M. J. SANGER.

PROTECTION NOZZLE FOR FIRE HOSE.

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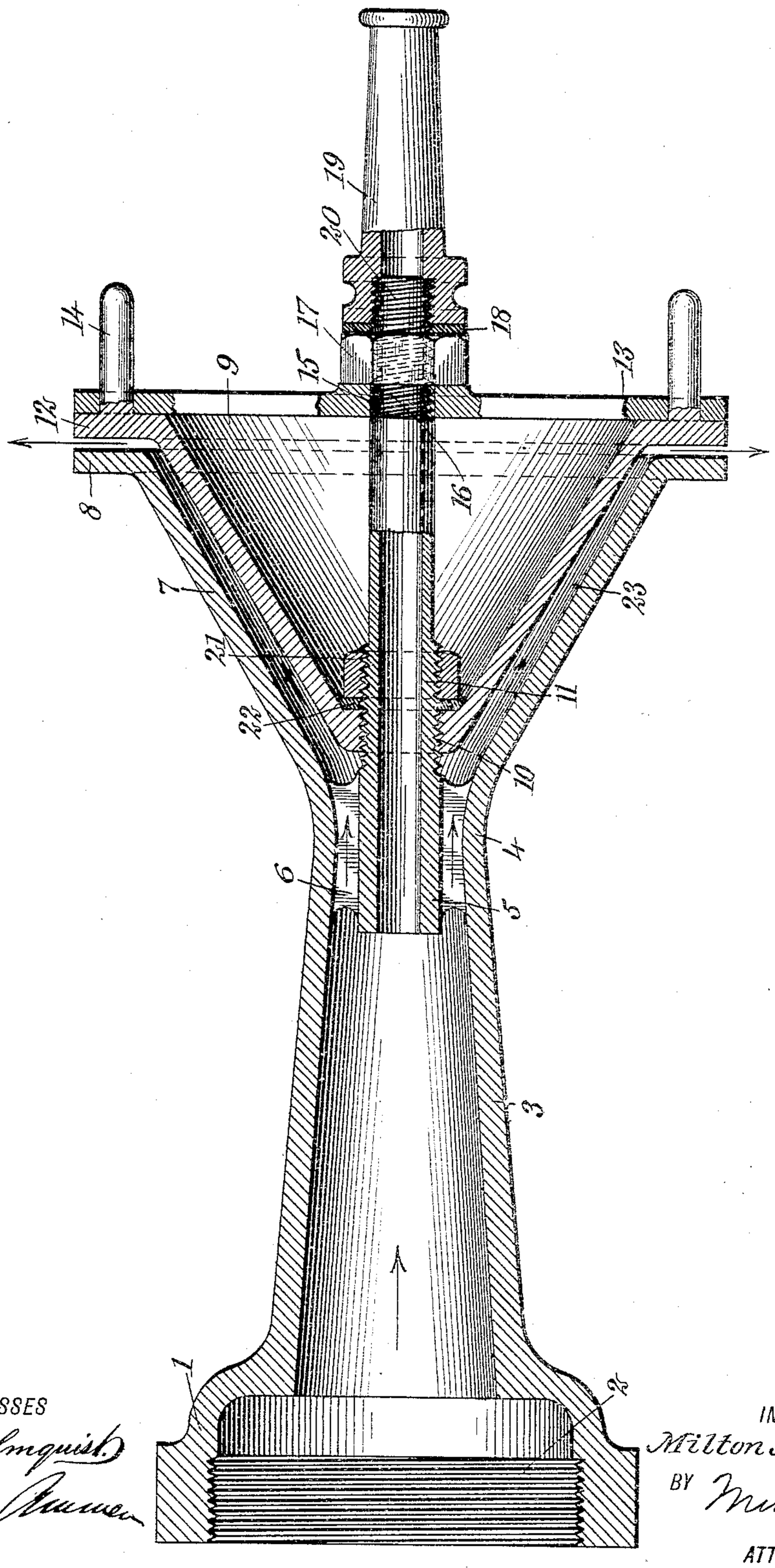

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PROTECTION-NOZZLE FOR FIRE-HOSE.

No. 930,800. Specification of Letters Patent. Patented Aug. 10, 1909.

Application filed March 20, 1909. Serial No. 484,640.

To all whom it may concern:

Be it known that I, MILTON J. SANGER, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Protection-Nozzle for Fire-Hose, of which the following is a full, clear, and exact description.

This invention relates to nozzles such as used on fire hose for directing a stream of water into a fire.

The object of the invention is to produce a hose nozzle of this class having a construction which will enable a protecting sheet of water to be thrown out from the nozzle and between the firemen and the fire, so that the firemen will be protected from the smoke and injurious gases of combustion; and to arrange the parts of the nozzle in such a way that this protecting sheet will not have the effect of producing a draft toward the fire.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawing forming a part of this specification, in which the view is a longitudinal central section through a hose nozzle constructed according to my invention, certain parts being broken away and shown in elevation.

Referring more particularly to the parts, 1 represents the base or hub of the nozzle, which is provided with internal threads 2 which enable it to be attached to the ring at the end of the hose. The body 3 of the nozzle is slightly conical so as to taper toward the outer end of the nozzle. At the neck 4 where the nozzle is of smallest diameter, a main tube 5 is formed which is held on the central axis of the nozzle by means of integral webs 6 which connect with the outer wall, as shown. Beyond this point the outer wall of the nozzle flares outwardly so as to form a conical shell 7, the largest diameter of the shell being disposed toward the outer end of the nozzle. At its outer edge this conical shell is provided with an outwardly projecting flange or guide lip 8 which is disposed in a plane at right angles to the central axis of the nozzle, as indicated. In the conical shell 7 there is received a cone or cone plug 9, and provided with a threaded opening 10 at its small end which is received on the threaded neck 11 of the main tube. The outer edge of the cone 9 is provided with an outwardly projecting flange or guide lip 12 which is disposed opposite to the flange 8, and this flange also lies in a plane at right angles to the axis of the nozzle. On the outer face of the flange 12, a disk 13 is seated which closes the cone, as indicated. Oppositely disposed handles or studs 14 are provided at this point, which operate as handles to enable the plug to be rotated. The tube 5 passes through an opening 15 in a disk or plate 13, and at this point is provided with threads 16 upon which a nut 17 is received, as indicated. Beyond the nut a washer 18 is provided and against this washer seats the inner end of a removable tip 19 for the nozzle, said tip being secured on a pipe threaded nipple 20. On the threaded neck 11 a stop nut 21 is provided, and on the inner face of said stop nut a washer 22 is provided, against which the inner end of the cone 9 seats when it is adjusted outwardly to its outer limit or wide open position.

When the nozzle is in operation, in addition to the main stream which passes through the main tube 5 and which is directed upon the fire, an annular stream passes through the neck 4, as indicated by the arrows, and from this point this stream passes outwardly along a conical duct 23 which is formed within the shell 7 adjacent to the face of the cone 9. When this conically diverted stream arrives at the flanges 8 and 12 it is directed by them in a plane at right angles to the axis of the nozzle, and in this way a thin sheet of water is projected between the firemen and the fire. By adjusting the cone on the threaded neck 11, the thickness of this sheet or wall of water can be regulated as desired.

A hose nozzle constructed as described will evidently protect firemen from heat, smoke, and gases of combustion. This nozzle, furthermore, will not tend to produce a draft in the direction of the fire even if used just within a window through which the hose passes to the interior. By projecting the sheet of water at right angles to the axis of the main stream, it will normally be disposed in a substantially vertical plane or tip rearwardly at its upper edge and will have little or no tendency to draw the air toward the fire.

Attention is called to the fact that the annular conical duct 23 which leads the water to the guide lips 8 and 12, is constricted in the direction of the lips. This constriction

is gradual and is brought about by the gradual convergence of the walls of the cone and the shell. This arrangement tends to reduce the area of the stream near its point of delivery, and tends to close any gaps which may have been formed in this stream by the web 6.

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

1. A hose nozzle having a body with a conical shell connected therewith, said conical shell having an outwardly projecting flange with a flat guiding face disposed in a plane at right angles to the axis of said body, a centrally disposed main tube adapted to throw a main stream, and a cone carried on said main tube, the face whereof lies adjacent to said shell, said cone having an outwardly projecting flange lying opposite to said first flange and having a flat guide face disposed in a plane at right angles to the axis of said body, said main tube being connected with said body beyond said conical shell whereby the stream flowing in the space between said shell and said cone is unobstructed, said cone and shell converging in an outward direction and constricting the duct therebetween tending to close the gaps caused by said webs.

2. A hose nozzle having a body with an outwardly flaring conical shell, a main tube mounted centrally in said body and having webs connecting the same with said body beyond said conical shell, said tube having threads thereupon near its inner end, a cone mounted on the threads of said tube and received in said shell, said cone and said shell having outwardly projecting guide lips disposed adjacent to each other, a nut on said threads, seating against the inner end of said cone for adjusting the same, a disk seating on the outer end of said cone, said tube having a thread adjacent to said disk, and a nut mounted on said last thread seating against said disk.

3. A hose nozzle having a body with an outwardly flaring conical shell, a main tube mounted centrally in said body and having webs connecting the same with said body beyond said conical shell, said tube having threads thereupon near the inner end thereof, a cone received in said shell and having a threaded opening at its inner end received on said threads, a stop nut mounted on said threads and adapted to limit the outward movement of said cone, a disk seating on the outer end of said cone and having an opening through which said main tube passes, said main tube having threads at the outer end thereof, and a nut on said threads seating against the outer face of said disk.

4. A hose nozzle having a body with an outwardly flaring conical shell, a main tube mounted centrally in said body and having webs connecting the same with said body beyond said shell, a cone mounted on said tube, said cone and said shell having outwardly projecting guide lips, said cone having handles on the ends thereof projecting substantially parallel with the axis of said nozzle, and a disk seating on the end of said cone and having openings through which said handles pass, said tube having a threaded connection with said cone for adjusting said cone.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MILTON J. SANGER.

Witnesses:
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