No. 621,514. Patented Mar. 21, 1899.

J. E. ARMITSTEAD.

SPRAY NOZZLE.

(Application filed Sept. 14, 1897.)

(No Model.)

FIG. 5.

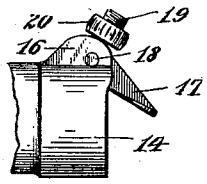


FIG. 1.

FIG. 2.

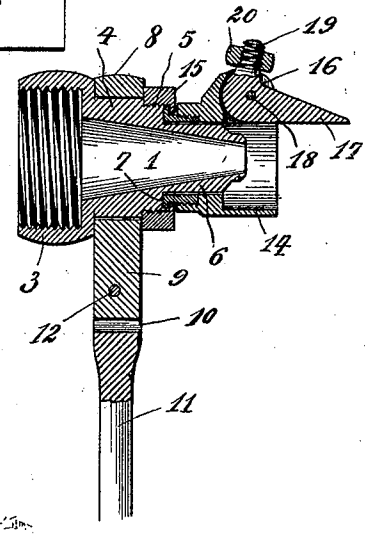


FIG. 3.

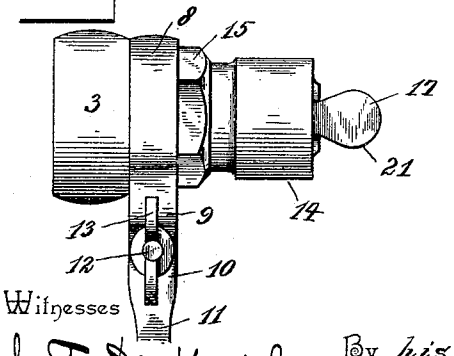
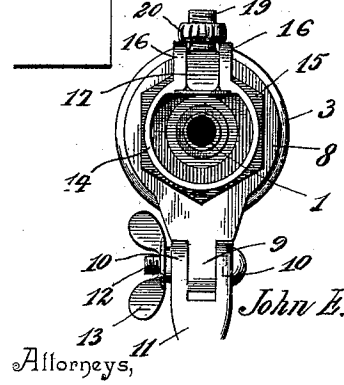


FIG. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

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SPRAY-NOZZLE.

SPECIFICATION forming part of Letters Patent No. 621,514, dated March 21, 1899.

Application filed September 14, 1897. Serial No. 651,647. (No model.)

To all whom it may concern:

Be it known that I, JOHN EMER ARMITSTEAD, a citizen of the United States, residing at Provo City, in the county of Utah and State of Utah, have invented a new and useful Spray-Nozzle, of which the following is a specification.

This invention relates to spray-nozzles, its object being to provide a simple and efficient device of this character in which the spraying attachment may be adjusted to throw a spray of varying widths either up or down or in any desired direction or which may be so adjusted as to be entirely out of the way and permit the nozzle to throw a solid stream.

The invention also contemplates an improved support for the nozzle which will permit the hose to untwist itself when the water is first turned on and which will also permit of any desired adjustment of the discharge end of the nozzle in a vertical or horizontal plane.

With these objects in view the invention consists of the several details of construction and combination of parts, as will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings, Figure 1 is a perspective view of a spray-nozzle and its support made in accordance with my invention. Fig. 2 is a vertical longitudinal section. Fig. 3 is a side elevation of the nozzle, looking at the inner face of the sprayer. Fig. 4 is a front end view. Fig. 5 is a side elevation of the spraying attachment.

Similar reference-numerals indicate similar parts in the several figures.

1 indicates the nozzle, which is provided with a tapering bore in the usual manner and with an annular flange 3 at its rear end, interiorly threaded for attachment to the hose. Above the flange the exterior of the nozzle is provided with a cylindrical portion (indicated by 4) the upper end of which is threaded, as indicated at 5. Above the threaded end of the cylindrical portion 4 the nozzle is reduced, as indicated at 6, and a square shoulder 7 is formed at the junction of the reduced end portion 6 and the threaded end of the cylindrical portion 4.

8 indicates a collar which fits over the cylindrical portion 4 and forms a support in which the nozzle can turn freely. This collar is provided with a lug 9 on one side, which is transversely perforated and fits between the spaced ears 10 of a pin 11. The spaced ears 10 are also perforated, and a threaded bolt 12 passes through the perforations in the ears and the lug and receives a thumb-nut 13. The collar and pin serve as a support for the nozzle, and the latter is free to turn axially in the collar, so that when the water is first turned into the hose the hose will be free to untwist itself. By means of the connection of the collar to the pin the nozzle can be supported to lie in a horizontal plane or its discharge end can be elevated or lowered, as desired, and by turning the thumb-nut 13 the nozzle will be firmly held in its adjusted position. It is also obvious that the supporting-pin may be turned to vary the direction of the discharge end of the nozzle in a horizontal plane.

The spraying attachment consists of a collar 14, swiveled in a nut 15 and provided on one side with spaced ears 16, between which the lower end of the sprayer 17 is pivoted on a pin 18. The collar 14 fits over the reduced end 6 of the nozzle to turn freely thereon, and the nut will be screwed onto the threaded end 5 of the cylindrical part 4, thereby securing the collars 8 and 14 in position to leave them both free to turn on the nozzle.

19 indicates a threaded pin projecting outwardly from the sprayer opposite and at a right angle to the pivot-pin 18, and 20 is a thumb-nut which works on the pin and is adapted to engage the edges of the ears 16. As shown, these edges are curved eccentrically to the pivot-pin 18, the distance from the pin increasing outwardly. The operative face of the sprayer can be arranged at any angle of inclination to overhang the discharge end of the nozzle, and by turning up the thumb-screw 20 against the curved edges of the ears 16 the sprayer will be firmly clamped in its adjusted position. The inner or operative face of the sprayer is flat, and its outer end is widened and semicircular in outline, as indicated at 21.

When the parts are in position for spraying, the sprayer will overhang the discharge end of the nozzle and be in close proximity to it, thereby preventing back splash when

the stream strikes the sprayer. By arranging the sprayer close to the discharge end of the nozzle its area can be greatly decreased and the friction on the water will be correspondingly reduced, and the spray can therefore be thrown much farther than with larger sprayers, where the friction would be greater. The spray will still be as wide as when a larger sprayer is used, for it is only necessary to give the initial deflection to the water and it will naturally follow the lines of deflection after leaving the sprayer.

It will be obvious that in addition to the vertical adjustability of the discharge end of the nozzle on the pin 11 the latter can easily be turned around in its support, which may be the ground or a suitable stand, as preferred, and also that the sprayer can be adjusted on the nozzle axially to deflect the stream to any point desired and that the spray can be directed in either a vertical or horizontal plane, or in a plane between them. When the sprayer is turned to lie parallel with the axial center of the nozzle, it will not engage the stream discharged from the nozzle.

It will be understood that changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having thus described the invention, what I claim is—

1. The combination of a supporting-pin, a collar mounted thereon, a nozzle extending through the collar adapted to rotate freely therein and provided at the inner side of the collar with a shoulder, and a nut arranged on the nozzle at the outer side of the collar and retaining the latter on the former, substantially as described.

2. In combination, a nozzle having a cylindrical portion and a shoulder at one end of the cylindrical portion, a collar having detachable or screw-thread connection with the nozzle and forming a shoulder at the opposite end of the said cylindrical portion, a second collar mounted to turn freely upon the cylindrical portion of the nozzle between the aforedescribed shoulders and having an offstanding lug, a supporting-pin having ears at its upper end between which is fitted the aforesaid lug, and a clamp-bolt passing through transversely-alining openings in the lug and spaced ears to hold the nozzle in an adjusted position, substantially as described.

3. In combination, a nozzle, a collar or like part applied to the nozzle and having an offstanding portion formed with a curved edge, a sprayer pivotally connected with the said offstanding portion, and clamping means applied to the sprayer and acting jointly with the curved edge of the aforedescribed offstanding portion to secure the sprayer in an adjusted position, substantially as described for the purpose specified.

4. The combination with a nozzle, of a collar supported on the discharge end of the nozzle to turn thereon and having spaced ears, a sprayer pivoted between said ears with its outer end adjustable to overhang the discharge end of the nozzle, and means to lock the sprayer in position, substantially as described.

5. The combination with a nozzle, of a collar mounted on the discharge end of the nozzle to turn thereon and having spaced ears, a sprayer pivoted between said ears with its outer end adjustable to overhang the discharge end of the nozzle, the edges of the ears being curved eccentrically to the pivot of the sprayer, a threaded pin projecting from the sprayer between the ears at a right angle to the pivot, and a thumb-nut on the threaded pin, substantially as described.

6. The combination with a nozzle having a reduced end portion, of a collar fitted loosely over the nozzle intermediate its ends, a supporting-pin to which said collar is adjustably pivoted, a nut screwed on the nozzle to engage said collar, a collar fitted loosely over the reduced end portion of the nozzle and having a swiveled connection with the nut, a sprayer pivoted to the last-named collar with its upper end adjustable to overhang the discharge end of the nozzle, and means to lock the sprayer in position, substantially as described.

7. The combination with a nozzle, of a collar mounted on the discharge end of the nozzle and adapted to rotate freely thereon, and a sprayer mounted directly on the collar and located at one side of the nozzle in close proximity to the end of the latter and extending forward from the front end of the same in position to deflect the spray and prevent the same from being discharged at that side, said sprayer being carried by the collar in its rotation, whereby the sprayer may be arranged at any side of the nozzle, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN EMER ARMITSTEAD.

Witnesses:
N. C. LARSEN,
WM. PROBERT.