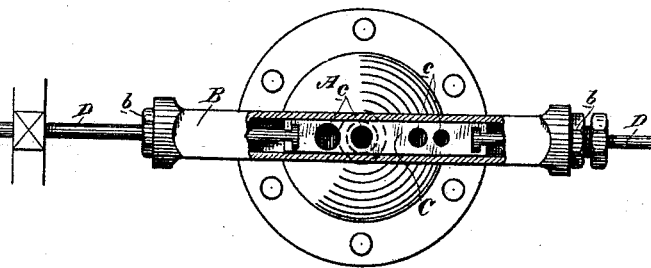
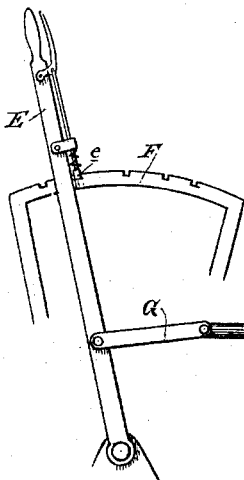
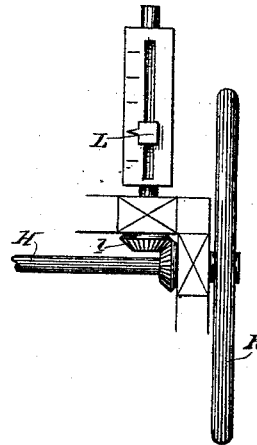
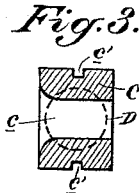
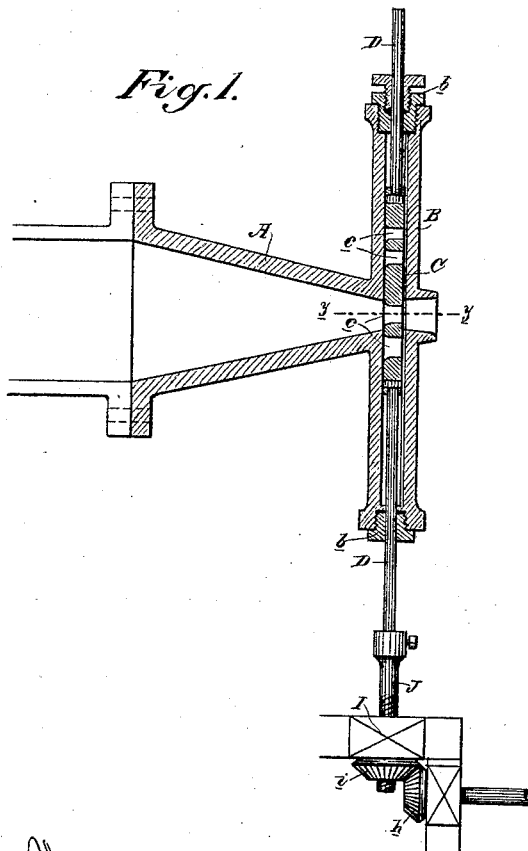


(No Model.)

A. A. CHARONNAT.
VARIABLE NOZZLE.

No. 458,762.

Patented Sept. 1, 1891.



Witnesses,
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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.

Application filed May 29, 1891. Serial No. 394,575. (No model.)

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.