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Patented Oct. 29, 1901.

H. H. DIKEMA.  
ATOMIZER FOR LIQUIDS.

(Application filed Feb. 27, 1900.)

(No Model.)

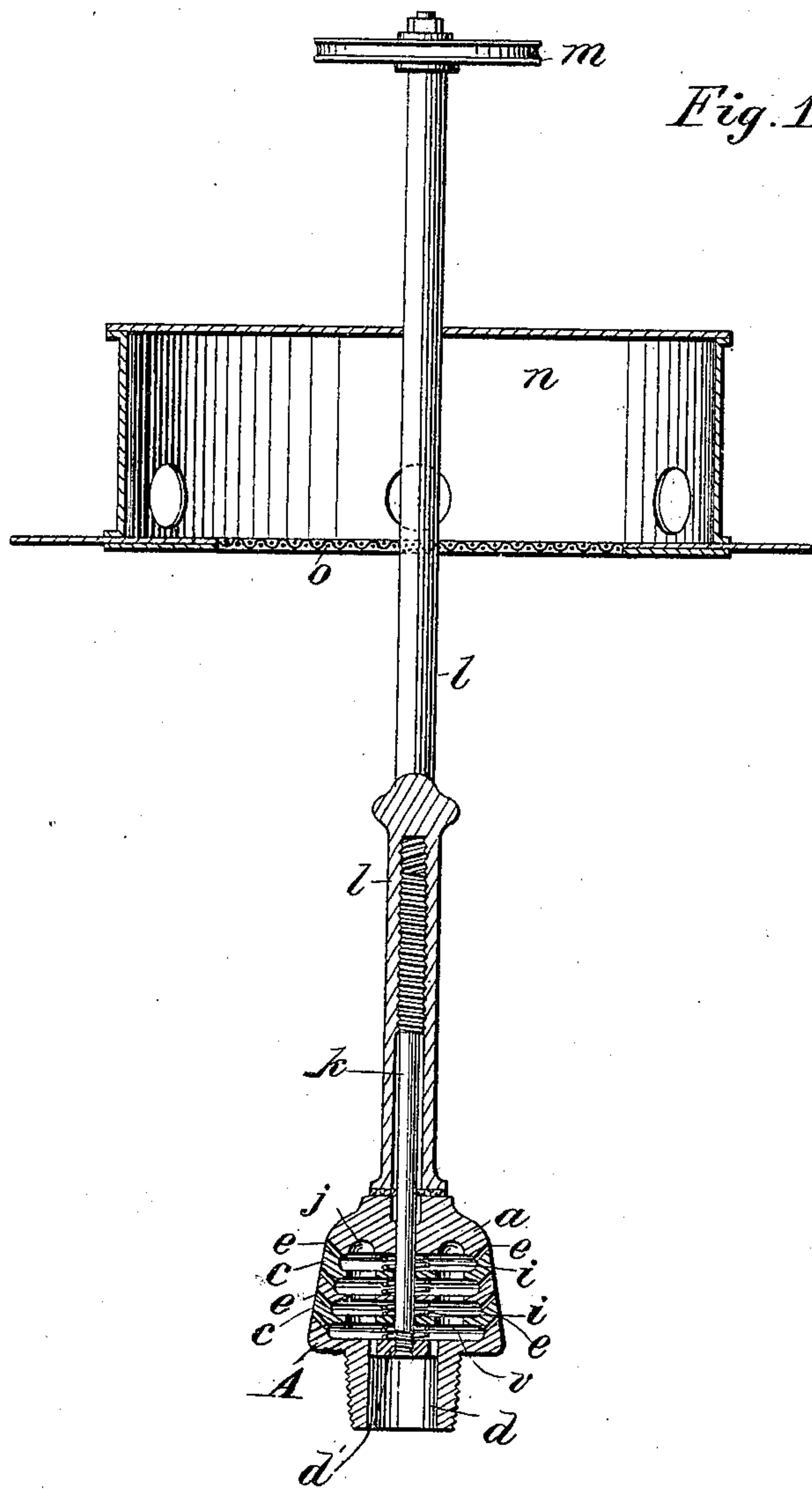
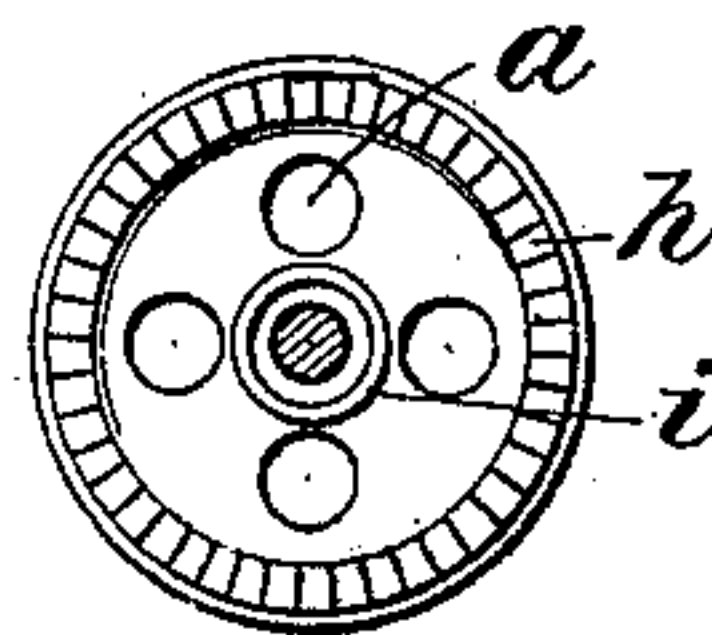


Fig. 1.

Fig. 2.



Witnesses:  
Henry Schreiter  
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Inventor:  
Haring H. Dikema  
by his Attys Schreiter & Mathews



# UNITED STATES PATENT OFFICE.

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## ATOMIZER FOR LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 685,582, dated October 29, 1901.

Application filed February 27, 1900. Serial No. 6,730. (No model.)

*To all whom it may concern:*

Be it known that I, HARING HARINGS DIKEMA, of Brussels, Kingdom of Belgium, have invented certain new and useful Improvements in Atomizers, of which the following is a full, clear, and exact specification.

This invention relates to atomizers for liquids; and it consists of the hereinafter-described device, wherein the object of the invention is attained by thus arranging a series of perforated conical rings in combination with other parts of the device that the liquid when forcibly driven against these rings is thereby successively divided into most minute particles and discharged in such divided state through suitable discharge-apertures provided in the peripheries of the rings.

The device is illustrated in the accompanying drawings, wherein—

Figure 1 is an elevation partly-sectional view thereof, and Fig. 2 is a cross-sectional view on line 2 2 indicated in Fig. 1.

The apparatus consists of a socket A, having a hollow screw-threaded stem  $d$ , whereby it may be secured in the discharge-aperture of a receptacle for liquid, a pump, conduit, and the like, a series of perforated conical rings  $c$ , provided with apertures  $e$  in their periphery, cover  $a$ , post  $k$ , (secured in center of spider  $d'$ , set in the hollow stem  $d$ ,) screw-threaded on its upper end, and cap  $l$ , screwed on the end of the post  $k$ , and holding the component parts of the atomizer together. Between the socket A and the first of rings  $c$ , as well as between the latter and each succeeding one of the rings and between the uppermost ring and the cover  $a$ , spiral springs  $i$  are inserted. These springs hold the rings apart from each other and apart from the socket and cover, respectively, whereas cap  $l$ , holding the parts of the apparatus together, presses them together. Thus by screwing the cap  $l$  farther on the post  $k$  rings  $c$ , as well as the cap  $a$  and socket A, are pressed more closely together and the discharge-apertures  $e$  reduced in their sectional area, whereas by unscrewing cap  $l$  springs  $i$  are correspondingly released, and forcing the rings  $c$  farther apart from it over and from the socket A and cover  $a$ , respectively, the distance be-

tween the rings and the sectional area of the discharge-apertures  $e$  is enlarged. Besides the perforations  $v$  the rings  $c$  are provided with coinciding central perforations through which the post  $k$  passes. These central perforations are slightly larger than the sectional area of post  $k$  to allow the rings  $c$  to revolve thereon. When assembled as shown in Fig. 1 of the drawings, the socket A, rings  $c$ , and cover  $a$  form a chamber (designated  $j$  in the drawings,) and divided by the rings into several compartments communicating with each other through perforations  $v$ , provided in the rings. This chamber communicates, by means of the hollow socket  $d$  and the apertures provided in the spider  $d'$ , with a receptacle, a pump, or some other apparatus for forcing the liquid into it, and by means of apertures  $e$ , provided, as explained, in the peripheries of the rings  $c$ , this chamber communicates with the outer space. The hollow stem  $d$  of the socket, or, more correctly, the apertures in spider  $d'$ , constitute the inlet, and the apertures  $e$  outlets for the liquid to be diffused. The sectional area of the inlet is fixed, whereas the sectional areas of these latter apertures are, as above explained, adjustable, as well as the volume of the chamber  $j$  and the space intervening between the several conical rings  $c$ . By these means the operation of the device may be varied. The liquid passing through the atomizer under pressure is driven through the apertures  $v$  in the rings from one compartment to the other and finally outward through the apertures  $e$ . By its contact with the rings  $c$  the liquid is divided and diffused successively into minute particles. The diffusion of the liquid will be greater the nearer the rings  $c$  are pressed together, and vice versa. In this manner a more or less minute diffusion of the liquid and separation of its atoms may be produced by correspondingly adjusting the cap  $l$  relatively to the post  $k$ . The farther it is screwed on the more the rings  $c$  will be compressed together and the more the liquid will be diffused.

My improved atomizer is designed for use in baths generally, and more particularly for hydro-therapeutic treatment. It may be ad-



justed as required in this use to more or less diffuse the liquid passing therethrough. The adjustment is accomplished by pressing rings *c* more together or by allowing them to be spread farther apart by the action of springs *i*. To this end cap *l* is extended into a rod, to which hand-wheel *m* is rigidly secured. By turning this hand-wheel in one direction (from left to right) cap *l* is screwed on more tightly and, as explained above, the intervening space between rings *c* reduced, whereas by turning it in the opposite direction this intervening space is increased, and of course in the first instance the liquid is diffused into more minute particles, whereas in the latter the liquid is discharged from the atomizer in larger particles or drops. The purpose of cover *n*, set thereon, is to catch and condense the diffused particles of the liquid, which by the force of their discharge are driven beyond the desired limit. This cover *n* is closed at its top and provided with a series of wire-netting *o* at its lower terminus to facilitate the condensation and discharge of the atoms of the liquid retained in the cover.

I claim as my invention and desire to secure by Letters Patent—

1. An atomizer comprising a hollow socket; a post set in the socket; a series of perforated conical rings and a closed cover set on the post; springs set between the socket and the lowermost ring, between the rings, and between the uppermost ring and the cover; and a screw-threaded cap screwed on the post and holding the parts together.

2. The combination of a series of perforated conical rings, provided with radially-disposed grooves in their peripheries, with a perforated socket and a solid cover, springs set between the socket and the rings, between the rings, and between the uppermost ring and the cover, and means for holding the parts together.

In witness whereof I have hereunto set my hand in presence of two witnesses.

HARING HARINGS DIKEMA.

Witnesses:

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JOH. NIEDERBERGER.