

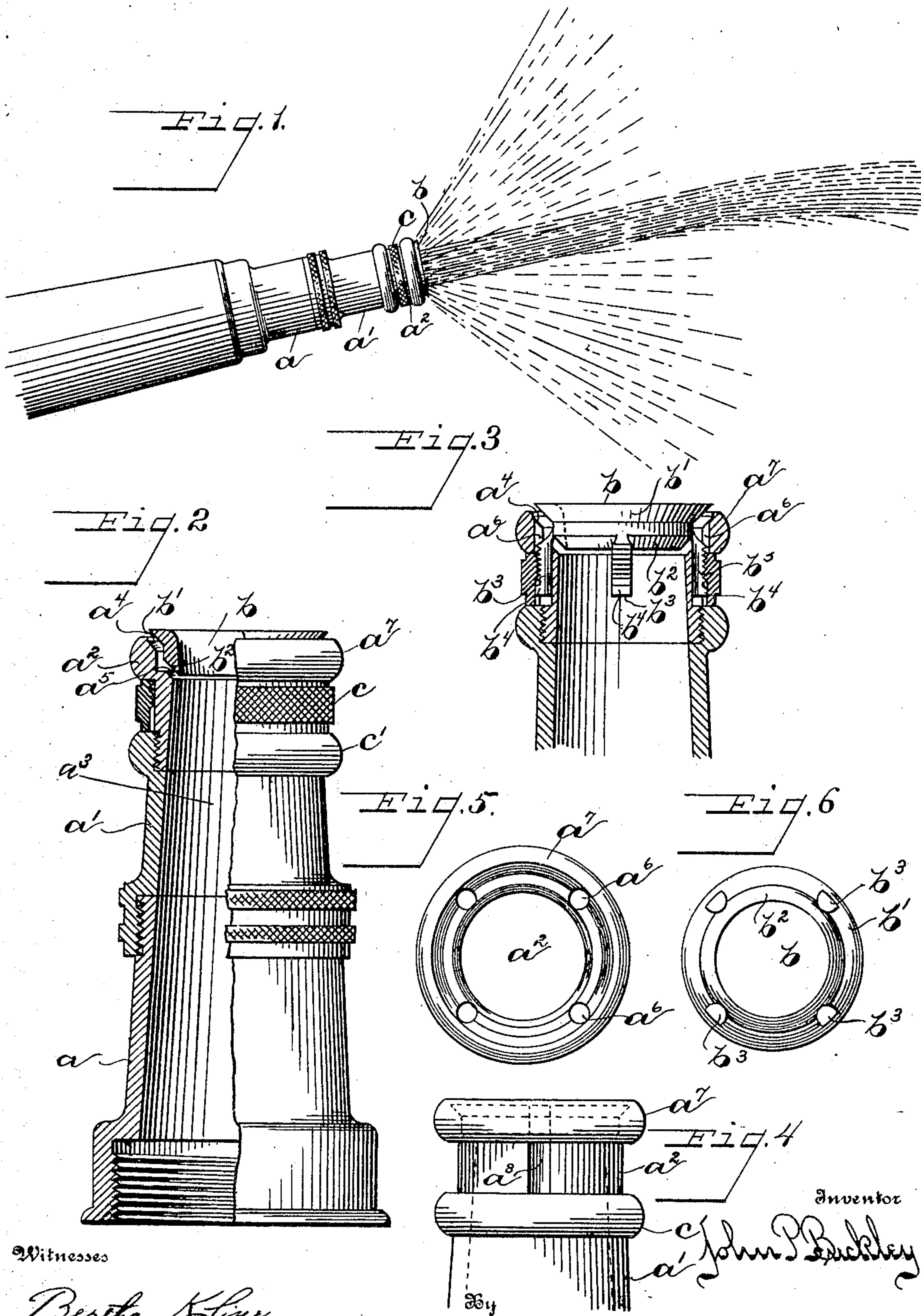
No. 871,256.

PATENTED NOV. 19, 1907.

J. P. BUCKLEY.

HOSE NOZZLE.

APPLICATION FILED NOV. 30, 1906.



Witnesses

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# UNITED STATES PATENT OFFICE

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## HOSE-NOZZLE.

No. 871,256.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed November 30, 1906. Serial No. 345,653.

*To all whom it may concern:*

Be it known that I, JOHN P. BUCKLEY, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Hose-Nozzles, of which the following is a specification.

My invention relates to improvements in hose nozzles and particularly to a spraying device therefor, whereby may be simultaneously discharged a main stream and spray at an angle thereto.

The object of the invention is to provide an improved form of hose nozzle for fire fighting apparatus, adapted by the discharge of a fine spray around and at an angle to the main stream, to drive back the smoke and other products of combustion and form a protection for the operator.

A further object is to simplify the construction as well as the means and mode of operation of such devices whereby they will not only be cheapened in construction but will be rendered more efficient in operation and unlikely to get out of repair.

A further object is to provide a simple form of adjustment for the spray device, whereby the said spray feature may be either dispensed with and the nozzle used in the ordinary manner, or it may be adjusted to deliver a greater or less amount at the will of the operator.

With the above primary and other incidental objects in view, as will appear from the specification, the invention consists of the construction, the parts, the combination and arrangement thereof or their equivalents here-in-after described and set forth in the claims.

Referring to the drawings, Figure 1 is a view illustrating the nozzle and spray device in use, Fig. 2 is a side view of the nozzle partly broken away. Fig. 3 is a longitudinal sectional view of a portion of the nozzle. Fig. 4 is an exterior view of the discharge end of the main nozzle member. Figs. 5 and 6 are views respectively of the main nozzle member and the deflector member.

Like parts are indicated by similar characters of reference in several views.

In constructing the device, in order to facilitate the manufacture and assembling thereof, the main nozzle member is formed in three parts, a coupler section  $a$ , an intermediate section  $a^1$ , and a tip section  $a^2$ , screw threaded together. By the use or

non-use of the coupler section the device may be adapted to different styles of play pipes having connections of different diameters. The main nozzle member thus formed has a central bore  $a^3$  preferably somewhat tapering and a bell shaped or flaring discharge orifice  $a^4$  as shown in Fig. 2.

Within the interior of the tip section  $a^2$  and adjacent to the discharge orifice is formed a seat  $a^5$  upon which normally rests a deflector member  $b$  when the nozzle is being used in ordinary manner.

The deflector member  $b$  consists of a ring having a flaring exterior  $b^1$ , a central bore slightly tapering in a direction the reverse of that of the main nozzle member. The inner side  $b^2$  of the deflector member is formed conical to fit the seat  $a^5$ . The central bore of the deflector member is of slightly less diameter than that of the main nozzle member thus forming a shoulder within the bore adapted to interrupt the flow of the water forming the exterior surface of the stream.

When the deflector member is adjusted away from the seat  $a^5$  by means hereafter described, the water forming the exterior of the stream, when interrupted as before mentioned, will be deflected from the main stream and projected at an angle thereto in the form of a spray through the outlet passage intermediate the flaring exterior  $b^1$  of the deflector member  $b$  and the bell shaped discharge orifice of the main nozzle member.

It is apparent that the spray is not dependent on the lateral pressure of the water but is due to the direct impact force of the stream against the shoulder formed by the reduced opening in the deflector member and will be projected to a distance with considerable pressure.

To adjust the deflector member  $b$  to and from the seat  $a^5$  fingers  $b^3$  are provided on the deflector member, projecting parallel with the axis of the nozzle. In the drawing four such fingers are shown, however a greater or less number may be employed. The exterior surfaces of said fingers  $b^3$  are arcs of a circle concentric with the axis of the nozzle bore. When assembled in position the fingers  $b^3$  project into longitudinal openings  $a^6$  formed in the tip section  $a^2$ . The tip section  $a^2$  is formed with an enlarged bead or band  $a^7$  at its extremity. The openings  $a^6$  extend through said bead and are continued in the form of a groove  $a^8$  in the



reduced portion of said tip section as shown in Fig. 4. The exterior surfaces of the fingers  $b^3$  are screw threaded and engage an internally screw threaded collar  $c$  located about the reduced portion of the tip section  $a^2$  and intermediate the bead or band  $a^7$  and a similar bead or band  $c^1$  on the intermediate section  $a^1$ . The arrangement is such that the beads  $a^7$ — $c^1$  while preventing any lateral movement of the collar  $c$  will permit a revoluble movement thereof. The beads  $a^7$ — $c^1$  extending above the collar  $c$  are adapted to protect the latter from accidental blows or knocks.

The engagement of the screw threaded fingers  $b^3$  with the collar  $c$  is such that a revoluble movement of said collar will cause the deflector member to be moved to and from the seat  $a^5$ . A portion of the finger  $b^3$  adjacent to the extremity thereof, is left unthreaded as at  $b^4$  or said portion  $b^4$  may be in the form of a lug. When in use the portion  $b^4$  by engagement with the interior screw threads of the collar  $c$  will limit the outward movement of the deflector member  $b$ ; the movement of the deflector in the opposite direction being limited by the seat  $a^5$ . It will be noted by reference to Figs. 2 and 3 that the collar  $c$  is screw threaded only throughout a portion of its width, to permit the deflector a limited movement before the portion  $b^4$  engages the interior screw threads of the collar.

It is obvious from the above description that there has thus been produced a hose nozzle which possesses the particular features of advantage enumerated as desirable, and which is obviously susceptible of modification in its form, proportion, detail construction and arrangement of parts without departing from the principle involved or sacrificing any of its advantages.

Having thus described my invention I claim;

1. In a hose nozzle, a main nozzle member, a deflector member capable of longitudinal movement only, located at the discharge end of said nozzle member and concentric therewith, having an opening of less diameter than that of the main nozzle member, said deflector member being offset in its relation to the nozzle member to form a passage intermediate said nozzle member and deflector member, having its general direction at an inclination to the axis of the nozzle bore, substantially as specified.

2. In a hose nozzle as described, a main nozzle member, a non-revoluble deflector member, having a central discharge orifice therein, a seat in said nozzle member upon which said deflector member is adapted to rest, means for adjusting said deflector member to and from said seat, substantially as specified.

3. In a hose nozzle as described, a main

nozzle member, a non-revoluble, longitudinally adjustable deflector member having a flaring exterior, and a concentric opening therein, means for adjusting the deflector member to and from the nozzle member to regulate the opening intermediate said parts, substantially as specified.

4. In a hose nozzle as described, a main nozzle member, having a central bore, a seat formed in said bore, a deflector member located within the discharge end of said nozzle, having a flaring exterior and an opening concentric with the central bore of the nozzle member; said deflector member adapted to normally rest upon said seat, and independent means to adjust said deflector member longitudinally to and from said seat, substantially as specified.

5. In a hose nozzle as described, a main nozzle member, a non-revoluble deflector member located adjacent to the discharge end of said nozzle member, but separated therefrom, said deflector member being of less diameter than the bore of the nozzle and adapted to interrupt the exterior portion of the stream of water and direct it at an angle to the main stream, and having an opening therein for the passage of the said main stream, substantially as specified.

6. In a hose nozzle as described, a main nozzle member, a deflector member, projecting fingers on said deflector member, screw threads on the exterior surface of said fingers, an internally screw threaded collar engaging the screw threads of said projecting fingers, whereby said deflector member may be adjusted to and from said nozzle member, substantially as specified.

7. In a hose nozzle as described, a main nozzle member, a deflector member having a discharge opening therein, extended fingers on said deflector member, a revoluble collar engaging said fingers, and adapted to move said deflector longitudinally in relation to said main nozzle member, substantially as specified.

8. In a hose nozzle as described, a main nozzle member, a deflector member, double beads on said nozzle member, an internally screw threaded collar mounted on said nozzle member intermediate said beads, fingers on said deflector member having screw threads thereon projecting through suitable openings in the nozzle member and engaging said screw threaded collar, substantially as specified.

9. In a hose nozzle as described, a main nozzle member, a deflector member, projecting screw threaded fingers on said deflector member, an internally screw threaded collar mounted on the nozzle member and engaging the said screw threaded fingers, an unthreaded portion at the extremity of said fingers adapted to engage the screw threads of said collar and limit the outward move-



ment of said deflector member, substantially as specified.

10. In a hose nozzle as described a main nozzle member, an internally screw threaded collar on said member, capable of a revoluble movement only, a deflector member adapted to interrupt a portion of the stream of water and guide it at an angle to the main stream, fingers on said deflector engaging said revoluble collar and means for limiting the movement of said deflector member in either direction substantially as specified.

11. In a nozzle as described, a main nozzle member, a non-revoluble deflector member,

adapted to interrupt and deflect a portion of the stream of water at an angle to the main stream, an adjusting collar for said deflector, fingers on said deflector engaging said collar, and protecting beads on opposite sides of said adjusting collar, substantially as specified.

In testimony whereof, I have hereunto set my hand this 26<sup>th</sup> day of November A. D. 1906.

JOHN P. BUCKLEY.

Witnesses:

HARRY F. NOLAN,  
FRANK L. WALKER.