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G. KROLL ET AL
SANDBLASTING DEVICE
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Fig. 1

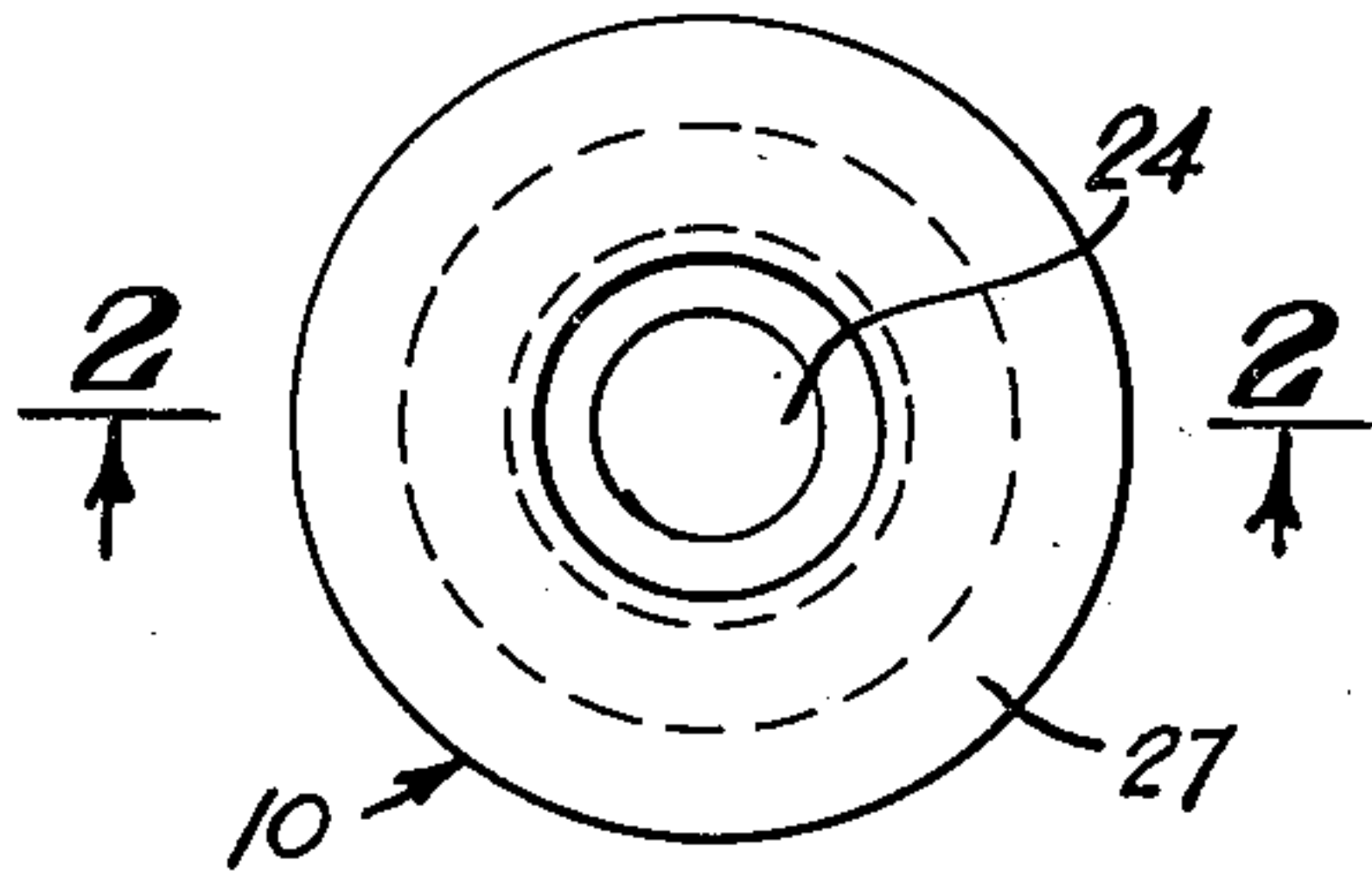


Fig. 2

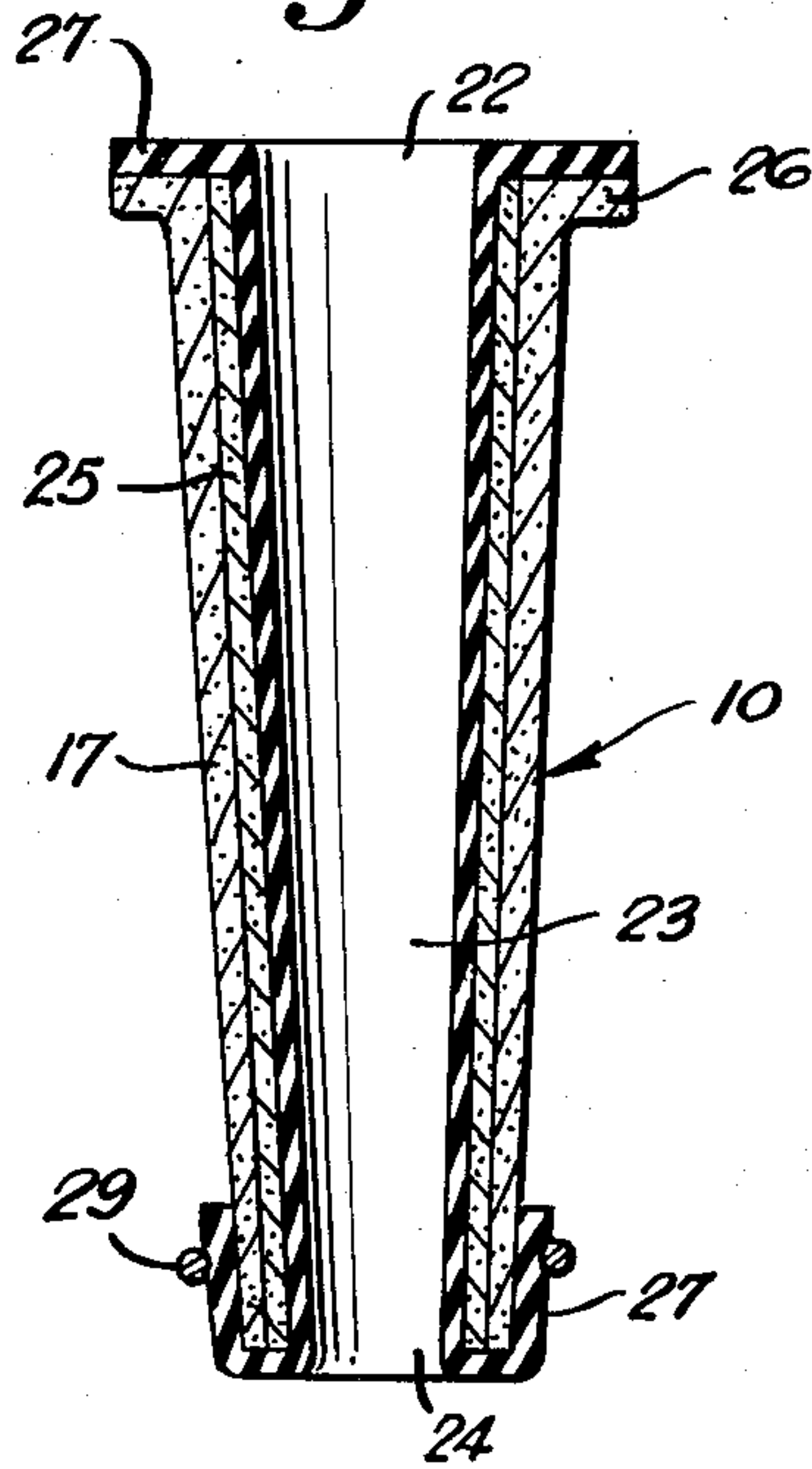


Fig. 4

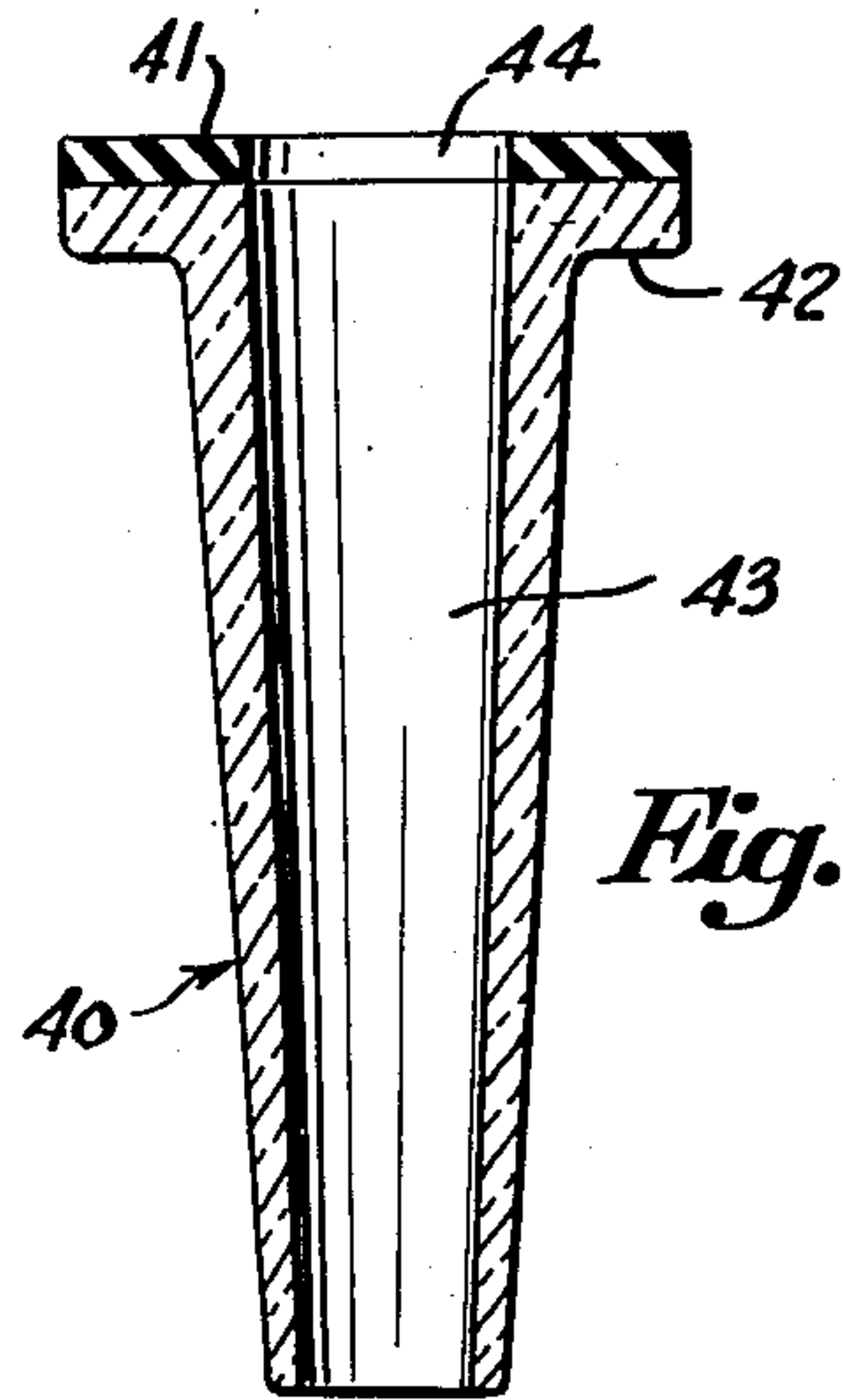
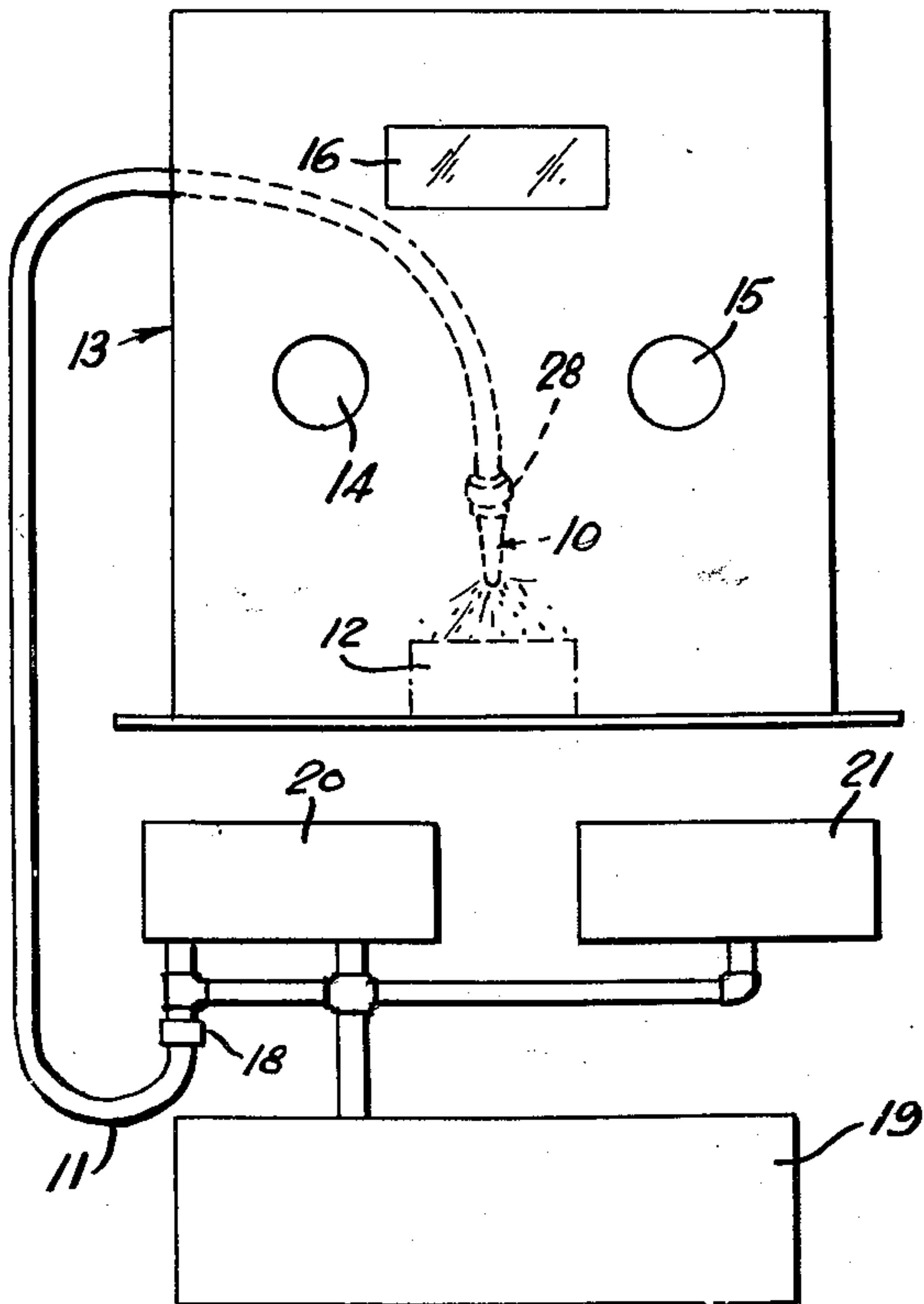


Fig. 3

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SANDBLASTING DEVICE

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1 Claim. (Cl. 51—11)

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This invention relates to improvements in nozzles for sand blasting.

It is an object of the instant invention to provide a sand blast nozzle of longer life than heretofore known.

Another object is to decrease the cost and to increase the quality of articles finished by sand blasting.

Other objects of the instant invention will become apparent in the course of the following specification.

In sand blasting, the article to be treated may be placed in or under a receptacle provided with arm openings and an observation window for the operator. A flexible tube conducting a stream of sand under pressure is also inserted in the receptacle for manipulation by the hands of the operator inserted through the arm openings. In accordance with the present invention, an improved sand blast nozzle is made in two embodiments for removable attachment to the end of the tube in the receptacle. In the first embodiment, the nozzle is constituted of a hardened clay outer surface lined with porcelain. A resilient rubber lining removably attached over the porcelain provides an abrasion resisting surface as well as a washer for the removable attachment of the nozzle to the flexible tube. In the second embodiment, the nozzle is formed entirely from porcelain and is used without linings, but is provided with a removable rubber washer for releasable attachment to the flexible tube.

The invention will appear more clearly from the following detailed description when taken in conjunction with the accompanying drawings showing by way of example the preferred embodiments of the inventive concept.

In the drawings:

Figures 1 and 2 show the first embodiment of the improved sand blasting nozzle constructed in accordance with the principles of this invention, and in which:

Figure 1 is a plan view of the improved sand blasting nozzle; and

Figure 2 is a sectional view along 2—2 of Figure 1.

Figure 3 is a sectional view of the second embodiment of the improved sand blasting nozzle; and

Figure 4 is a diagrammatic view showing the application of the improved nozzles of both the first and second embodiment.

Referring now in greater detail to the first embodiment of the improved sand blasting nozzle shown in Figures 1 and 2, reference numeral 10

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indicates the nozzle, 11 (Fig. 4) a flexible tube for conducting a stream of sand under pressure to the nozzle 10, 12 the article to be finished by sand blasting, and 13 a hollow body or receptacle in which the article 12 to be finished with a sand blast is placed.

The receptacle 13 may be a hollow body of rectangular cross section and made from any suitable material to form a closure around the article 12 while being processed by the sand blast. Any suitable opening (not shown) may be provided in the hollow body for the removable insertion of the article or the hollow body may have an open bottom for insertion over the article. In one side of the hollow body are two spaced openings 14 and 15 through which the hands and arms of the operator are inserted for the manipulation of the sand blast nozzle 10, as later shown. In addition, the same side of the hollow body is also provided with an observation window 16 which is constituted of a transparent panel of any suitable material attached by any known means over an opening formed in the body above the previously mentioned openings 14 and 15. On the other hand, rather than using the receptacle 13, the operator may be provided with a shield equipped with the arm openings and observation window and designed to be erected upright between the article to be processed by the sand blast and the operator.

In the receptacle 13 is another opening (not shown) for the removable insertion of the free end of the flexible tube 11 of known type and one end of which is connected to an outlet 18 of a stream of sand under pressure. The sand is placed under pressure in a known manner, that is, the sand may be located, as illustrated, in a container 19 from which it is lifted and formed into a stream under pressure by the known pump 20 and compressor 21.

On the free end of the flexible tube 17 is removably attached the sand blast nozzle 10. The nozzle 10 is constituted of an outer shell 17 of hardened clay and is of inverted frusto-conical form with an integrally formed and outwardly directed flange 26 at the inlet end 22. Through the nozzle 10 is a longitudinal bore or opening 23 which is also of inverted frusto-conical shape and conforming substantially to the shape of the outer surface.

Over the surface of the bore 23 is secured by any known means a porcelain lining 25 and extending for the full length of the bore. Over the flange 26 and the porcelain lining 25 is a resilient lining 27 which may be made from so-

called inner-tube rubber and which may be held in place at one end by any known coupling means 23 (Fig. 4) when the nozzle is attached to the flexible tube. The opposite end of the resilient lining is turned around the periphery of the out-let 24 and thence back over the outer surface of the hardened clay, as illustrated. Any suitable clamp 29 may be used to releasably hold the turned back end of the resilient member on the nozzle.

In the second embodiment of the improved nozzle shown in Figure 3, reference numeral 40 indicates the nozzle, and 41 a resilient washer.

The nozzle 40 is constituted of an unlined body of porcelain and, like the nozzle of the first embodiment, is of inverted frusto-conical form with an integrally formed and outwardly directed flange 42 at the inlet end 44. Through the nozzle 40 is a longitudinal bore or opening 43, also of inverted frusto-conical form and substantially similar to the outer surface of the porcelain nozzle.

In operation:

The article 12 to be processed by the sand blast is inserted in the receptacle or in back of the shield as the case may be, and the flexible tube 11, equipped with either the nozzle 10 or 40, is also inserted in the receptacle or in back of the shield. The operator places an arm through each of the openings 14 and 15 and grasps the nozzle 10 or 40 in one or both hands for directing a stream of sand against the article 12. The stream of sand entering and concentrated in the nozzle 10 from the flexible tube will strike the resilient lining 27 where the force is substantially dissipated without undue wear on the porcelain lining. When worn, the resilient lining can be quickly replaced with slight interruption to the work and without harm to the

nozzle. Where the nozzle is all porcelain, as shown by reference numeral 40 in the second embodiment, the nozzle will withstand long usage before becoming inoperative.

It will be apparent that subject sand blasting nozzles will be subject to a wide variety of modifications within the scope of the appended claim.

What is claimed is:

A sand blast nozzle in combination with a flexible tube, the nozzle comprising a frusto-conical body of hardened clay, the body having a frusto-conical bore formed therethrough and an outwardly directed integrally formed flange at one end, a porcelain lining disposed in the bore and a resilient lining disposed over the porcelain lining, the resilient lining being turned over the flange at one end and further being turned back over the hardened clay body at the opposite end, and means for releasably securing the flanged end of the body to one end of the flexible tube.

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