

UNITED STATES PATENT OFFICE.

PAUL WEISS, OF PARIS, AND JULES VERDIER, OF ENGHEN, FRANCE.

PROCESS AND APPARATUS FOR THE PRODUCTION OF INTENSE ARTIFICIAL CLOUDS,
FOGS, OR MISTS.

1,338,343.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, PAUL WEISS, engineer, of 78^{bis} Avenue Henri Martin, at Paris, Department of the Seine, in France, and
5 JULES VERDIER, engineer, of 7 Rue Villebois Mareuil, at Enghien, Department of the Seine and Oise, in France, citizens of the French Republic, have invented certain new and useful Improvements in Processes and
10 Apparatus for the Production of Intense Artificial Clouds, Fogs, or Mists, and do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art
15 to which it appertains to make and use the same.

The present invention renders it possible to produce very opaque artificial mists by effecting the atomization of anhydrous chlorids, such as titanium chlorid or stannic chlorid, or analogous bodies in a moist ammoniacal atmosphere.

Figure 1 is a side elevation of an apparatus for carrying out the process, and
25 Fig. 2 is a plan view thereof.

The arrangement employed comprises two steel flasks; in one of these, A, is placed the anhydrous chlorid product or analogous product intended for forming the fumes, the
30 flask being only partially filled and containing compressed air or any suitable inert gas under pressure, in a quantity and at a pressure such that the whole of the product may be forced out by means of a siphon tube B',
35 with enough pressure to insure a sufficient atomization in an atomizer of a known type. This atomization is effected at the upper orifice of a chimney C in which a strong current of air is induced by means of the injection
40 of ammoniacal gas under pressure effected at the bottom of the chimney.

The ammoniacal gas may be obtained from a flask B containing this product in a liquefied condition through a pipe A'; it becomes mixed with the more or less moist aspirated air and thus provides the desired
45 ammoniacal atmosphere.

It is not necessary, in order to produce intense fogs or mists, to introduce a precisely
50 determined quantity of ammoniacal gas.

With a very small addition of this gas the fog is noticeably increased in intensity.

The product generating the fumes or forming the fumes on contact with the moist ammoniacal gas may with advantage have
55 added to it some hydrochloric acid gas or sulfurous anhydrid or another analogous acid gas which, while considerably facilitating the atomization, further increases the intensity of the fog in the ammoniacal at-
60 mosphere.

Finally, if the operation is carried out under the conditions of the present invention with a calculated quantity of ammoniacal gas, the fog produced may be rendered
65 free from all acid reaction.

We claim:

1. Apparatus for the production of intense artificial clouds from a fume producing product and ammoniacal gas, consisting
70 of flasks containing under pressure in the one case the fume producing product and in the other case the ammoniacal gas in the liquid state, in combination with a chimney
75 at the bottom of which a current of air is induced by an ejector brought into operation by the escape of the expanding ammoniacal gas, and means for atomizing the
80 fume producing product at the top of the chimney in the current of ammoniacal air.

2. A process for the production of intense artificial clouds, fogs or mists, which consists in atomizing in a moist ammoniacal atmosphere an anhydrous chlorid mixed
85 with a product which will increase the opacity of the fog.

3. A process for the production of intense artificial clouds, fogs or mists, which consists in hydrolyzing an anhydrous chlorid
90 in a moist ammoniacal atmosphere and adding thereto a substance which will increase the opacity of the fog.

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

PAUL WEISS.
JULES VERDIER.

Witnesses:

CHAS. P. PRESSLY,
ALEXANDER BASHOLLE.