

(No Model.)

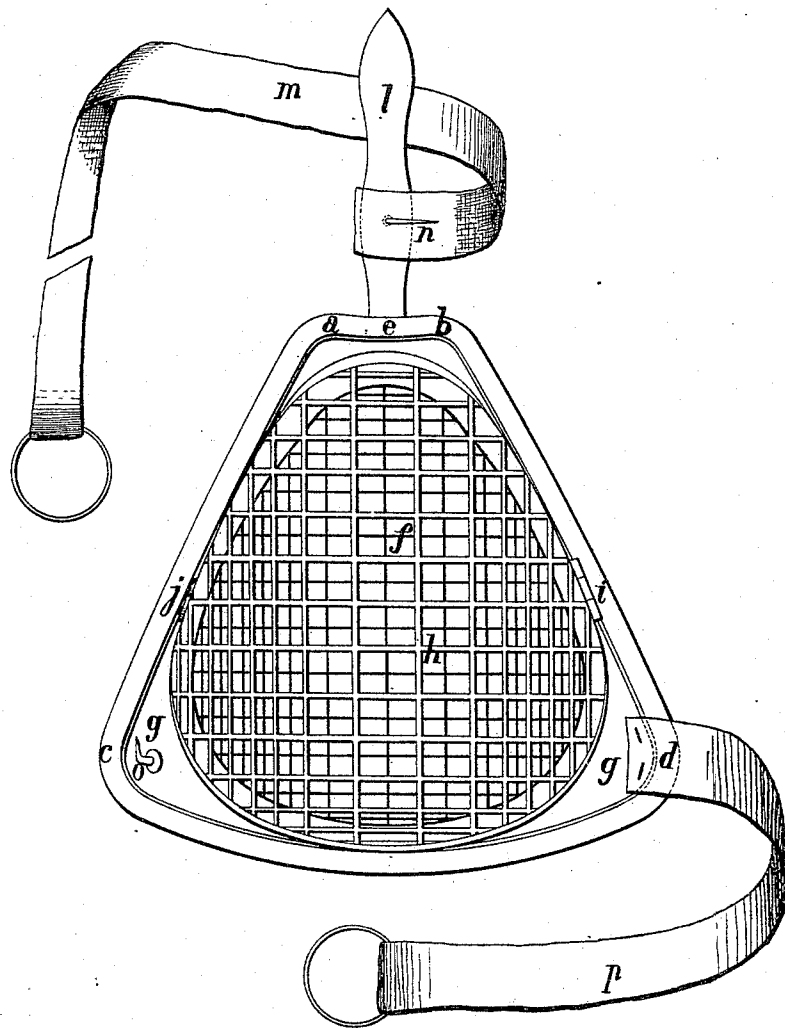
2 Sheets—Sheet 1.

F. DÉTOURBE.
MASK RESPIRATOR.

No. 537,678.

Patented Apr. 16, 1895.

Fig. 1.



Witnesses
George Baumann
S. C. Connor

Inventor
Felix Détourbe
By his Attorneys
Howson T. Howson

(No Model.)

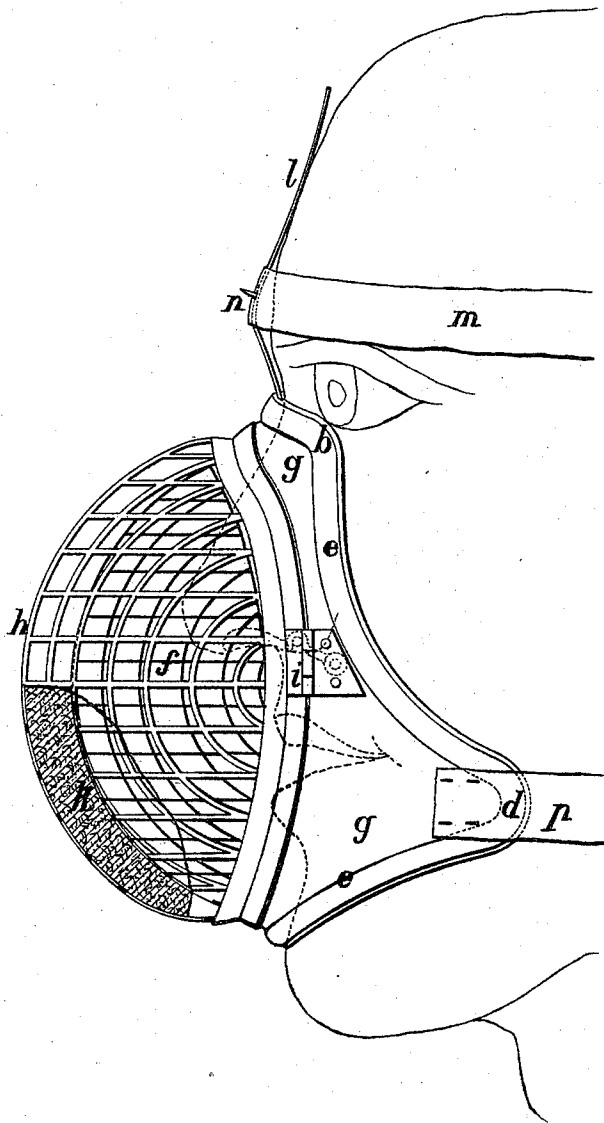
2 Sheets—Sheet 2.

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Fig. 2.



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UNITED STATES PATENT OFFICE.

FÉLIX DÉTOURBE, OF PARIS, FRANCE.

MASK-RESPIRATOR.

SPECIFICATION forming part of Letters Patent No. 537,678, dated April 16, 1895.

Application filed September 20, 1894. Serial No. 523,581. (No model.) Patented in France November 30, 1893, No. 234,438.

To all whom it may concern:

Be it known that I, FÉLIX DÉTOURBE, doctor of medicine, a citizen of the Republic of France, residing at 18 Rue de la Roquette, Paris, in the Republic of France, have invented certain new and useful Improvements in Mask-Respirators, (for which I have received Letters Patent in France, No. 234,438, dated November 30, 1893,) of which the following is a specification.

The respirator mask which forms the object of my invention is intended to filter the air charged with dust, which, inhaled through the respiratory passages, causes local irritation, or general infection. It is therefore suitable for work-people who live and work in air charged with deleterious matters. In order to be of practical use, a mask of this kind must fulfill various conditions. It must be light. It must leave the eyes uncovered, and only protect, in short, the respiratory openings. It must fit exactly over the face in order to prevent the entrance of unfiltered air, and it must be firmly held in its place without, however, pressing to such an extent as to produce pain or annoyance. Finally, while possessing sufficient rigidity to preserve its general form, it is necessary that it shall bend slightly, in order that it may be made in only four or five patterns of different dimensions and yet be capable of being applied to faces quite different in form. The mask shown on the accompanying drawings fulfills all these conditions.

Figure 1 is a front view, and Fig. 2 a side view, of one form of mask.

The mask comprises a light adjustable foundation or framework fitting to the face and formed of curves which are calculated to fit on the prominent parts of the face. Thus, at the top it has a frontal curve *a b*, below a sub-labial curve *c d*, and on the sides, lateral curves *a c* and *b d*. This framework has on its entire periphery an india-rubber tube *e*, which facilitates its fitting to the face by forming a tight joint and affording a softer pressure.

The front part of the mask is formed of a network or grating *f* of practically hemispherical form. It is attached to the foundation or framework, by the side pieces *g*. A second network *h* covers the first, and is at-

tached to the framework by means of a hinge *i* and fastens by means of a catch *j* or other suitable mode of fastening. The space formed between the two networks *f* and *h* is occupied by a pad of wadding *k*, or other suitable filtering material. By means of this arrangement, the pad, when soiled, may be replaced with the greatest facility.

On the upper part of the mask, a springy strip *l* is fixed, which rests against the forehead. The part marked *n* serves as a point of attachment for a band or elastic cord *m* which goes round the head. A second band *p* is placed round under the ears, and its two ends are attached to the framework *c d*, the ring on this band engaging with the hook *o*. In this way, the mask is firmly held without causing any inconvenience and the surrounding air only obtains access through the wide filtering opening. A mask thus arranged can be formed with metal wires suitably bent to form the foundation or framework. Other wires connect this frame or foundation to the network *f*. The skeleton frame thus formed is covered at *g* with india rubber or other suitable substance.

Another mode of manufacture consists in stamping the mask from a single piece of thin sheet metal, and cutting out afterward the grated or network part *f*. The metal chosen must be light, and for this reason aluminium is most suitable. If copper be employed, care must be taken to cover it with a suitable non-corroding coating, such as tin, nickel, varnish, enamel, or the like.

The mask is sufficiently flexible to allow, by acting with precaution on the angles *c* and *d*, and on the curves *a b c d*, of the frame which fits on the face being varied in height as well as in width to a considerable extent. It is, therefore, evident that, with four or five different models, each representing the average dimensions of a face, the exact fitting of a mask to any ordinary face may be always obtained.

I declare that what I claim is—

1. A frame for a respirator mask comprising a flexible foundation curved to fit over the nose, chin and cheeks, with an india rubber tube on its entire periphery, a spring strip secured to the upper curve and a band or cord

secured to the said strip adapted to be passed around the head, substantially as and for the purposes set forth.

2. A respirator mask consisting of a frame
5 adapted to fit over the mouth and nose, the
entire periphery of the frame being provided
with an india-rubber tube, and a net-work
formed in one with the said frame, in combi-
10 nation with a net-work hinged to one side of
the frame, a catch to secure it at the other

side of the frame and a layer of filtering material between the two net-works, substantially as and for the purposes set forth.

In testimony whereof I have signed my name to this specification in the presence of 15 two subscribing witnesses.

FÉLIX DÉTOURBE.

Witnesses:

JOSEPH DELAGE,
CLYDE SHROPSHIRE.