

No. 621,480.

Patented Mar. 21, 1899.

S. M. STEVENS.
NOZZLE.

(Application filed Jan. 25, 1897.)

(No Model.)

Fig. 1.

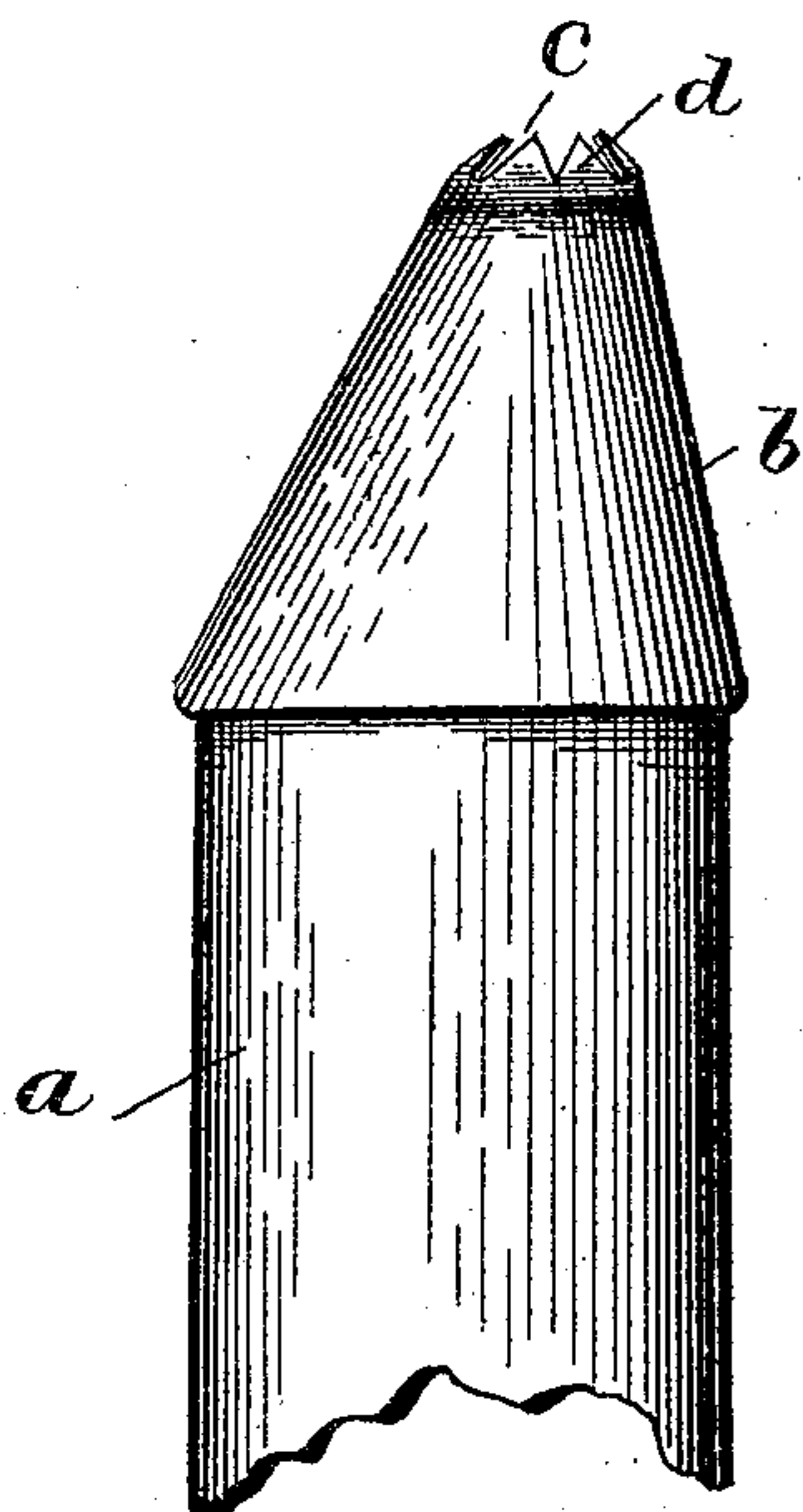


Fig. 2.

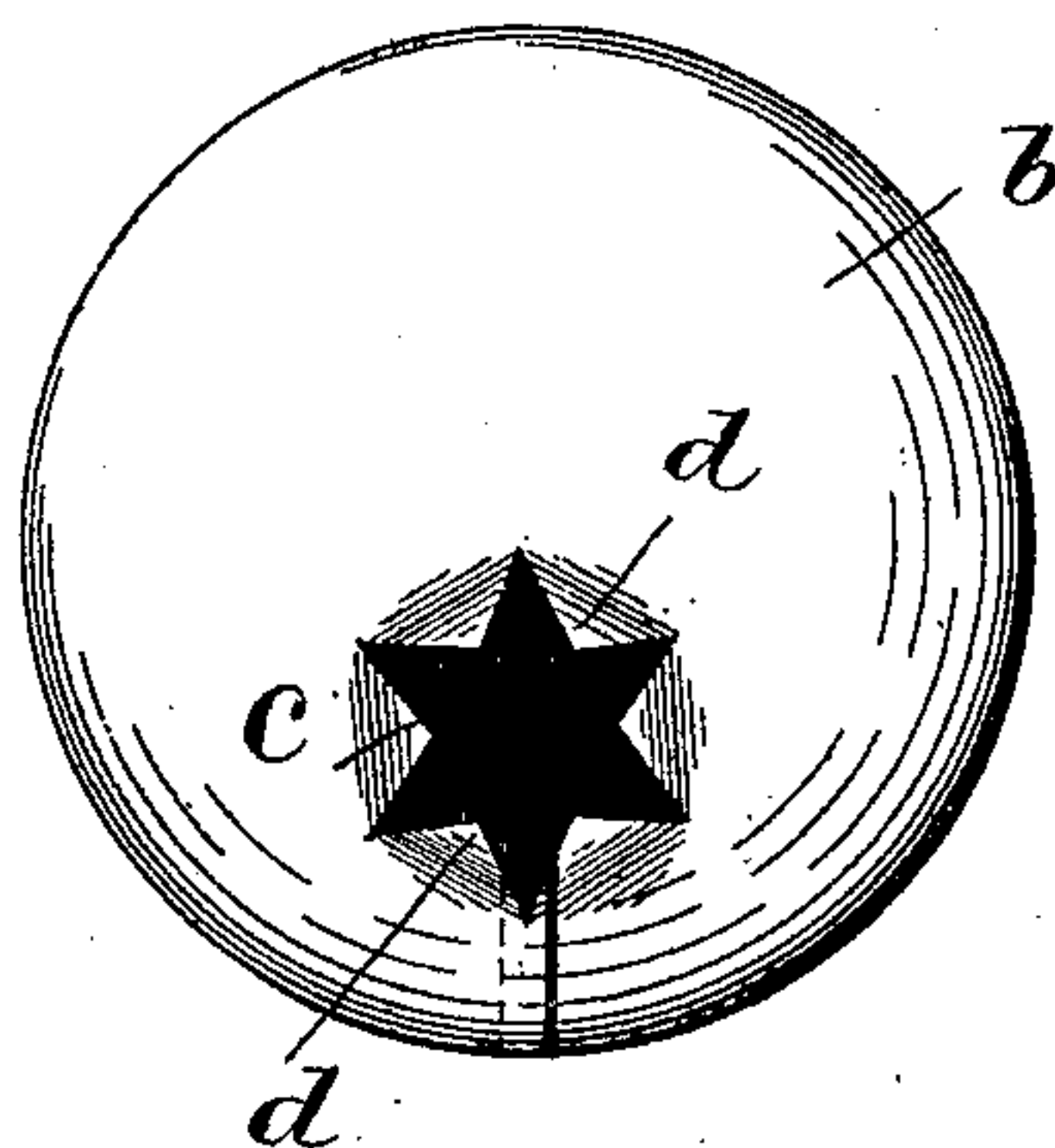
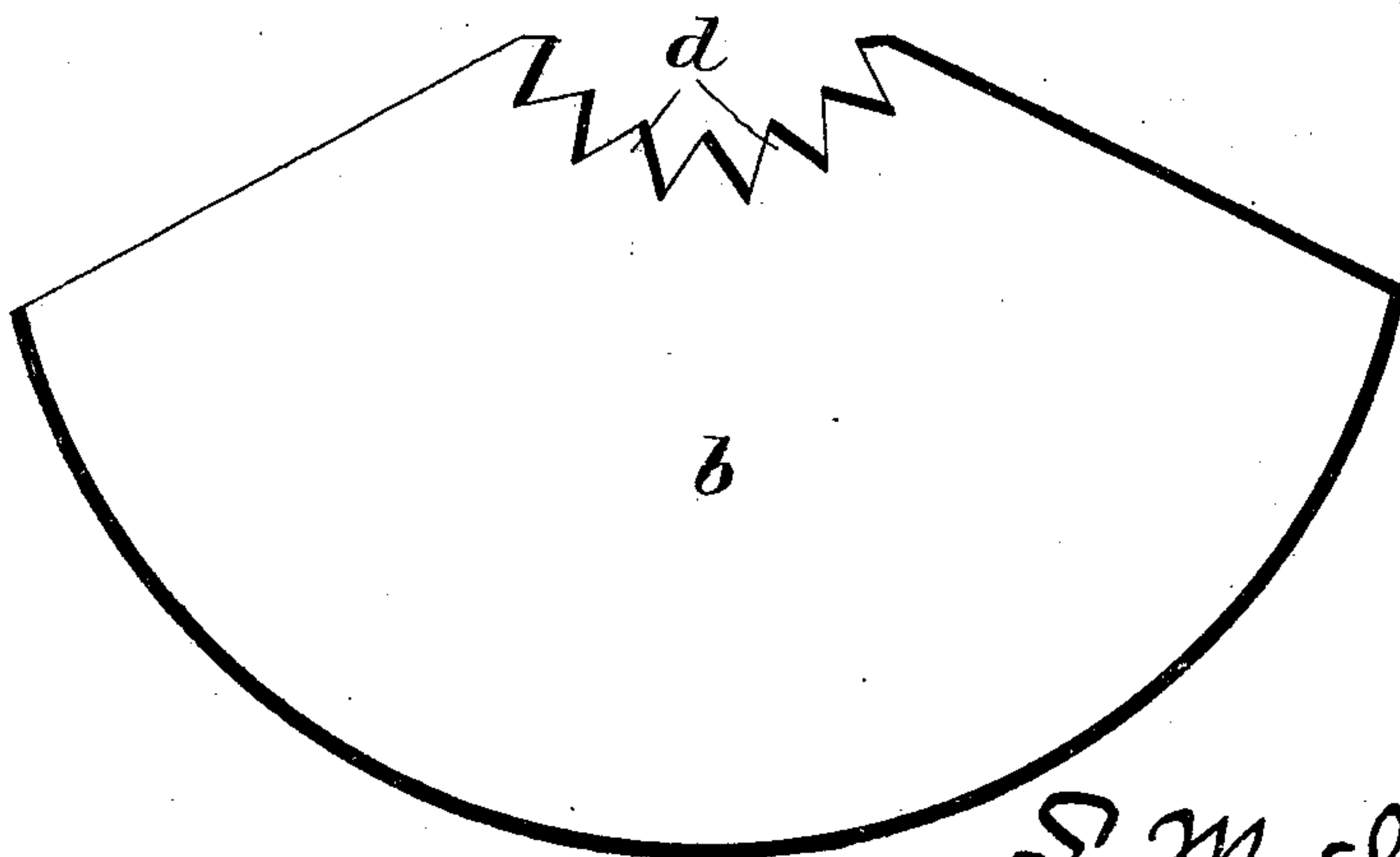


Fig. 3.



Witnesses
Geo. E. Frick.
A. S. Patton

S. M. Stevens ^{Inventor}
Thos. Hubert & Beck
Attorney

UNITED STATES PATENT OFFICE.

SAMUEL M. STEVENS, OF MANCHESTER, NEW HAMPSHIRE.

NOZZLE.

SPECIFICATION forming part of Letters Patent No. 621,480, dated March 21, 1899.

Original application filed April 17, 1896, Serial No. 587,979. Divided and this application filed January 25, 1897. Serial No. 620,634. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL M. STEVENS, a citizen of the United States, residing at Manchester, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Nozzles, (for which I have secured a Canadian patent, No. 48,633, dated April 8, 1895;) and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, and which is a division of my application filed April 17, 1896, Serial No. 587,979.

This invention relates to certain improvements in nozzles.

The object of the invention is to provide an improved discharge or spraying nozzle simple, durable, and economical in construction and composed of a minimum number of parts and which can be easily manufactured at a comparatively low cost and which will divide and spray the liquid being discharged there-through over an extended area.

The invention consists in certain novel features of construction, and in combinations of parts, and in details of construction, as more fully and particularly described and pointed out hereinafter.

Referring to the accompanying drawings, Figure 1 is a side elevation of a tubular body, partially broken away, with a nozzle constructed in accordance with my invention and applied to the body. Fig. 2 is an end view of the nozzle, looking into the discharge-opening thereof. Fig. 3 is a plan of a metal blank which can be employed to form the nozzle.

In the drawings, *a* is a tubular body provided at one end with the discharge-nozzle *b*, here shown as tapered from its junction with said body to its end discharge-opening *c*.

In the form of my invention as illustrated by the example shown in the drawings the metal nozzle tapers to and terminates in the discharge-opening, and the end of the nozzle forming the edge of the nozzle is serrated or otherwise formed with projecting points *d*, arranged around and extending radially into the discharge-opening. These points are pref-

erably, although not necessarily, formed directly in or of the metal constituting the nozzle and are preferably, although not necessarily, arranged directly in the discharge-opening from the nozzle; but I do not wish to particularly limit myself to such location, as the points might be located elsewhere in the discharge-passageway, and the points need not be integral with the nozzle, but could be formed rigid therewith in other ways; nor do I specifically wish to limit my invention to a tapered nozzle, as a discharge-passageway otherwise formed might be provided with such rigid points approximately as herein set forth.

In the example shown in the drawings a sheet-metal blank, approximately as shown in Fig. 3, can be cut out by a single stroke of a die, with its upper or short edge notched or made up of a series of points or serrated and concaved and its opposite long edge convexed and with its ends cut straight. The blank can then be bent around on a suitable tool or former into the conical shape shown in Figs. 1 and 2, with its straight edges overlapping. These straight edges are then soldered together or otherwise united, so that the short concaved and serrated edge forms the comparatively small discharge-opening surrounded by the serrated wall or edge, while the long convexed edge surrounds the large bottom opening of the nozzle and can lap and be soldered or otherwise joined to the end of the tube or otherwise-formed body *a*. The rigid points or projections *d* are then bent or curved slightly inwardly to, into, or more radially of the discharge opening or passage for the liquid, so that the liquid in forcibly passing through the discharge-passageway is engaged and deflected and divided, or spread, and sprayed by said points.

However, I wish it understood that I do not limit my invention to forming the nozzle in a separate piece from the body through which or from which the liquid passes to the nozzle or discharge-passageway or discharge-opening.

Advantages are attained by locating the points or projections directly in the discharge-opening and also by forming a plurality of closely-arranged points and also by forming the projections tapered to a point by interven-

ing V-shaped notches, although I do not wish to specifically limit my invention to such features.

The improved nozzle or spraying-discharge
5 can be employed in many connections and can be applied to any kind of a discharging device where it is desired to spray liquid, although in the example illustrated in the drawings the nozzle is shown applied to a hand
10 fire-extinguisher tube adapted to contain a liquid fire-extinguishing compound.

It is evident that various changes and modifications might be made in the forms, constructions, and arrangements of the parts described without departing from the spirit and
15 scope of my invention. Hence I do not wish to limit my invention to the exact construction herein set forth and illustrated.

Having thus fully described my invention,
20 what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A discharge-nozzle terminating in a series of points or projections around and bent into the unobstructed discharge - opening,
25 substantially as described.

2. A discharge-nozzle having an end discharge-opening, said nozzle tapering to said opening and terminating in rigid projections at and around and extending radially into
30 said opening to spray the liquid discharged therefrom, substantially as described.

3. A nozzle formed of a blank cut at one edge to form an end opening and serrated or notched at said edge to form the points or
35 projections around the opening of the completed nozzle, substantially as described.

4. A nozzle bent from a sheet-metal blank cut, notched, or serrated to form points or

projections which are bent or deflected into and around the liquid-passage of the nozzle, 40 substantially as described.

5. A discharge-nozzle formed of a single sheet-metal blank cut out with the serrated or notched short concaved edge and the long
45 convex edge, bent into conical or tapered form with its end edges united forming the small opening at one end with an irregular edge and the large opening receiving and around which the nozzle is secured to a hollow body from which liquid is adapted to be
50 discharged, in combination with the hollow body, substantially as described.

6. A spraying-nozzle having a permanently-open water-discharge passage, an edge of the metal of the nozzle surrounding said passage
55 serrated or notched outwardly, radial to the passage, to form the series of teeth surrounding the passage and projecting radially a slight distance thereinto, substantially as described. 60

7. A spraying-nozzle having a central longitudinal discharge-passage through which the liquid flows, an edge of said nozzle provided with a series of rigid, short, inwardly-projecting teeth surrounding and extending
65 transversely into said longitudinal passage and practically radial thereof so that the liquid passes through the space within the inner surrounding extremities of said teeth.

In testimony whereof I affix my signature 70 in presence of two witnesses.

SAMUEL M. STEVENS.

Witnesses:

EDWARD LEAVITT,
ELLIOT STONE.