# United States Patent

Schoelz et al.

[15] 3,649,964

[45] Mar. 21, 1972


## [54] VENTILATED WELDERS FACE MASK


[72] Inventors: Willy A. E. Schoelz, Portland, Oreg.; John W. Tidland, Vancouver, Wash.

[73] Assignee: said Schoelz, by said Tidland



[22] Filed: June 4, 1970

[21] Appl. No.: 43,476

[52] U.S. Cl. ..... 2/8, 128/142.7, 2/171.3

[51] Int. Cl. ..... A61f 9/06

[58] Field of Search ..... 2/8, 171.3, 3, 6, 5; 128/142.7, 142.5



[56] References Cited

UNITED STATES PATENTS

| | | | |
|---|---|---|---|
| 3,238,535 | 3/1966 | Richey | 2/8 |
| 2,514,990 | 7/1950 | Dewan | 2/8 X |
| 3,467,965 | 9/1969 | Murphy | 2/171.3 X |
| 3,368,220 | 2/1968 | Wenzel | 2/8 |



*Primary Examiner*—James R. Boler

*Attorney*—Eugene M. Eckelman



[57] ABSTRACT

Ventilating means for a welder's face mask employing a battery-operated blower secured on the mask. Air passageways are provided in the mask which lead from the blower to inlet openings interiorly of the mask for ventilating the area between the mask and the welder's face. Batteries for operating the blower are mounted on the head band, and in structures utilizing a mask which can be tipped up on the headband, switch means are employed between the face mask and the headband which activate the blower in the down position of the mask and deactivate the blower in the up position of the mask.


**7 Claims, 6 Drawing Figures**

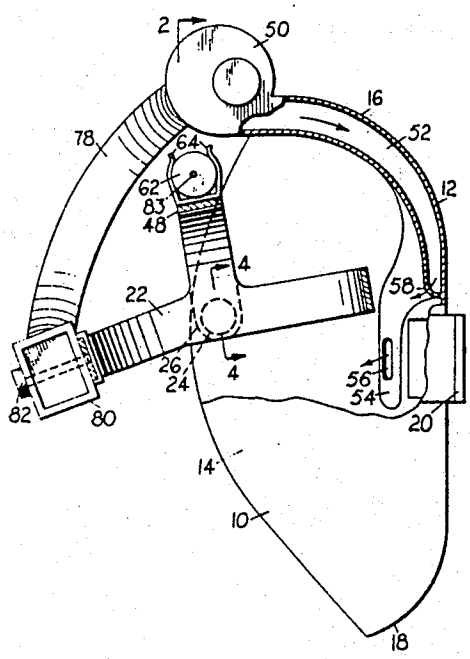


FIG. 2

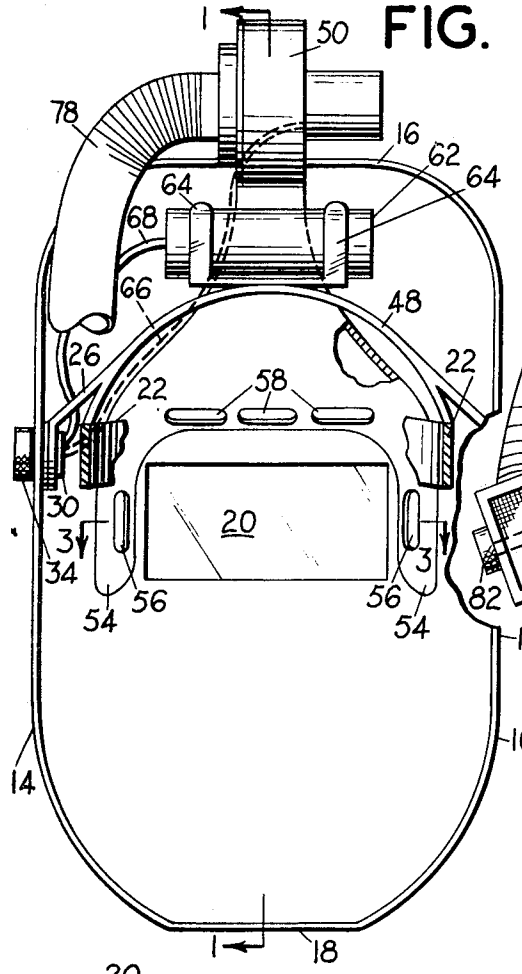



FIG. 1

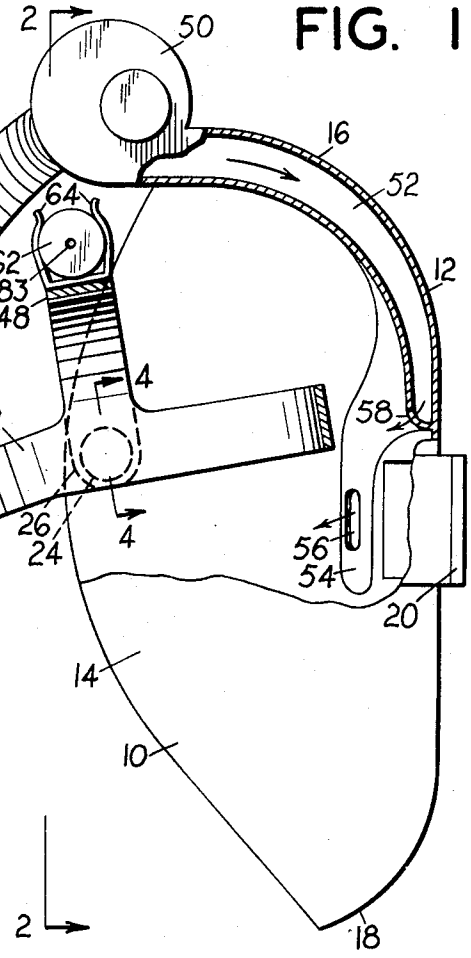



FIG. 3

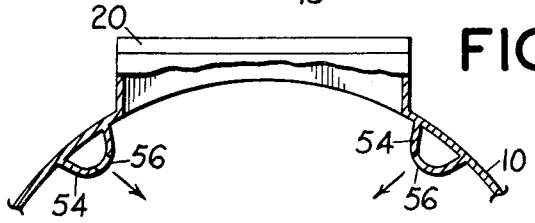



FIG. 6

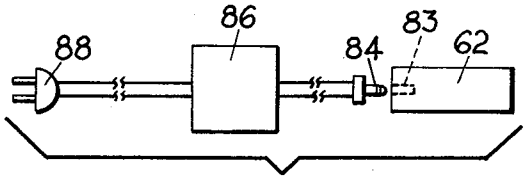



FIG. 4

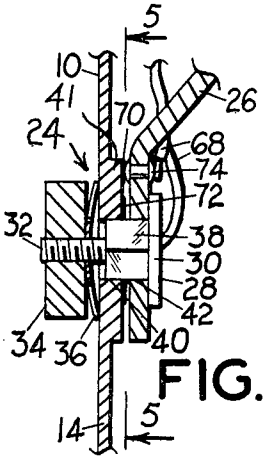
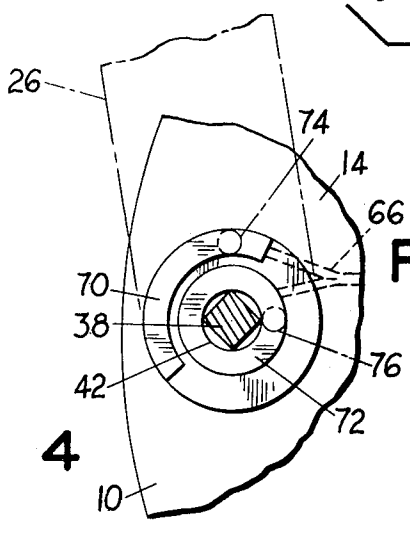



FIG. 5




WILLY A. E. SCHOELZ
JOHN W. TIDLAND
INVENTORS.
BY Eugene M. Eckelman
ATTY.

# VENTILATED WELDERS FACE MASK

this invention relates to new and useful improvements in ventilating means for face masks of the type worn by welders.

A primary objective of the present invention is to provide a welder's face mask having ventilating means therefor, said ventilating means including a blower integrated with the face mask and including passageways in the mask leading from the blower to points of discharge capable of ventilating the area between the inside surface of the mask and the welder's face.

Another object is to provide a face mask of the type described employing an electrically operated blower on the mask and including batteries therefor, the blower being mounted on the mask and the batteries being mounted on a headband for the mask; and also including a mask of the type described wherein switch means are located at a pivot point between the mask and the headband and arranged such that the circuit to the blower is closed when the mask is down but is opened when the mask is up.

Still another object is to provide a face mask which carries integrally a blower mechanism and which has molded therein passageway means from the blower to various outlet points in the mask for ventilating the face of the wearer.

Yet another object is to provide a face mask of the type described wherein a blower is mounted on the mask and wherein a filter for the inlet of the blower is mounted on a portion of a headband and is connected to the blower by means of a flexible conduit.

Other objects and advantages of the invention will appear hereinafter.

Reference is made to the accompanying drawings in which:

FIG. **1** is a vertical sectional view of the mask of the present invention, taken on the line **1—1** of FIG. **2**;

FIG. **2** is a rear elevational view of said mask, taken on the line **2—2** of FIG. **1**;

FIG. **3** is an enlarged horizontal fragmentary sectional view taken on the line **3—3** of FIG. **2**;

FIG. **4** is an enlarged fragmentary sectional view taken on the line **4—4** of FIG. **1**;

FIG. **5** is a sectional view taken on the line **5—5** of FIG. **4**; and

FIG. **6** is a plan view of charging means for the battery of the present invention.

Referring now in particular to the drawings, the invention comprises a mask or helmet **10** having a face or front wall portion **12** and sidewalls **14**, the face portion and sidewalls being U-shaped in lateral cross section. A top portion **16** of front wall **12** curves rearwardly and a bottom portion **18** of said front wall is similarly curved. The front wall **12** has a glass covered window **20** through which welder views his work when the mask is down.

Mask **10** is held on the operator's head by a headband **22** having pivot connections **24** with the sidewalls **14** of the face mask. The headband **22** has an extension **26** at each pivot connection, FIGS. **2** and **4**, for receiving a pivot pin **28** having a head portion **30** disposed on the inner side of the mask and having a threaded shank **32** projecting through the side of the helmet and adapted to receive a nut **34**. A spring washer **36** is disposed between the nut **34** and the helmet, and by selective tightening of the nut **34** the force required to rotate the helmet relative to the headband can be controlled. Pivot pin **28** has a rectangular shank portion **38** which fits into a similarly shaped aperture **40** in an inwardly projecting boss portion **41** of the mask wall **14** and which projects through a round aperture **42** in the headband extension **26**. By this arrangement, the pivot pin rotates with the mask and rotates relative to the headband.

The headband **22** is substantially round for fitting the head of the operator and has a semicircular upstanding band portion **48** which is adapted to extend over and seat on the top of the head.

Carried on the top of the mask at the back edge thereof is a blower **50** the outlet of which communicates with a passageway **52** molded or otherwise formed in the mask. The blower **50** may have a molded connection with the mask, as shown, or it may be bolted or otherwise secured thereto. As



best seen in FIGS. **2** and **3**, the passageway **52** flares outwardly or widens in a downward direction and has a portion **54** extending on each side of the window **20**. Each of the extensions **54** has one or more outlets or openings **56** preferably directed obliquely inwardly so as to cause the discharge of air therefrom to impinge against the operator's face at about the temples. Passageway **52** has openings **58** above the window which discharge air against the forehead of the wearer. The outlet openings **56** and **58** may be selectively arranged to provide effective inlet of air. That is, such openings may be fewer or greater in number than that shown and may be located at different positions.

Batteries for operating the blower **50** are supported in a casing **62** removably supported in clips **64** integrated with the vertical headband portion **48**. Wires **66** and **68** lead from the blower and battery casing **62**, respectively, and are connected into a switch mechanism incorporated in one of the pivot connections **24**. More particularly, boss **41** has a pair of contacts **70** and **72**, FIGS. **4** and **5**. These contacts comprise thin strips of electrically conductive metal secured to the inwardly directed surface of boss **41**. Contact **70** is semicircular in shape and is disposed adjacent to the outer edge of the boss. Contact **72** is circular in shape and is of less diameter than contact **70** and disposed adjacent to the aperture **40**. The two wires **66** from the blower **50** are connected to respective contacts **70** and **72**, and the two wires **68** from the battery casing lead to respective contacts **74** and **76** mounted in the headband extension **26**. The positioning of the contacts **74** and **76** is shown in phantom in FIG. **5**. As selectively arranged, contact **76** is in constant engagement with circular contact **72** and contact **74** is adapted for engagement with contact **70** only in selected rotative positioning of the mask relative to the headband. That is, when the mask is rotated up to a nonuse position contact **74** is out of engagement with contact **70** to break the circuit to the blower but when the mask is pulled down these two contacts are in engagement to start the blower.

By means of the present invention, when a welder moves his mask down, the blower automatically turns on to force air through the area between the mask and the face. Such provides fresh air circulating in the mask down past the face. Such prevents hot fumes for drifting up into the mask. Although the air intake into the blower may be unfiltered if desired, it is preferred that it be filtered in which case a flexible conduit **78** has one end connected into the intake end of the blower and its other end connected to a filter **80** mounted on a rearward portion of the headband **22**, as by means of a bolt **82**.

It is desired that the battery holder **62** be arranged such that it can be used with a charger for recharging the batteries in the holder. For this purpose, the battery holder is provided with a socket **83** in electrical connection with the batteries and adapted to receive a plug-in member **84** from a charger **86**. Charger **86** has a male plug **88** for engagement in a conventional outlet socket. The battery holder **62** may be plugged in at night to recharge the batteries.

It is to be understood that the form of my invention herein shown and described is to be taken as a preferred example of the same and that various changes in the shape, size and arrangement of parts may be restored to without departing from the spirit of my invention or the scope of the subjoined claims. For example, the invention can be associated with masks other than welder's masks and is thus not to be so limited.

Having thus described my invention, I claim:

1. A face mask comprising
   a. a mask portion having top, front and sidewalls and also having an inside surface,
   b. a headband on said mask portion for supporting the latter on the head of the wearer,
   c. a power operated blower mounted on the top wall of said mask portion,
   d. passageway means in said mask portion leading from said blower,
   e. said passageway means having extensions leading to at least one side of said mask to a point at about the mouth

and nose area of the wearer when the mask is supported on the head,

f. and means in said passageway defining an outlet on the inside surface of said mask portion in the area of the mouth and the nose of the wearer for supplying air from said blower.

2. The face mask of claim 1 wherein said passageway means has an extension leading down both sides of said mask portion and each extension has an outlet whereby air from said blower is supplied from both sides.

3. The face mask of claim 2 wherein said passageway also leads along the front of said mask portion and has outlets in the area of the forehead of the wearer when the mask is supported on the head.

4. A face mask comprising:

a. a mask portion,

b. a front window in said mask portion,

c. a headband on said mask portion for supporting the latter on the head of the wearer,

d. a blower mounted on said mask portion,

e. and passageway means in said mask portion leading from said blower to outlet means on the inside surface of said mask for directing air across the face of the wearer.

f. said passageway means being disposed around at least two sides of said window and said outlet means comprising a plurality of apertures in the wall of said passageway means disposed on at least two of said sides of the window.

5. A face mask comprising

a. a mask portion,

b. a headband on said mask portion;

c. pivot means attaching said mask portion to said headband for rotating the mask from a down use position to an up nonuse position,

d. an electrically operated blower mounted on said mask portion,

e. switch means on said headband operated by said mask and arranged to activate the circuit to the blower when the mask is down and deactivate the circuit to the blower when the mask is up,

f. and passageway means in said mask portion leading from said blower to outlet means on the inside surface of said mask for directing air across the face of the wearer.

6. The face mask of claim 5 wherein said switch means is in the pivot connection of said mask portion and headband.

7. A face mask comprising

a. a mask portion,

b. a headband on said mask portion for supporting the latter on the head of the wearer,

c. a blower mounted on said mask portion having an inlet,

d. a filter mounted on said headband and connected to the inlet of said blower by a flexible conduit,

e. and passageway means in said mask portion leading from said blower to outlet means on the inside surface of said mask for directing air across the face of the wearer.

* * * * *