

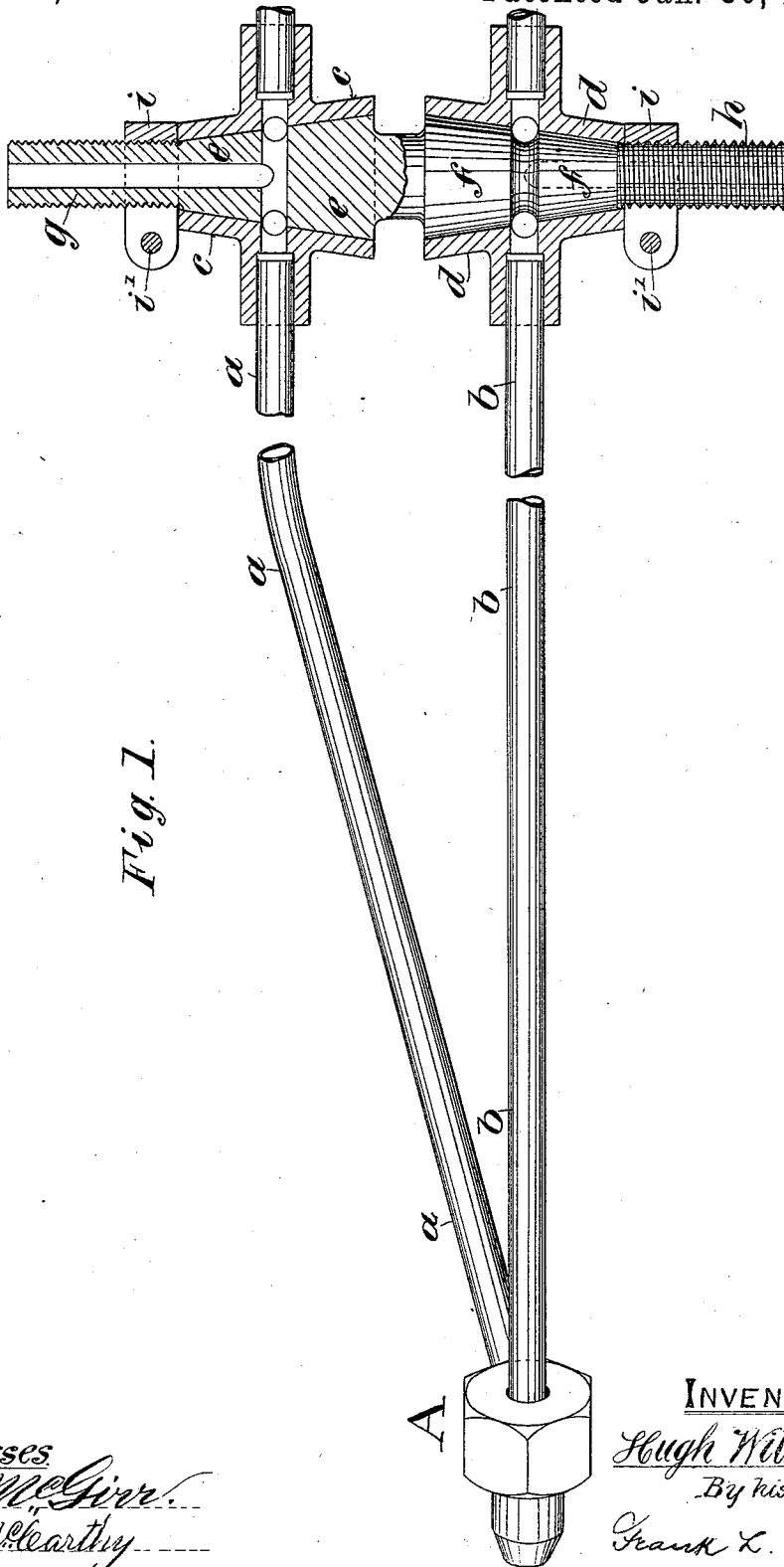
(No Model.)

2 Sheets—Sheet 1.

H. WILKINSON.
VAPORIZER.

No. 513,663.

Patented Jan. 30, 1894.



Witnesses
J. B. McGivern
Wm. McCarthy

INVENTOR
Hugh Wilkinson
By his Atty.
Frank L. Lyster

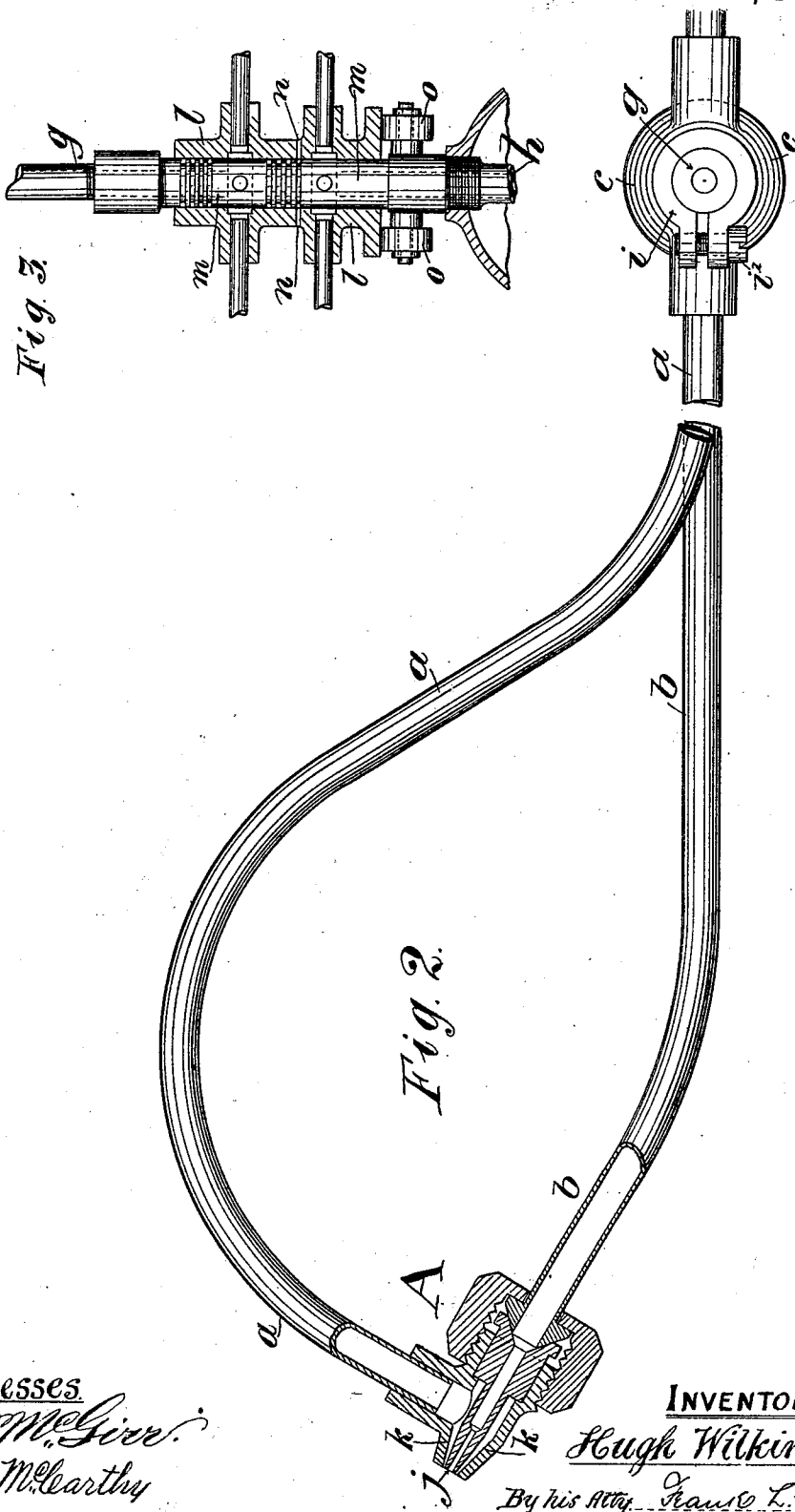
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INVENTOR
Hugh Wilkinson.
By his Atty. *Frank L. Ayer.*

UNITED STATES PATENT OFFICE.

HUGH WILKINSON, OF STOCKPORT, ENGLAND.

VAPORIZER.

SPECIFICATION forming part of Letters Patent No. 513,663, dated January 30, 1894.

Application filed May 24, 1893. Serial No. 475,371. (No model.)

To all whom it may concern:

Be it known that I, HUGH WILKINSON, engineer, a subject of the Queen of Great Britain and Ireland, residing at Dodge Hill House, Stockport, in the county of Lancaster, England, have invented certain new and useful Improvements in Humidifiers or Vaporizers; and I do hereby declare the following to be a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to humidifiers or vaporizers, principally used for imparting moisture to the atmosphere in spinning mills, weaving sheds, and the like, and to those types of humidifiers in which water is finely sprayed into a vapor, and blown into the room or shed by a blast of air under pressure.

In the accompanying drawings: Figure 1 is a side elevation, partly in section, of the invention, the nozzle and supporting pipes at one side being removed; Fig. 2, a plan view of the same, the nozzle and a portion of each supporting pipe being shown in section, and Fig. 3, a side elevation, partly in section, of a modification, only a portion of the supporting arms being shown and the nozzles being removed.

In all of the above views, corresponding parts are designated by the same letters of reference.

Figs. 1 and 2 represent a two armed humidifier, but one of the arms does not appear in complete form for want of space in the drawings. Each arm consists of two pipes one, *a*, for air and the other *b* for water. The air pipes are secured to a conical shell, *c*, and the water pipes to a conical shell, *d*, and these shells are mounted to revolve upon conical seatings *e*, and *f*, which are formed upon a part which is adapted to be connected with the pipes, or conduits, through which air and water are to be supplied. Passages are bored in the said part, as indicated at *g*, and communicate with grooves turned upon the conical seatings, as clearly shown in Fig. 1. From these grooves the air and water have constant access to the pipes *a*, and *b*, respectively. The passage, *g*, would be supplied with compressed air, and the other passage in the lower end, *h*, would be connected by means of a pipe, or coupling, with a conduit, or pipe, which might

supply two or more of the humidifiers. It is not intended that the water shall be supplied under pressure, but that the conduit, or pipe, shall be constantly supplied with water, so that the water may be lifted by the exhaustive action of the air blasts. The water conduit may be supplied by a cistern, which will maintain the water level at a point a little lower than the pipes, *b*, so that the water will not flow out when the air blast is turned off. The more or less close fit of the shells upon the cones, can be regulated by turning the split nuts *i*, *i*, which when adjusted can be clamped and tightened by means of set screws *i'*. The outer ends of the pipes *a*, and *b*, are connected with a spraying nozzle, or vapor diffuser *A*, the outer end of each of the two arms being supplied with such a nozzle. In the form of nozzle selected, the water passes out through a central jet *j*, and the air blast issues through an annular jet *k*, so that the issuing water is surrounded by the issuing air. I have found this form of nozzle to answer the purpose very well; but I do not confine myself to any particular form of nozzle, and I may arrange for the air to be discharged at right angles across the mouth of the air nozzle, as in the cases of some descriptions of spraying apparatus. The combined nozzles discharge the fluids in a direction which is tangential to a circle, which might be described around the axis of the central cones, such circle being preferably smaller than the circle described by the revolving nozzle. This has the double effect of causing the humidifier to revolve, and of dispersing the generated spray, or vapor, over a wide area around the center of revolution. The angle of discharge would be made suitable to the pressure of the air, and the speed of revolution considered to be desirable. With a high air-pressure, the line of discharge may be tangential to a circle of smaller diameter than would be suitable, if a lower pressure were intended to be used. I do not confine myself to the conical formation of the central connection.

In the modification indicated by Fig. 3 the air and water pipes *g* and *h*, are connected with a hollow shell *l*, which is mounted to revolve upon a cylindrical piece *m*, having the necessary passages and connections for air and water and grooved to check the escape of

air. Apertures at *n* might be formed to permit of the outward escape of air passing downward. The use of this construction would probably entail a greater escape of air, in comparison with the conical formation, but the slight loss of power required to compress the air might not be considered to be important. The shell, *l*, might be provided with stuffed glands to lessen, or prevent, the escape of air. In some cases I provide the revolving arms with vanes to check the speed of revolution.

In Fig. 3, the revolving apparatus is represented as resting upon a pair of wheels *o o* to reduce the friction. There might be three, four or more arms or branches carrying nozzles in place of two.

I do not confine myself in respect of the application of my invention as it might be used in horticultural buildings or in the distribution of antiseptics or for other purposes not herein mentioned.

I claim as my invention—

1. In a spraying apparatus, the combination with spraying nozzles *A*, connected by pipes *a*, *b*, for air and water, or other liquid, of the shells *c*, and *d*, mounted to revolve upon a fixed plug *e*, *f*, formed with passages for air and water or other liquid, substantially as set forth.

2. In an apparatus for producing vapor by the indicated action of air issuing under pressure; the spraying nozzles, carried by the outer

ends of rotatable arms which serve to convey liquid and compressed air to the nozzles, the blast issuing tangentially so as to cause the nozzles to revolve around a common center, in combination with means for supplying compressed air, and liquid, to the said arms, substantially as set forth.

3. In a spraying apparatus, the combination of the conical plugs *e* and *f*, having passages therein; the shells *c*, and *d*, fitted on said plugs, and adapted to turn on the same; the air and water pipes *a*, and *b*, connected with said shells; and the spraying nozzle *A*, at the end of said pipes, substantially as set forth.

4. In a spraying apparatus, the combination of the conical plugs *e* and *f*, having passages therein; the shells *c* and *d*, fitted on said plugs, and adapted to turn on the same; the adjusting nuts *i'*, for adjusting said shells, on said plugs; the air and water pipes *a* and *b*, connected with said shells; and the spraying nozzle, *A*, at the end of said pipes, substantially as set forth.

This specification signed and witnessed the 3d day of May, 1893.

HUGH WILKINSON.

Witnesses:

W. H. WARSOP,

W. LOCKETT,

Clerks to Mr. W. H. Speed, Notary Public, Nottingham.