

March 16, 1948.

C. RICH

2,437,755

GAS MASK

Filed March 3, 1945

5 Sheets-Sheet 1

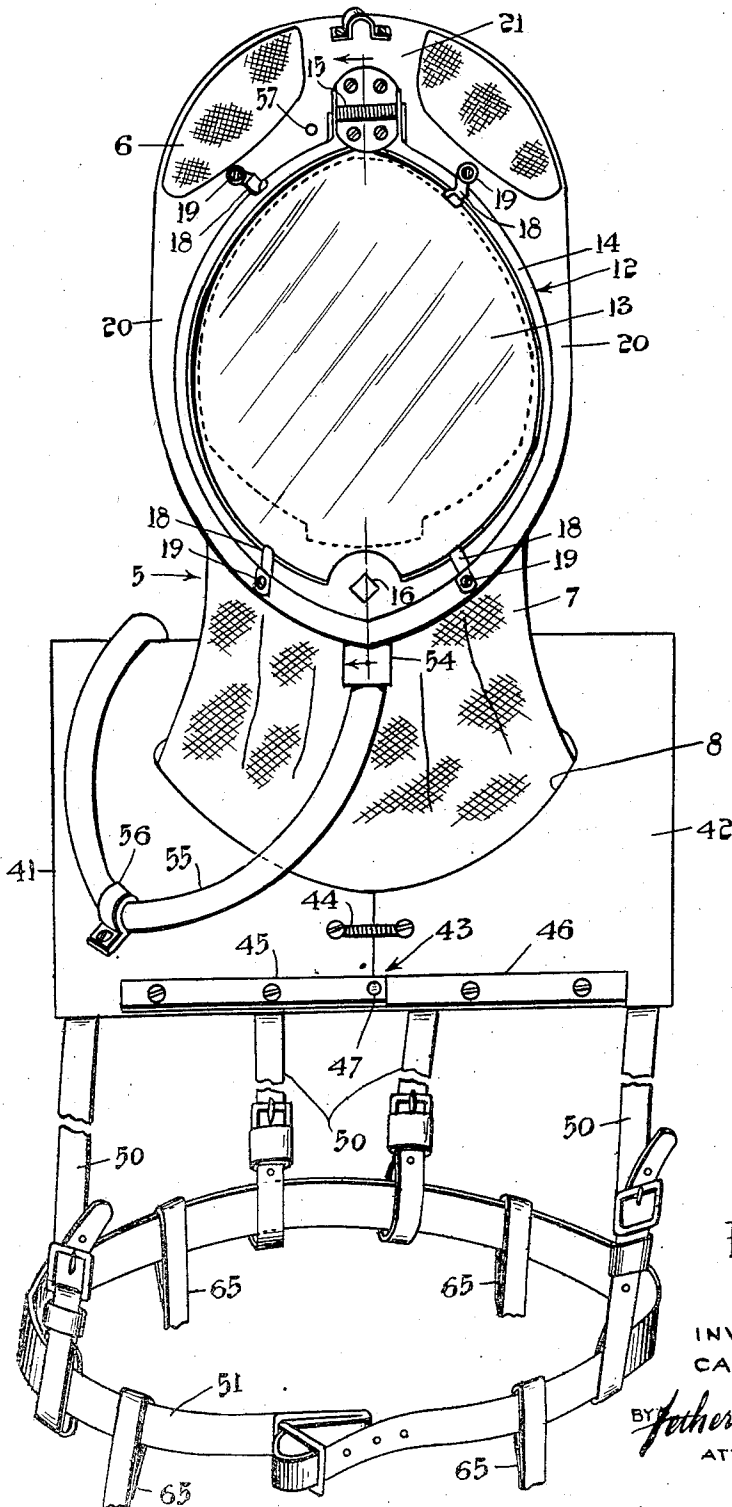


FIG. 1

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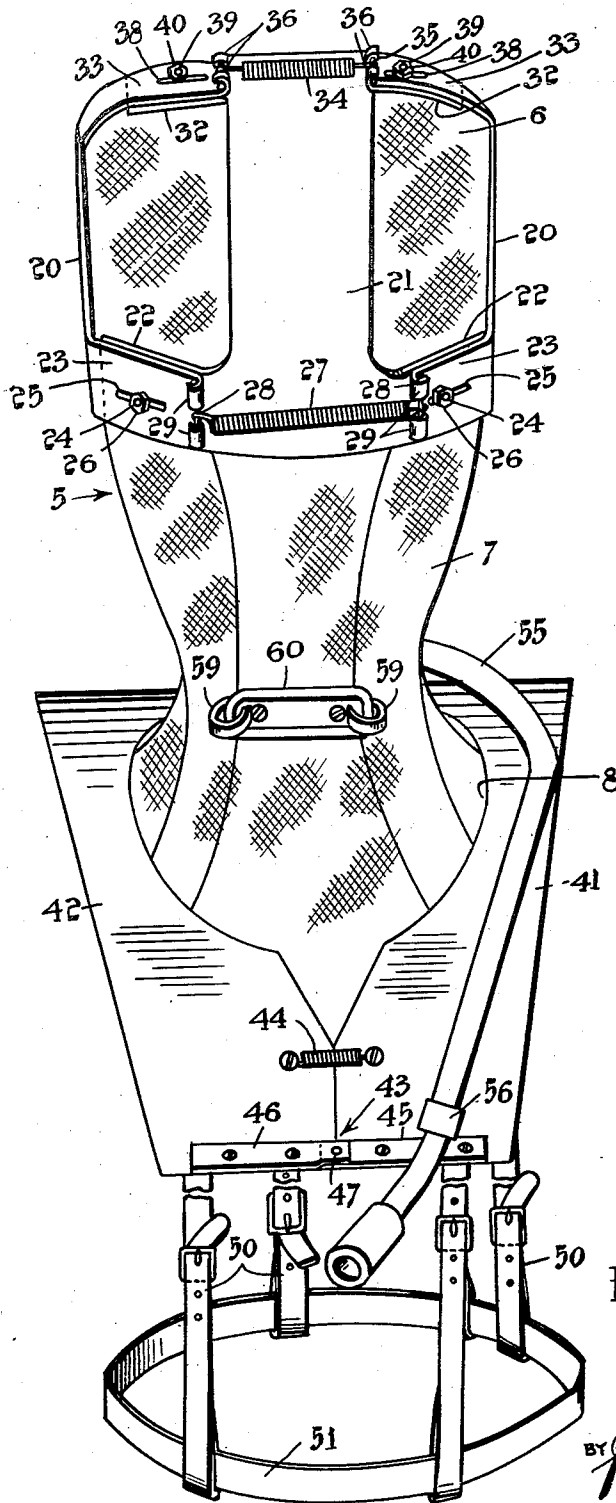


FIG. 2

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5 Sheets-Sheet 3

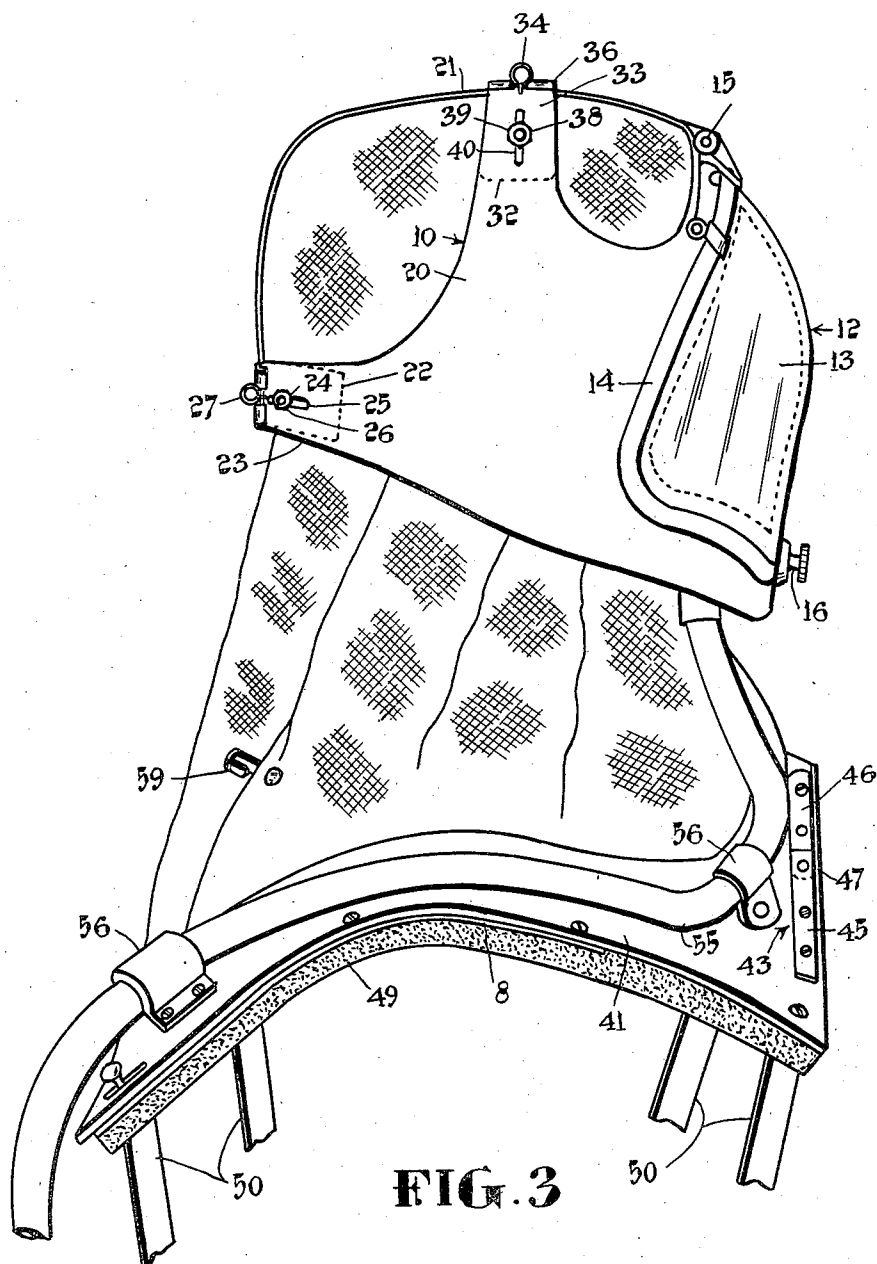


FIG. 3

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5 Sheets-Sheet 4

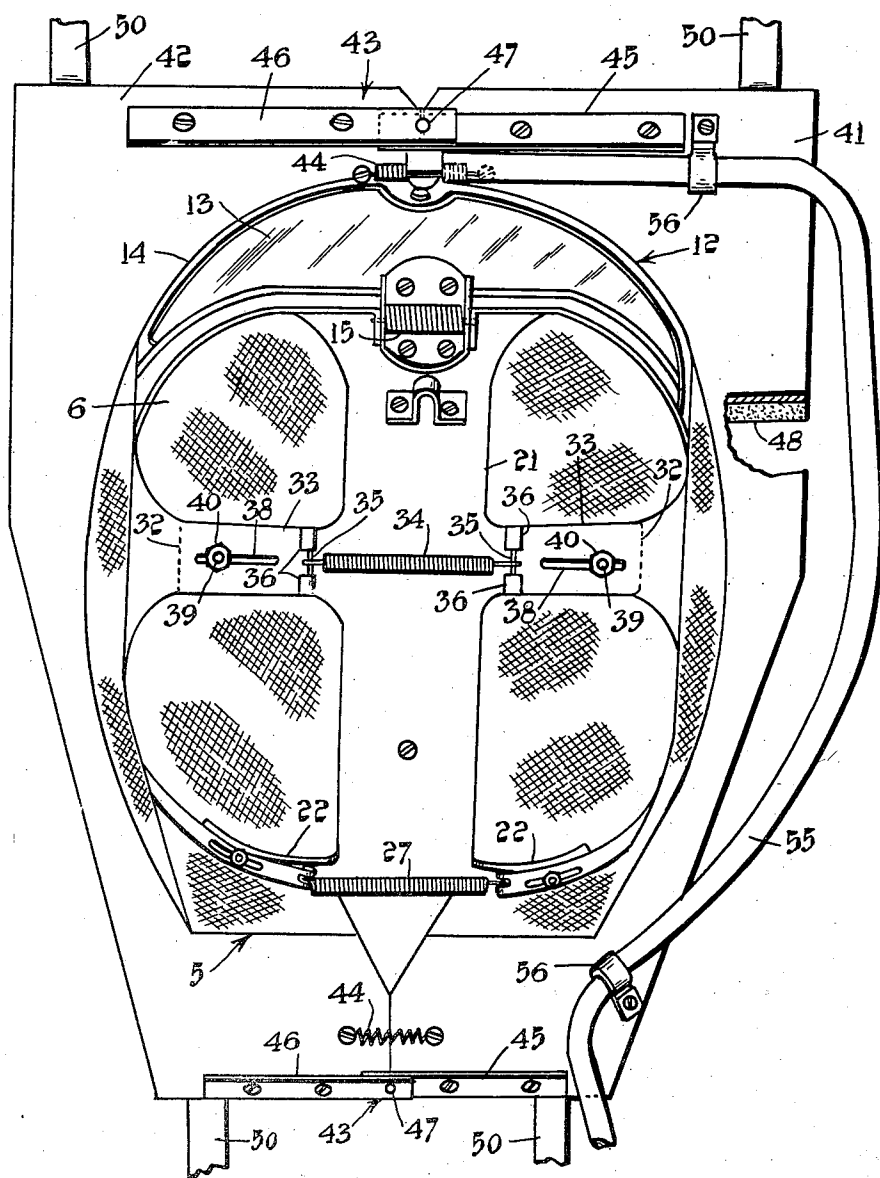


FIG. 4

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5 Sheets-Sheet 5

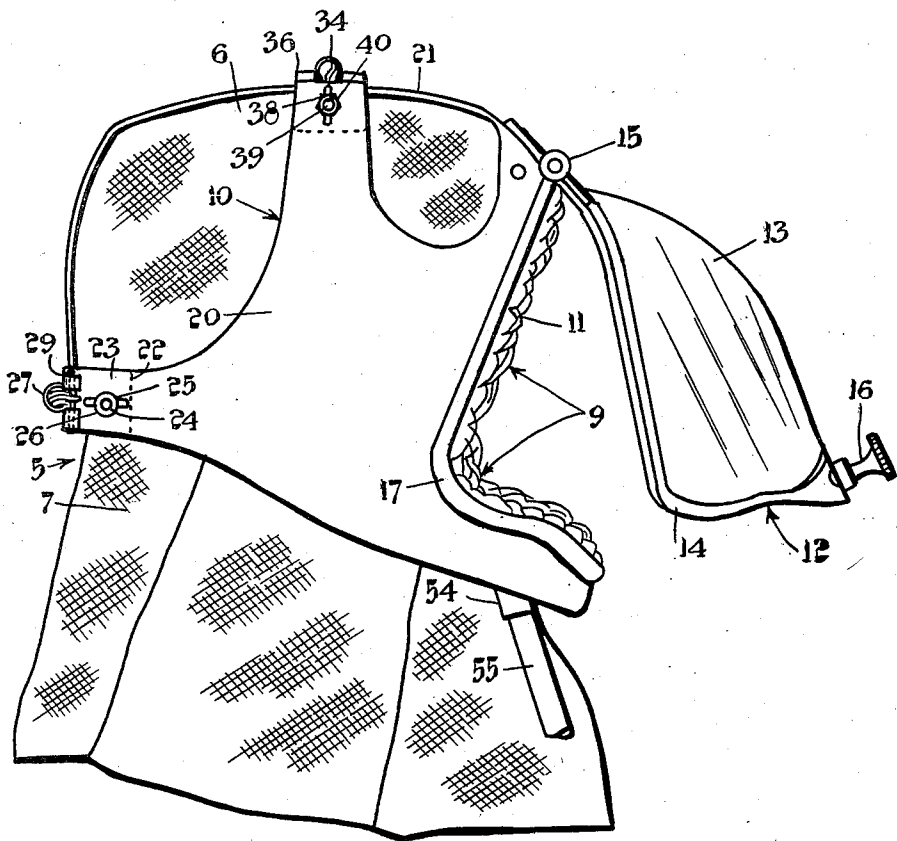


FIG. 5

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UNITED STATES PATENT OFFICE

2,437,755

GAS MASK

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2 Claims. (Cl. 128—141)

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This invention relates to gas masks and the object is to provide a mask equipped with novel means of adjustment whereby the mask may be quickly and conveniently applied and adjusted to provide a gas-tight enclosure for the head and neck of the wearer.

Other objects, advantages and characteristic features of the invention will be more readily understood from the following detailed description of the accompanying drawings, in which—

Fig. 1 is a front elevational view of my improved gas mask.

Fig. 2 is a rear elevational view.

Fig. 3 is a side view.

Fig. 4 is a top plan view; and

Fig. 5 is a side view similar to Fig. 3 but showing the front closure member of the mask in open position.

As shown in these drawings my improved mask includes a flexible fabric hood 5 comprising a head covering portion 6, a neck portion 7 and a shoulder covering portion 8. Head section 6 (see Fig. 5) is provided with a front opening 9 and is secured to an external metal head frame 10 provided with a front opening 11. When the mask is in use the front openings 9 and 11 are closed by a closure member 12 comprising a transparent window element 13 mounted in a metal frame 14.

The upper edge portion of closure member 12 is hinged to metal head frame 10 by a spring hinge 15 which normally tends to swing closure member 12 to closed position. Closure member 12 is opened against the resistance of hinge 15 by means of a knob or handle member 16 attached to the lower marginal portion of said closure member. In its closed position, member 12 seats against an air-filled sealing tube 17 which is attached to the metal head frame 10 so that it borders the front opening 11. Closure member 12 is pressed tightly against sealing tube 17 by clips 18 removably secured to metal head frame 10 by screws 19. These clips are easily displaced or removed to permit swinging of closure member 12 to open position.

The metal head frame 10 comprises side plates 20 and a strap portion 21, the latter extending rearwardly from the upper edge of the front portion of the head frame across the top and then downwardly along the back of the head portion 6 of hood 5.

As shown to advantage in Fig. 2, the free end of strap portion 21 is provided with lateral extensions 22 which are overlapped by rearwardly directed extensions 23 of the side plates 20. Each extension 22 is provided with a threaded mem-

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ber 24 which works in a slot 25 in the overlapping extension 23 and is provided with a clamping nut 26. The free ends of extensions 23 are connected by a coil spring 27 having its ends fastened to pins 28 held in place by sleeve portions 29 of said extensions. The springs 27 tend to draw the extensions 23 toward each other to thereby contract the lower portion of the head covering 5 about the head of the wearer. The threaded members 24 and associated clamping nuts 26 provide means for clamping the extensions 23 to the extensions 22 when it is desired to secure the extensions 23 in adjusted position.

That portion of strap 21 which extends over the top of head covering 6 is provided with lateral extensions 32 which are overlapped by extensions 33 of the side plates 20 of head frame 10. The free ends of the extensions 33 are connected by a spring 34 whose ends are anchored to pins 35 held in place by sleeve portions 36 of said extensions. The extensions 33 are also provided with slots 38 for passage of threaded bolts or posts 39 carried by the underlying extensions 32 of strap 21, said bolts or posts 39 being equipped with clamping nuts 40 for securing the extensions 33 in different positions of adjustment. It will thus be seen that the extensions 32 and 33 provide, in conjunction with the spring 34 and clamping nuts 40, a means for contracting or adjusting the top of the head portion 6 of hood 5.

The shoulder portion 8 of hood 5 is reinforced by metal plates 41 and 42 which are hingedly connected together by hinge connections generally indicated at 43 and are also yieldingly connected by spring connections 44. Each hinge connection 43 comprises a hinged member 45 fastened to plate 41 and having one end lapping the corresponding end of a similar hinged member 46 secured to plate 42, the lapped ends of the two hinged members being secured together by a pivot 47 permitting a slight lateral separation of the plates 45 and 46 which is resisted by the spring connections 44. This lateral separation of the plates 45 and 46 enables the neck portion 7 of hood 5 to be expanded somewhat when the mask is being slipped over the head of the wearer.

The shoulder portion 8 of hood 5 is also provided with underlying cushioning or sealing strips 49 which are pulled downwardly against the shoulder portion and the adjacent front and back portions of the wearer's body by adjustment of straps 50 which have their upper ends suitably fastened to the shoulder portion of the mask and their lower ends fastened to a waist or body en-

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circling belt 51. In this connection it will be understood that, after the body encircling belt 51 has been tightened in place about the wearer, the straps 50 may be adjusted to pull the shoulder portion of the mask tightly against the shoulder of the wearer so that the sealing and cushioning strips 49 will seal the neck portion of the hood.

The head covering portion 6 of hood 5 is provided with an air or oxygen inlet 54 to which a flexible hose 55 is connected, a portion of said hose being passed through and held in place by retaining clips 56 fastened to the metal shoulder plate 41.

When the mask is in use, air or oxygen is supplied through hose 55 at a pressure sufficiently higher than atmospheric pressure to prevent inward leakage of gas around the closure 12 or other possible points of leakage. The foul air is permitted to escape from the head covering 6 through a suitable opening such, for example, as the vent opening indicated at 57 in Fig. 1.

The neck portion 7 of the hood may be pleated or otherwise formed to permit of considerable expansion thereof when the mask is being slipped over the head of the wearer. In order to take up this expansion after the mask is in place the neck portion may be provided with widely separated hooks 59 adapted to be hooked into opposite ends of a detachable connecting loop 60.

The body encircling belt 51 may be provided with crotch straps indicated at 65 in Fig. 1 adapted to be passed around the crotch of the wearer to assist in holding the mask down upon the shoulders of the wearer.

Having thus described the nature of my invention it will be understood that various modifications may be resorted to within the scope and spirit of the invention as defined by the appended claims.

I claim:

1. A gas mask comprising a flexible fabric hood

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including a head portion and an adjustable metal head frame overlying and secured to the head portion, said head frame including a front portion having an opening therein registering with an opening in the head portion of the hood, a transparent member closing said openings, side plates joined to the front portion of the head frame, and a strap extending rearwardly from the upper edge of the front portion of the head frame across the top and downwardly along the back of the head portion of the hood, said side plates being provided with resiliently connected extensions lapping and slidably secured to complementary extensions of said strap to provide for expansion and contraction of the head frame.

2. A gas mask comprising a flexible fabric hood including head, neck and shoulder portions, an adjustable metal head frame overlying and secured to the head portion of the hood, said head frame being adjustable to provide for expansion and contraction of the head portion of the hood, and a pair of metal shoulder plates overlying and secured to the shoulder portion of the hood, said shoulder plates being hingedly connected together at opposite ends thereof.

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