(No Model.) 3 Sheets—Sheet 1.

G. POZDENA.

RESPIRATOR.

No. 476,486. Patented June 7, 1892.

Fig. 1.

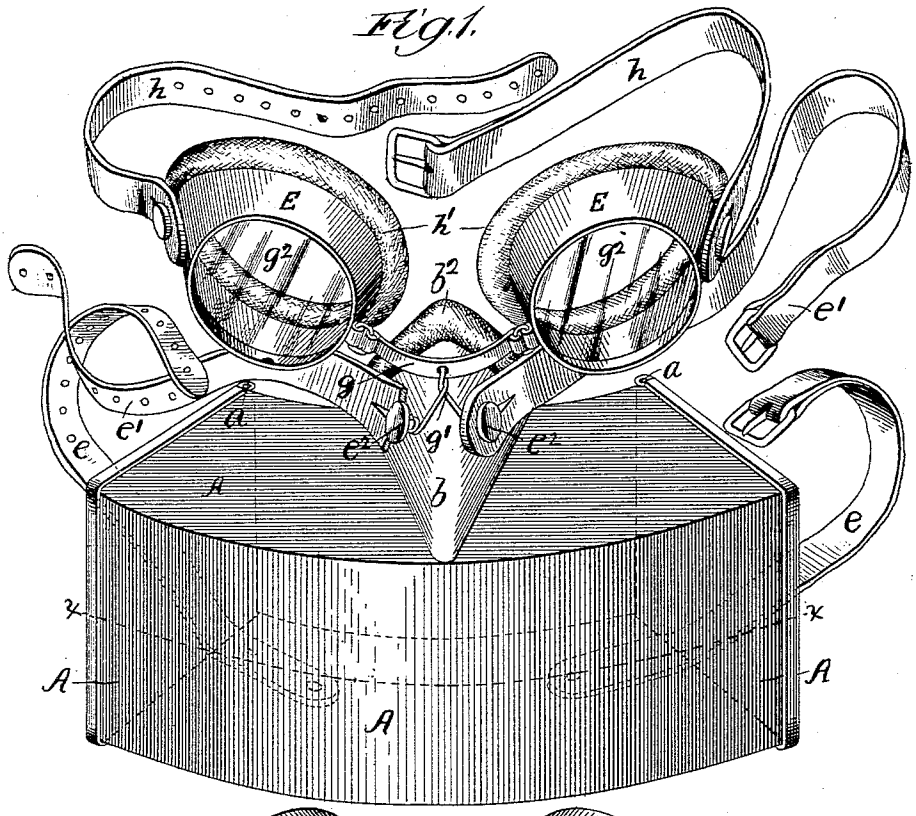
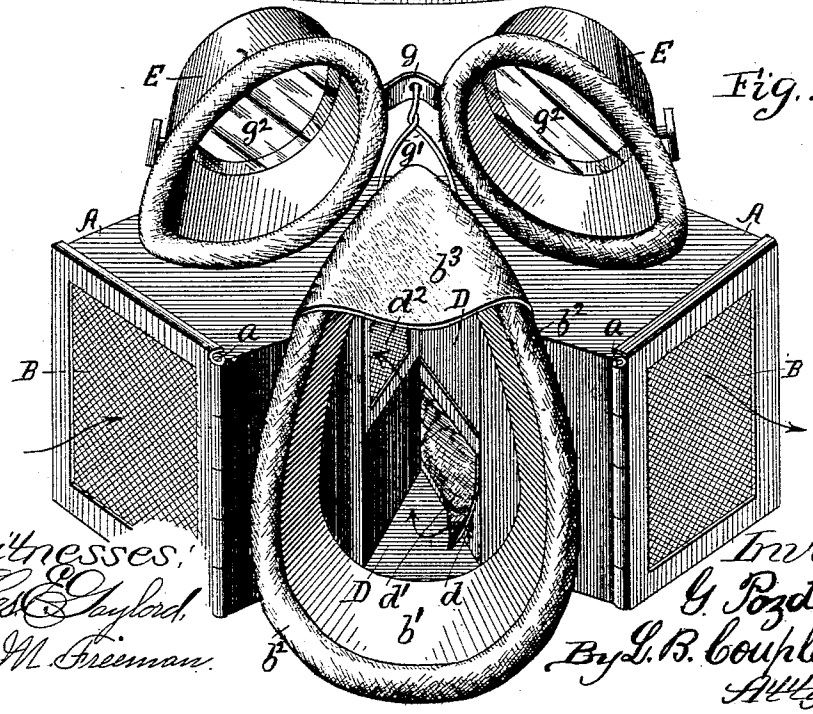


Fig. 2.



Witnesses:
Chas. E. Taylord.
L. M. Freeman.

Inventor:
G. Pozdena.
By L. B. Coupland & Co
Att'ys.

(No Model.) 3 Sheets—Sheet 2.

G. POZDENA.

RESPIRATOR.

No. 476,486. Patented June 7, 1892.

Fig. 3.

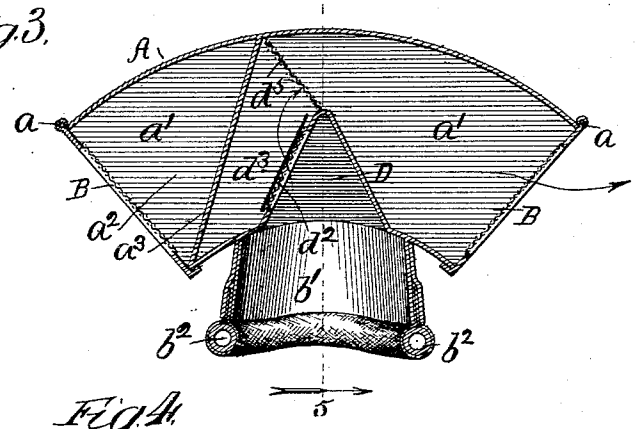


Fig. 4.

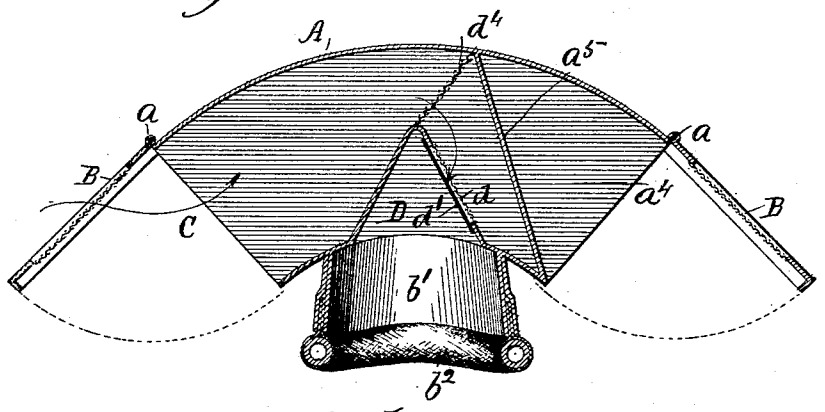
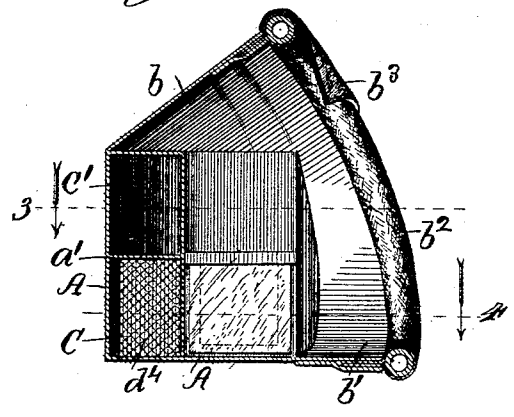


Fig. 5.



Witnesses:
Chas. E. Taylor,
L. M. Freeman

Inventor:
G. Pozdena.
By G. B. Coupland & Co
Attys.

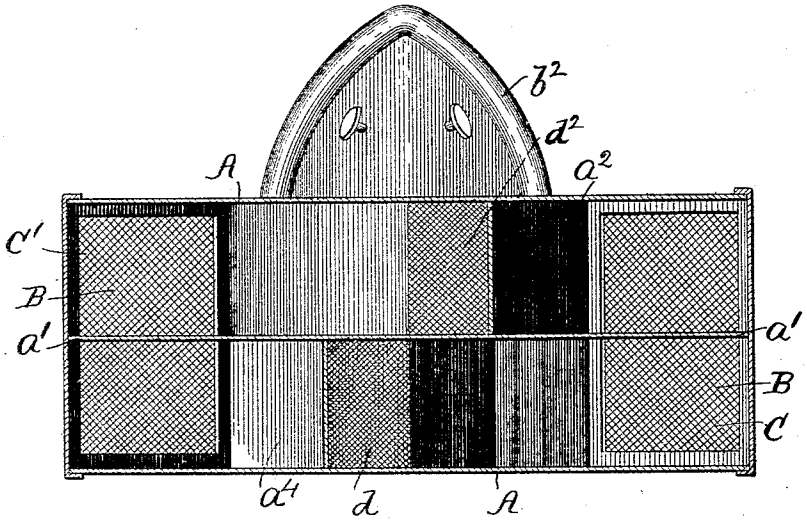
(No Model.) 3 Sheets—Sheet 3.

G. POZDENA.

RESPIRATOR.

No. 476,486. Patented June 7, 1892.

Fig. 6.



Witnesses:
Chas. E. Gaylord.
L. M. Freeman.

Inventor:
Gustavo Pozdena.
By G. B. Coupland & Co
Att'ys

UNITED STATES PATENT OFFICE.

GUSTAVE POZDENA, OF CHICAGO, ILLINOIS.

RESPIRATOR.

SPECIFICATION forming part of Letters Patent No. 476,486, dated June 7, 1892.

Application filed February 2, 1892. Serial No. 420,106. (No model.)

To all whom it may concern:

Be it known that I, GUSTAVE POZDENA, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Respirators, of which the following is a full, clear, and exact description, that will enable others to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a view in perspective looking at the outside; Fig. 2, a similar view looking at the opposite or inner side; Fig. 3, a horizontal section on line 3, Fig. 5, looking in the direction indicated by the arrow; Fig. 4, a horizontal section on line 4, Fig. 5; and Fig. 5, a vertical central transverse section on line 5, Fig. 3. Fig. 6 is a vertical longitudinal section looking inwardly from the front side.

This invention relates to that class of devices used in protecting the respiratory organs from smoke and noxious gases, and has for its object to provide an arrangement of this character for covering the face, so that the wearer is enabled to remain for an indefinite time in an atmosphere charged with smoke or other deleterious gases without inconvenience or injurious effect.

The device is more especially intended for the use of firemen or other persons when compelled to pass through smoke in saving life or property, but is also adapted for the use of workmen in factories or other places where the air is charged with poisonous gases or dust-laden with matter of a dangerous character. The construction also makes provision for the protection of the eyes as well as the mouth and nostrils.

In the drawings, A is a casing or chambered body inclosing the air-passages and which will ordinarily be of the form or contour shown. This casing may be constructed of any suitable material, metallic or otherwise. This casing or body is provided at its respective ends with doors B B of fine wire-cloth or gauze and hinged, as at a, so that they may be conveniently opened and closed, as may be required. Interiorly the casing is divided into two distinct passages—the lower inhaling-passage C and the upper exhaling-passage C′—by a horizontal diaphragm a' extending from end to end and located centrally, as indicated by dotted line $x\,x$, Fig. 1.

The arrows in Figs. 2, 3, and 4 indicate the course of the air-currents.

Above the air-passage at the receiving end is located the chamber a^2, formed by the diagonal imperforate partition a^3, inserted between the top of the casing and the horizontal diaphragm a', as shown in Fig. 3. The discharge end is provided with a corresponding chamber a^4, the diagonal partition a^5, Fig. 4, being inserted between the diaphragm a' and the bottom of the inclosing casing. The air enters the passage C under chamber a^2 and is discharged through passage C′ over chamber a^4. The screen-doors hinged to the respective ends of the casing open into the air-passages and the chambers arranged alternately above and below the same. The face side is provided with a V-shaped recess D, extending from the bottom upwardly and terminating in the nose-like projection b. This recess is inclosed by a flaring rim b', having its edge covered by a soft-rubber cushion b^2 of a tubular structure. The contour of the flaring rim corresponds to and covers the mouth and nose, the rubber border fitting closely to the part of the face surrounding those organs and preventing the admission of air into the respiratory chamber formed by the re-entering recess and rim except through the regular channel. The flexible apron b^3, attached to the upper part of the rim, makes provision for fitting noses of different dimensions, so that the face attachment will always be air-tight. The screen-protected aperture d, Figs. 2 and 4, opens in through the recess-wall at the lower right side and is covered by the flexible valve d', fastened along its upper edge, so that the same will open into the respiratory chamber by the pressure of the incoming volume of air, but close from any pressure on the opposite side. The screen-protected aperture d^2 opens through the recess-wall on the upper left side and is covered on the outer side from the respiratory chamber with the flexible valve d^3, whereby the air inhaled is exhaled through aperture d^2. A screen-partition d^4 extends across the inlet-passage from the

bottom of the recess to the inclosing wall of the casing. A similar partition d^5 extends across the discharge-passage. The relative positions of these partitions are indicated in Figs. 3 and 4, being respectively located above and below the central horizontal diaphragm. Thus the incoming current enters under the central diaphragm through the screen-partition d^4 and passes around the bottom of the recess D into the respiratory chamber through aperture d. The escaping current, after passing out through aperture d^2, goes through screen or perforated partition d^5, around the bottom of recess D, and out. By the construction shown sufficient space is provided for the vibration of the flexible valves in the air-passages.

In securing the device to the face the straps e, fastened to the under side of the casing, go around the neck, and the straps e', fastened to the nose part on pins e^2, go around the head. The goggles E E are joined by the bow connection g and secured to the pins e^2, by the wire connection g'. The transparent part g^2 is composed of mica, so as to afford proper protection to the eyes. The straps h provide for securing the goggle attachment in connection with the respirator. The goggles are also provided with the elastic cushion-border h', so that they may fit closely around the eyes.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A respirator-casing provided at its respective ends with doors of wire-cloth, a central horizontal imperforate diaphragm, inhaling and exhaling passages in different planes, a recess in the face side forming a respiratory chamber, inhaling and exhaling openings in the wall on opposite sides of said recess and communicating with the respective passages above and below said diaphragm, and flexible valves covering said openings from opposite sides, substantially as set forth.

2. The combination of the respirator-casing provided on the face side with a recess, as described, the flaring rim inclosing the recessed part, the soft elastic cushion bordering said rim, and the flexible apron covering the upper part of the rim, substantially as set forth.

3. A respirator provided with a re-entering recess on the face side forming a respiratory chamber and having the inhaling and exhaling passages in different planes, the screen or gauze partitions located in said passages and extending from the bottom of said recess to the opposite inclosing wall, and the valves d' d^3, substantially as set forth.

GUSTAVE POZDENA.

Witnesses:
L. M. FREEMAN,
L. B. COUPLAND.