(No Model.)

J. A. TILDEN.

FLUID ATOMIZER.

No. 570,721. Patented Nov. 3, 1896.

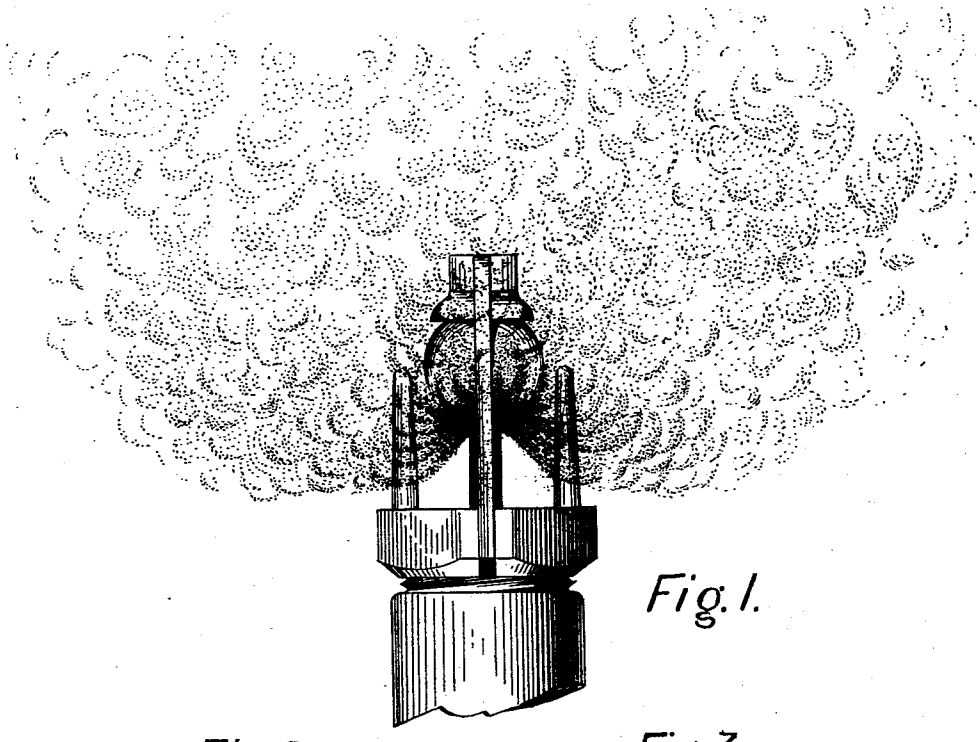


Fig. 1.

Fig. 2.

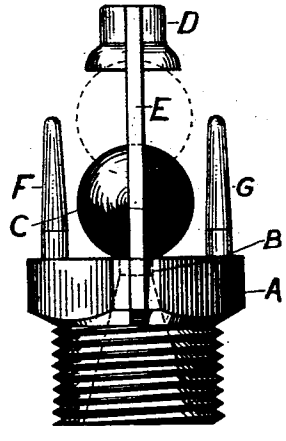
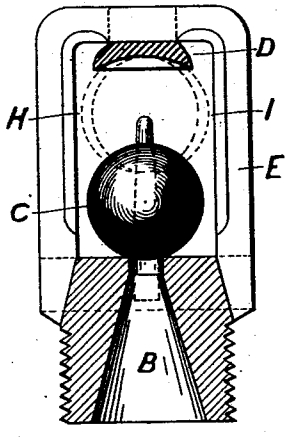


Fig. 3.



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FLUID-ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 570,721, dated November 3, 1896.

Application filed June 5, 1896. Serial No. 594,438. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. TILDEN, a citizen of the United States, residing at Hyde Park, in the county of Norfolk and Commonwealth of Massachusetts, have invented a new and useful Improvement in Fluid-Atomizers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

My invention relates to fluid-atomizers; and it consists of a mechanical device for separating a jet of water into finely-divided particles. The principle of my device consists in opposing a ball directly in the path of a jet of water, the ball being loosely restrained and free to gyrate in a cup-like receptacle, which is also in the direct line of the path of the jet of water.

I have ascertained that there is considerable difficulty in designing a deflector of a permanent form which will entirely atomize a jet of water. Such devices are usually deficient in that a certain portion of the water is dissipated in the form of large drops. In my device the jet is impinged against a smooth and rapidly-gyrating body, and it is due to this that the jet is evenly and uniformly atomized.

In the drawings, Figure 1 is a view of an atomizer constructed on these lines, showing it in operation. Fig. 2 is a vertical elevation. Fig. 3 is a vertical cross-section.

A is the base, containing the nozzle B, by means of which a jet of water is directed against the ball C and causes it, when in operation, to take the positions shown by dotted lines in Fig. 3 and to bear against the cup D. The cup D is held in position by the frame E, and the ball is prevented from accidental dislodgment by this frame and by the pins F and G. The first impulse of the jet of water when the atomizer is started is to propel the ball forcibly against the cup D, as shown by dotted lines in Fig. 2. Immediately thereafter the ball partakes of the gyratory motion, the extreme limits of which are indicated by the dotted lines H and I, Fig. 3. The ball does not show any tendency to become dislodged from its cup, notwithstanding that the radius of the cup is considerably larger than that of the ball and that it is in no way restrained either by the frame or by the pins, except from the accidental dislodgment when not in operation. In fact, the ball shows a decided tendency to remain within the jet or, more exactly, within the water which the ball divides.

By the term "cup" I do not mean a mere wire cage to hold the ball in position when the atomizer is not in use, that function being accomplished in the device shown by the frame E and the pins F G, but I mean a cup forming an abutment against which the ball bears when the atomizer is in operation.

This atomizer may be used for a variety of purposes, among which are the aerating and cooling of liquids and the saturating of air or other gases with moisture.

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

1. In a fluid-atomizer a nozzle, a cup opposed to the nozzle, and a ball loosely interposed between the nozzle and the cup, substantially as set forth and described.

2. In a fluid-atomizer a nozzle, a ball loosely restrained in line therewith, a cup also in line with said nozzle and against which the said ball bears when in operation, the radius of said cup being greater than that of the ball, substantially as set forth and described.

3. In a fluid-atomizer a nozzle, a cup and a ball, said cup and ball being in line with said nozzle, the cup being supported by a frame attached to said nozzle, substantially as set forth and described.

4. In a fluid-atomizer a nozzle, a cup and a ball in line with said nozzle, said ball being loosely restrained from accidental dislodgment by a frame attached to said nozzle, substantially as set forth and described.

JAMES A. TILDEN.

Witnesses:
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