

Feb. 28, 1939.

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2,148,431

HEAD HARNESS AND CANISTER SUPPORT

Original Filed Oct. 16, 1935

2 Sheets-Sheet 1

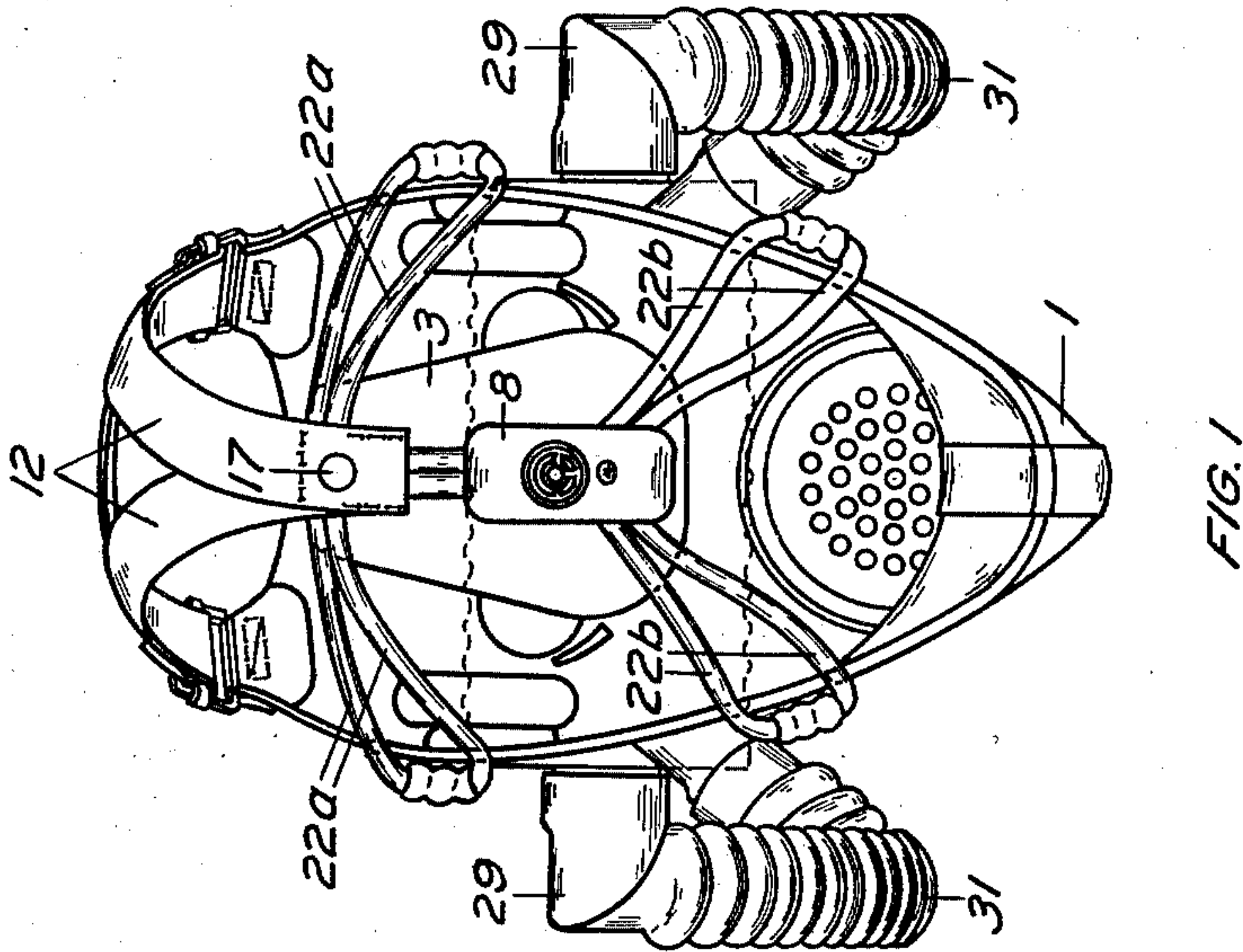


FIG. 1

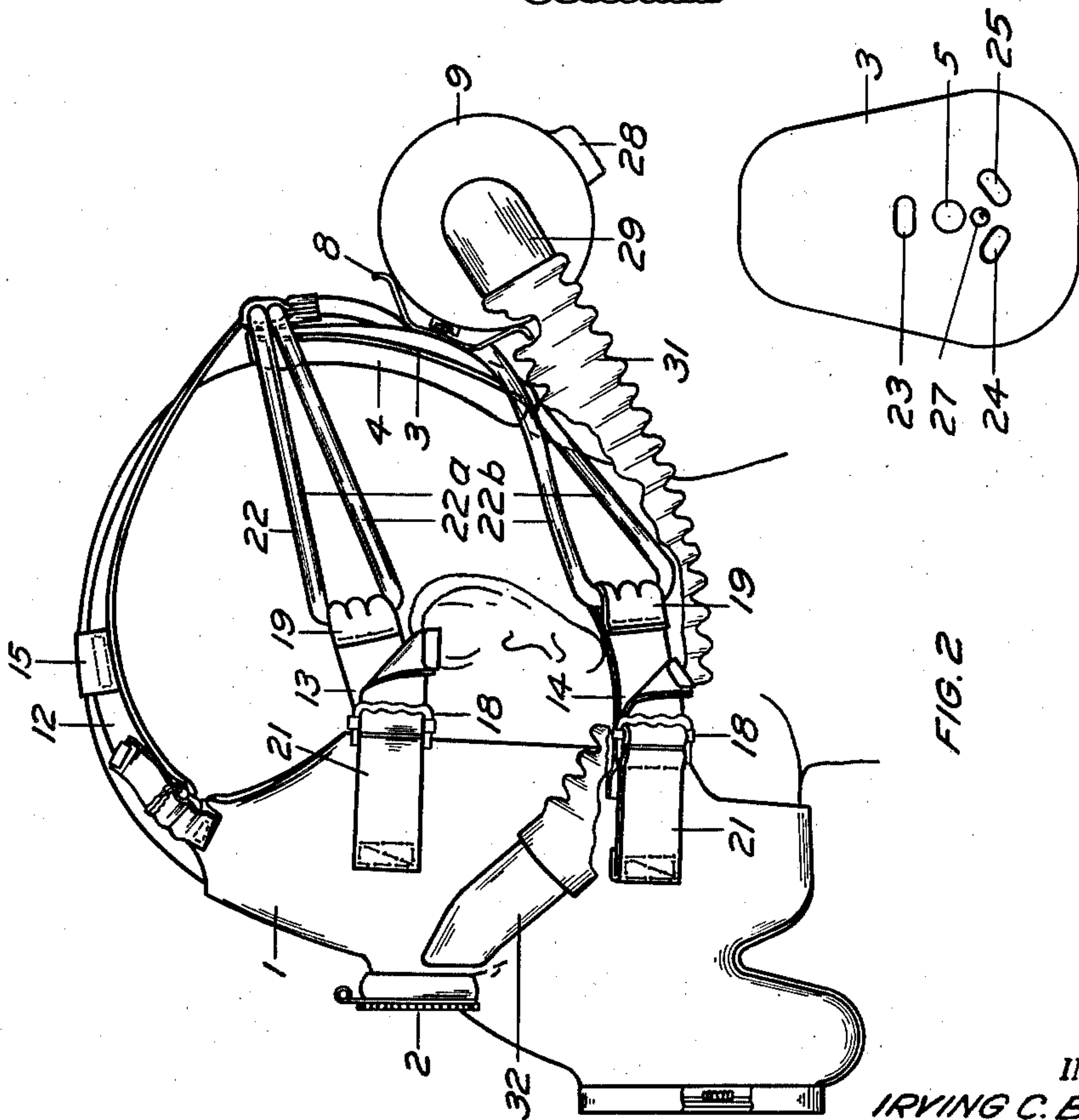


FIG. 2

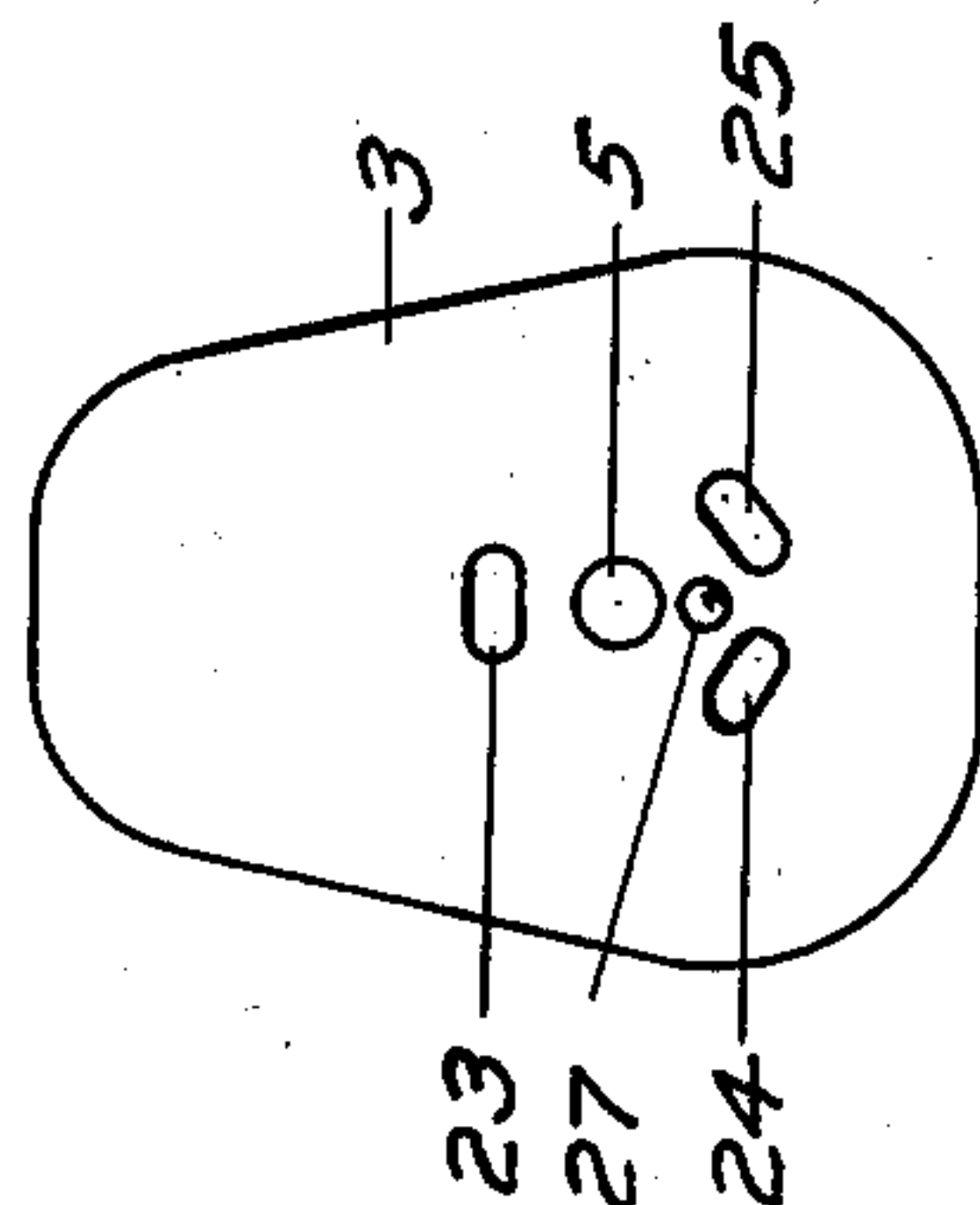


FIG. 6

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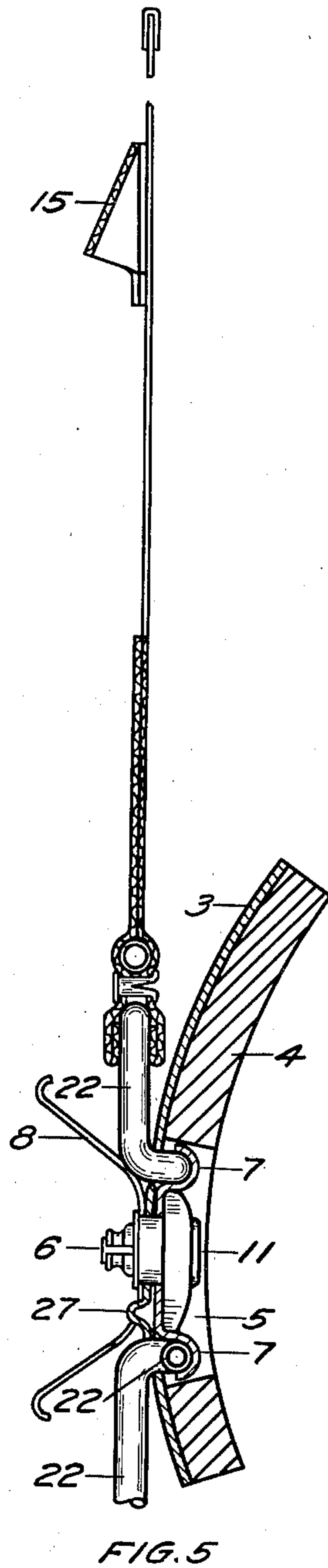
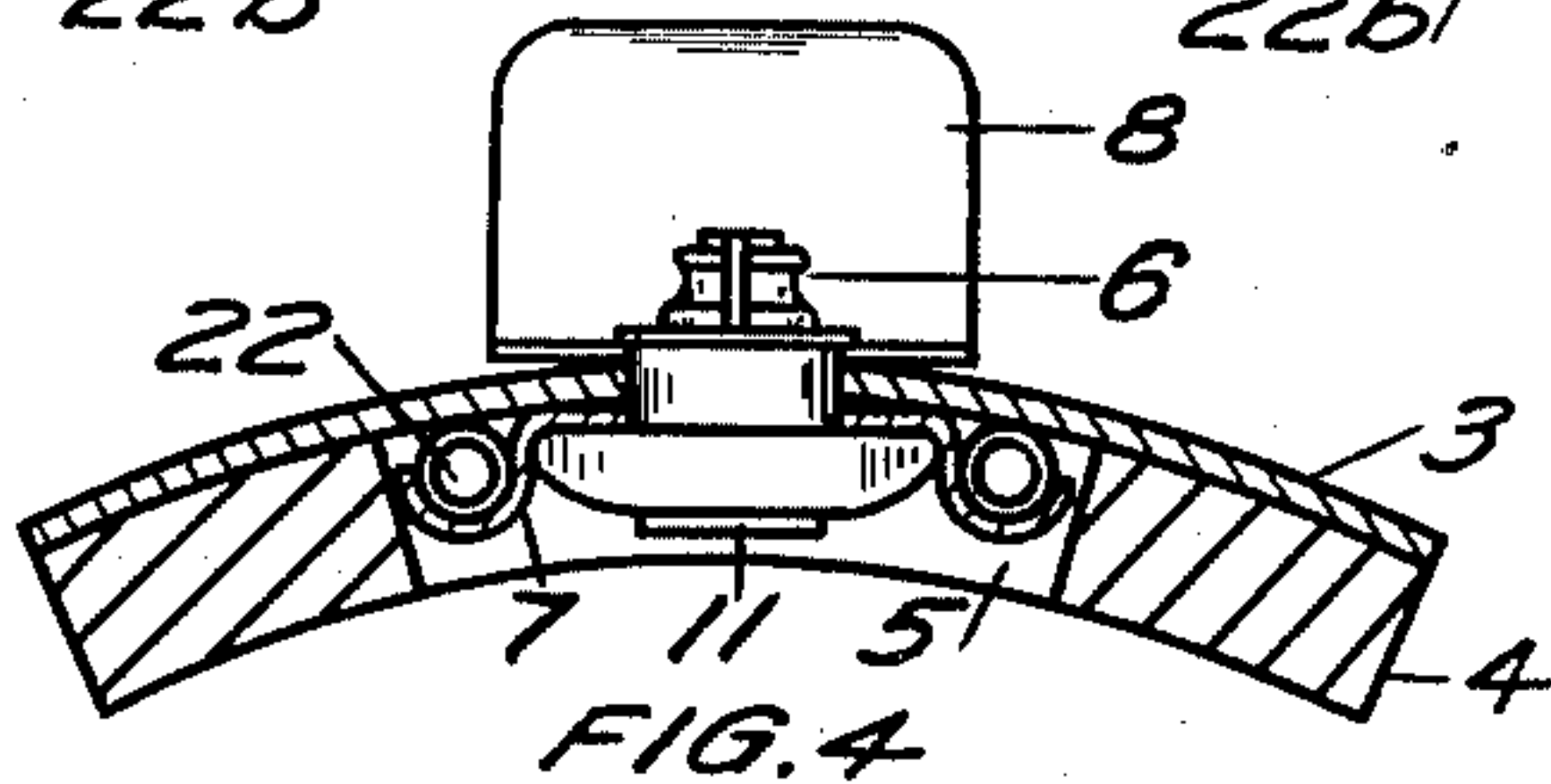
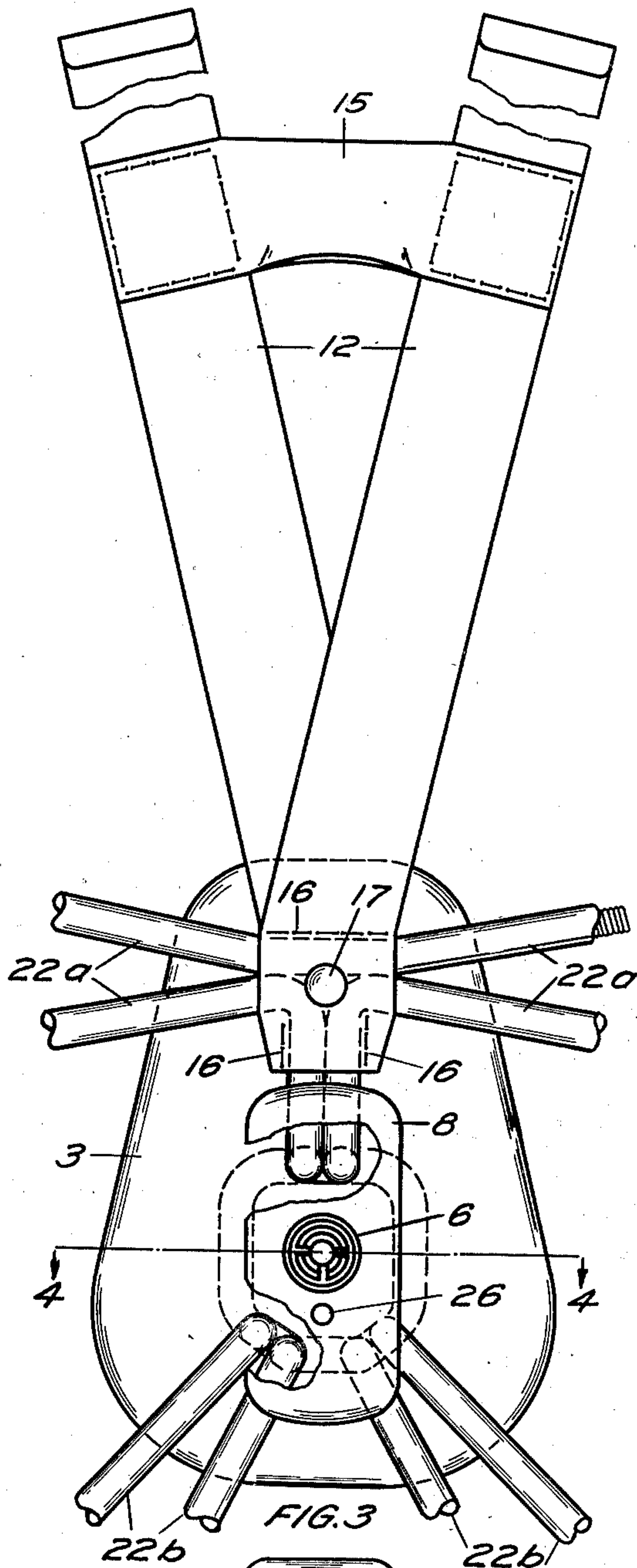
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2 Sheets-Sheet 2



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2,148,431

HEAD HARNESS AND CANISTER SUPPORT

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Original application October 16, 1935, Serial No. 45,256. Divided and this application November 10, 1937, Serial No. 173,845

12 Claims. (Cl. 128—141)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

5 This invention relates to an improved head harness and canister support for use with a gas mask.

10 The facepiece of a gas mask is usually made of rubber or rubberized fabric which is flexible enough to conform to irregularities of facial contour. It is necessary to pull the facepiece toward the rear of the head and to provide a tight seal between the periphery thereof and the face. Various forms of elastic harness have heretofore been used.

15 The interior of the facepiece must be connected to the exterior air through an air-purifying canister. To afford the necessary filtering and purifying of the inspired air, many of these canisters are bulky and heavy. In some cases the canister is supported in a carrier carried at the side of the wearer, with a flexible air hose connected to the air inlet of the facepiece. However, the side-carried canister is objectionable in some cases, in that it interferes with body movements and the hose sometimes catches on objects.

20 One object of this invention is to provide an improved resilient head harness for a gas mask facepiece, with a support for the canister on the head pad of the harness.

Another object of this invention is to provide a head pad provided with means for securely mounting a canister thereon and so arranged that the canister may be readily detached.

35 These and other objects will be apparent from the following description and claims when taken in connection with the accompanying drawings wherein

Figure 1 is a rear elevation looking into the gas mask, with canister shown in broken lines.

Fig. 2 is a side elevation.

Fig. 3 is an enlarged elevation of the head harness and pad, with canister removed.

Fig. 4 is a section on line 4—4 of Fig. 3.

45 Fig. 5 is a vertical section of the harness and pad.

Fig. 6 is an elevation of the plate used on the head harness.

This application is a division of application of R. Monro, I. C. Brown, C. N. Hinkamp and F. J. Parduhn, Serial Number 45,256, filed Oct. 16, 1935, for Diaphragm optical gas mask.

Referring to Figs. 1 and 2, this invention is shown in connection with a gas mask facepiece 1 which may be of rubber, rubberized fabric, or

other flexible material impermeable to gases and vapors, having eye lenses 2 mounted therein.

The harness for holding the facepiece resiliently against the face consists of an oval shaped plate 3 cupped to fit the back of the head, with a sponge rubber pad 4 processed thereto which cushions the canister carried by the plate 3 from the wearer's head. A central recess 5 in the plate and pad accommodates one part 6 of a separable fastener, the cooperating part being secured to the canister. As seen in Fig. 4, fastener 6 is upset over the edge of plate 3 and a shield 7 is clamped in place by fastener 6. Shield 7 is housed in opening 5 of the rubber pad 4 and comprises a flat cup having a curved rim or flange positioned with the closed side of the flange toward the head of the wearer.

On the outer side of plate 3, the fastener also holds in place a curved spring plate 8 which resiliently presses against the canister when the same is secured to the head pad. Canister 9 shown in Fig. 2 and in broken lines in Fig. 1 is cylindrical and has the cooperating part of the separable fastener secured thereto midway of its length. To secure the canister to the head pad, the operating button 11 of the fastener 6 is pressed inwardly and canister 9 is pressed against spring plate 8 until the cooperating fasteners engage, when button 11 is released. Spring plate 8 engages the curved sides of the canister as seen in Fig. 2 and holds the same against twisting about the fastener and prevents accidental displacement.

The head pad is connected to facepiece 1 by harness members including non-elastic webbing 12, 13 and 14. The two webs 12 are connected across the head by web 15 and are joined at their other ends by stitching 16 and rivet 17. As seen in Fig. 2, the webs 13 and 14 are arranged to be above and below the ears of a wearer. The ends of these webs pass through friction buckles 18 for ready attachment and adjustment of their effective lengths, and terminate in loops 19 through which resilient member 22 passes, as later described.

45 Straps 13 and 14 are attached to the facepiece by means of straps 21 which improve the fit of the facepiece at the temple and cheek portions as more fully described in Monro Patent 1,395,760.

Resilient member 22 comprises a closed loop of closely wound spring wire covered with a fabric sleeve which expands and contracts with the spring, as more fully described and claimed in patent to Motsinger 1,942,442. The two upper loops 22a of spring 22 are secured to webs 12 by

the stitching 16 and rivet 17 and are secured to the head pad. The two lower bands of loops 22a extend slightly downwardly and pass through opening 23 (Fig. 6) of plate 3 and into the channel provided by the turned rim of shield 7.

These portions of spring 22 then pass around the opposite sides of fastener 6 (Fig. 4) and out of openings 24 and 25. These portions then are looped through the lower webs 19 and back to openings 24 and 25, as seen in Fig. 3, thus forming two lower loops 22b. Upper loops 22a pass through the web loops 19 adjacent the temple portions on opposite sides of the facepiece.

In order that the canister spring plate 8 may not rotate about fastener 6, an opening 26 in the plate engages over a stamped-up projection 27 on plate 3.

Air purifying canister 9 has an air inlet 28 and two air outlets on opposite ends. These air outlets are adapted to receive rubber connections 29 of the inlet hoses 31. Hoses 31 extend below the wearer's ears and are connected to inlet tubes 32 on opposite cheek portions of the facepiece so that inspired air after purification by its passage through the canister enters the facepiece.

An efficient and gas tight seal is secured by this harness construction, each web or strap being given resiliency by the fabric enclosed spring. The two upper loops 22a and lower loops 22b are held in assembled relation by their connection to the head pad plate 3. The canister is readily attached to or detached from the head pad and is normally out of the way, so as to allow free movements of the wearer.

The invention is not limited to the precise details herein shown by way of illustration, since various changes may be made therein by those skilled in the art without departing from the spirit of the invention nor exceeding the scope of the appended claims.

I claim:

1. A gas mask comprising a facepiece, a head pad adapted to be positioned against the back of a wearer's head, resilient harness connecting the facepiece and head pad, and an air purifying canister releasably secured to said head pad.

2. A gas mask comprising a facepiece, a head pad adapted to be positioned against the back of a wearer's head, an air purifying canister carried by said head pad, and two flexible inlet hoses connected to the facepiece and to opposite ends of the canister, said hoses positioned to pass beneath the wearer's ears when the mask is in use.

3. A gas mask comprising a facepiece, a head pad adapted to be positioned against the back of a wearer's head, a plurality of loops of resilient retaining members connected to each side of the facepiece, means for connecting said loops to said head pad, and an air purifying canister mounted on the head pad.

4. In a gas mask, a head pad adapted to rest against the back of a wearer's head, a separable fastener on said pad, an air purifying canister secured to said fastener, and means to prevent oscillation of said canister about said fastener.

5. The invention as defined in claim 4 wherein the head pad is connected to opposite sides of a gas mask facepiece by a plurality of resilient members.

6. In a gas mask, a head pad comprising a rigid plate adapted to rest against the back of a wearer's head, means to mount an air purifying canister on said plate, and a bowed spring member mounted on said plate and tensioned by pressure on said canister, said spring member maintaining said canister against oscillation.

7. In a gas mask, a head harness, comprising a bowed plate, a continuous coiled spring forming a plurality of outwardly extending loops with the intermediate portions secured to said plate, and a separable fastener mounted on said plate to support an air purifying canister.

8. A head harness for retaining a breathing apparatus facepiece in position on the face, comprising a plurality of flexible retaining members connected at one end to one side of the facepiece, fastening means connected to the other side of said facepiece for receiving the free ends of said retaining members, an independent positioning element associated with the intermediate portions of said retaining members for maintaining them in predetermined spaced relation on the head, and means for supporting an air-purifying canister on said positioning element.

9. A head harness for retaining a breathing apparatus facepiece in position on the face, comprising a plurality of flexible retaining members connected at one end to one side of the facepiece, fastening means connected to the other side of said facepiece for receiving the free ends of said retaining members, a cup-like member having its open side facing the facepiece, and a resilient pad associated with said open side of the cup member for bearing against the head, said cup member being provided with spaced openings through which said retaining members extend.

10. A head harness for retaining a breathing apparatus facepiece in position on the face, comprising a plurality of flexible retaining members connected at one end to one side of the facepiece, fastening means connected to the other side of said facepiece for receiving the free ends of said retaining members, an independent positioning element connected to the intermediate portions of said retaining members for maintaining them in predetermined spaced relation on the head, and resilient means for detachably supporting an air-purifying canister on said positioning element.

11. A gas mask comprising a facepiece, an independent head pad adapted to be positioned against the back of a wearer's head, flexible retaining members secured to opposite sides of said facepiece, means on said head pad to maintain said members in predetermined spaced relation, an air-purifying canister removably mounted on said head pad, and a spring connected to said head pad and engaging said canister to prevent free oscillation thereof.

12. A head harness for retaining a breathing apparatus facepiece in position on the face, comprising a plurality of retaining members connected at their ends to the opposite sides of the facepiece, an independent positioning element associated with the intermediate portions of said retaining members for maintaining them in predetermined spaced relation on the head, and means for supporting an air-purifying canister on said positioning element.

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