

H. KNUDSEN.  
 FIREMAN'S MASK.  
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908,108.

Patented Dec. 29, 1908.

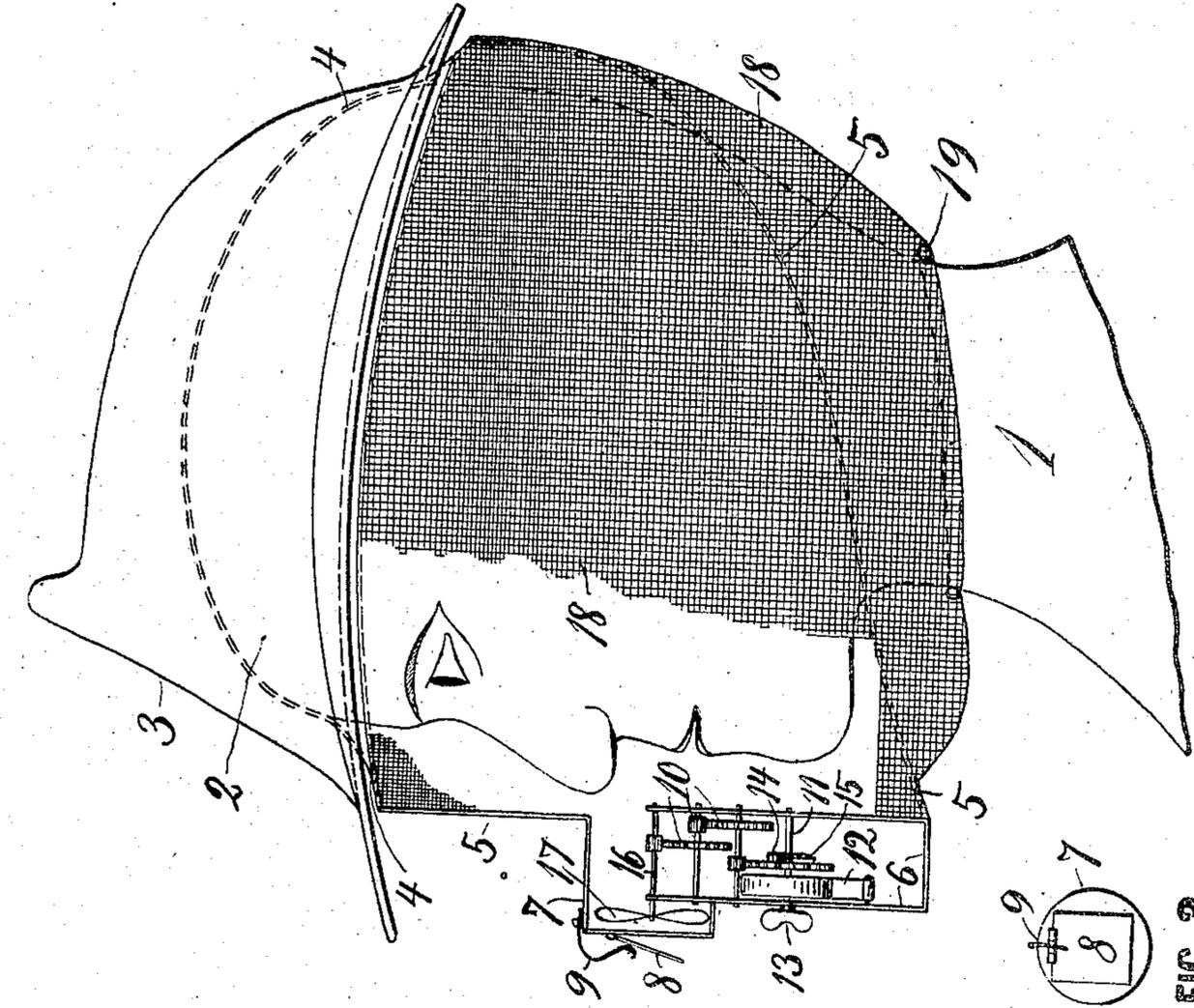


FIG. 2.

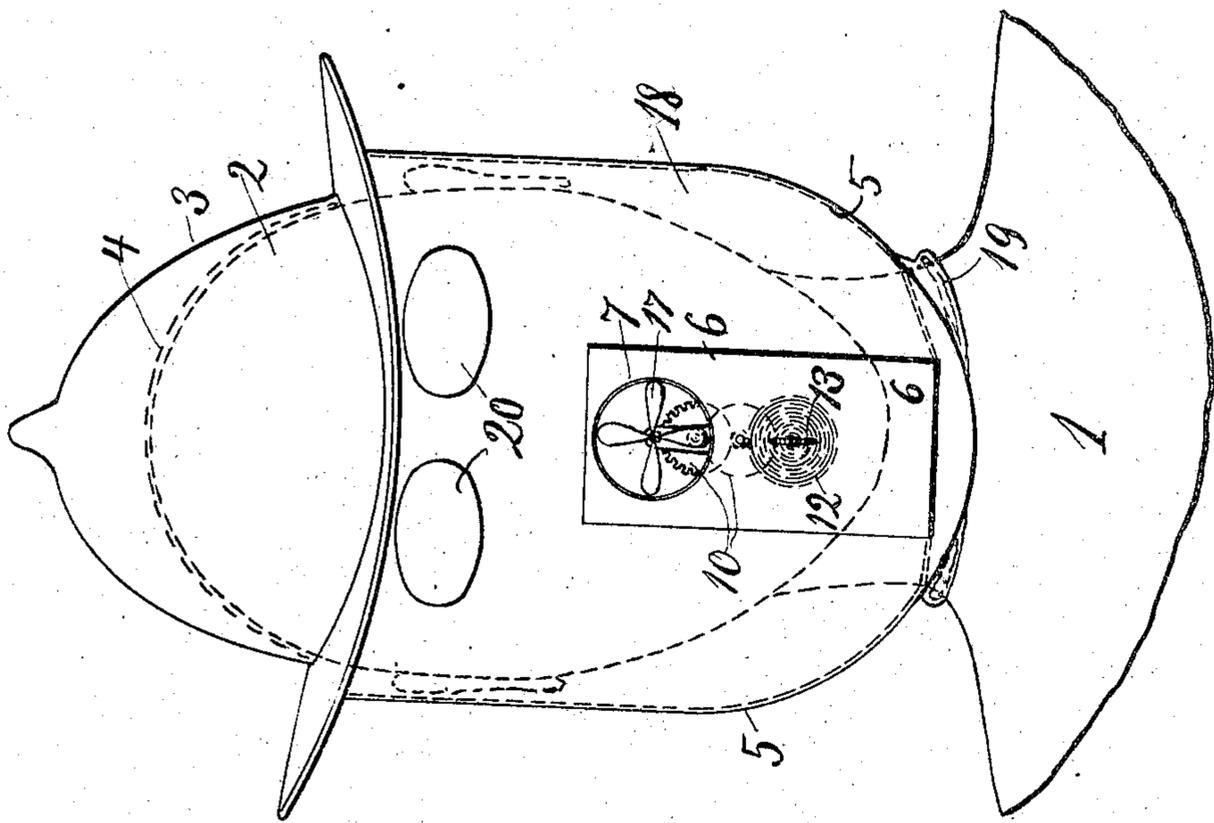


FIG. 1.

FIG. 3.

WITNESSES.

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# UNITED STATES PATENT OFFICE.

HANS KNUDSEN, OF MINNEAPOLIS, MINNESOTA.

## FIREMAN'S MASK.

No. 908,108.

Specification of Letters Patent.

Patented Dec. 29, 1908.

Application filed August 7, 1906. Serial No. 329,595.

To all whom it may concern:

Be it known that I, HANS KNUDSEN, a subject of the King of Denmark, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Firemen's Masks; 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 figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in firemen's masks, or means for separating the smoke in a burning building from the air a person must inhale who is in the building or must enter it while there is smoke in the rooms.

The invention consists of the means hereinafter described and fully pointed out in the claim.

In the accompanying drawing Figure 1 is a front view of a person's head wearing my mask, the exhaust tube for the air having its front end removed to give a full view of a rotary fan within the mask. Fig. 2 is a side view of Fig. 1 with the mask shown as made of canvas with a portion broken away to expose the face and the fan and fan-driving mechanism in front of the nose and mouth. Fig. 3 is the front end of the exhaust tube removed from in front of the fan in Fig. 1.

Referring to the drawing by reference numerals, 1 designates the neck, 2 the head and 3 the hat of a fireman or other person upon whom the mask is illustrated.

Fastened to the hat or free from it, as may be desired, is a hat-shaped supporting frame 4, which rests on the head and may be used with or without the hat 3 over it. By the brim of the light wire hat 4 is supported a suitable wire frame 5 which comes down as shown at the back, sides and front of the head.

In the front part of the frame 5 is fixed a box-shaped frame 6 having in its upper part a protruding tube 7, with a hinged lid 8, normally kept closed by a very light spring 9.

In the frame 6 is mounted a train of speed-increasing gear wheels 10, (best shown in Fig. 2) of which the slowest shaft 11 is driven by a clock-spring 12, which may at any time be wound up by the key 13, ratchet-wheel 14

and ratchet dog 15; all-arranged on well known clock-spring and gear principle; and the fastest-running shaft 16 carries the fan 17, by which, when the gears are running, the smoke is prevented from entering the tube 7, as a constant current of air from the fan keeps it out.

The frame work 4—5 is covered by a hood 18 uniting closely with the mechanism frame 6, and having in its lower part an opening through which the head is inserted, and then the opening is drawn sufficiently tight about the neck by an elastic string or band 19 inclosed in the lower edge of the hood, said lower edge or part of the hood may also be made altogether of thin flexible rubber, so that the string may be dispensed with. The rest of the canvas or cloth in the hood may be of silk, cotton, wool, or other fabric or material that prove to be the best for filtering the smoke-substances out of the air as the air is drawn through the canvas by the partial vacuum created within the hood by the action of the fan.

The functions of the lid 8 is to close the tube 7 against the smoke whenever the fan runs too slow to keep the smoke out, because the spring needs winding.

From this it will be understood that if reliable and long-lasting driving means, like a good electric battery, is employed to drive the fan, or if the winding of the spring 12 is properly attended to the lid 8 may be dispensed with. And, again, the lid may to fair advantage be used without the fan and its driving mechanism, as the lungs of the wearer of the mask draws the air in through the mask, ejects it through the tube 7, which may be closer to his mouth than shown, the lid 8 opening for each exhalation or puff of air from the lungs and closing during the inhalation.

20 are comparatively large pieces of glass, or preferably mica, inserted in the mask for the wearer to look through.

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

In a device of the class described, the combination with an air filtering hood or mask adapted to inclose a person's head and fitting about his neck, of transparent parts in front of the eyes, an exhaust tube in front of the nose and mouth, a spring-closed

lid over the opening of the tube, a rotating fan expelling air through the tube, and suitable means for driving the fan, said driving means consisting of a train of speed-in-  
5 creasing gear wheels, a spring running the train of wheels and a key for winding the spring.

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

HANS KNUDSEN.

Witnesses:

JOHN ROSVOLD,  
ARTHUR ROSVOLD.