANUFACTURING COMPANY, OF SAME PLACE.

STEAM-INJECTOR.

SPECIFICATION forming part of Letters Patent No. 532,563, dated January 15, 1895.

Application filed December 3, 1894. Serial No. 530,638. (Model.)

To all whom it may concern:

Be it known that I, LEOPOLD KACZANDER, a citizen of the United States of America, residing in the city of New York, in the county and State of New York, have invented certain new and useful Improvements in Steam-Injectors, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention consists in certain improvements applicable to automatic restarting steam injectors, and has for its object the simplification of their construction, and the increased convenience in removing the internal parts of the instrument, for the purposes of cleaning and replacement.

25 The invention consists principally in a cap or bonnet, at the delivery end of the injector, which cap serves as a support for the condensing and delivery nozzles or jets, as well as for the usual movable or sliding valve employed in this particular type of injectors, as will more fully appear from the following description and accompanying illustrations, in which—

Figure 1 is a vertical sectional view of the instrument, and Fig. 2 a horizontal cross section on line 1, 1, of Fig. 1.

30 A is the casing or body of the instrument. At B is the usual connection with the steam supply from the boiler, at C the feed water pipe connection, and at D the connection with the delivery pipe, leading to the boiler.

35 E is a steam chamber; F, the water chamber; G, the vacuum or overflow chamber; H, the usual overflow valve, and J the overflow.

K is the steam nozzle; L, the lifting nozzle; M, the suction or lifting valve, and N the condensing and delivery nozzle combined.

40 So far, there is nothing essentially new in this construction, and the elements enumerated, their relative position, character and function, are well known to those skilled in the art.

45 The delivery connection D is at the end of a bonnet or cap O, which screws into the lower

end of casing A. Into a circular bridge or diaphragm of this cap O, I screw the condensing and delivery tube N. Cap O is also provided with two arms P P, joined at their upper end by a beveled circular ring Q, which serves as the support for suction valve M, when open. The arms P P, and ring Q do not form a casing, jacket, or closed chamber, but leave a free communication, always open, between the overflow openings in the condensing and delivery nozzle N and the overflow chamber G.

It will be readily observed that, by removing cap O, I remove also nozzle N and valve M, leaving free access to lifting nozzle L. My construction has the further advantage that the delivery tube may be removed for inspection, cleaning and replacement, without disturbing cap O. This is a most essential and desirable feature, because the delivery tube, containing the small overflow openings which are liable to be clogged up, requires more frequent cleaning and inspection than do the other nozzles of an injector.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a restarting injector, the combination, with the casing and the usual nozzles, lifting and overflow valves, of cap O with its arms P P and the ring Q on top of, and solid with arms P P, this ring serving as a support for lifting valve M, substantially as and for the purpose set forth.

2. In a restarting injector, the combination, with the casing and the usual lifting and overflow valves, of cap O, arms P P, ring Q and condensing and delivery nozzle N, screwed into the lower part of cap, O, this condensing and delivery nozzle N being removable jointly with cap O, or independently of it, substantially as and for the purposes set forth.

LEOPOLD KACZANDER.

Witnesses:

ADOLPH BARGEBUHR,
JAMES E. MURPHY.