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E. W. NAGEL

2,709,999

ELBOW

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FIG.1.

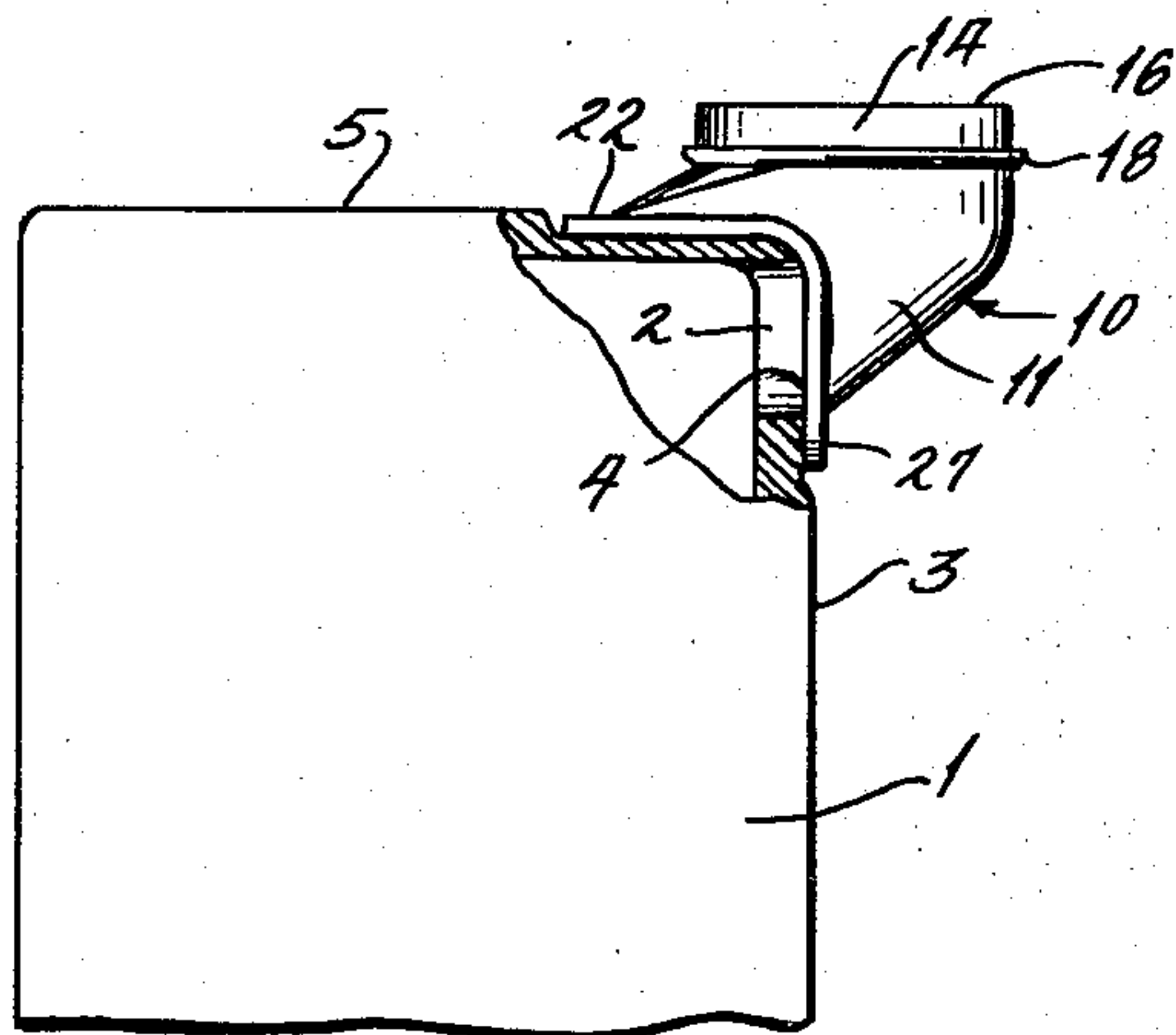


FIG.2.

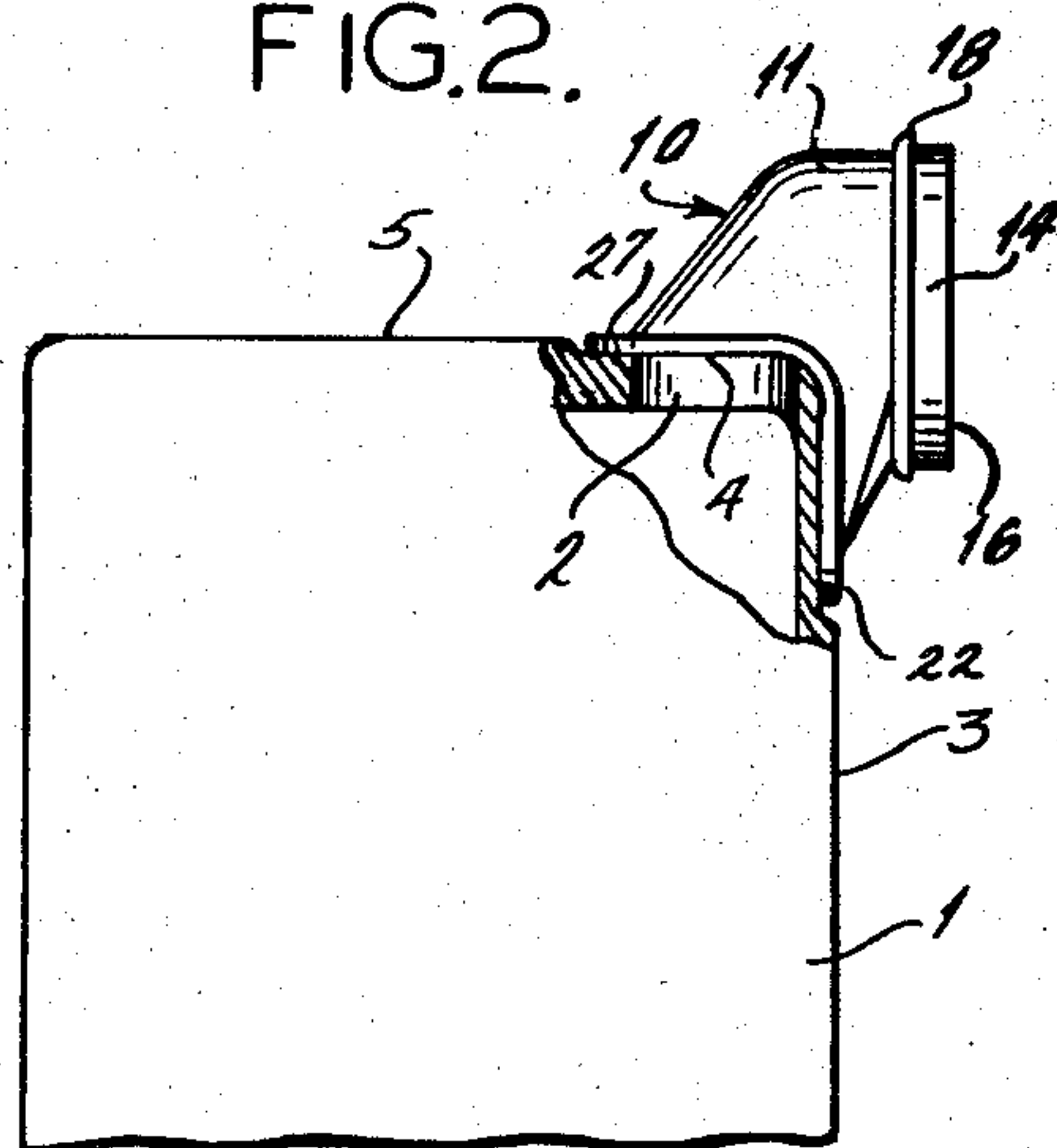


FIG.3.

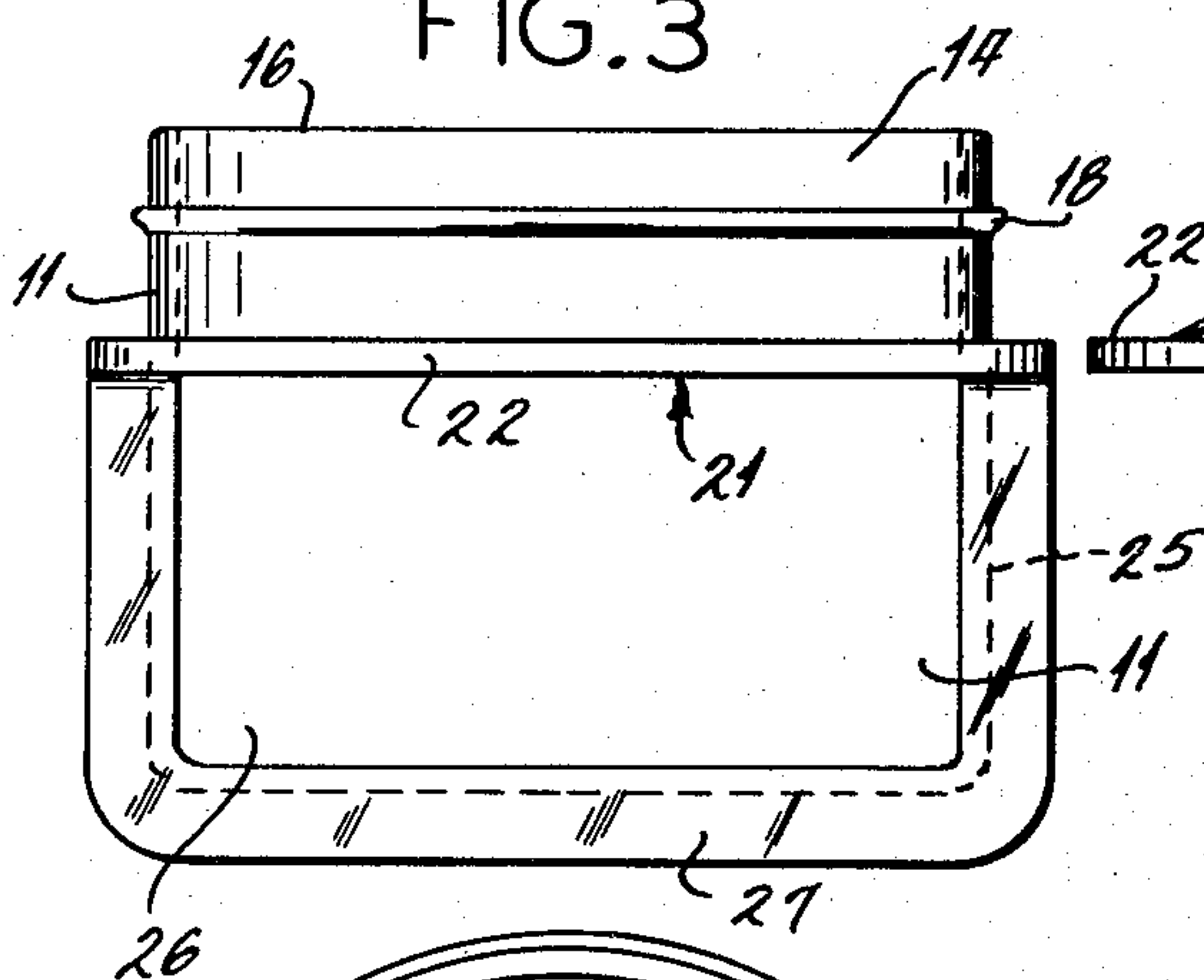


FIG.4.

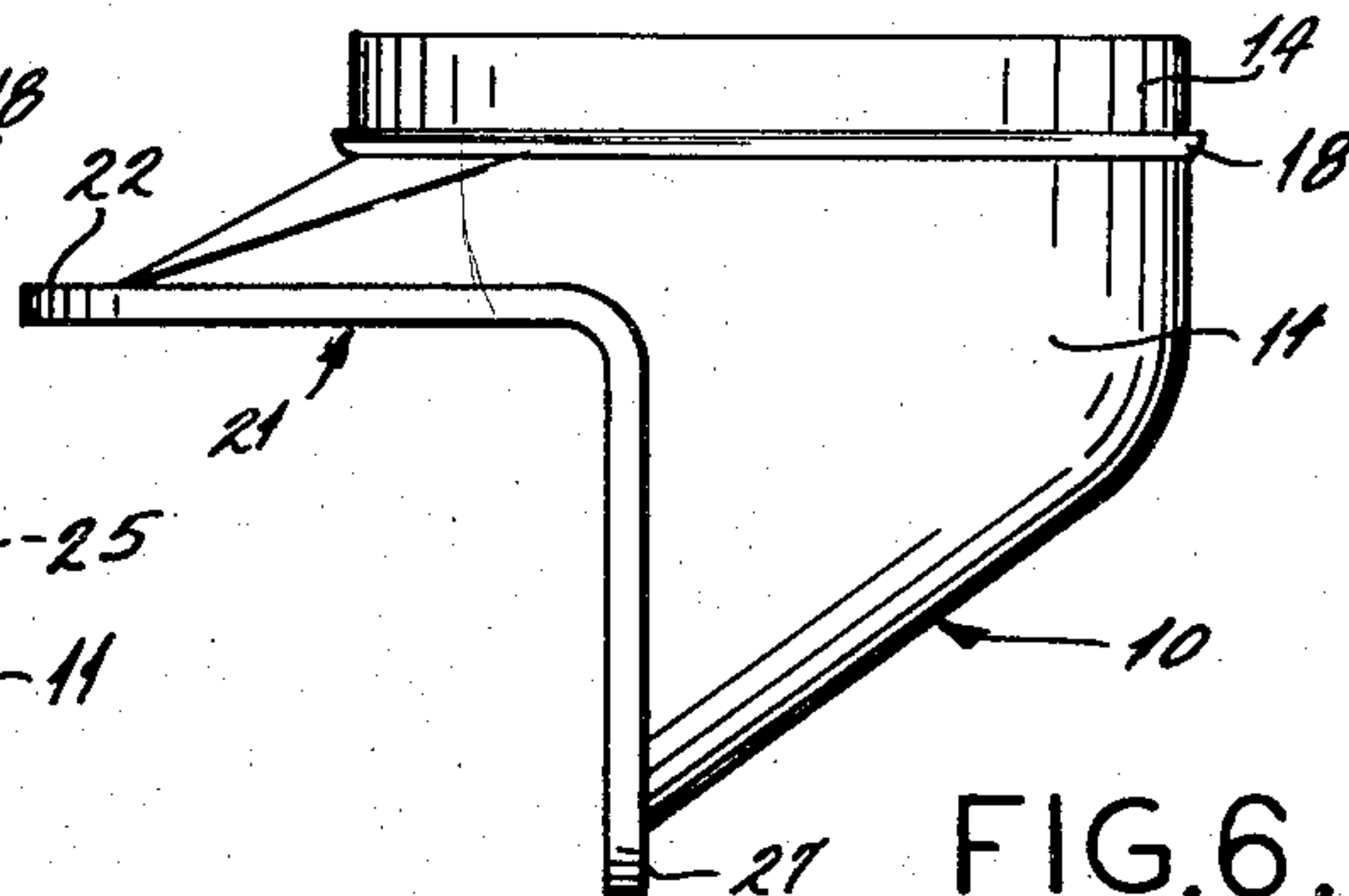


FIG.6.

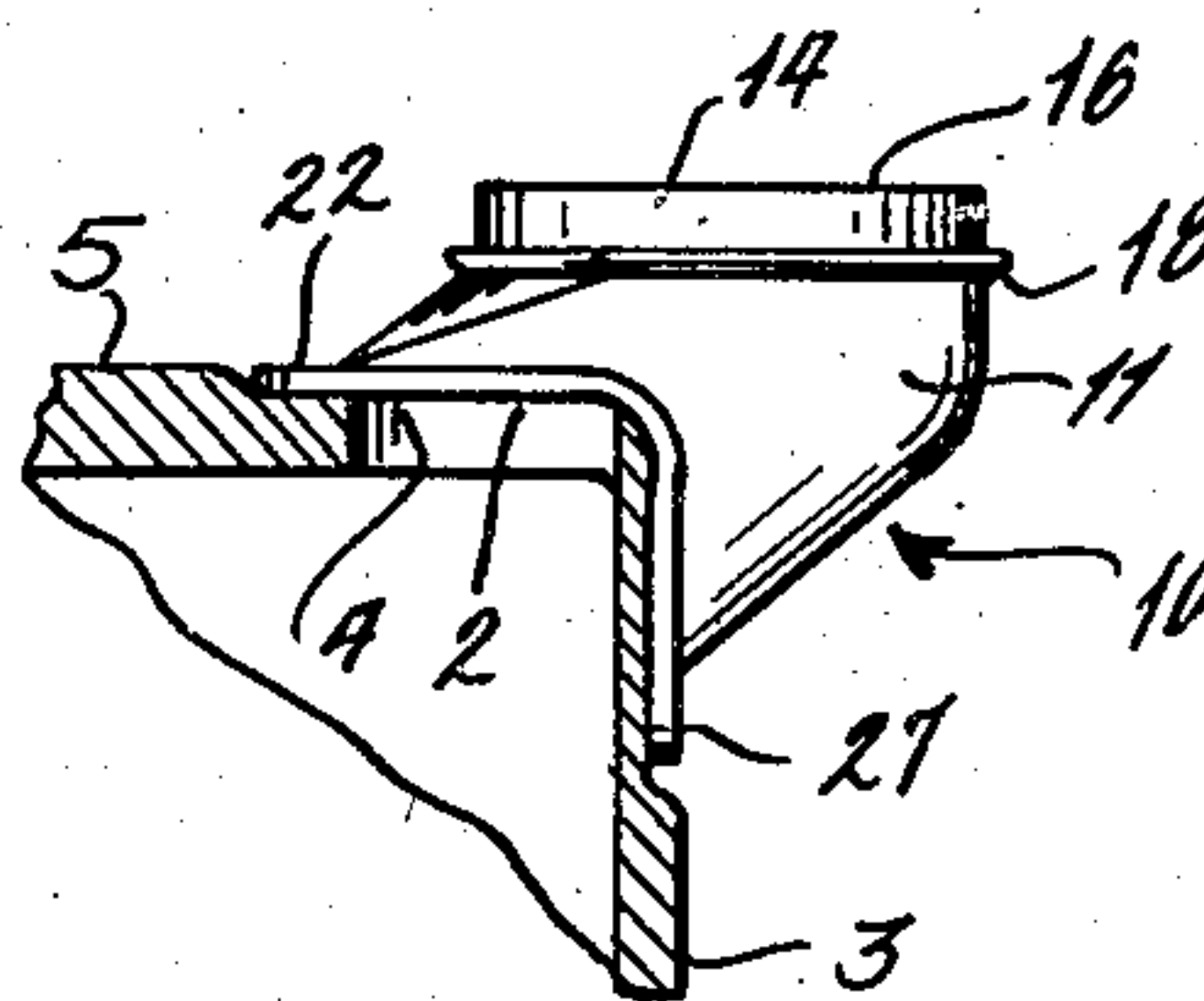
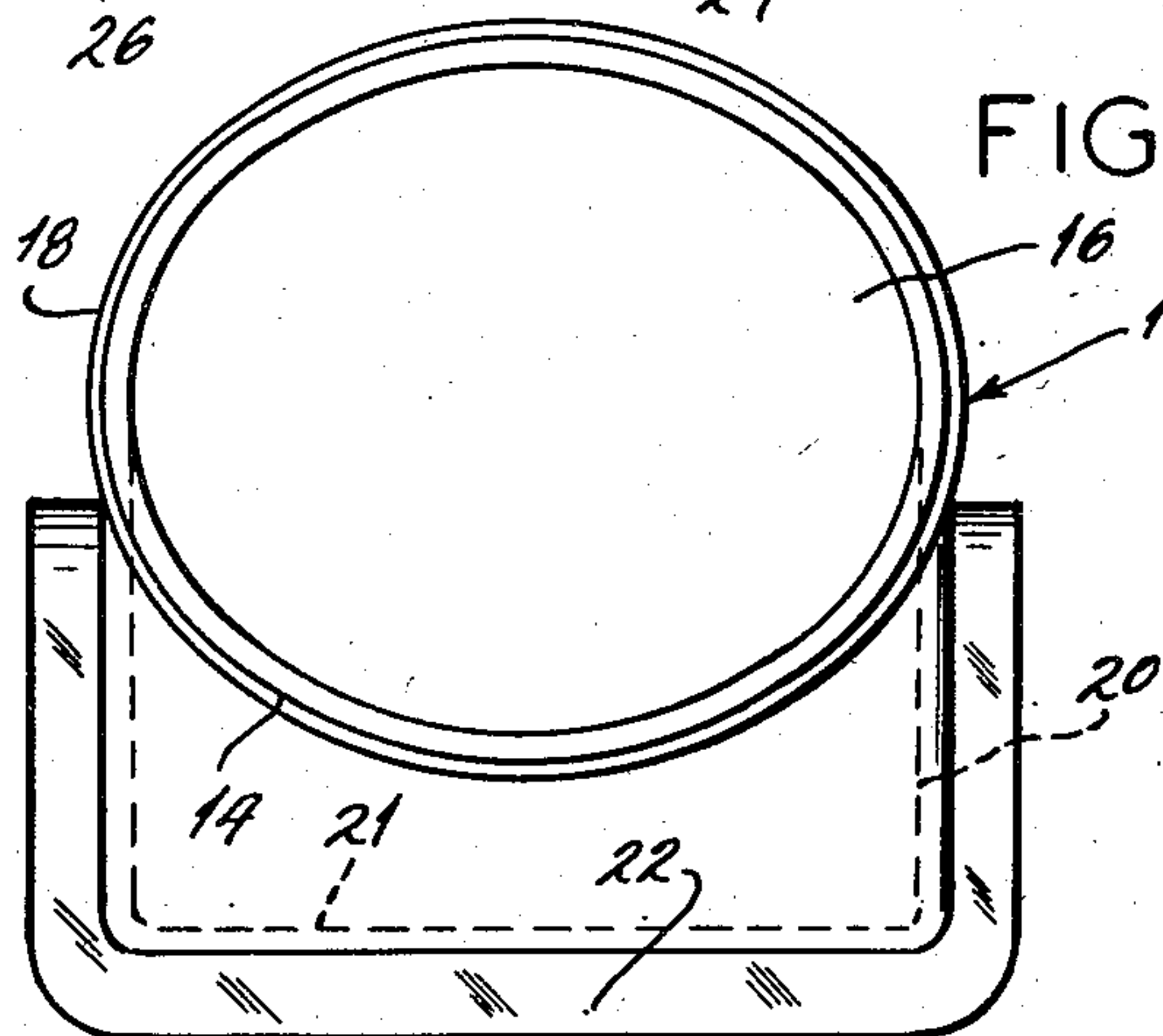


FIG.5.



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1 Claim. (Cl. 126—307)

This invention relates to a device for connecting the flue gas port of a range with an opening in a stack flue. The term "range" is used herein to designate a device from which gases are led, such, for example, as a cooking stove, room heater, furnace, or the like. The term "stack flue" is used herein to designate a conduit outside of a range, such, for example, as a stove pipe or a chimney.

The flue gas port of a range is generally located near or in an upper edge of the range at the juncture of a horizontal top and a vertical back or side wall. It is commonly desired to connect such a flue gas port with an opening in a stack flue, which opening lies in either a horizontal or a vertical plane.

One of the objects of this invention is to provide a rigid one-piece elbow by which a flue gas port in either or both a horizontal top or a vertical side of a range or the like, may be connected with a stack flue opening lying in either a vertical or a horizontal plane.

Other objects will become apparent to those skilled in the art in the light of the following description and accompanying drawing.

In accordance with this invention, generally stated, a connector is provided for connecting a flue gas port in the top or a contiguous vertical side of a range at or near the corner at which the top and side of the range meet at substantially right angles, with a vertical or horizontal stack flue opening parallel with either one of the top or side. The connector comprises an open-ended tubular shell, provided with a flue opening ferrule at one end and a port flange at the other end. The port flange has a part extending parallel with the radial dimension of the flue opening ferrule and another part extending at right angles to that radial dimension. The parts of the flange are joined together to conform to the contour of the corner formed by the top and side of the range and each of the flange parts extends away from that corner for a distance at least sufficient to embrace the flue gas port. This construction allows the connector to be reversed to connect either a horizontal port or a vertical port with either a vertical or horizontal stack flue opening.

In the drawing:

Figure 1 is a view in side elevation partly cut away showing a device, constructed in accordance with one embodiment of this invention, attached to a range having a vertically disposed flue gas port;

Figure 2 is a view in side elevation partly cut away showing the device shown in Figure 1, in which the device is turned through 90° and is mounted on a range having a horizontally disposed flue gas port;

Figure 3 is an enlarged view in front elevation of the device shown in Figures 1 and 2;

Figure 4 is a view in side elevation of the device shown in Figure 3;

Figure 5 is a plan view of the device shown in Figures 3 and 4; and

Figure 6 is a view in side elevation partly cut away

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of the device shown in Figure 1, mounted as shown in Figure 1 on a range having a horizontally disposed flue gas port.

Referring now to the drawing for an illustrative embodiment of this invention, 1 represents a range oven having an internal flue 2. In Figure 1 the internal flue 2 meets a vertical side 3 of the oven to define a flue port 4 lying in a vertical plane near the meeting edge of the vertical side 3 and a top 5.

In Figures 2 and 6 the internal flue 2 meets the top 5 to define a flue port 4 lying in a horizontal plane near the meeting edge of the top 5 and the vertical side 3.

In each of Figures 1, 2 and 6 an elbow or connector 10 is mounted on the range 1, engaging both the top 5 and the vertical side 3 and wholly embracing the flue port 4. The elbow 10 comprises a hollow, open-ended shell 11, provided at one end with a rim or ferrule 14 to fit within a stack flue opening. The outer edge of the rim 14 defines an oval-shaped aperture 16. A shoulder 18 extends around the outside of the rim 14 below the top edge of the rim 14. The shell 11 is cut away to provide a port flange in the form of a pair of frames 20 and 25. The frame 20 defines a second aperture 21, and is provided with a bordering, outwardly extending flange 22. The frame 25 defines a third aperture 26 and is provided with a bordering, outwardly extending flange 27. The frame 20, flange 22 and second aperture 21 lie in a plane parallel with the radial dimension of the aperture 16 defined by the outer edge of the rim 14. The frame 20 and the frame 25 meet in a reentrant right angle, and the frame 25, third aperture 26 and flange 27 lie in a plane perpendicular to the plane of the aperture 16.

The frames 20 and 25 are so proportioned as to completely embrace the flue port 4 in either the top 5, the vertical side 3, or both as when the port lies across the meeting edge of the top and side. The flanges 22 and 27 are adapted snugly to engage the surfaces of the range or the like upon which they rest, and are generally flat, though it can be seen that if the surface to be engaged is ridged or grooved or otherwise made other than flat, the flanges 22 may be modified accordingly to provide a substantially gas-tight fit. Suitable means for securing the device to the top and side surfaces may be provided. For example, holes may be made in the flanges through which bolts or metal screws may be run. The frames 20 and 25 and the flanges 22 and 27 may meet in an arc, as in the embodiment shown, to conform with a curved corner of a range.

The frames 20 and 25 may be three-sided as shown in the illustrative embodiment or they may include a common fourth side extending across the shell at the meeting corners of the two frames, in which event, the apertures 21 and 26 are separately defined.

The shell is so formed as to provide, between each of the apertures 21 and 26 and the aperture 16 when the device is mounted, a passage of a size commensurate with the size of the flue gas port of the range or heater on which the device is mounted, so as not to restrict the amount of draft.

The elbow may be made of cast iron, to give a rigid, durable, unitary fitting.

In operation, the mounting of the elbow is determined by only one factor, the position of the stack flue opening. If that opening lies in a vertical plane, the elbow is mounted as shown in Figure 2. Whether the range flue port 4 lies in the top 5 or the vertical side wall 3, or in both, as when the port lies across the meeting edge of the top and side, one of the frames 20 or 25 will embrace the port 4 and the hollow shell 11 will provide a passage from the port 4 to the aperture 16 defined by the edge of the rim 14.



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If the stack flue opening lies in a horizontal plane, the elbow is mounted as shown in Figures 1 and 6.

The rim 14 may be proportioned and shaped to fit any particular stack flue opening, but the form of rim shown in the drawings is a common one for use with stove pipe at its connection with a range. The shoulder 18 serves to limit the extent to which the rim 14 may be inserted into a stack flue opening.

While the flue gas ports have been described as being in the top or side of a range, it can be seen that the elbow may be used on a surface which is flush with, raised above or depressed below the actual plane of the top or side. The illustrative embodiment shown in Figures 1, 2 and 6 of the drawing is shown as mounted on such a depressed area.

Thus it can be seen that a simply, sturdy, one-piece elbow has been provided by which any combination of horizontal and vertical flue openings and flue gas ports may be connected.

Having thus described my invention what is claimed and desired to be secured by Letters Patent is:

In combination with a range having a horizontal top and contiguous vertical side and a flue gas port situated near the corner formed by said top and vertical side, and a stack flue having a stack flue opening, the improved connecting adaptor which comprises a tubular

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section having a flue opening ferrule at one end and a port flange at the other end, said port flange having a part extending parallel with the radial dimension of said flue opening ferrule and another part extending at right angles to said radial dimension, said parts of said flange being joined together to conform to the contour of the corner formed by the top and vertical side of said range, and said flange parts each extending away from said corner for a distance sufficient to provide an opening of a cross sectional area sufficiently large to permit communication of the connector with the whole of the flue gas port whereby said adapting connector may be reversed to connect either a horizontal port or a vertical port with either a vertical or a horizontal stack flue opening.

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