Dec. 20, 1949 E. J. BAUME 2,491,796

SCREEN FOR USE IN ASSOCIATION WITH FIRE NOZZLES

Filed May 15, 1945

Fig. 1

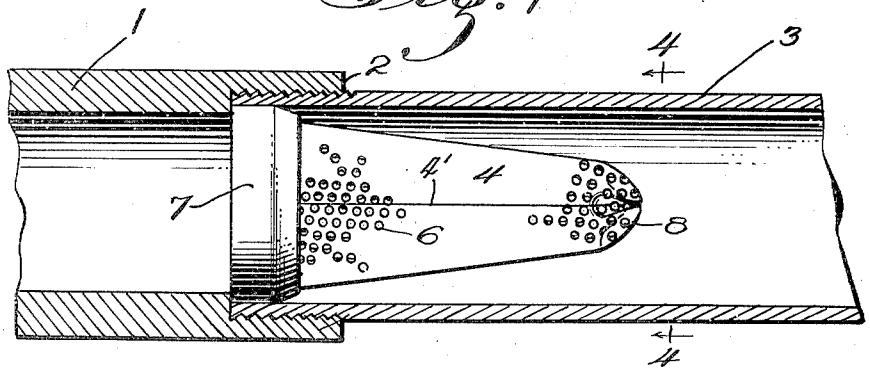


Fig. 4

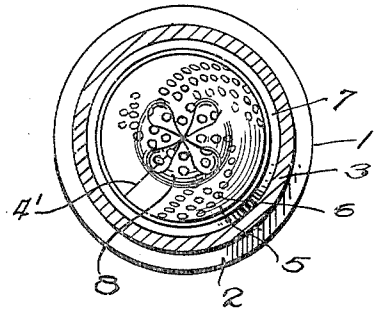


Fig. 3

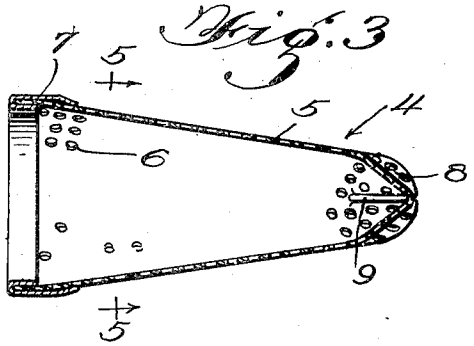
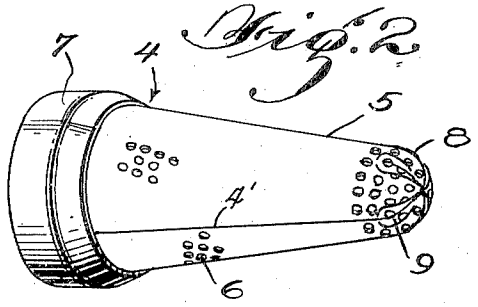


Fig. 2



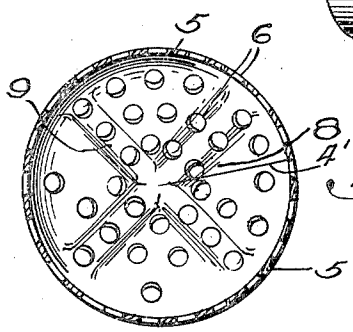


Fig. 5

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Patented Dec. 20, 1949

2,491,796

UNITED STATES PATENT OFFICE

2,491,796

SCREEN FOR USE IN ASSOCIATION WITH FIRE NOZZLES

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Application May 15, 1945, Serial No. 593,896

9 Claims. (Cl. 210—169)

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The present invention relates to improvements in filters and has reference more particularly to a screen for association with a fire nozzle.

One of the important objects of the present invention is to provide a conical screen unit wherein the apex end of the screen is closed and of a reinforced construction to prevent blowing out of the screen.

A further object resides in the provision of a conical screen wherein the apex end thereof is formed with reinforcing ribs, thereby enabling the screen to withstand the force and pressure of the water passing through the screen, without disrupting the screen.

Other objects and advantages of the invention will become apparent from the following description when taken in connection with the accompanying drawing.

In the accompanying drawing forming a part of this specification and wherein like reference characters designate corresponding parts throughout the several views:

Figure 1 is a longitudinal sectional view through a fire nozzle and the water supply pipe connected thereto, showing my screen positioned therein;

Figure 2 is a perspective view of my improved conical screen unit;

Figure 3 is substantially a longitudinal sectional view through the conical screen;

Figure 4 is substantially a transverse section taken on the line 4—4 of Figure 1; and

Figure 5 is substantially a transverse section taken on the line 5—5 of Figure 3, looking in the direction of the arrows.

In the drawing, the numeral 1 designates the inner end portion of a conventional fire nozzle. Threaded within the rear end of the nozzle as at 2 is the forward end of a water supply pipe 3.

My novel screen unit is denoted by the numeral 4 and is cone shaped. The body 5 of the screen is formed of foraminous stiff sheet metal, the openings or apertures in the sheet metal being designated by the numeral 6.

A flanged ring 7 is fitted around the larger open end of the body of the conical screen and this ring enables the screen to frictionally fit within the forward end of the pipe 3 with the screen extending rearwardly in the forward end portion of the pipe 3, as clearly illustrated in Figure 1.

The apex portion 8 of the conical screen is closed and closing of this apex portion may be accomplished by a punch press.

It will be noted that I have not disclosed the

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punch press but merely the screen having the internally ribbed closed end. The punch press consists of a hollow tapered socket having a rounded portion to form the rounded apex or closed end 8 of my tubular screen. It is to be understood that the foraminous body is of measured size and is rolled into a tubular shape in cross section and the meeting edges are seamed together at the seam line 4'. The body or tube 5 is now open at both ends. One open end is fitted into the ring 7, as clearly shown in Fig. 3. The other open end of the tube is now closed by the use of the punch press. The rib forming and closing operations take place simultaneously. In this connection it is to be observed that the closing of one end of the tube by the punch press produces a novel, unique and reinforced closed end constituting a rounded apex 8 having radial reinforcing ribs 9 therein and confined to the apex.

In closing the apex portion of the conical screen, radially extending ribs 9 are formed in the apex portion 8. These ribs 9 not only reinforce the closed apex portion of the conical screen but also serve to enable the screen to withstand the force and pressure of the water passing through the screen as the water flows through the pipe or hose 3 into the fire nozzle 1.

The material of the screen body 5 is of sufficiently heavy gauge or thickness and of sufficient stiffness to prevent collapsing or unfolding of its segmental ribs 9 by water under heavy pressure flowing therethrough. The ribs 9 are segmental in contour and constitute integral portions of the body 5. The segmental ribs 9 are integrally connected by spherical sectors defining a substantially hemispherical portion constituting the apex 8 of the screen. Both the segmental ribs 9 and the spherical sectors meet in the longitudinal axis of the screen unit 4.

Although I have shown my screen as applied in Figure 1 as receiving liquid under heavy pressure flowing from the outside to its inside, but it appears to be self evident that the position of my screen unit could be reversed, so that the liquid under heavy pressure could flow from the inside to the outside of the screen.

"Foraminous" as used in this specification and the claims thereof, means perforated sheet metal having numerous openings therein so as to form an effective screen.

It has been found from experience that where a screen without these reinforcing ribs was employed and subjected to a water supply of a forty pound pressure, the apex portion of the

screen would open up, thus rendering such a screen incapable of serving the purpose for which it is employed.

However, by incorporating the reinforcing ribs in the apex portion of the conical screen, the screen has by test, withstood a pressure up to 200 pounds without disrupting the screen or causing the same to blow out.

By reason of the ribs 9, the apex end of the conical screen may be closed with a punch press, and in doing so, none of the perforations in the apex portion will be closed.

While I have shown the screen as being of conical design, the reinforcing ribs may also be associated with the closed end of a cylindrical straight-walled screen with equal facility.

For the purposes of this specification and the appended claims I have adopted the words tube and tubular to designate generically a hollow conical contour or a hollow cylindrical contour as well as a hollow pyramid of any cross sectional contour.

While I have shown the preferred embodiment of my invention, it is to be understood that various changes in the size, shape and arrangement of parts may be resorted to without departing from the spirit of the invention.

Having thus described the invention, what I claim is:

1. In combination with a water supply pipe, a hollow perforated sheet metal conical screen unit mounted axially therein, said conical screen having its apex portion closed except for the perforations located therein, reinforcing ribs formed within the closed end of the conical screen and extending radially within the apex portion, said ribs being segmental in contour and meeting in the axis of the screen unit, the larger end of the conical screen being open and embraced by a ring permanently secured thereto, said ring engaging internal portions of the water supply pipe.

2. A screen of the character described, said screen comprising a hollow conical body of stiff perforated sheet metal, said body having its larger end provided with a ring embracing the same and permanently secured thereto, the apex of said body being closed except for the perforations therein, reinforcing ribs being formed within said apex, said ribs being segmental in contour and meeting in the axis of said body, said ribs being connected by spherical sectors, whereby said screen successfully withstands a pressure of flowing liquid up to 200 pounds per square inch.

3. A screen for fire hose, comprising a hollow perforated sheet metal body of conical contour, the larger end of said body being open and embraced by a ring permanently secured thereto, the apex end of said body being closed except for the perforations therein, said apex being formed with radiating ribs therein, said ribs being segmental in contour and meeting in the axis of said body, said ribs being united by sectors integral with said ribs and with each other.

4. In a screen of the character described comprising a foraminous hollow conical body, the larger end thereof being open and embraced by a ring secured thereto, the apex of the body being closed, and radially extending ribs formed in and confined to said apex portion, said ribs meeting in the axis of the body and being connected by sectors of said body, the apex having perforations therein.

5. In a screen for fire hose comprising a foraminous hollow conical body, the larger end thereof being open and embraced by a ring secured thereto, the apex end of the body being closed except for the perforations therein, radially extending reinforcing ribs formed on and confined to said apex portion and meeting in the axis of the body, said ribs being connected by sectors integral with said body and said ribs.

6. In combination with a water supply pipe, a hollow perforated conical screen unit mounted axially therein, said conical screen having its apex portion closed except for the perforations therein, reinforcing ribs meeting in the axis of the body formed within the closed end of the conical screen and extending radially within the apex portion, said ribs being connected by sectors of said body integral therewith and with said ribs, the larger end of said screen being open and embraced by a ring secured thereto.

7. In a screen for fire hose, comprising a foraminous tubular sheet metal body, one end thereof being open and embraced by a ring secured thereto, the other end being closed except for the perforations therein, said closed end being reinforced by radial ribs formed therein, said ribs meeting in the axis of the body, said ribs being segmental in contour and being connected by sectors of said body.

8. A screen for fire hose comprising a foraminous sheet metal tubular body, one end thereof being open and embraced by a ring secured thereto, the other end being closed except for the perforations therein, and reinforcing radial ribs formed on the closed end portion and confined thereto, said ribs being segmental in contour and meeting in the axis of said body, said ribs being connected by sectors of said body.

9. In a screen of the character described, a foraminous tubular sheet metal body, one end thereof being open and embraced by a ring permanently secured thereto, the other end being closed except for the perforations therein, said closed end being reinforced by ribs formed therein, said ribs being radial and meeting in the axis of said tubular body in the closed end thereof.

EDWALL J. BAUME.

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