

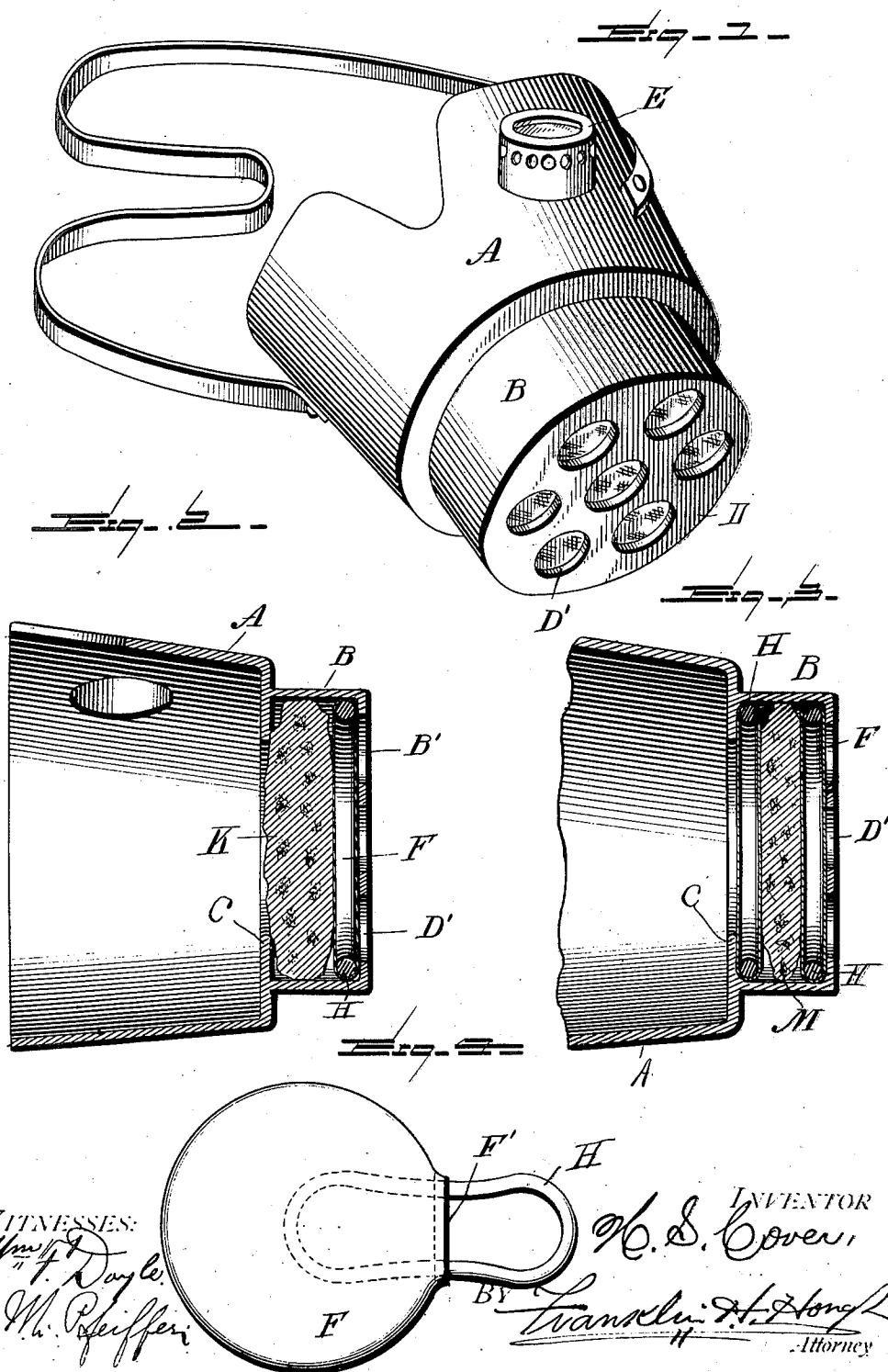
No. 681,622.

Patented Aug. 27, 1901.

H. S. COVER.
RESPIRATOR.

(Application filed May 8, 1901.)

(No Model.)



UNITED STATES PATENT OFFICE.

HARVEY S. COVER, OF SOUTH BEND, INDIANA.

RESPIRATOR.

SPECIFICATION forming part of Letters Patent No. 681,622, dated August 27, 1901.

Application filed May 8, 1901. Serial No. 59,254. (No model.)

To all whom it may concern:

Be it known that I, HARVEY S. COVER, a citizen of the United States, residing at South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Respirators; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in respirators, and especially in the provision of a novel filtering attachment used in combination with a casing which is adapted to be held by straps or other suitable means to the head of the wearer; and it consists in the provision of one or more filters made up of a double thickness of fine-mesh material adapted to receive a flexible ring, whereby the two faces of the filter are held in parallel relation with a slight space intervening.

The invention relates further to the provision in a respirator of one or more flexible filters, between which cotton or other material is held, occupying the space between the two flexible filters.

The invention will be hereinafter more fully described and then specifically defined in the appended claims, and is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form part of this application, and in which—

Figure 1 is a perspective view of a respirator of a common type in connection with which my filter-disks may be employed. Fig. 2 is a vertical sectional view through the respirator. Fig. 3 is a sectional view showing two flexible rings employed in the respirator with intervening filtering material, and Fig. 4 is a detail view showing the manner of inserting the flexible rings.

Reference now being had to the details of the drawings by letter, A designates a cup-shaped respirator-mask, made, preferably, of soft rubber adapted to fit closely to the face of the wearer. The extended and contracted portion of the casing B contains the filters,

which embody the essential features of my invention. On the inner circumference of said casing, adjacent to the contracted portion, is an annular flange C, made of flexible material, and the end D of the contracted portion has a series of apertures D' therein. Communicating with the interior of the casing is an ordinary valve E, which may be of any approved construction which is employed for the purpose of ventilation while breathing when the device is attached to the head of the wearer.

My filtering devices comprise the bags F, which are made of any suitable material which will suitably filter the products from the incoming air, and may be of any shape. In the drawings I have shown these bags as circular in outline and made up of two complementary parts which are sewed together along their marginal edges, leaving a hole F' about the margin, through which the flexible ring H may be inserted in the manner illustrated in the drawings. This ring after being inserted within said bags forms a skeleton frame to hold the bags distended with a slight space intervening between the two walls thereof, as shown in the longitudinal section through the respirator. In Fig. 2 of the drawings I have shown one of these filters as being located within the contracted end of the casing and against the inner wall of the perforated end, said bag being inserted through the opening outlined by the flexible flange C by doubling said bag upon itself. When once in place, the bag will contact with the inner circumference at the contracted end of the casing. In the rear of said filter member is a wet sponge K, the inner portion of which is adapted to be held against the outer wall of the filter member for the purpose of keeping the same moistened, and also to assist in separating impurities from the incoming air. Said sponge is retained in place by means of the flexible flange C.

In Fig. 3 I have shown two filter members held in parallel relation with each other, one of which is held against the inner wall of the perforated end of the casing, while the other is held in contact with the inner face of the flexible flange C, and intermediate said two filter members is disposed a filling of cotton, wool, or other suitable material M, which may

be saturated with chemicals and placed between the two disk filters.

While I have shown my filter devices as used in connection with respirators, I do not limit myself to their use in this connection, as the same may be used as strainers or filters in connection with other devices and used in any position, either alone or within a tube, and through which liquid may be poured for the purpose of straining the same. The invention is also adapted for filtering gases and fluids in closed tubes.

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

1. A filter device, comprising in combination with a mask with contracted end portion with apertures therein, a bag of porous material with flexible ring therein, designed to hold the opposite walls of the bag taut, with one face thereof against the inner wall of the perforated end of said mask, as set forth.

2. In combination with a mask having a

contracted portion with end wall perforated, and an annular flexible rib on its inner wall, a filter member comprising a bag of porous material, a flexible skeleton ring positioned within said bag, and designed to hold the opposite walls of the bag taut, and spaced apart, and a sponge held against one of the outer faces of said bag, as set forth.

3. In combination with the mask having a contracted portion with perforated end, an annular flexible rib on the inner wall of said mask, two filtering members, each held distended by means of a flexible skeleton, one of said bags held against the face of said rib, the other against said perforated end, and a filtering material interposed between said two members, as set forth.

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

HARVEY S. COVER.

Witnesses:

WILLIAM GOEBEL,
GEORGE S. SMITH.