

N. SCHWARTZ.
GAS MASK AND RESPIRATOR.
APPLICATION FILED JUNE 27, 1918.

1,313,745.

Patented Aug. 19, 1919.

Fig-1-

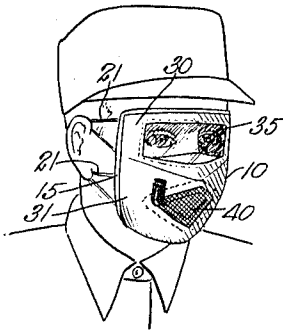


Fig-2-

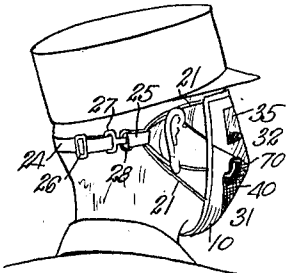


Fig-4-

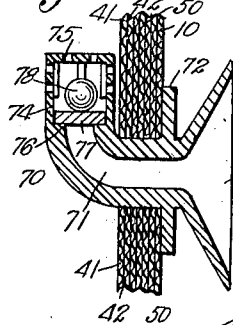


Fig-3-

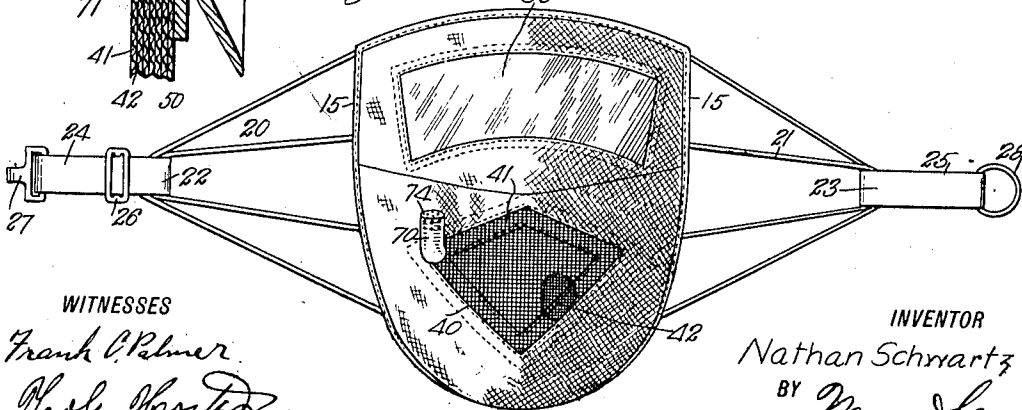
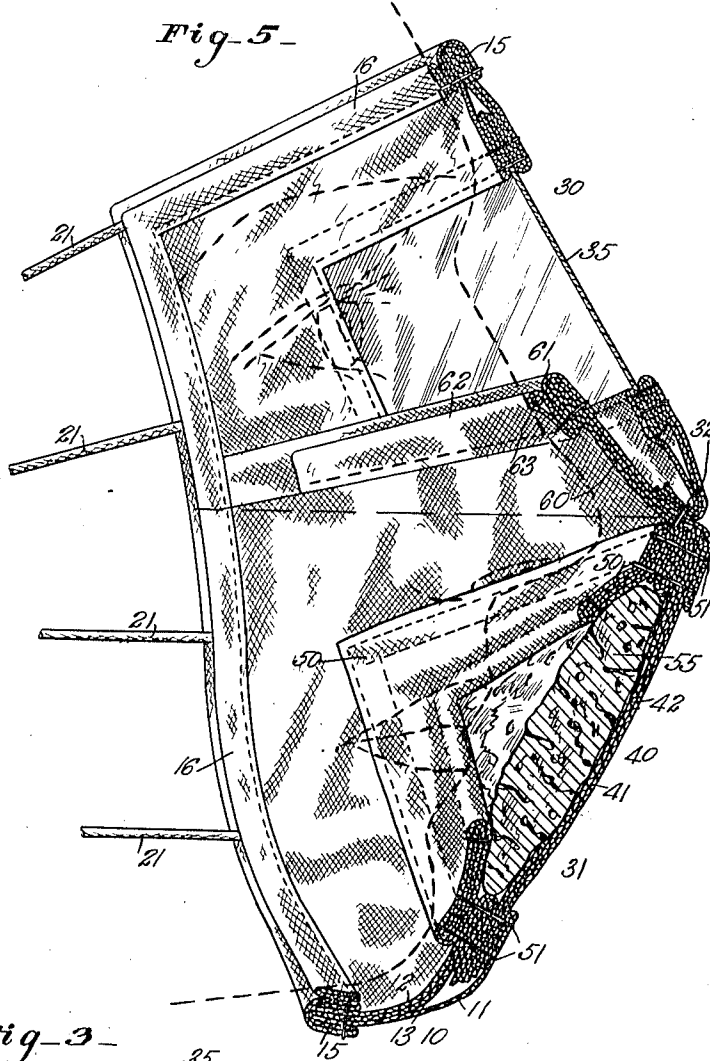


Fig-5-



WITNESSES

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GAS-MASK AND RESPIRATOR.

1,313,745.

Specification of Letters Patent.

Patented Aug. 19, 1919.

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To all whom it may concern:

Be it known that I, NATHAN SCHWARTZ, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Gas-Mask and Respirator, of which the following is a full, clear, and exact description.

10 The object of the invention is to provide a new and improved gas mask and respirator arranged to snugly fit the face of the wearer and to prevent noxious gases, dust and other extraneous matter from reaching the mouth, 15 nostrils or eyes of the wearer, at the same time enabling the wearer to breathe freely. Another object is to permit of readily and accurately placing the gas mask and respirator in position on the face of the wearer or removing it therefrom when not required. 20 Another object is to make the body of the gas mask and respirator mainly out of textile material thus eliminating sheet rubber or similar material liable to deteriorate under 25 the influence of certain gases.

With these and other objects in view, the invention consists of certain novel features of construction as hereinafter shown and described and then specifically pointed out 30 in the claims.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views. 35

Figure 1 is a front perspective view of the gas mask and respirator as applied;

Fig. 2 is a rear perspective view of the same;

40 Fig. 3 is an enlarged front elevation of the gas mask and respirator with part broken out;

Fig. 4 is an enlarged cross section of the exhaling device mounted in the body of the 45 gas mask and respirator; and

Fig. 5 is an enlarged cross section of the gas mask and respirator.

The body 10 of the gas mask and respirator is made of a closely woven textile material, preferably three superimposed fabric layers 11, 12 and 13, of which the outer and inner layers 11 and 12 are of closely woven cloth and the intermediate layer 13 of lining or stiffening material to give the desired 50 stiffness to the body. The margin of the body 10 is reinforced by a suitable fabric

binding 15 and on the inner face of this binding 15 is sewed or otherwise secured a backing strip 16 adapted to fit snugly on the skin to prevent fumes or gases from passing 60 to the inside of the mask along the margin of the body. In order to fasten the mask and respirator in position on the face of the user, the sides of the body 10 are provided with elastic cords 20 and 21 having their 65 ends spaced apart and fastened to the body intermediate the binding 15 and the backing strip 16. The cords 20 and 21 slidably engage loops 22 and 23 formed on bands 24, 25, preferably made of elastic material, and 70 of which the band 24 is provided with the usual adjusting device 26 for lengthening or shortening the band. The bands 24 and 25 are provided at their ends with connecting members 27, 28, such as a hook and ring 75 adapted to engage one the other at the back of the head of the wearer (see Fig. 2) to securely fasten the mask in position on the face of the wearer. By reference to Figs. 1 and 2, it will be noticed that the cords are 80 spread apart to readily accommodate the ears of the wearer thus preventing chafing thereof.

The body 10 is preferably made in an upper or eye section 30 and a lower or mouth 85 section 31, the sections being disposed at an angle one to the other, as plainly indicated in Fig. 5, the sections being united with each other at their adjacent edges by stitches 32. The upper section 30 of the body 10 is provided with a window 35 of celluloid, mica or other suitable diaphanous and flexible material located opposite the eyes to permit free 90 vision of the user of the mask.

In the lower portion 31 of the body 10 is 95 inserted an inhaling member or respirator 40, preferably formed of two layers 41 and 42 of open mesh textile fabrics. The outer layer 41 is preferably made of bolting cloth while the inner layer 42 is preferably made 100 of a fine mesh silk, as indicated in Fig. 3. The inhaling member 40 is preferably diamond-shaped and is located opposite the mouth and nostrils of the wearer. A pocket 50 is arranged on the inside of the lower 105 section 31 of the body 10, and this pocket extends along the margin of the inhaling member 40 and is secured with the latter by rows of stitches 51 to the body 10, as plainly indicated in Fig. 5. The pocket 50 is preferably 110 made of rubber or other impervious material and contains a removable absorbent

pad 55 preferably in the form of a sponge adapted to be saturated with a suitable liquid. It will be noticed that the outer layer 41 of the respirator forms a deflector for dust and other extraneous particles. The layer 42 of silk on account of being in contact with the moist, absorbent pad 55 takes up some of the moisture and thus fits snugly against the outer layer 41, which is of a larger mesh, the two meshes providing minute passages for the air and tend to purify the latter of noxious gases during its passage through the said layers and the absorbent pad 55.

The upper and lower sections 30 and 31 are interiorly separated by a nose piece 60 made of several layers of fabric material fastened in place by the stitches 32 which connect the sections 30 and 31 with each other. This nose piece 60 extends upwardly and inwardly from side to side of the body, and the upper edge is preferably provided with a binding 61 on the inner face of which is secured a doubled-up strip 62 forming a hem for a soft wire 63 to permit of readily fashioning the nose piece to the shape of the nose of the wearer. It will be noticed that by the arrangement described, the mask is provided with an air chamber in the lower section 31 to insure proper breathing, and an upper eye chamber separated from the lower chamber by the nose piece, which latter holds the window 35 a short distance away from the eyes so as not to interfere with the latter. The nose piece 60 forms a tight joint between the two chambers to prevent moisture laden air from reaching the eye chamber and to prevent such moisture from condensing and adhering to the inner face of the window 35.

An exhaling device 70 is arranged in the lower section 31 of the mask, preferably at one side corner of the inhaling member 40 and this exhaling device is provided with a tubular body 71 of aluminum, hard rubber or other suitable material. The body 71 extends through the several fabrics of the body 10, the inhaling member 40 and the pocket 50, as plainly shown in Fig. 4, and a flange 72 is formed on the said body 71 which is glued or otherwise fastened to the inner face of the body 10 to securely hold the exhaling device 70 in position on the body 10. The inner end of the exhaling body 71 is provided with a flaring mouth 73 and the outer end 74 of the exhaling body 71 is bent upward and is provided with perforations 75 and a valve seat 76 disposed below the perforations 75. On the valve seat 76 is normally seated a valve 77 adapted to move upward by exhalating pressure passing from the inside of the mask through the tubular body 71. The valve 77 immediately closes as soon as the pressure ceases to prevent noxious gases from passing to the inside of the

mask by way of the exhaling device. In order to insure a proper and quick seating of the valve 77 use is made of a pressure device, preferably in the form of a ball 78, resting on top of the valve and located within the outer perforate portion 74, as plainly shown in Fig. 4. It will be noticed that by the arrangement described the valve 77 is held in a closed position even should the user bend the head downward thus preventing gases, dust and other extraneous matter from passing into the mask by way of the exhaling device.

The lower section 31 of the mask is fashioned snugly to fit around the chin of the wearer, as plainly indicated in the drawings to insure a tight joint between the face and the margin of the body 10.

It is understood that the gas mask is exceedingly serviceable for the protection of industrial workers who have to contend with the hazards and dangers of dust, fumes and gases. It will be noticed that the gas mask and respirator protects the eyes of the worker against dust and against injurious foreign particles especially if such dust or foreign bodies are of an irritating nature such as phosphorus, hypochlorites, acids, etc. The gas mask and respirator protects the wearer against occupational poisons from lead, arsenic, mercury, chlorin, etc., by means of dust filtration. It protects against poisonous fumes and noxious gases which are common in the industries, such as chlorin, nitrous oxid, wood alcohol, ammonia, carbon monoxid, cyanids, etc.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. A gas mask and respirator, comprising a body having an upper and a lower section, the sections standing at an angle to one another, the upper section having a diaphanous plate therein and the lower section having a perforated inhaling member, said body being provided on the inside at the junction of the sections with an upwardly and inwardly extending nose piece, and means for securing the body to the face of the wearer.

2. A gas mask and respirator, comprising a body having an upper and a lower section, the sections standing at an angle one to the other, the upper section having a diaphanous plate therein, and the lower section having a perforated inhaling member and containing an absorbent material said body being provided on the inside at the junction of the sections with an upwardly and inwardly extending nose piece having a wire in its edge, and means for securing the body to the face of the wearer.

3. A gas mask and respirator comprising a body having an upper and a lower section, the sections standing at an angle one

to the other, the upper section having a diaphanous plate therein and the lower section having a perforated inhaling member and containing an absorbent material, said body being provided at the junction of the section with an upwardly and inwardly extending nose piece, an exhaling device mounted on the body adjacent the inhaling member and having a self closing valve, and means for securing the body to the face of the wearer.

4. A gas mask and respirator, comprising a body having an eye section provided with a diaphanous plate therein, and the lower section having a diamond shaped perforated inhaling member and a pocket extending along the margin of the inhaling member and containing an absorbent material, said body being provided between the sections with an upwardly and inwardly extending nose piece having pliable wire in its edge, an exhaling device on the body adjacent the inhaling member and having a self closing valve, and means for securing the body on the face of the wearer.

5. A gas mask and respirator, comprising a face body provided with attaching means for attaching the said body to the face of the wearer, an inhaling member mounted in the said body and disposed approximately opposite the mouth of the wearer, and an exhaling device having a tubular member mounted in the body adjacent the said inhaling device, the said tubular member having a flaring mouth at the inner end and

having its outer end upturned and perforated, a valve seat in the said tubular member below the perforated end, and a self-closing valve normally seated on the said valve seat.

6. A gas mask and respirator, comprising a face body provided with attaching means for attaching the said body to the face of the wearer, an inhaling member mounted in the said body and disposed approximately opposite the mouth of the wearer, an exhaling device having a tubular member mounted in the body adjacent the said inhaling device, the said tubular member having a flaring mouth at the inner end and having its outer end upturned and perforated, a valve seat in the said tubular member below the perforated end and disposed approximately in a horizontal plane, a valve seated on the said seat and adapted to open upwardly, and a ball in the said perforated end and resting on the said valve.

7. In a gas mask and respirator, a body having a diaphanous plate secured in its upper portion and a perforated inhaling member and an absorbent material in its lower portion, said body being provided with a nose piece and with an exhaling device, two elastic cords for each side of the body, the cords having their ends secured to the sides of the body a distance apart to form loops, bands engaging the elastic loops, and a hook and ring on the ends of the bands.

NATHAN SCHWARTZ.