March 15, 1932. A. H. L. CHRISTENSEN 1,849,567

BREATHING IMPLEMENT

Filed April 23. 1928

Fig. 1.

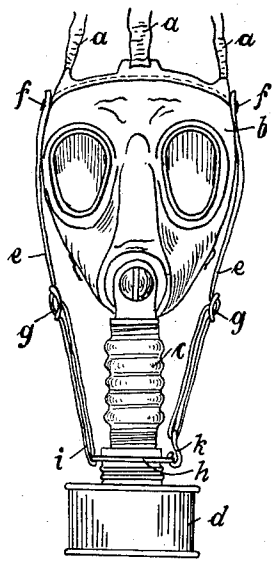


Fig. 2.

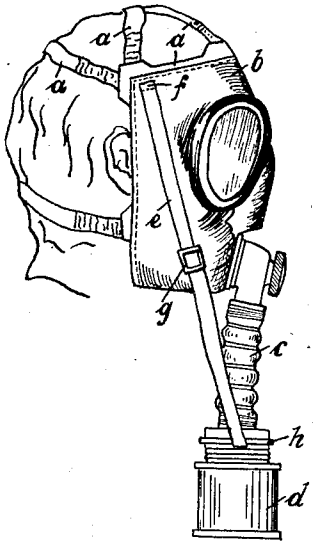


Fig. 3.

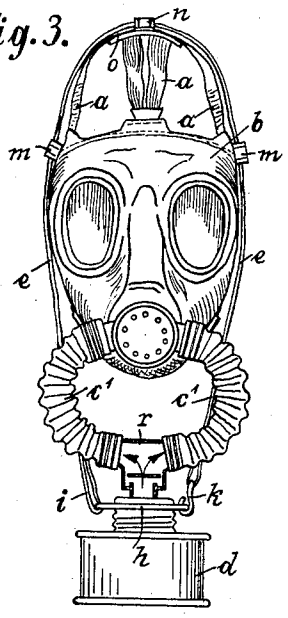
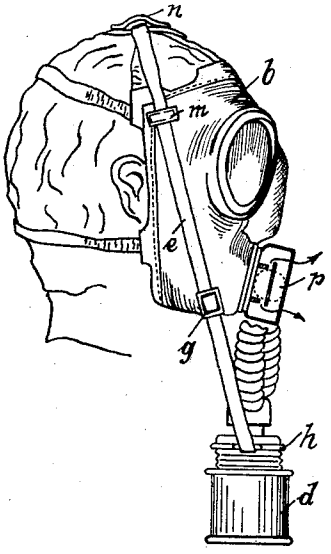


Fig. 4.



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UNITED STATES PATENT OFFICE

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BREATHING IMPLEMENT

Application filed April 23, 1928, Serial No. 272,162, and in Germany May 2, 1927.

The simple gas protective implements known heretofore, comprising a mask and a gas protective filter, are so constructed that the filter is suspended from the mask by the aid of a tube or hose connecting the two and hanging down to the height of the chest. This arrangement has the drawback that the mask is strained in an inadmissible manner, and that the joints are injured, particularly for this reason that the filter swings to and fro. Moreover, it is true, it is known that such swinging about can be avoided by attaching the filter to the dress of the carrier. This again has the drawback, that the freedom of moving the head is hindered, because, if the filter is fastened, the remaining movability of the hose forms a limit to the movability of the head, particularly the nodding or bowing of the head, the nodding being accompanied by crushing, upsetting or bending the hose connecting the filter with the hose.

These drawbacks to a great extent constitute one of the reasons why usually the gas protective filter has been mounted directly on the mask. Such direct mounting again had the drawback, particularly in large filters, that the filter projecting in a downward and forward direction weighs heavily at an angle, and the danger of gaping attended therewith, and the distortion of the mask outweighs the advantage of increased movability of the head.

It has been suggested to prevent such gaping of the filter by head ribbons, taking up its weight. Then, ribbons, however, usually are tied or otherwise handled on the back of the head and are formed by bands or belts running across the head. Thereby the applying of the mask is rendered the more difficult, because besides fastening these bands or belts also the carrier belts for the filter must be fastened each time.

All these drawbacks are avoided by the breathing implement constructed according to the present invention, in which the filter is connected in known manner with the mask by a breathing hose, and the weight of the filter is taken up by carrier belts constituting a support, which either pass through loops or the like on the temple parts of the mask crossing the crown of the head, or are attached to a belt running over the head and connecting the temple parts of the mask with one another, so that the weight of the filter is transmitted to the centre of the head. This arrangement combines a full relief of the weight of the filter with the possibility of putting the mask on and off in the same manner as if no particular carrying device of the filter is present at all. Moreover this relief of the weight has the advantage that the weight of the filter is transmitted to the centre of the head, so that essenially no component of force can arise that might cause an inclination of the head towards the front. Besides every objectionable tossing about of the filter is avoided, and the latter is drawn somewhat to the breast of the carrier, so that even thereby the movability is increased.

In the drawings two examples of carrying out the invention are shown in front and in side views.

Figs. 1 and 2 show a mode of construction in which the carrier belts of the filter are attached to the mask, while in

Figs. 3 and 4 the carrier belt of the filter is led over the crown of the head independent of the head fastening of the mask.

In the construction shown in Fig. 1 from the mask *b*, which is provided with head bands *a*, the filter *d*, detachably connected with the mask *b* by the breathing hose *c*, is suspended by two belts or bands *e*. These belts, which are adjustable in length by buckles *g* are fastened to the mask at the top of the head of the wearer as at *f* and to a carrier ring *h* by the loop *i* directly, (as shown on the lefthand side of Fig. 1) or by the intermediary of a hook *k* (as shown on the right-hand side of Fig. 1), having for instance the shape of a carbine hook. As will be clearly understood by the chosen manner of suspension the weight of the filter is transmitted by the head belt *a* to about the centre of the head.

The construction shown in Figs. 3 and 4 differs from that shown in Figs. 1 and 2 inasmuch as the carrier belt *e* for the filter *d* consists of a single piece, which passes through loops *m* on the mask and through the loop *n*

on the head cap *o* running over the centre of the head. In this case the carrier belt *e* of the filter is independent from the mask and its head fastening.

The connection of the filter *d* with the mask is secured in the construction shown in Figs. 3 and 4 by two hoses *c'*. In the mouth opening of the mask an exhaling valve *p* and at the place of connection of the hose *c'* with the filter *d* an inhaling valve *r* is provided.

I claim:—

1. A breathing apparatus comprising a mask, means for attaching the mask to the head of the wearer, a gas protective filter communicating with the mask, a flexible hose connecting the filter with the mask, and a strap connected at its ends to the filter and passing over the head of the wearer thereby to support the filter therefrom independently of the hose.

2. A breathing apparatus as claimed in claim 1 wherein the mask is provided with guides for positioning the strap.

3. A breathing apparatus as claimed in claim 1 wherein there are means for varying the length of the strap.

In testimony whereof I have signed my name to this specification.

ALFRED HEINRICH LORENZ CHRISTENSEN.