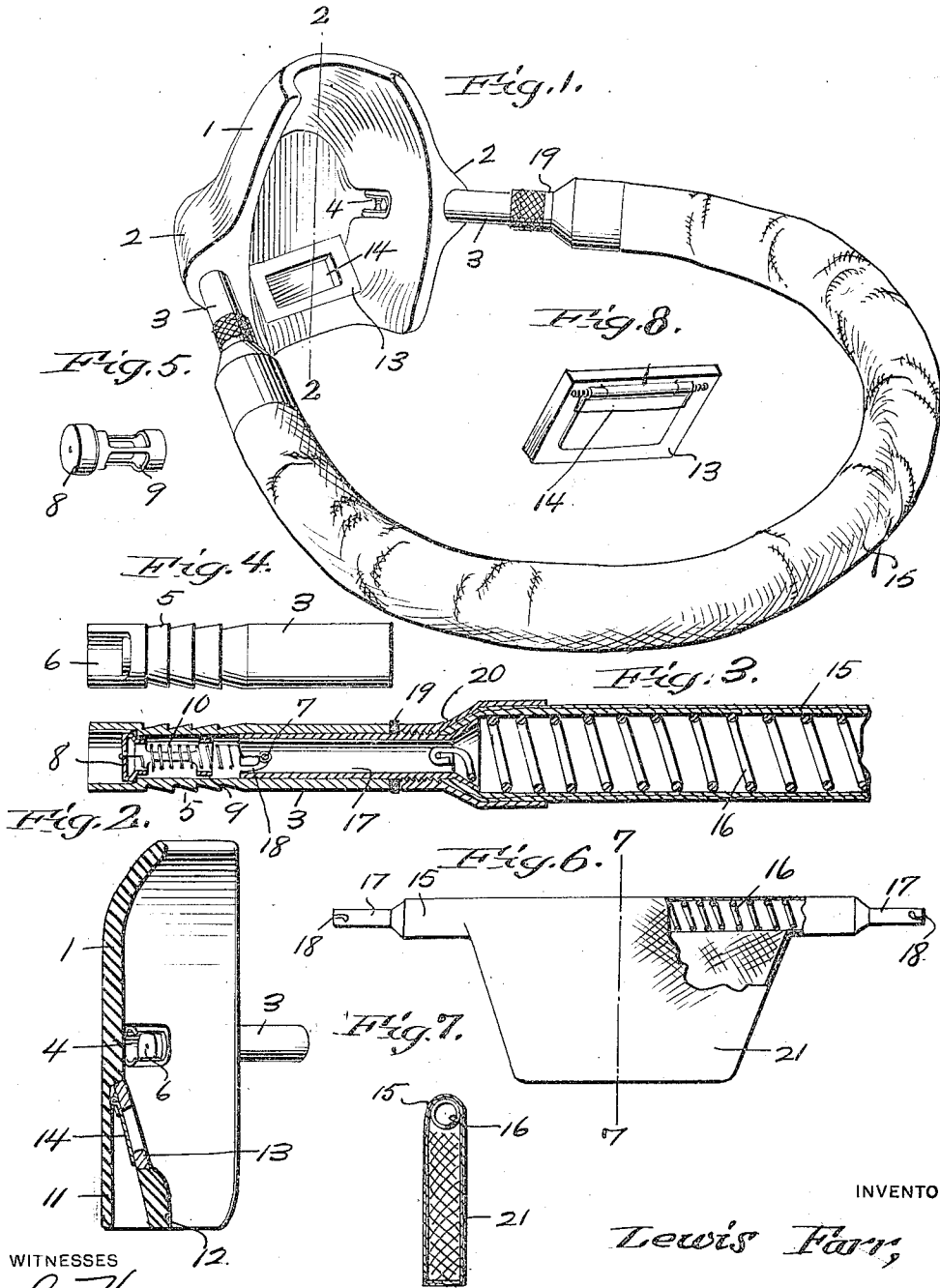


L. FARR.
 RESPIRATOR.
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WITNESSES

S. Hennessy
U. B. Hillgard.

INVENTOR

Lewis Farr,

BY

Michael J. Owen,

ATTORNEY

UNITED STATES PATENT OFFICE.

LEWIS FARR, OF EL PORTAL, CALIFORNIA.

RESPIRATOR.

1,288,856.

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To all whom it may concern:

Be it known that I, LEWIS FARR, a citizen of the United States, residing at El Portal, in the county of Mariposa and State of California, have invented certain new and useful Improvements in Respirators, of which the following is a specification.

The primary purpose of this invention is the provision of a respirator which insures a supply of pure air at all times and which will not foul by exhalation due to the passage of the breath through the filtering ducts or passages.

One of the main features of the invention is the provision of a quick escape for the exhalation and the provision whereby the incoming pure air is prevented from commingling with the escaping air when expelled from the lungs during the process of respiration.

A further purpose of the invention is the provision of a mask having separate and independent inlets and outlets each being valve controlled so that when pure and filtered air is taken into the lungs, the outlet is closed and when the air is expelled from the lungs, the inlet is closed and the outlet opened to provide a ready escape for the used air.

The invention consists of a mask or face frame provided with valve controlled air inlets and outlets. A filtering appliance is connected with the air inlets of the mask and serves also as means for securing the respirator when in position and novel connecting means between the several parts whereby they may be quickly assembled, disconnected or dismembered.

The drawing illustrates a preferred embodiment of the invention, however, it is to be understood that in adapting the same to meet different conditions, various changes in the form, proportion, and minor details of construction may be resorted to without departing from the nature of the invention as claimed hereinafter.

In the drawings:—

Figure 1 is a perspective view of a respirator embodying the invention.

Fig. 2 is a sectional detail of the mask or face frame on the line 2—2 of Fig. 1.

Fig. 3 is a central longitudinal section of the connecting means between the mask and air filter showing the valve for controlling the air inlet.

Fig. 4 is a detail view of the tube which is

fitted to the mask or face frame and to which the air filtering device is coupled.

Fig. 5 is a detail view of the valve for controlling the air inlet.

Fig. 6 is a modified form of air filter.

Fig. 7 is a sectional detail on the line 7—7 of Fig. 6.

Fig. 8 is a detail perspective view of the frame and valve for controlling the outlet of the respirator.

Corresponding and like parts are referred to in all the views by like reference characters.

The mask or face frame 1 may be of the usual form, such as generally provided in respirators and may be of any material or construction so as to secure a close fit against the face. In the preferred construction, the mask or face frame is of such proportions as to cover a portion of the face only, such as the nose and mouth, the space being of such proportions as to admit of free and unobstructed respiration. The mask is formed at opposite sides with projecting portions 2 which are chambered so as to receive tubes 3. The chambers or openings formed in the projecting portions 2 open at their inner ends into the mask as indicated at 4 whereby provision is had for the inflow of pure air. The tubes 3 are secured in the openings or chambers of the parts 2 in any manner and, as shown, the inner ends of the tubes are formed with annular shoulders 5 which become embedded in the material of the mask and particularly is this the case when the mask is formed of soft rubber which is the preferable material. The inner ends of the tubes 3 are cut away upon one side as indicated at 6 to register with the openings 4. A pin 7 is supported at its ends in the sides of the tube 3 and constitutes one element of the connecting means between the mask and the filtering device.

A valve 8 is disposed within the inner end of the tube 3 and opens toward the mask so as to admit pure air when the same is drawn into the lungs. A cage 9 is secured within the tube 3 and constitutes a seat for the valve 8, the latter being normally held on its seat by means of a light spring 10. The valve 8 opens when air is drawn into the lungs and automatically closes when the used air is expelled from the lungs, thereby preventing such air from entering the tubes 3 and the filtering device connected thereto.

The lower portion of the mask is pro-

vided with a chamber 11 which is formed between an outer portion of the mask and a partition 12, the latter having an opening in its upper portion in which is fitted a frame 13, said frame having an opening which is normally closed by a valve 14 which opens outwardly and closes inwardly. The valve 14 is of the flap variety and is hinged or otherwise connected at its upper end to admit of its lower end swinging outwardly and inwardly. The valve 14 is normally closed and opens outwardly to provide an escape for the air when the latter is expelled from the lungs. The frame 13 and valve 14 are removable to admit of the parts being cleaned and otherwise maintained in a perfectly sanitary condition.

The air filtering device comprises a casing 15 and a coil spring 16 within the casing and serves the dual purpose of holding the casing expanded and as a yieldable connection for holding the mask in position against the face. The casing 15 is of suitable fabric of a nature to permit air to pass therethrough and which will arrest particles of dust and other matter floating in the air, thereby insuring pure air free from all dust and other particles being supplied for respiration. Tubes 17 are provided at the ends of the filtering device and are adapted to make detachable connection with the tubes 3. The tubes 17 are connected to the ends of the spring 16 and casing 15 in any manner and are adapted to telescope within the tube 3 and make connection therewith. As shown most clearly in Fig. 3, the end of each of the tubes 17 is provided with opposed L-shaped slots 18 which cooperate with the pin 7 to form the well known bayonet connection whereby the tube 17 is held securely within the tube 3 when the filtering device is coupled to the mask. A packing washer 19 is mounted upon the tube 17 and comes between the outer end of the tube 3 and the ferrule 20 which secures the end of the casing 15 to the enlarged portion of the tube 17.

In the modification shown in Figs. 6 and

7, the casing 15 is provided in its length with a pocket 21 which may be of fabric of a nature to arrest dust or particles floating in the air. By having the casing formed with a pocket as 21, the filtering surface is enlarged, thereby insuring a free passage and a full supply of air under all conditions.

The respirator is applied by fitting the mask to the lower portion of the face so as to cover the nose and mouth, the filtering device being passed over and around the head so as to hold the mask in position. When air is drawn into the lungs, the valves 8 open and when the used air is expelled from the lungs, the valves 8 close and the valve 14 opens, thereby providing a ready and quick escape for the exhalation. As the air is drawn into the lungs, the casing 15 receives a supply of air from the surrounding atmosphere, and air passing through the walls of the casing into the interior thereof and all dust and floating particles are separated by the casing, hence only pure air is supplied for breathing. It is noted furthermore, that the used air exhaled from the lungs does not enter the supply, hence the supply chambers and passages are prevented from becoming fouled. It is noted that the casing and the inclosed contractile helical spring sub-serve the two-fold purpose of an air filter and securing means for holding the mask in position on the face.

What I claim is:—

A respirator, comprising a mask having opposed openings, tubes attached to opposite sides of the mask and in communication with said openings, valves in the tubes, a helical spring, tubes at the ends of the helical spring adapted to make detachable connection with the tubes of the mask, and a fabric casing inclosing the helical spring.

In testimony whereof I affix my signature in presence of two witnesses.

LEWIS FARR.

Witnesses:

A. B. BAKER,
F. H. GLADDEN.