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N. E. GADDINI
AIR CONDITIONED FACE MASK

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Fig. 1

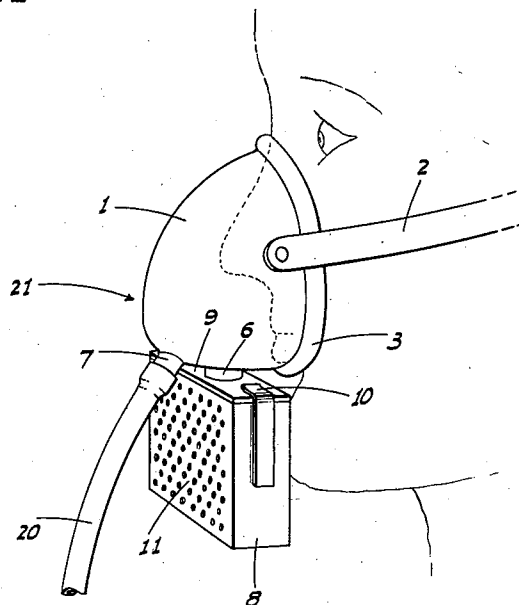


Fig. 2

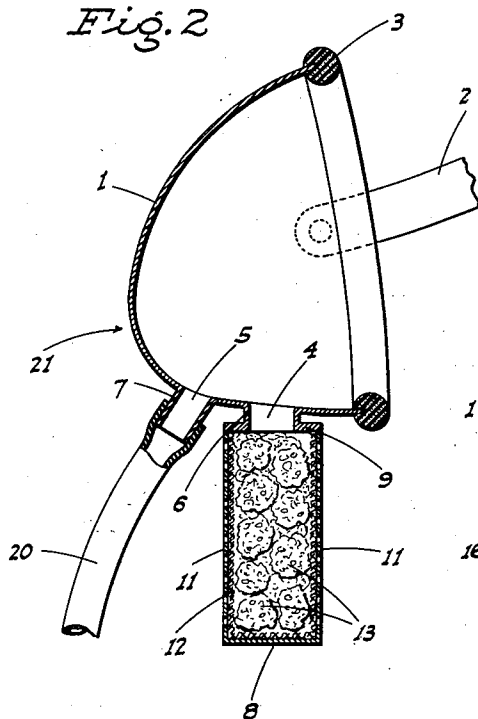


Fig. 3

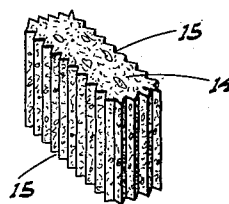
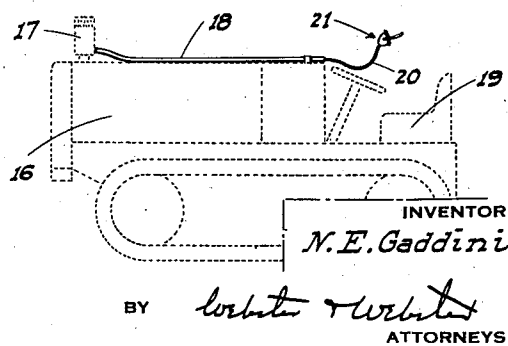


Fig. 4



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AIR-CONDITIONED FACE MASK

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6 Claims. (Cl. 128-146)

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This invention relates in general to an improved air filter type face or respirator mask for use by persons subject to the occupational hazard of dust, or other foreign substance, in the air; the mask being especially designed, but not limited, for use by the operator of tractor-drawn agricultural or earth working equipment.

One object of the present invention is to provide a mask, for nose and mouth protection, which is adapted to supply a gentle but continual stream of conditioned air to the wearer of the mask; such air stream being created by connecting the air exhaust fitting of the mask to a source of constant suction, such as the air intake device of a tractor.

Another object of the invention is to provide a mask, for the purpose described, which embodies a novel unit for filtering, and—if desired—cooling, the air entering the mask; such unit including a removable filter and sponge assembly of especially effective design.

An additional object of the invention is to provide a mask, as above, which is simple in structure, light in weight, and very comfortable when in use.

A further object of the invention is to provide a mask which functions efficiently under any atmospheric conditions; fresh filtered air feeding to the mask, and all stale, humid air exhausting therefrom, both as an automatic and continuous operation.

A further object of the invention is to provide an air conditioned face mask which is designed for economy and ease of manufacture.

A further object of the invention is to provide a practical and reliable air conditioned face mask, and one which will be exceedingly effective for the purpose for which it is designed.

These objects are accomplished by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings:

Fig. 1 is a perspective view of the mask as in use.

Fig. 2 is a sectional elevation of the mask.

Fig. 3 is a perspective view of a modified type of sponge for use in the filter and sponge assembly.

Fig. 4 is a diagrammatic side elevation of a tractor showing the manner of connecting the mask to the air intake device of a tractor.

Referring now more particularly to the characters of reference on the drawings, the improved mask comprises a cup-like body 1 shaped to pro-

vide a nose and mouth shield when in engagement with the face of a wearer, as in Fig. 1; the body 1 being held in place by an encircling head strap 2.

At its free or peripheral edge the cup-like body 1 is formed with a sponge rubber bead 3 which seals with the face and also assures of comfort of the mask when worn.

At the bottom thereof the body 1 is formed with an air intake passage 4, and directly ahead of said passage there is an air outlet or exhaust passage 5.

A relatively short dependent neck 6 is formed on the body 1 at the bottom in communication with the air intake passage 4, and an outwardly projecting fitting 7 is formed on the body in communication with the air exhaust passage 5.

Directly below the body 1 the mask includes a relatively small, light-weight, rectangular container 8 which includes a removable top 9; the container normally being secured against the top by means of spring clips 10 at opposite ends of said container.

The neck 6 is fixed to, and communicates through, the top 9 centrally of its ends, whereby the entire container 8 is suspended from the body 1.

Opposed walls or sides 11 of the container 8 are perforate, as shown, and such perforate walls are covered, inside the container 8, by removable filter sheets 12. Inwardly of the filter sheets 12 the container 8 is filled with relatively small sponges 13.

In lieu of the relatively small sponges 13, as shown in Fig. 2, it may be desirable to employ a one-piece sponge 14, as shown in Fig. 3; such one-piece sponge 14 being shaped to matchingly engage in the container 8 inwardly of the filter sheets 12. The one-piece sponge 14 is vertically corrugated, as at 15, to assure of the free entry of air into the container 8 through the perforate walls 11 and filter sheets 12.

The above described respirator mask is used, for example, in the manner illustrated in Fig. 4, wherein:

The numeral 16 indicates generally a tractor having an air intake device 17 wherein a suction is continuously created. A conduit 18 is connected to the air intake device 17 in a manner so that such conduit is subject to the suction from said device. Adjacent the operator's seat 19 the conduit 18 connects to a flexible hose 20, which is of substantial length and which leads to connection with the air exhaust fitting 7 of the

mask; the latter being shown generally in Fig. 4 at 21.

The operator, on the seat 19, wears the mask 21, and the suction from device 17 causes an easy but steady flow of air through the air filtering container 8 upwardly through passage 4 into the body 1, so that the tractor operator always breathes a fresh, clean supply of air. The exhaled air is immediately drawn through the air exhaust passage 5 and fitting 7 into the hose 20, and thence away from the mask.

When the atmosphere is relatively warm or hot, it is desirable that the filtered air, as fed into the body 1, be cooled. This is accomplished by wetting the sponges 13, or sponge 14, whichever may be in use. Thereafter, the air flowing through the filter sheets 12 is cooled by evaporation as it passes the sponge material.

When the sponges 13 (or sponge 14) are wet, they tend to also dampen the filter sheets 12, not only enhancing the filter action of the latter, but also increasing the total surface area for evaporative cooling of the air passing through the container 8.

With the mask functioning both as an air filter and air cooler, such mask can be worn in comfort under all conditions of temperature and humidity.

As the air volume and movement through the mask is not great, it is possible for one wetting of the sponge material in the container 8 to last for relatively long periods, without rewetting of said material.

While the use of the device is described as in connection with a tractor, it is obvious that the source of suction may be other than the air intake device of a tractor.

The described mask, although of simple construction, is nevertheless exceedingly effective for the supply of fresh air, and—if desired—cool air, for respiration by tractor operators or the like who are normally subject to air which carries large quantities of dust or other foreign substance.

From the foregoing description it will be readily seen that there has been produced such a device as substantially fulfills the objects of the invention, as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described the invention, the following is claimed as new and useful, and upon which Letters Patent are desired:

1. A respirator mask comprising a head-supported, cup-like body adapted to provide a nose and mouth shield, there being an air intake passage and an air exhaust passage in communica-

tion with the body, an air filter unit connected to the air intake passage, a source of suction, and a conduit leading from the air exhaust passage to connection with said source of suction.

2. A respirator mask comprising a head-supported, cup-like body adapted to provide a nose and mouth shield, there being an air intake passage and an air exhaust passage in communication with the body, an air filter unit connected to the air intake passage, a source of suction, and a conduit leading from the air exhaust passage to connection with said source of suction; the mask being adapted for use by a tractor operator, and said source of suction being the air intake device of the tractor.

3. In combination with a tractor including an air intake device providing a source of suction, a respirator mask including air intake means having a filter therein, there being an air exhaust passage in the mask, and conduit means flexible adjacent the mask connected between said air exhaust passage and the air intake device of the tractor.

4. In combination with a tractor including an air intake device providing a source of suction, a respirator mask including air intake means having a filter therein, there being an air exhaust passage in the mask, and conduit means flexible adjacent the mask connected between said air exhaust passage and the air intake device of the tractor; said air intake means having an air cooling medium therein.

5. In combination with a tractor including an air intake device providing a source of suction, a respirator mask including air intake means having a filter therein, there being an air exhaust passage in the mask, and conduit means flexible adjacent the mask connected between said air exhaust passage and the air intake device of the tractor; said air intake means having an air cooling medium therein in the form of a wet sponge.

6. In combination with a tractor including an air intake device providing a source of suction, a respirator mask including air intake means having a filter therein, there being an air exhaust passage in the mask, and conduit means flexible adjacent the mask connected between said air exhaust passage and the air intake device of the tractor; said air intake means having an evaporative air cooling medium therein.

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