

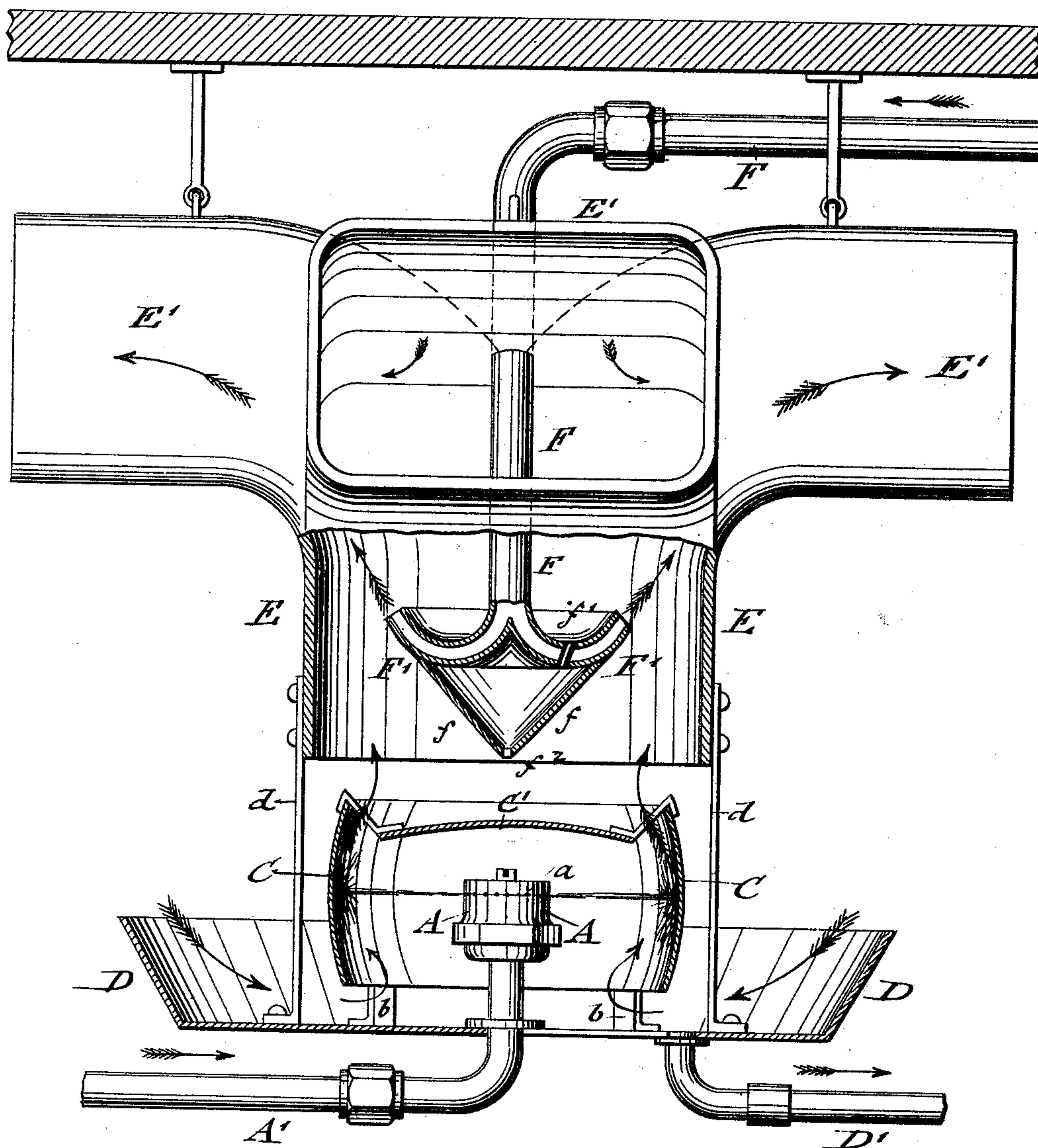
(No Model.)

E. KLABER.

APPARATUS FOR MOISTENING AIR.

No. 414,057.

Patented Oct. 29, 1889.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR MOISTENING AIR.

SPECIFICATION forming part of Letters Patent No. 414,057, dated October 29, 1889.

Application filed January 16, 1889. Serial No. 296,569. (No model.)

To all whom it may concern:

Be it known that I, EMILE KLABER, of Boston, in the county of Suffolk and State of Massachusetts, a subject of the Queen of Great Britain, have invented certain new and useful Improvements in Apparatus for Moistening Air, of which the following is a specification.

This invention relates to an improved apparatus for moistening the air which is to be supplied to the working-rooms of spinning-mills and other factories in which air having a certain degree of moisture is required for successfully performing the spinning and other operations; and the invention consists of an air-moistening apparatus which comprises a water-spraying apparatus, a drip-pan below said spraying apparatus, an annular air-supply nozzle the mouth of which is located above said spraying apparatus, an air-supply pipe connecting said nozzle with a suitable air-forcing apparatus, and an air-flue surrounding said air-nozzle and provided with discharge-nozzles for the moistened air, as will be fully described hereinafter, and finally pointed out in the claims.

The accompanying drawing represents a side elevation, partly in vertical central section, of my improved apparatus for moistening air.

In the drawing, A represents a spray-nozzle of any approved construction, which is provided with a number of fine radial jet-openings *a*. To the nozzle A is supplied water under pressure by a pipe A'. The spray-nozzle A is surrounded by a dispersion-vessel C, against which the fine jets of water ejected from the nozzle A impinge, so as to be broken into a fine spray or mist. Above the spraying apparatus A is arranged a hood C', and below the spraying apparatus and dispersion-vessel C a drip-pan D, which is provided with a waste-pipe D' for conducting off the water collected therein. The dispersion-vessel C is supported on the body of the drip-pan by suitable feet *b*, and the drip-pan suspended with the spray apparatus by straps or hangers *d d* from an air-flue E, which is provided with a number of bent discharge-nozzles E', through which the moistened air is discharged into the room to be ventilated. The air-flue E is suspended by hangers from

the ceiling of the room to be ventilated. An air-supply pipe F, connected with a blower or other suitable air-forcing apparatus, passes centrally through the air-flue E in a downward direction, and is provided at the lower end with an annular concavo-convex air-nozzle F', the mouth of which is located above the spraying apparatus, so as to deliver the air at a considerable velocity in an upward direction into the air-flue F. This primary air-current, supplied by the discharge-nozzle F' of the air-supply pipe F, induces a secondary air-current of less velocity, which is drawn in at the bottom of the dispersion-vessel, between it and the drip-pan, and then in an upward direction through the spray or mist of water formed by the dispersion of the water-jets delivered from the nozzle, as shown by the arrows in the drawing. The secondary air-current carries along the finer particles of the spray or mist of water, while the coarser particles of water are dropped by gravity and collected in the drip-pan. The secondary air-current is lifted with the fine spray, carried along by the same, and mingled with the primary air-current, which is thereby sufficiently moistened, so as to supply the required degree of moisture to the rooms to be ventilated. At the under side of the annular air-nozzle F is formed a central upwardly-extending conical cavity, the axis of which is in line with the downwardly-extending air-supply pipe. To prevent the moisture settling in this conical cavity, an inverted cone *f* is attached to the bottom surface of the annular air-nozzle F, said cone preventing the moisture from being drawn up and collected in said conical cavity. The air is delivered from the mouth of the nozzle in an outwardly-inclined direction, and then emitted through the discharge-nozzles E' into the room to be ventilated. The quantity of moisture supplied to the air is dependent on the velocity of the primary air-current which controls the velocity of the induced secondary air-current, so as to carry along a greater or smaller quantity of moisture from the spraying apparatus to the primary air-current and the room to be ventilated. The concave top of the annular air-nozzle F' is provided at its lowest part with a small drip-pipe *f'*, which leads from said nozzle into the

inverted cone f , and through an opening f^2 at the apex of the same to the hood C' , and from the same to the drip-pan. In this manner the drip collected on the upper concave part of the air-nozzle is conducted off and deposited in the drip-pan.

I am aware that an apparatus for moistening air by breaking up jets of water into a fine spray or mist and drawing, by means of a primary air-current, a secondary air-current of less velocity through the spray or mist, so as to carry along the lighter particles of water and mingle them with the primary air-current, was used heretofore, and I make no claim to the same, broadly, but desire to confine myself to the specific construction of air-moistening apparatus shown, especially in connection with an annular air-nozzle for supplying the primary air-current, which latter, instead of being produced by mechanism within the moistening apparatus, is supplied from an air-forcing apparatus located at any suitable point, and from which a number of air-moistening devices are supplied, by which arrangement the expense of the individual apparatus is considerably reduced and the use of special mechanical means in each apparatus for generating the primary air-current dispensed with.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with a water-spraying apparatus, of an annular concavo-convex air-nozzle located above the spraying apparatus, an air-supply pipe connecting the center of the nozzle with a suitable air-forcing apparatus, and an inverted cone attached to the under side of the nozzle, substantially as set forth.

2. The combination, with a water-spraying apparatus, of an annular air-supply nozzle the mouth of which is located above the spraying apparatus, an air-supply pipe connecting said annular air-nozzle with a suitable air-forcing apparatus, and an air-flue encircling said nozzle and provided with discharge-nozzles, substantially as set forth.

3. The combination of a water-spraying apparatus formed of a spray-nozzle having radial jet-openings, a dispersion-vessel surrounding said nozzle, a drip-pan below said spray-nozzle, an annular air-supply nozzle the mouth of which is located above the water-spraying device, an air-supply tube connecting said nozzle with a suitable air-forcing apparatus, and an air-flue surrounding said air-supply nozzle and provided with discharge-nozzles, substantially as set forth.

4. The combination, with a water-spraying apparatus, of an annular concavo-convex air-nozzle located above the spraying apparatus, an air-supply pipe connecting the center of the nozzle with a suitable air-forcing apparatus, a drip-collecting cone attached to the under side of the nozzle and provided with a discharge-opening in its apex, and a drip-pipe passing through the lowest part of the nozzle, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

EMILE KLABER.

Witnesses:

PAUL GOEPEL,
LOUIS COHEN.