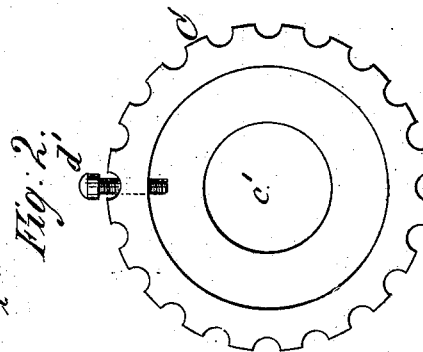
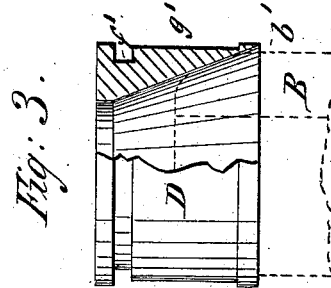
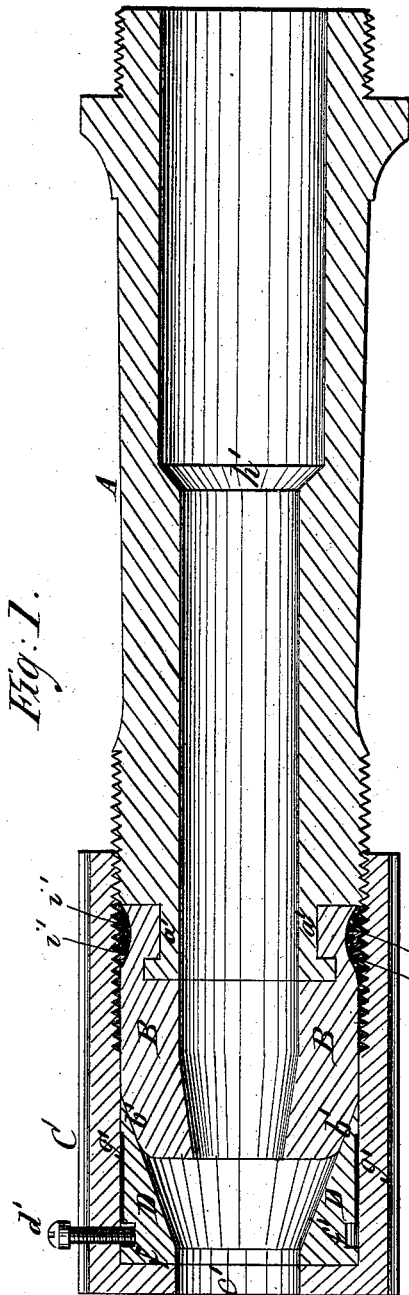


G. C. PALMER.  
Adjustable Nozzle for Hose.

No. 221,349.

Patented Nov. 4, 1879.



WITNESSES:

*Achilles Schehl.*  
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# UNITED STATES PATENT OFFICE

GEORGE C. PALMER, OF ROCHESTER, NEW HAMPSHIRE.

## IMPROVEMENT IN ADJUSTABLE NOZZLES FOR HOSE.

Specification forming part of Letters Patent No. 221,349, dated November 4, 1879; application filed September 1, 1879.

*To all whom it may concern:*

Be it known that I, GEORGE C. PALMER, of Rochester, in the county of Strafford and State of New Hampshire, have invented a new and Improved Adjustable Nozzle for Hose, of which the following is a specification.

Figure 1 is a vertical sectional elevation of the device. Fig. 2 is an end view of the adjustable screw-cap. Fig. 3 is a sectional elevation of the tapering washer.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish a hose-nozzle by means of which a uniform stream of any desired dimensions may be delivered by simply unscrewing or screwing up an adjustable nozzle-cap.

The invention is an improvement on the adjustable hose-nozzle for which G. F. Palmer obtained Letters Patent No. 208,330, dated September 24, 1878; and it consists of a straight-bore tube prolonged at one end by an elastic tube having an outside taper, and of an adjustable screw-cap holding a movable conical washer within its upper end, so that as the cap is screwed down over the orifice of the latter the elastic tube is evenly contracted to any desired degree by the outside pressure of the washer, and on unscrewing is restored to its primary dimensions.

In the drawings, A represents the straight-bore tube, provided with an annular groove, *a'*, for the better holding of the elastic bushing or prolongation B, that is secured to the tube by wires *z' z'*, wound about it, or in some other suitable manner. This bushing B is preferably made of rubber, and it is provided with a straight bore, and has its free end tapered on the outside, as shown at *b'*.

C represents the screw-cap to be screwed over the end of the tube A and bushing B. It has a central orifice, *c'*, in the delivery end, of a diameter equal to that of the bore of the tube A, though the orifice may be enlarged, if desired.

D is the conical metallic washer, held in place in screw-cap C by the engagement of the screw pin or stud *d'* with annular groove *f'* of the washer. This washer D is capable of turning around within the cap C with a minimum degree of friction. Being supported by the en-

gagement of the stud *d'* in its groove *f'*, and being turned down, so that a broad anti-friction groove, *g'*, is formed around it, it presents but little friction-surface to the cap.

When the nozzle A is in operation, and it is desired to throw a smaller stream than the full outlet, the cap C is screwed up for the purpose of forcing the conical end of the bushing B into the conical washer D, which uniformly contracts the outlet of the elastic bushing B, and has the effect of producing a smooth, solid stream of water smaller than the orifice *c'* of the cap C, and one that will, under like pressure, project farther than will a stream filling the said orifice of the cap.

It will be observed that there is nothing within the nozzle A to obstruct the free passage of the water, and that this cap C does not shut the stream of water off suddenly, but gradually, thereby preventing the bursting of the hose by a sudden strain.

The sloping shoulder *h'* shown in the tube A is to concentrate the stream of water flowing from the hose before it shall reach the mouth of the nozzle.

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

1. The conical metallic washer D, provided with grooves *f'* and *g'*, in combination with the screw or stud *d'*, substantially as herein shown and described.

2. The combination, with the hose-pipe nozzle A, of the conical elastic bushing B, cap C, and conical washer D, the cap being held by a screw-coupling over wires to nozzle and bushing, and to the washer by a screw, *d'*, substantially as herein shown and described.

3. The conical metallic washer D, provided with one or more anti-friction grooves, *g'*, substantially as herein shown and described.

4. The combination of the elastic bushing B, provided with a tapering end, *b'*, with the conical washer D, provided with anti-friction grooves *g'*, substantially as herein shown and described.

GEORGE CLIFFORD PALMER.

Witnesses:

W. H. NUTE,  
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