No. 751,091. PATENTED FEB. 2, 1904.

W. J. MORAN.

FIRE MASK.

APPLICATION FILED MAY 20, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 2.

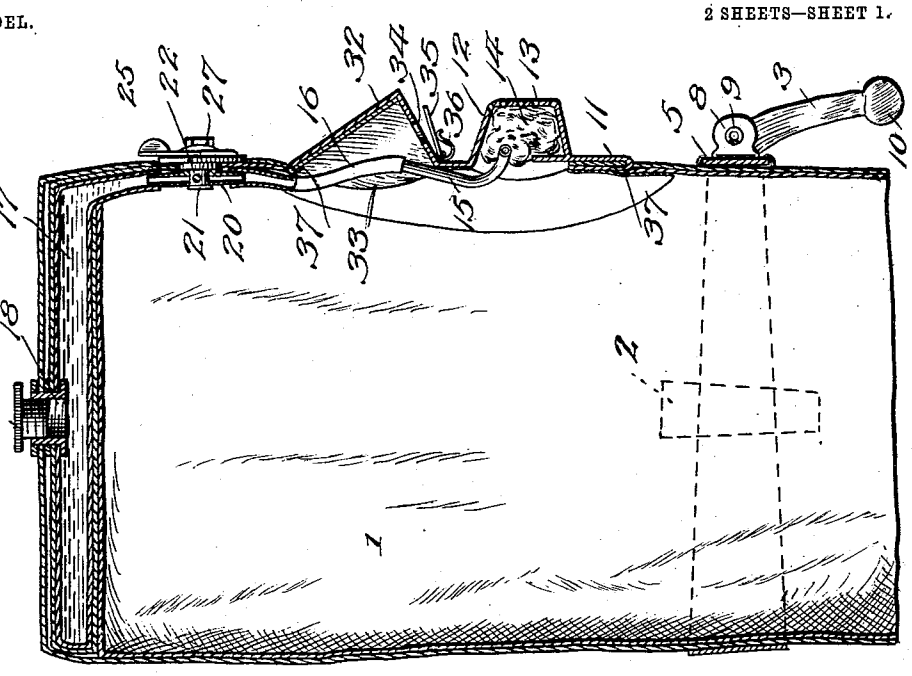
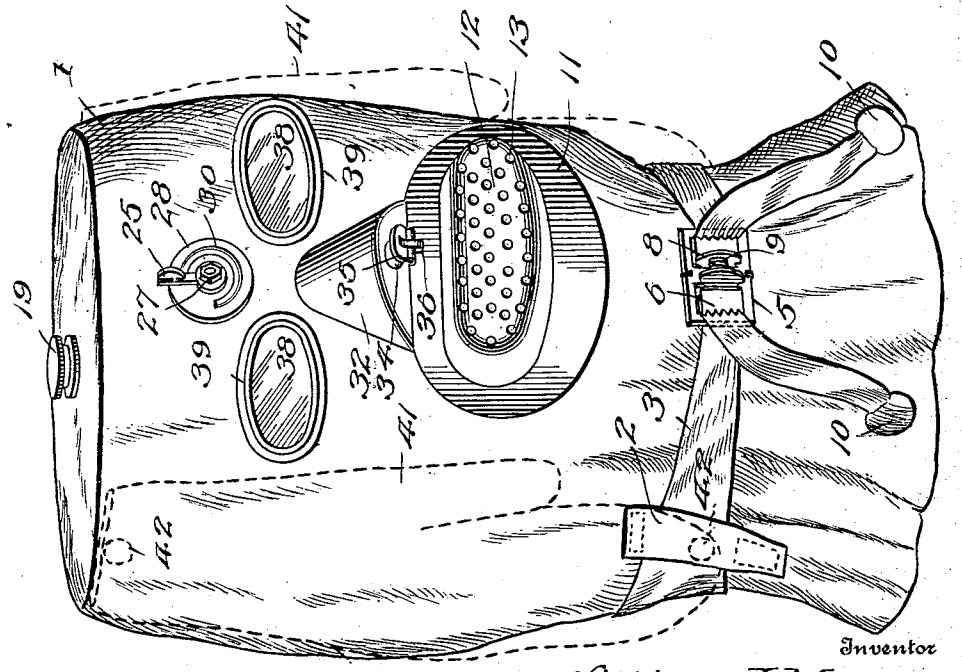


Fig. 1.



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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 7.

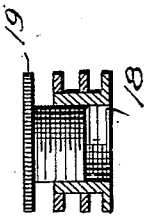


Fig. 8.

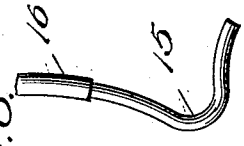


Fig. 9.

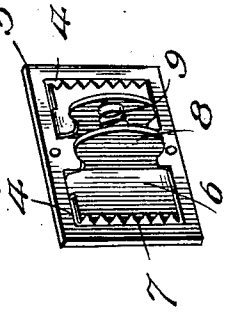


Fig. 4.

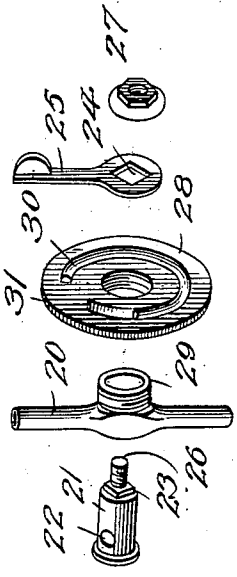


Fig. 6.

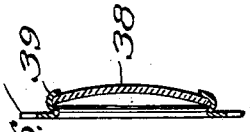


Fig. 5.

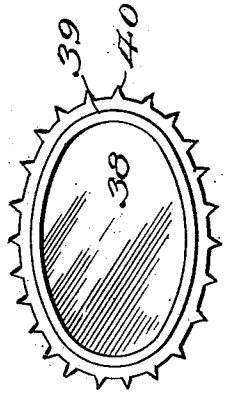
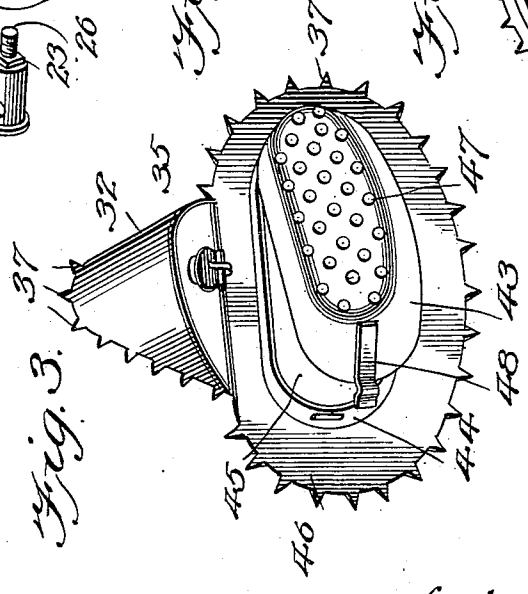


Fig. 3.



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No. 751,091. Patented February 2, 1904.

UNITED STATES PATENT OFFICE.

WILLIAM JOSEPH MORAN, OF YONKERS, NEW YORK.

FIRE-MASK.

SPECIFICATION forming part of Letters Patent No. 751,091, dated February 2, 1904.

Application filed May 20, 1903. Serial No. 158,036. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM JOSEPH MORAN, a citizen of the United States, residing at Yonkers, in the county of Westchester and State of New York, have invented new and useful Improvements in Fire-Masks, of which the following is a specification.

My invention relates to new and useful improvements in fire-masks; and its object is to provide a device of this character adapted to protect the head of the wearer from the flame and smoke and which has means for permitting the admission of air to the mask.

A further object is to employ means for separating the smoke from the air prior to its entrance to the interior of the mask. Another object is to provide a valve-controlled water-supply for the smoke-separator.

Another object is to employ an exhaust for vitiated air, which is normally closed by a valve adapted to prevent the admission of air to the mask.

With the above and other objects in view the invention consists in providing a mask which is constructed of flexible fireproof material, such as asbestos, said mask being so shaped as to completely cover the head of the wearer. A mouthpiece is provided in front of the mask and has a series of apertures therein, through which air and smoke may be admitted to a sponge arranged within the mouthpiece. A reservoir is located within the top of the mask and communicates with the sponge, so that the same may be kept supplied with water, and thereby prevent the passage of smoke therethrough. A valve is so arranged as to control the supply of water to the sponge, and this valve may be readily operated by the person wearing the mask.

The invention also consists in providing goggles at proper points in the face of the mask, and a nose-piece is also employed, the same being provided with an outlet which is normally closed by a valve so constructed as to prevent the admission of air to the mask therethrough.

The invention also consists in the further novel construction and combination of parts hereinafter more fully described and claimed, and illustrated in the accompanying drawings, showing the preferred form of my invention, and in which—

Figure 1 is a perspective view of my improved fire-mask. Fig. 2 is a section therethrough. Fig. 3 is a detail view of the mouth and nose piece detached and showing a hinged cover for the mouthpiece. Fig. 4 is a view showing the parts of the valve detached. Fig. 5 is an elevation of one of the goggles detached. Fig. 6 is a section therethrough. Fig. 7 is a section through the closure for the reservoir. Fig. 8 is a detail view of the nozzle connected to the reservoir, and Fig. 9 is a perspective view of the buckle employed for securing the mask to the head of the wearer.

Referring to the figures by numerals of reference, 1 is a bag-shaped mask formed, preferably, of asbestos lined with canvas, and strips 2 are secured thereon near its lower end and serve the purposes of guides for straps 3, which extend through apertures 4, formed within a plate 5. Within each of these apertures is pivoted a binding-plate 6, having teeth 7 at its outer edge, and thumb-pieces 8 extend from the inner edges of these binding-plates at right angles thereto. A spring 9 is interposed between the two thumb-pieces and serves to bind the toothed edges 7 upon the straps 3 to prevent the same from being drawn backward through the plate 5. The ends of the straps 3 are preferably enlarged, as shown at 10, so as to prevent them from being entirely withdrawn from the plate 5.

A plate 11 is fastened to the front of the mask 1 and has an oval extension 12, which projects forward therefrom and is provided with apertures 13 therein through which air is adapted to be drawn into the mask. Within this extension is arranged a sponge 14, which serves to close all of the apertures 13, and embedded in the sponge is a substantially L-shaped pipe 15, which forms a nozzle and is connected by means of a flexible tube 16 with the reservoir 17, arranged within the top of the mask and formed, preferably, of rubber. This reservoir has an internally-threaded inlet 18 in the top thereof, which is normally closed by a screw-cap 19. The pipe 16 is provided with a valve by means of which the flow of water from the reservoir to the

sponge may be readily controlled. This valve comprises a pipe-section 20, within which is arranged a revoluble stem 21, which extends transversely therethrough and is provided with a passage 22 therein. The stem has a rectangular extension 23, which projects into an aperture 24, formed within one end of a lever 25, and a threaded extension 26 projects from the stem and is adapted to receive a suitable binding-nut 27, by means of which the lever 25 may be firmly clamped upon the extension 23. An internally-screw-threaded disk 28 is mounted upon a lateral tubular extension 29, formed in the center of pipe 20, and this disk has a concentric bead 30 thereon which does not extend entirely around the disk. Its ends form stops for the lever 25, and intermediate these ends is an inclined shoulder 31, which forms a one-half stop for the lever. When the lever 25 is moved against one of the stops, the flow of water through the pipe 20 is completely cut off. When the lever is moved to the half-stop 31, the water is permitted to pass slowly through the pipe 20, and after the lever has been sprung over the half-stop and into contact with the other end of the bead 30 the water is permitted to flow through the pipe 20 in a steady stream.

A semiconical extension 32, preferably formed of metal and integral with the plate 11, is arranged above the oval extension 12 and is preferably lined with soft rubber 33, which forms a tight joint between the nose of the wearer and the inner surface of the semiconical extension, so as to prevent the exhaled air from passing backward into the mask. An outlet 34 is formed in the lower end of the extension 32 and is normally closed by a hinged plate 35, it being held in such position by a weak bow spring 36. Prongs 37 extend from the edges of the plate 11 and extension 32 and are integral therewith, and these prongs are adapted to be inserted through the material forming the mask and then bent inward, as shown in Fig. 2, so as to securely fasten said plate and extension in proper position.

Arranged above and to each side of the extension 32 are goggles formed of oval lenses 38, arranged within metal frames 39, which are preferably struck from sheet metal and are provided with prongs 40 similar to the prongs 37 hereinbefore referred to and by means of which the frames 39 may be readily fastened to the mask.

In using the mask herein described the reservoir 17 is filled with water, and the inlet 18 is then closed by means of cap 19. After the mask has been placed upon the head the straps 3 are drawn through the plate 5, so as to tighten the lower end of the mask about the neck of the wearer. The toothed edges 7 of the plate 6 will prevent the straps 3 from slipping back, and said straps can only be loosened by pressing the thumb-pieces 8 together, so as to swing the toothed edges 7 forward out of contact with the straps. As will be understood, the nose of the wearer projects into extension 32 and bears upon the soft-rubber lining 33. The mouth of the wearer is directly in rear of the sponge 14. By means of the lever 25 the flow of water from the reservoir 17 to the sponge 14 may be regulated. This moistened sponge will prevent the admission of smoke to the interior of the mask during the inhalations by the wearer; but it will not retard the free passage of pure air into the mask. The vitiated air is exhaled through the nose into extension 22, and the pressure is sufficient to force the hinged plate 35 outward, so as to permit the air to flow through the outlet 34. During the inhalation the plate 35 will be closed automatically by the spring 36.

In Fig. 1 I have shown in dotted lines gloves 41, formed of asbestos and fastened to the sides of the mask by means of ball-and-socket glove-fasteners 42 of any suitable construction. By arranging these gloves in this manner they are always convenient and can be readily detached and placed upon the hands when desired. The goggles may be formed either of heavy glass or of isinglass. The mask can be readily folded and carried in the pocket, for the reason that flexible material is interposed between the goggles and the nose extension 32. In order to permit the folding of the mask, the flexible tube 16 and the rubber reservoir 17 are also provided.

In Fig. 3 I have shown the mouthpiece provided with a hinged cover 43, which is adapted to extend over a flange 44, arranged about an oval opening 45, formed within a plate 46, which is similar to plate 11, hereinbefore described. This cover 43 has apertures 47 therein similar to the apertures 14, and a sponge (not shown) is arranged within the cover and in rear of the apertures. Any suitable form of spring-catch 48 may be employed for locking the cover in closed position.

In the foregoing description I have shown the preferred form of my invention; but I do not limit myself thereto, as I am aware that modifications may be made therein without departing from the spirit or sacrificing any of the advantages thereof, and I therefore reserve the right to make such changes as fairly fall within the scope of my invention.

Having thus described the invention, what is claimed as new is—

1. The combination with a fireproof mask; of a plate, prongs thereto engaging the mask, and a perforated extension to the plate forming a mouthpiece.

2. The combination with a fireproof mask; of a plate, prongs integral therewith and engaging the mask, a perforated extension upon the plate forming a mouthpiece, an absorbent material within the extension and closing the perforations, and means for supplying moisture to the absorbent material.

3. The combination with a fireproof mask,

and straps for contracting the open end thereof; of a perforated extension secured to the mask and forming a mouthpiece, an absorbent material therein closing the perforations, means for supplying moisture to the absorbent material, a nose extension, and a valved outlet therein.

4. The combination with a fireproof mask; of a nose extension, prongs integral therewith and engaging the mask, a valve normally closing an outlet in the extension, and an elastic lining to said extension.

5. The combination with a fireproof mask; of a perforated extension secured thereto, a nose extension integral with the perforated extension and having an aperture therein, a valve normally closing the aperture, an absorbent material within the perforated extension, a reservoir, a valved connection between the reservoir and the absorbent material, and goggles within the mask.

6. The combination with a fireproof mask; of a perforated extension, absorbent material therein, a reservoir, a tubular connection between the reservoir and absorbent material, a valve within said connection comprising a stem having a passage therethrough, a lever for rotating the stem, a disk, and stops upon the disk for limiting the movement of the lever, said disk and lever being arranged outside the mask.

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

WILLIAM JOSEPH MORAN.

Witnesses:
MARTIN R. BURTON,
MICHAEL J. MORAN.