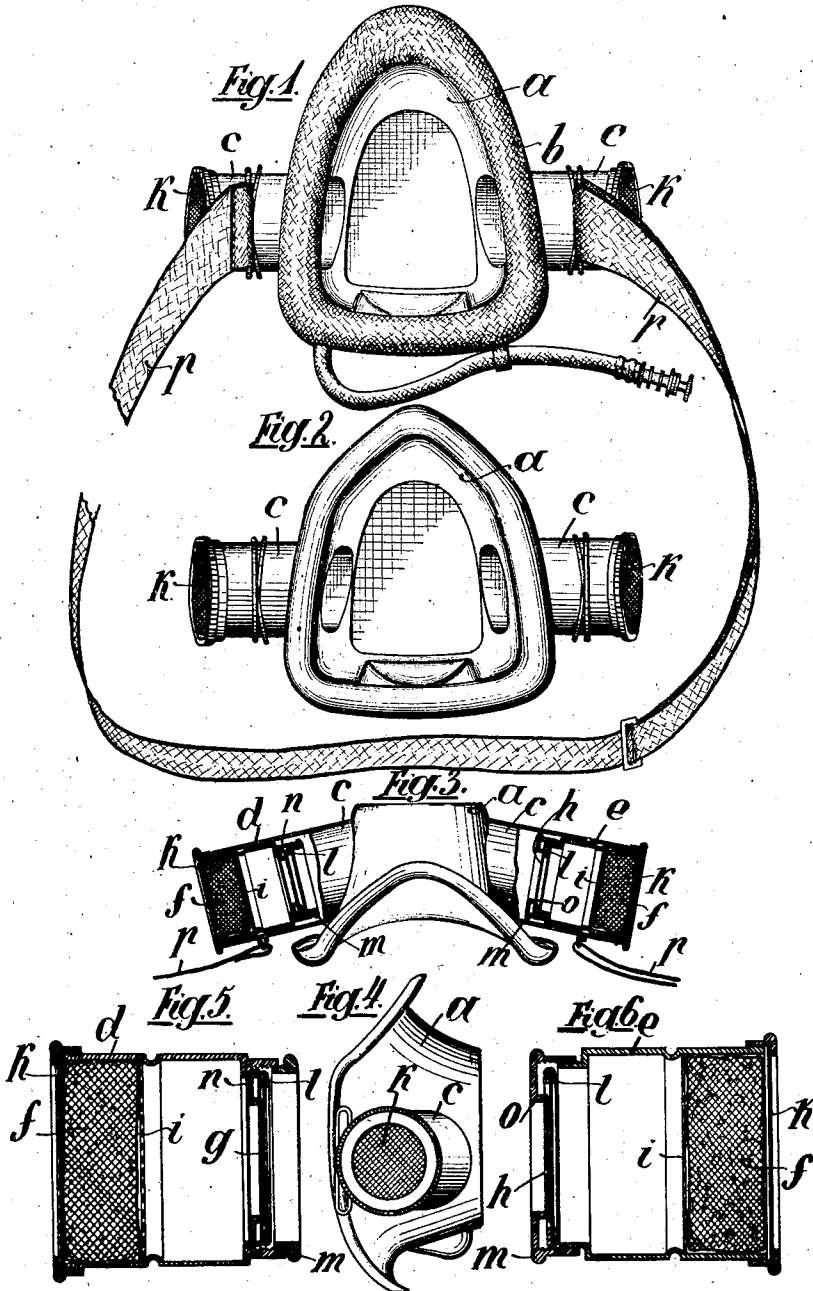


O. CLOETTA & F. MÜLLER.
RESPIRATION APPARATUS.
APPLICATION FILED OCT. 11, 1911.

1,048,135.

Patented Dec. 24, 1912.



WITNESSES:

John C. Sanders
Leon Spring

INVENTORS:

Otto Cloetta
Fritz Müller
BY *[Signature]* ATT'Y.

UNITED STATES PATENT OFFICE.

OTTO CLOETTA AND FRITZ MÜLLER, OF STUTTGART, GERMANY.

RESPIRATION APPARATUS.

1,048,135.

Specification of Letters Patent.

Patented Dec. 24, 1912.

Application filed October 11, 1911. Serial No. 654,066.

To all whom it may concern:

Be it known that we, OTTO CLOETTA and FRITZ MÜLLER, a citizen of Switzerland and a subject of the German Emperor, respectively, residing at Stuttgart, in the Kingdom of Wurttemberg, Empire of Germany, have invented certain new and useful Improvements in Respiration Apparatus, of which the following is a specification.

This invention relates to a respiration apparatus serving for hygienic purposes, of the type in which the air breathed is suitably disposed of, the air aspirated being purified and the air breathed out being disinfected. Such apparatuses are devised, for instance, for persons who must remain in chambers in which gases injurious to the organs of respiration and the like are present.

Apparatuses of this type are already known which are provided with a cap to be applied to the nose or the mouth of the wearer and in which metal aspiration and pressure flaps or valves are arranged in a hollow receptacle connected with this cap, the said valves being placed in front of receptacles containing the purifying media at the ends of the hollow receptacles which containers moreover are made removable for convenience of cleansing. From these already known breath purifying apparatuses the present invention is distinguished by the feature that the aspiration and exit valves together with their seatings are arranged directly on the disinfectant containers placed at the end of the conducting passage in such a manner that the said valves can be drawn out together with the containers. For this purpose these containers are divided into two spaces by means of a perforated partition, the outer of which serves to hold a disk of sponge or other absorbent material impregnated with disinfecting or perfumed substances, while the inner space of the container is arranged for holding the suction and exit valves. These valves are formed of a disk of rubber, mica or the like, the choice of the material being decided according to the nature of the gases, acids, or the like which occur in the inclosed space or chamber. The disks are inclosed at the edges by a metal ring, which is fastened to the disinfectant container by means of a suitable cap, and this cap provides a seating for the exit valve flap itself, whereas for

the aspiration valve a special ring containing the seating is inserted. The valves themselves are cut through at the inner periphery of the container ring with the exception of a short portion, whereby the necessary mobility is afforded them, and moreover a clear orifice for the air is assured. Further, the valves are so arranged that they cannot automatically open even when the apparatus is in a favorable position for it.

The invention is illustrated in the accompanying drawing in one form as follows:

Figure 1 shows a rear view of the entire apparatus. Fig. 2 shows a rear view with the elastic cover removed. Fig. 3 shows an elevation and partial section of Fig. 2. Fig. 4 shows a side elevation of Fig. 2. Figs. 5 and 6 show the details of the disinfectant container with the valves on an enlarged scale.

The apparatus is composed of the central cap *a* adapted to be applied to the nose and mouth, which as shown in Figs. 2 and 4 is shaped to fit the form of the nostrils and mouth. For the purpose of securing an air-tight application of the apparatus to the face of the user the rim of the cap *a* is drawn over an elastic cover *b*, which is preferably in the form of an air cushion. To the cap *a* there is attached at each side a tube *c*, in the ends whereof the disinfectant containers *d e* are arranged in the well known manner so as to be capable of quick and convenient removal. These containers *d e* are of special construction; they are adapted on the one hand for holding the disks *f* of sponge or other absorbent material adapted to be charged with disinfecting or perfumed material, and on the other hand in one (such as the container *d*) there is placed the aspiration valve *g* and in the other container (*e*) the escape valve *h*. The containers *d e* are divided by means of a perforated partition *i* into two spaces in the outer of which are placed the disks *f* and covered by means of the perforated lids *k* which screw upon the container *d e*. The inner spaces of the containers *d e* hold respectively the aspiration valve *g* and the exit valve *h*, which valves are inclosed in metal rings *l* of U-shaped section, and are cut through at the inner periphery of these rings *l* with the exception of a short piece. By means of the closing caps *m* which can

be screwed upon the containers *d e* the rings *l* and the valves *g h* are connected to the containers *d e* and a special ring *n* is provided as a seating for the suction valve *g*, while for the exit valve *h* the seating surface is formed of an inwardly directed rim *o* of the respective closing cap *m*. For the securing of the entire apparatus to the head of the wearer, there is provided an elastic band *p* adjustable as to length and attached to the chambers *c*.

The apparatus is used as follows: On the aspiration of the air, it is drawn in through the chamber *d* and must pass over the sponge *f* soaked with the disinfectant or aromatic material before it reaches the aspiration valve *g* and passes through the same into the cap *a* and the lungs of the wearer. Consequently any dust or other impurities will be retained and bacilli or the like will be destroyed or rendered innocuous. During this operation the valve *g* remains closed, but this opens on the expiration of the air, and the air thus expelled passes over the sponge *f* placed in the container *e* so that it is again purified; during this action the aspiration valve *g* remains closed. The points of aspiration and expulsion of the air can be arranged in any convenient manner according to the shape which it is desired to give to the apparatus. This form

will usually be determined by the special applications in view for the apparatus.

By the above described construction the entire apparatus possesses only a very small weight and by means of the arrangement of the rubber or the like valves there is obtained as compared with the valves hitherto in use an absolute airtight and reliable working closure so that the entrance of injurious substances into the cap *a* and thence into the lungs is entirely prevented.

What we claim and desire to secure by Letters Patent is:

In respiration apparatus, in combination, a cap adapted to be applied to the mouth and nose, containers removably carried thereby, absorbent material adapted to be charged with disinfectant or the like positioned in each container, a U-shaped ring positioned in each container, an inlet valve supported on one of said rings, an outlet valve supported on the other of said rings, and removable means for holding said rings in place.

In testimony whereof we affix our signatures in presence of two witnesses.

OTTO CLOETTA.
FRITZ MÜLLER.

Witnesses:

RUDOLF WALTERS,
PAULINE KLAIBER.