

C. J. JESSUP.
HELMET.

APPLICATION FILED OCT. 23, 1915.

1,176,901.

Patented Mar. 28, 1916.

2 SHEETS—SHEET 1.

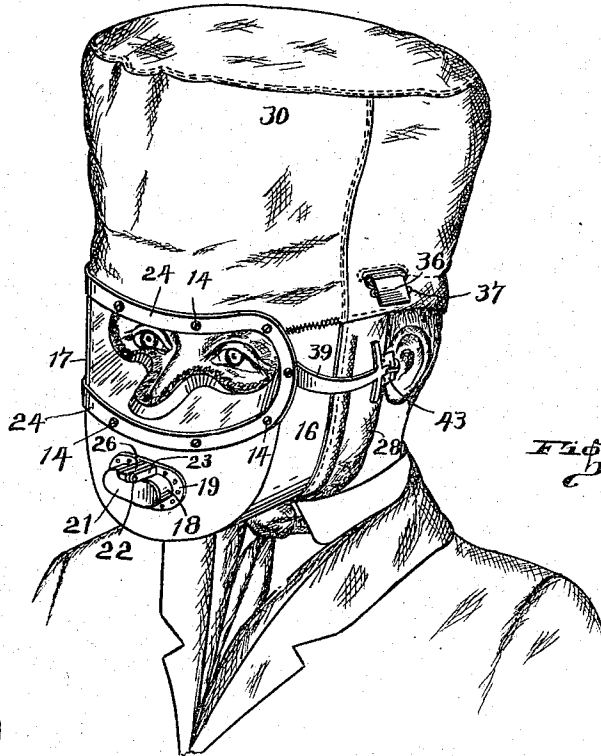


Fig. 1.

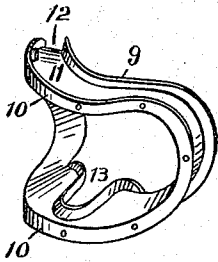


Fig. 3.

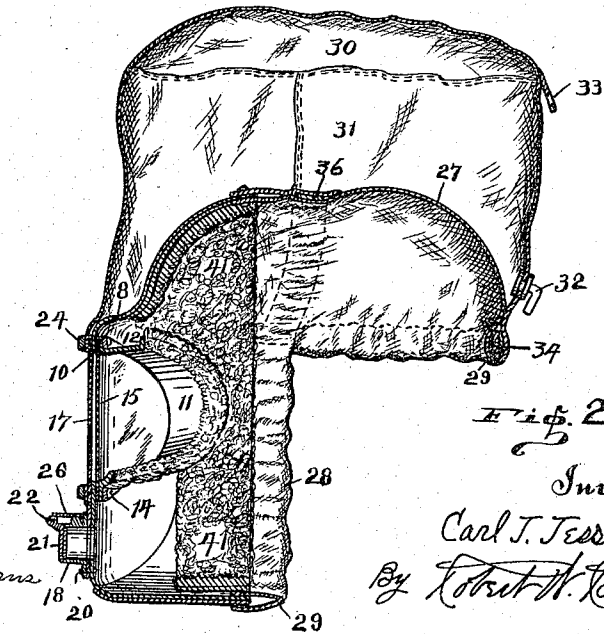


Fig. 2.

Witnesses

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2 SHEETS—SHEET 2.

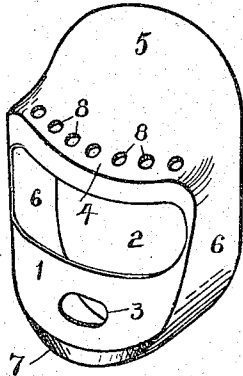
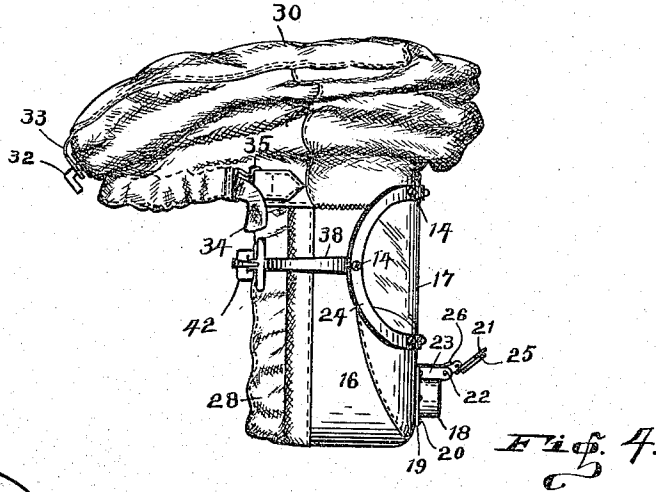


Fig. 5.

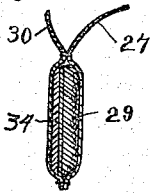


Fig. 7.

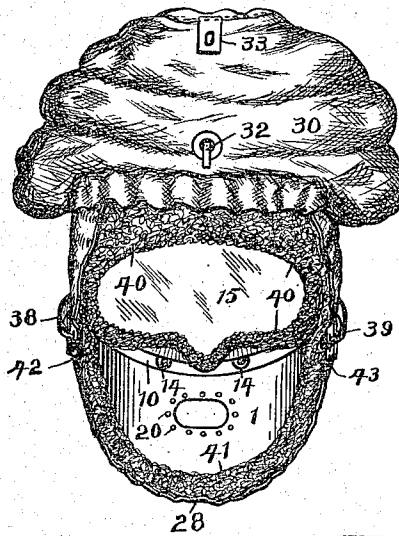


Fig. 6.

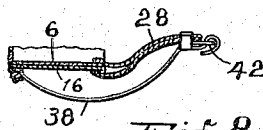


Fig. 8.

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UNITED STATES PATENT OFFICE.

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HELMET.

1,176,901.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CARL J. JESSUP, a citizen of the United States, and a resident of the city of Richmond, in the county of Wayne and State of Indiana, have invented a new and useful construction for Helmets, of which the following is a full, clear, and comprehensive specification and exposition, the same being such as will enable others to make and use the same with exactitude.

The object of my present invention, broadly speaking, is to produce a helmet, particularly intended for use by firemen, which will be strong and durable in construction, neat and compact in appearance, easily operated and controlled, highly efficient in practice, light in weight, and which can be manufactured and sold at a comparatively low price.

More particularly stated, my object is to provide a fireman's helmet to be placed on one's head and adapted to allow the wearer to remain for a comparatively long period of time in direct contact with highly injurious gases and fumes without danger of such gases or fumes entering the body of the person wearing the helmet, at the same time permitting the wearer to breathe naturally, to freely turn his head as occasion may require, and to see all about him as freely and distinctly as it would be possible without the helmet on his head.

Other particular objects and advantages of my invention will be brought out and made clear in the course of the following description, and that which is new will be correlated in the claims which terminate this specification.

One means and the preferred manner for carrying out the objects of my invention in a practical manner is shown in the accompanying two sheets of drawings, in which—

Figure 1 is a perspective view of my invention applied to a person as in actual practice. Fig. 2 is a vertical central section of the invention, showing the interior thereof. Fig. 3 is a perspective detail view of the metal core or nose-piece. Fig. 4 is a side elevation of the complete invention. Fig. 5 is a perspective view of the leather mask which forms the body of the device. Fig. 6 is a rear inside view of the construction. Fig. 7 is a cross section of the rear head-band. And Fig. 8 is an edge view

of one of the temple springs, showing the means for holding in place the free end thereof.

Similar indices denote like parts throughout the several views.

In order that the construction, the operation, and the advantages of the invention may be more clearly comprehended and appreciated I will now take up a detailed description thereof in which I will set forth the construction as briefly and as comprehensively as I may.

Referring now to the drawings in detail: The mask, shown in Fig. 5, is formed of a single piece of stiff leather which is pressed into substantially the form shown, and which is adapted to conform to the face of the wearer and spaced therefrom, forming an air space, and it comprises the curved vertical front 1, through the upper portion of which is formed the comparatively large sight aperture 2; and in the lower portion thereof is formed the mouth aperture 3. Sloping slightly back from the upper edge of the front portion 1 is the brow portion 4, which merges into the dome or forehead fitting portion 5. Extending down from the dome and the brow portions, and directly back from the front 1, are the side portions 6. And connecting the lower portions of the sides is the curved chin portion 7, which extends directly back from the lower portion of the front 1. Formed through the brow portion 4 are a plurality of small apertures 8, for the purpose hereinafter set forth. When the helmet is completed the mask will be entirely covered from sight, but it gives form to the helmet and provides a support for other parts of the construction, as will be made apparent.

The core is made preferably of aluminum, which is molded into substantially the form in which it is shown in Fig. 3, being in the nature of an elongated ring which is curved to fit the curvature of one's face around the eyes, and it comprises an inner flange portion 9, and an outer flange portion 10 which latter is made to fit the inner curvature of the mask, to which it is secured in the manner hereinafter set forth. The flanges 9 and 10 are spaced apart and are integrally united by the solid web 11, which is flush with the inner periphery of the core, thereby forming a channel 12 ex-

tending around in the periphery of the core as indicated. A U-shaped notch 13 extends outward from the inner edge of the lower central portion of the core, which is adapted to fit the nose of the wearer of the mask. The core is secured by a plurality of bolts 14 to the inside of the mask whereby the aperture of the core will register with the sight aperture 2 of the mask, and an inner transparency, such as mica, denoted by numeral 15, is secured between the flange 10 and the mask whereby it will cover said sight aperture.

Covering the front 1 (excepting the sight aperture and the mouth aperture) and also covering the sides 6 and the chin portion 7, is a finishing material, such as fire resistance leather, or the like, denoted by the numeral 16. Numeral 17 denotes the outer transparency, which also closes the aperture 2, and it extends outward onto the leather 16 around said aperture, and it is held in place by the ring or plate 24, and it is located parallel with the transparency 15 and it is spaced therefrom. The ring or plate 24 is disposed around the sight aperture and its inner periphery registers with the aperture 2, and it is secured also by the bolts 14 which clamp the said ring, the leather 16, the two transparencies and the mask tightly together, as indicated in Fig. 2.

The breathing valve comprises a tubular body 18 which extends out from and around the leather 16, with its aperture registering with the aperture 3, and at its base is an out turned flange 19 which fits tightly against the leather 16 around the aperture 3 where it is secured by the rivets 20 which extend through the mask, as indicated in Fig. 6. The outer end of the body 18 is formed perfectly level and smooth to receive thereon the cap 21. The said cap is hinged at its upper central edge on the pivot 22, which latter is carried by the stem 23 formed integral with the upper part of the body 18. The face of the cap 21 is covered with a gasket 25, formed of soft material. A spring 26 is arranged to hold the cap 21 against inadvertent displacement in either its open or closed positions, as indicated in Figs. 4 and 1, respectively. Secured to and extending back from the dome 5 is the head cap 27 which is adapted to fit the top and a portion of the back of the head of the user, its lower edge being horizontal and on a level with the upper edge of the sight aperture 2. Extending back from the rear edge of the cover 16, united therewith and to the rear edge of the mask by stitching, is the double leather extension 28, the ends of which are united with the lower edge of the head cap 27. A strip of sheep-skin, or the like, denoted at 29, is located around in the loop formed by the inner and the outer

thicknesses of the extension 28, in order to form a soft pad to press against the sides of the face and under the chin of the user.

Numeral 30 denotes the hood, formed of leather or the like, having its lower edge secured around to the lower edge of the head cap 27 and to the upper ends of the extension 28, and also to the upper edge of the mask and underneath the upper edge of the ring 24. The said hood extends considerably above the head cap 27, thereby forming an air reservoir 31 above the said head cap. An air inlet valve 32 is located in the center of the rear lower portion of the hood through which fresh air may be forced into the reservoir 31. An eyelet tab 33 is secured to the rear portion of the hood and it has an eyelet therein to engage over the stem of the valve 32, or a special fastening may be provided therefor, in order to prevent the front portion of the hood from falling over the vision of the wearer when the hood is deflated. The lower rear portion of the hood is secured to the lower portion of the head cap 27 by a double row of stitching, thereby forming a channel in which is located a strip of elastic 34, the same being secured at one end with the other end projecting out through an aperture therefor, as in Fig. 4, and with the projecting portion adapted to be adjusted in and secured by the buckle 35. Also passing over the head cap 27 is an elastic strip 36, the same being secured at one end near the lower edge of said head cap and with the other end projecting out through a slot in the lower portion of the hood 30, as shown in Fig. 1, and it is adapted to be adjusted and secured by the buckle 37.

Numerals 38 and 39 denote the two temple springs, each having its forward end secured by one of the bolts 14 underneath the ring 24, from which they curve rearward with their rear ends expanded upward and downward and adapted to fit and press the extension 28 in contact with the wearer's cheek bone immediately below the temples and in front of one's ears. The rear portions of the springs 38 and 39 are retained in place by the respective slotted tabs 42 and 43, each having one end secured in the edge of the extension 28 and projecting forward, with the springs inserted in the slots thereof, substantially as shown.

The inner face of the flange 9 of the core is covered with a pad 40, formed of some such material as wool, which also extends around in the curvature of the notch 13, which prevents one's face from contact with the metal core. Also the interior of the mask, above the core is covered or lined with wool or the like, which is denoted by numeral 41, and the same extends down the sides and around the lower part of the inside of the mask, as indicated, in order to further protect the face, and in connection with the pad

40 preventing one's face from coming into contact with any hard material of the construction. And a further purpose of the pad 40 is to prevent moisture of one's breath from coming into contact with the transparency; and a further purpose of the lining 41 is to form contact with the face and prevent the outside air from entering the helmet.

As will be observed, in Fig. 1, my device is shown as in operative position in connection with a person, a portion of the face being seen through the transparency, and the relative positions being shown in proper position with relation to the person. And it will, perhaps, have been anticipated that the particular function of this invention is to protect the face, and particularly the eyes, the nose and the mouth from noxious gases, and to prevent such gases from being inhaled into the system of the user.

When constructed substantially as set forth the device may be placed upon the head of a fireman, for instance, leaving the cap 21 open, as in Fig. 4, in order that he may inhale pure air until he is in proximity to smoke or noxious gases then by simply pressing slightly forward on the cap 21 it will cause it to quickly close and thereby prevent the entrance of impure air. On account of the comparatively large air space therein the wearer of the device may continue his natural breathing for a protracted period of time, and if he has abnormally filled his lungs with air before closing the cap 21 it will be found that by exhaling the air from his lungs after closing the cap that it will cause the air reservoir 31 to fill, or nearly so, sufficient in which to cause the hood to spread or expand to the position shown in Figs. 1 and 2, for it will be seen that the reservoir 31 has communication with the air space back of the front 1 of the mask through the channels 12 and the apertures 8.

It is evident that by attaching a tube to the valve 32 that fresh air may be forced into the reservoir 31, and from there to the mouth and nostrils of the wearer, and there will be no danger of this air pressure becoming too high as beyond a certain limit the excess may escape but still effectually prevent the inlet of contagious outside air. However in most instances the introduction of air under pressure will not be necessary, as the air originally in the device will be all that will be required to keep the wearer in good physical condition for a comparatively long period of time.

By reason of the fact that the construction is carried entirely by one's head it is apparent that the user will be enabled to turn his head in all directions as freely as he would without this device in place; and by reason of the large sight aperture he may be able to observe all about him, and there-

fore be enabled to work intelligently and with greater safety.

By reason of the double transparency there will be no danger of the vision becoming clouded or obscure, by reason of moisture being deposited on the transparency from the wearer's breath or otherwise, as the moisture of the wearer's warm breath will not come into contact with the outside transparency, which may be cold. Also by reason of the double transparency the smoke and fumes on the outside will be more securely excluded, and also the double transparency will more effectually prevent heat from a burning building from reaching the wearer's face.

It should also be observed that by reason of the soft lining of the parts which contact with the wearer's face that the device is not only made entirely comfortable to the wearer, but it reduces to the minimum the probability of injurious gases reaching the parts of one's face which it is desired should be protected.

I desire that it be understood that I am not to be limited to the precise details of construction herein set forth or to the exact arrangements of parts as specified, but various changes may be made therein without departing from the spirit of the invention and without sacrificing any of the advantages thereof.

Having now fully shown and described my invention, what I claim and desire to secure by Letters Patent of the United States, is—

1. A helmet including a mask forming the base of the helmet, a metal core secured to the inside of the mask and adapted to fit the face and nose of a person and having a sight aperture therethrough, a sight aperture formed through the mask and registering with the aperture in the core, a front and a rear transparency closing the sight aperture, a breathing valve carried by the mask and extending out from in front of the mouth of the wearer, a head cap extending back from the upper portion of the mask and adapted to fit over the top of the head of the wearer, extensions projecting back from the sides of the mask, temple springs located outside the mask and each having one end secured to the core and with their free ends expanded and adapted to retain the extensions in contact with the sides of the face of the wearer, and an air reservoir located above the head cap and having communication with the space between the mouth of the wearer and said valve, all substantially as set forth.

2. A helmet comprising a mask conforming to the contour of a person's face and to be spaced therefrom and having a sight aperture and a breathing aperture formed therethrough, a core secured to the inside of

the mask around the sight aperture and conforming to the parts of the face and the nose opposite thereto, a pad located between the core and the points of contact with the face and nose, a pad covering the inside of the mask above the core and along the sides and across the chin portion of the mask, a valve extending out from the mask and located around the breathing aperture, an outer covering for the mask, extensions projecting back from the sides of the mask, means for retaining the edges of the extensions in contact with the face of the wearer, a hood having its edges secured to the mask and to the edges of the head cap and forming an air reservoir therein which has communication with the space back of the breathing valve, and means whereby pure air may be injected into said chamber, all substantially as set forth.

3. A helmet comprising a mask conforming with the general contour of a person's face and adapted to be spaced therefrom and having a sight aperture and a mouth aperture therethrough, a core secured to the inside of the mask around the sight aperture and fitting over the face and the bridge of the nose of the wearer, a pad located between the core and the face of the wearer, a pad covering the inside of the mask above the core and along the sides and across the

chin portion of the mask, a head cap extending back from the mask and adapted to fit over the upper portion of the head of the wearer, a hood extending up from around the head cap and forming an air reservoir above the head cap, means whereby communication is formed between said reservoir and the space in front of the wearer's mouth, a flexible extension projecting back from the sides of the mask, springs connected with the core and extending back and adapted to press said extensions against the sides of the face of the wearer, means for opening and closing the breathing aperture, means whereby pure air may be injected into said reservoir, resilient means for retaining the lower edges of the head cap in contact with the back of the wearer's head, resilient retaining means extending up over the head of the wearer, means for adjusting the size of the device to the head of the wearer, and a transparency covering said sight aperture.

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

CARL J. JESSUP.

Witnesses:

HENRY J. SULGROVE,
ROBT. W. RANDLE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."