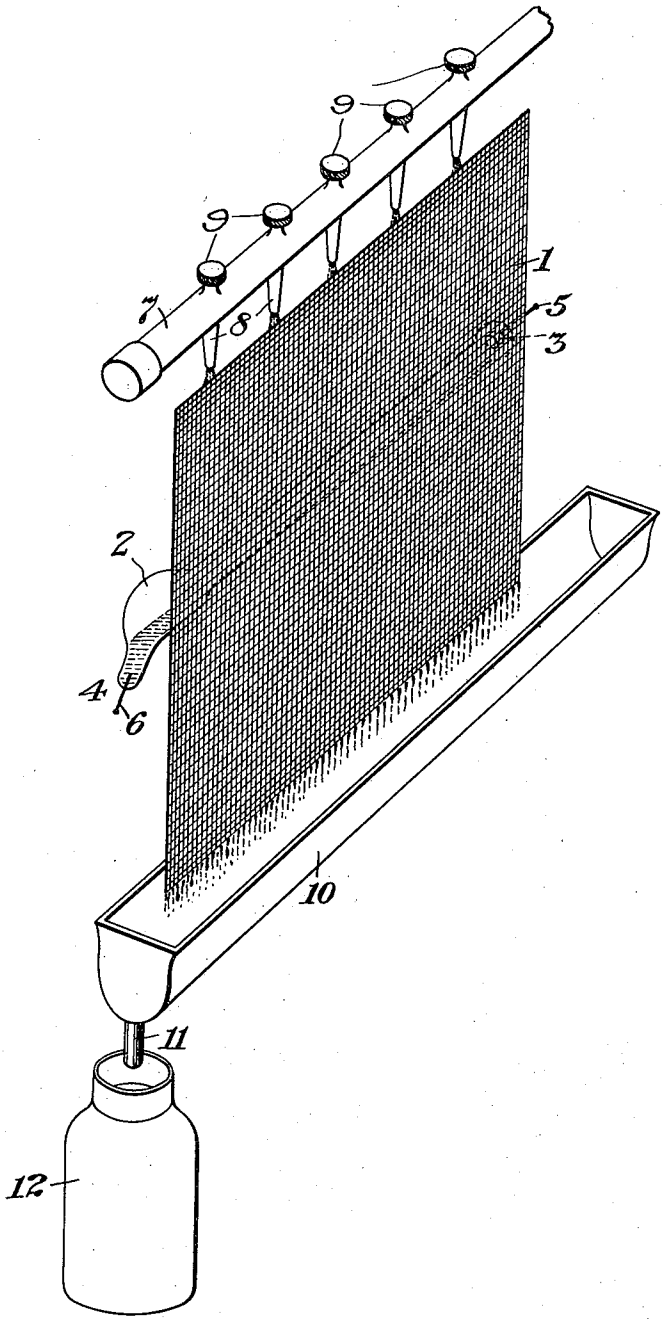
F. G. KEYES.

STERILIZING APPARATUS.

APPLICATION FILED JULY 1, 1913.

1,235,698.

Patented Aug. 7, 1917.



Witnesses:
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UNITED STATES PATENT OFFICE.

FREDERICK G. KEYES, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO COOPER HEWITT ELECTRIC COMPANY, OF HOBOKEN, NEW JERSEY, A CORPORATION OF NEW JERSEY.

STERILIZING APPARATUS.

1,235,698. Specification of Letters Patent. Patented Aug. 7, 1917.

Application filed July 1, 1913. Serial No. 776,757.

To all whom it may concern:

Be it known that I, FREDERICK G. KEYES, a citizen of the United States, and resident of Boston, county of Suffolk, State of Massachusetts, have invented certain new and useful Improvements in Sterilizing Apparatus, of which the following is a specification.

In a companion application executed on the same date herewith, I have shown and described an invention relating to the treating of liquid by exposure to a suitable active influence for sterilization or other purposes. As a source of the active influence, I have therein shown a mercury vapor apparatus comprising a quartz container hermetically sealed and electrodes therein joined to suitable leading in wires, whereby, in operation, ultra-violet radiation is produced.

The special object sought to be obtained by the apparatus of the companion application is that of securing a thin uniform layer of suitable material which is to be exposed to the action of ultra-violet radiation supplied through walls of the source. In the present instance I attain the desired uniformity and thinness of liquid material by utilizing as a surface along which the liquid, such as milk, is allowed to pass while exposed to the rays from the source, a sheet or screen of gauze or fabric, usually of fibrous material, the same being either suspended from or supported upon a metallic or other surface. The liquid to be sterilized or otherwise affected drops down over this screen and is separated into uniform layers as it passes downward, said layers being sufficiently thin to admit the complete sterilization of the liquid or, in the case of certain other materials, say the bleaching or partial oxidation of oil, as the case may be. From this it appears that sterilization is not the sole object to which my apparatus may be applied but other results aimed at may be attained according as they are appropriate to the properties of the liquid to be treated.

I show such a screen as I have described in the accompanying drawing.

Referring to the accompanying drawing, the part 1 is a screen suspended by means not shown in such a position as to be exposed to the radiation from a source of ultra-violet light. The screen may be of material such as iron or copper, in which case it is preferably tinned before being woven into the mesh. When material such as metallic gauze is employed it can readily be washed off after use so that the same gauze or fabric may be employed repeatedly. Should the gauze be made of fibrous material, it might, in case milk, for example, was the liquid allowed to pass over it, have to be removed after every use and replaced by a fresh piece.

The liquid to be treated is admitted through a tube 7, through which pass at intervals drips, 8, 8, subject to regulation by mill-heads 9, 9. By the proper manipulation of the mill-heads, the amount of liquid passing through each drip is regulated until all become adapted to furnish a practically uniform supply which then falls upon the upper edge of the gauze 1, whence it passes downward by gravity into a trough 10 and passes out through an outlet 11 into a jar or other receptacle 12. During this passage the liquid is subject to the effects of radiation from the quartz lamp or tube 2, and when it passes into the jar 12 it is in a sterilized or otherwise altered condition.

When the gauze fabric is made of fibrous material, it is evident that the mesh of said material may be so chosen as to act in cooperation with gravity in the nature of a sponge, attracting the liquid uniformly through the region occupied by the fabric.

I claim as my invention:

1. A sterilizing apparatus comprising a gauze screen supported to hang in a vertical plane, means for distributing the liquid to be sterilized to the top of the gauze, a trough for cooling the sterilized liquid at the bottom, and a source of ultra-violet radiation in proximity to the gauze.

2. A sterilizing apparatus for liquids comprising a gauze fabric supported to hang in a vertical plane, means for distributing the liquid to be sterilized to the top of the fabric, and a source of ultra-violet radiation in proximity to the fabric.

3. In a sterilizing apparatus for liquids, a source of ultra-violet radiation, a gauze fabric of fibrous material supported to hang in a vertical plane, means for distributing the liquid to be sterilized to the top of the said fabric, the meshes of the gauze fabric being close together.

Signed at New York in the county of New York and State of New York this 27th day of June A. D. 1913.

FREDERICK G. KEYES.

Witnesses:
WM. H. CAPEL,
THOS. H. BROWN.