

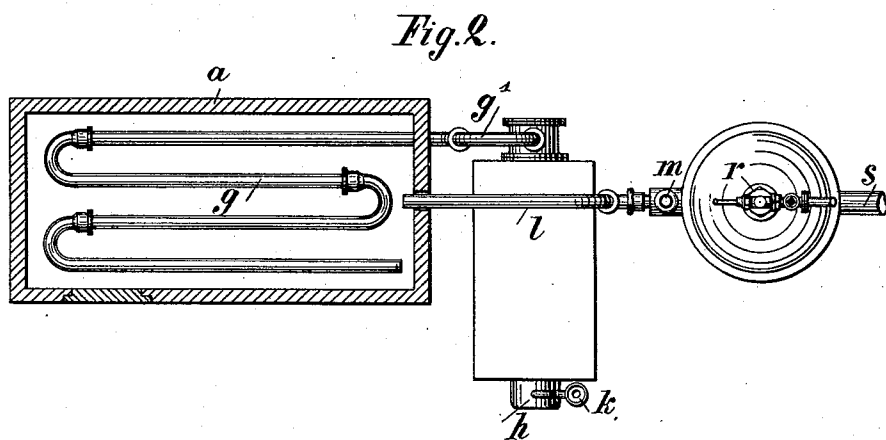
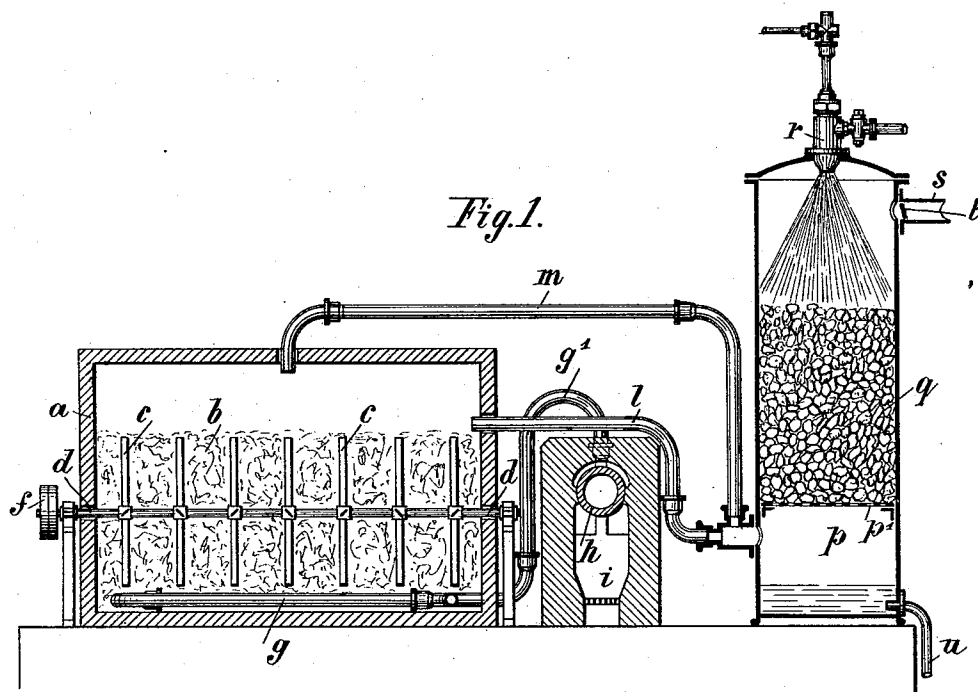
(No Model.)

L. KERN.

APPARATUS FOR REMOVING VEGETABLE MATTER FROM WOOL.

No. 469,788.

Patented Mar. 1, 1892.



Witnesses:

B. Maloney,
H. S. Heath

Inventor,

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attys.

UNITED STATES PATENT OFFICE.

LUDWIG KERN, OF HAMBURG, GERMANY.

APPARATUS FOR REMOVING VEGETABLE MATTER FROM WOOL.

SPECIFICATION forming part of Letters Patent No. 469,788, dated March 1, 1892.

Application filed June 13, 1891. Serial No. 396,198. (No model.)

To all whom it may concern:

Be it known that I, LUDWIG KERN, a subject of the German Emperor, residing at Hamburg, in the German Empire, have invented certain new and useful Improvements in Apparatus for Removing Vegetable Matter from Wool, of which the following is a specification.

This invention relates to improvements in apparatus for preventing the escape of noxious gases in the process of bleaching and otherwise treating textile materials; and the object of the same is to cause the said gases to be chemically combined and absorbed, so that they may be conveyed away in a perfect innocuous form. This is effected by exhausting the gases from the chamber where they are used into an absorption-vessel containing water or an aqueous solution of a substance capable of combining with the gases or containing limestone, coke, or other porous material, kept moist by jets of water or steam, or solution, whereby a large surface is exposed to contact with the gases, which thus become condensed and absorbed by or dissolved in the liquid and may be conveyed away without causing any injury to animal or vegetable life. By the condensation and absorption of the gases a partial vacuum or rarefaction of air is obtained in the absorption-vessel, which causes the gases, as well as the dusty impurities of the textile materials contained in the carbonizing or bleaching chamber, to be drawn into the absorption-vessel. I attain this object by means of the apparatus illustrated in the accompanying drawings, and particularly designed in connection with the treatment of woolen, shoddy, or mungo goods, by exposure to the action of the vapors of hydrochloric acid, whereby it may be clearly understood that according to the goods to be treated and the agents to be employed for causing the desired effect the details of the apparatus may be modified or altered without departing from the nature of my invention.

In the drawings, in which similar letters denote similar parts throughout the several views, Figure 1 is a sectional elevation, and Fig. 2 a top view, partly in section, of my improved apparatus.

a is a closed chamber, in which the textile goods b to be treated are stirred up by an agitator c , to which motive power is imparted by means of a pulley f , mounted on the shaft d of the agitator. At the bottom of this chamber is placed a perforated serpentine tube g , which communicates through the medium of the pipe g' with the retort h of a gas-generator i . Through a siphon k hydrochloric acid or any other mineral acid is conducted into the retort h and there gasified or vaporized by means of heat. The developed gases or vapors when led through the pipe g' into the coil g are equally distributed by the perforations of the latter in the chamber a , where they will act, for instance, to carbonize or destroy the vegetable fibers carried with the woolen textile goods to be treated. From the chamber a two pipes l and m are led to a proportionally high absorbing vessel or condenser p , being provided with a perforated bottom p' , upon which is placed a layer of coke or other porous material q and with an atomizer r , serving to produce a very fine spray of water or an aqueous solution of a substance capable of chemically combining with the gases escaping from the chamber a . The pipe l emits directly above the heaped material in the carbonizing-chamber a , while the mouth of the pipe m is arranged at the top of the chamber.

The operation of the apparatus will be as follows: The heated vapors or gases developed in the retort h when first entering the chamber a displace the air inclosed in the latter and in the absorbing-vessel p , so that it may escape through the exhaust-pipe s into a chimney or drawn off by means of an exhauster. In the exhaust-pipe s is preferably placed a valve t in such a manner that it will only permit the escape of the air or gases from the vessel p and prevent the entering of the same from outside. As soon as the air is discharged the atomizer r is set in action, so that the spray of water or other absorbing liquid is distributed over the layer of coke q or the like piled on the perforated bottom p' in the vessel p . Hereby a large surface is exposed to contact with the vapors or gases escaping from the chamber a through the pipe m , so that the same will be not only con-

densed, but also absorbed, in the vessel *p* by the liquid distributed through the atomizer *r*, so that a partial vacuum is established in the condenser *p*, which will exert a considerable sucking action upon the gases in the chamber *a* and cause the carbonized dust-like particles or impurities of the woolen textile material stirred up by the agitator *c* to discharge through the pipe *l* into the lower part of the vessel *p*, where they will settle and be conveyed away through the pipe *u* with the absorption-liquid combined with the noxious gases. If only the bleaching of textile piece goods or fibers is intended, the agitator in the chamber *a* may be entirely abandoned and the retort replaced by any other generator of chlorine or other gas without departing from the nature of this invention.

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

The combination, with a chamber wherein woolen or other textile fabrics are treated by

exposure to the action of gases or vapors, of a gas-generator having a serpentine or tortuous pipe entering and extending along the bottom of said chamber, the condenser or absorption-vessel provided with a jetting device or sprayer at the top, and the pipes, one adapted to take the heated gases from said chamber at its top and pass them to the bottom chamber of the condenser and the other pipe adapted to connect with the end of said chamber a short distance below its top and convey the carbonized dust-like particles or impurities also to the bottom chamber of said condenser, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 14th day of May 1891.

LUDWIG KERN.

Witnesses:

ALEXANDER SPECHT,
DIEDRICH PETERSEN.