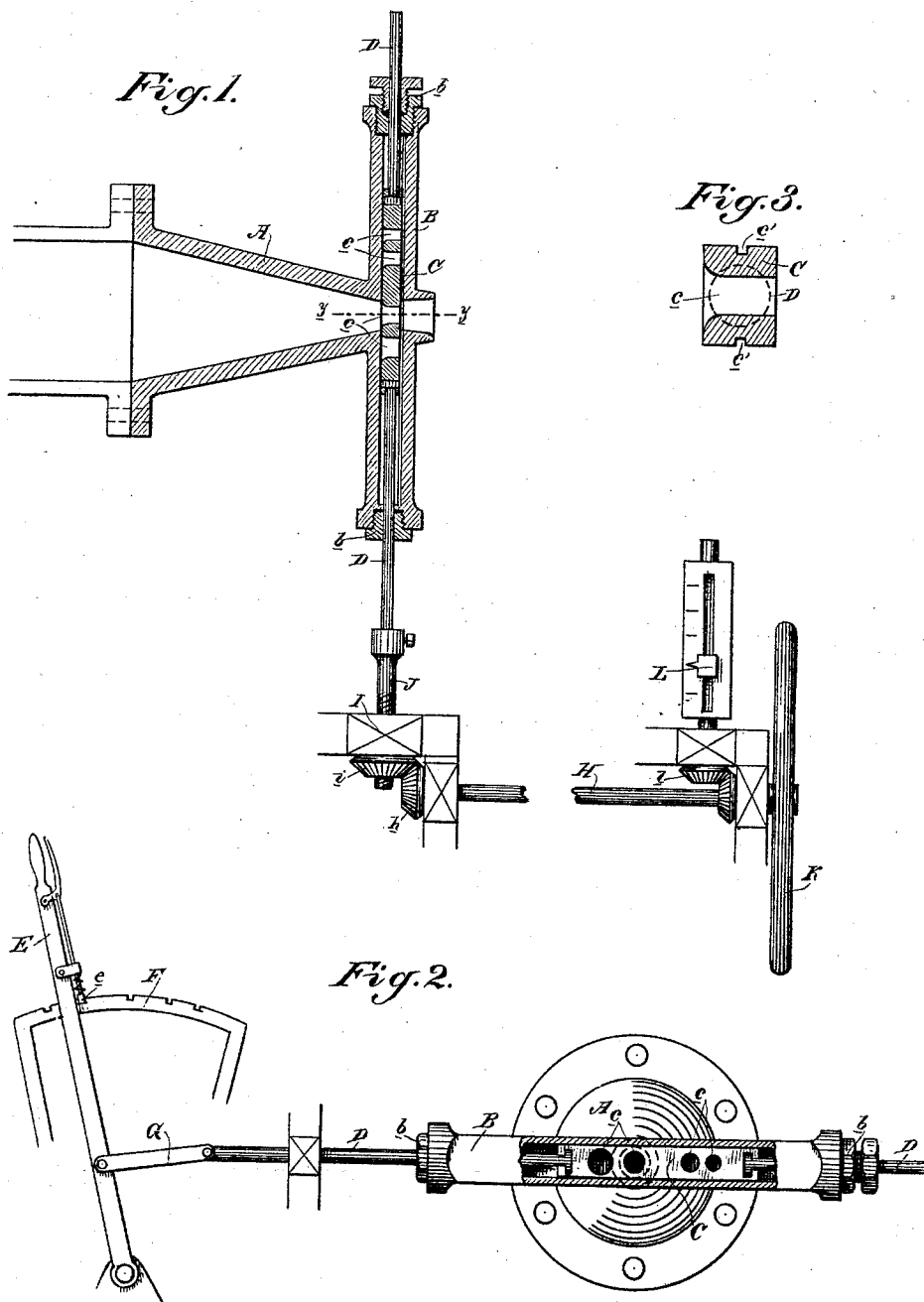


(No Model.)

A. A. CHARONNAT.
VARIABLE NOZZLE.

No. 458,762.

Patented Sept. 1, 1891.



Witnesses,
B. H. Hulse
H. F. Clackey

Inventor,
Anselme A. Charonnat.
By Dewey & Co. atty

UNITED STATES PATENT OFFICE.

ANSELME ARRISTED CHARONNAT, OF NEVADA CITY, CALIFORNIA.

VARIABLE NOZZLE.

SPECIFICATION forming part of Letters Patent No. 458,762, dated September 1, 1891.

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To all whom it may concern:

Be it known that I, ANSELME ARRISTED CHARONNAT, a citizen of the United States, residing at Nevada City, Nevada county, State of California, have invented an Improvement in Variable Nozzles; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the class of variable nozzles, and especially to those designed for the discharge of water.

My invention consists of a nozzle having fitted to its end a transverse hollow seat, in which is adapted to be reciprocated a plate formed with a succession of apertures of varying diameters, said plate having a stem on each end passing through stuffing-boxes, whereby it is moved to bring any of its apertures into alignment with the nozzle or to bring a solid portion opposite thereto to serve as a gate, as I shall hereinafter fully describe, and specifically point out in the claims.

The object of my invention is to provide a simple and effective nozzle the discharge of which can be varied and regulated by means of a regulating-plate so constructed and arranged as to be perfectly balanced to permit the ready and easy operation.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a horizontal section. Fig. 2 is a front view, the seat being broken away to show the regulating-plate. Fig. 3 is a cross-section of the regulating-plate on the line 7 7 of Fig. 1.

A is the nozzle. Across it is the seat B, in which is mounted and adapted to slide longitudinally the regulating-plate C. This plate is provided with a number of apertures *c* of different diameters, and it has extending from each end a stem D, connected therewith by a loose connection, in the manner of many valve-stems, so that the plate may seat itself perfectly without interference from the stems. These stems extend outwardly through each end of the seat B in stuffing-boxes *b*, so that a tight joint is formed at each end. The regulating-plate is also provided with a longitudinal groove *c'*, connecting its ends, and the apertures *c* in said plate may be arranged or formed with a proper bevel to serve as nozzles.

Either or both of the stuffing-boxes can be removable to permit the removal of the regulating-plate.

In order to operate the regulating-plate any suitable mechanism may be employed. The simplest form of it is a lever E, controlled by a spring-pawl *e*, engaging a rack-bar F, said lever being connected by a link G with one of the stems of the regulating-plate. The sizes of the nozzles may be marked on the rack, so as to show which one is in use or to be used. Another form is a shaft H, having on one end a bevel-pinion *h*, engaging with the bevel-pinion *i* of a nut I, threaded upon the screw connecting-rod J of the plate-stem. The shaft is operated by a hand-wheel K, and the amount of movement of the regulating-plate may be accurately determined by means of the indicator L, traveling over a graduated plate and operated by means of the beveled gearing *l* with the shaft.

The operation of my device is as follows: When it is desired to change the capacity of the nozzle to a greater or less degree, the regulating-plate is moved to one side or the other in order to bring the proper aperture *c* into alignment with the nozzle-passage. In this movement the plate operates with the exercise of but little power, as it is a balanced one, being mounted in its seat with a stuffing-box at each end and a stem projecting from each end, whereby the water which passes to each end of the plate is confined and effects an equal pressure thereon. The groove *c'* in the plate is to permit of the ready passage of the water to each end of the plate. The regulating-plate serves also as a gate for the nozzle, when desired, by moving it into such a position that a solid portion between the apertures may be brought across the nozzle-passage, thereby completely shutting off the water.

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

1. A nozzle having a transverse seat, a plate mounted in said seat and having apertures of various diameters adapted by the movement of the plate to be brought into alignment with the nozzle-passage, a stuffing-box at each end of the seat, and a stem connected with each

end of the plate and projecting outwardly through the stuffing-box, substantially as herein described.

2. A nozzle having a transverse seat and a
5 longitudinally-movable plate mounted in said seat having apertures of different diameters adapted by the movement of the plate to be brought into alignment with the nozzle-passage, a groove extending longitudinally of
10 the sliding plate, a stuffing-box at each end of the seat, and a stem at each end of the plate extending through the stuffing-box, substantially as herein described.

3. A nozzle having the transverse seat with
15 a stuffing-box in each end, the sliding plate mounted in the seat and having apertures of different diameters adapted to be brought into alignment with the passage of the nozzle, a stem connected with each end of the plate
20 and extending outwardly through the stuffing-box, and suitable power connections with one of said stems for moving the plate, substantially as herein described.

4. A nozzle having the transverse seat with

a stuffing-box in each end, the sliding plate 25 mounted in the seat and having apertures of different diameters adapted to be brought into alignment with the passage of the nozzle, a stem connected with each end of the plate and extending outwardly through the stuffing- 30 box, and suitable power connections with one of said stems for moving the plate, consisting of the shaft H, the connecting-rod J, the nut on said rod, the pinions connecting the nut and shaft, and the indicator operated by the 35 shaft H, substantially as herein described.

5. A nozzle having a transverse seat with end stuffing-boxes, and a longitudinally-sliding plate in said seat having end stems passing through the stuffing-boxes, said plate 40 crossing and regulating the nozzle-passage, substantially as herein described.

In witness whereof I have hereunto set my hand.

ANSELME ARRISTED CHARONNAT.

Witnesses:

B. J. WATSON,
ED. MÜLLER.