J. M. BARRY.

COOLING ATTACHMENT FOR FANS.

APPLICATION FILED SEPT. 21, 1911.

1,074,037.

Patented Sept. 23, 1913.

3 SHEETS—SHEET 1.

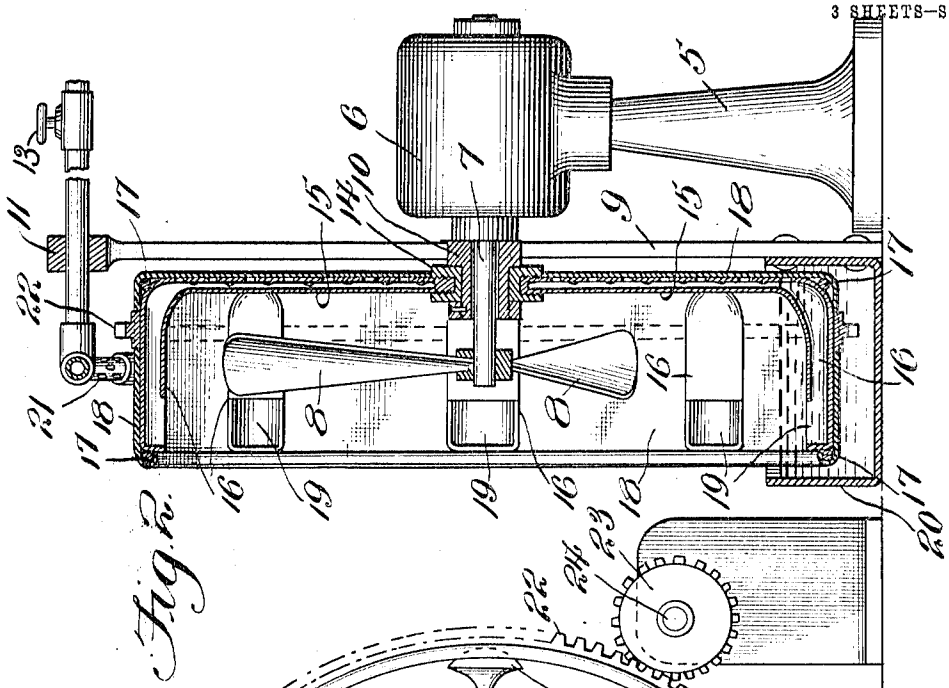


Fig. 2.

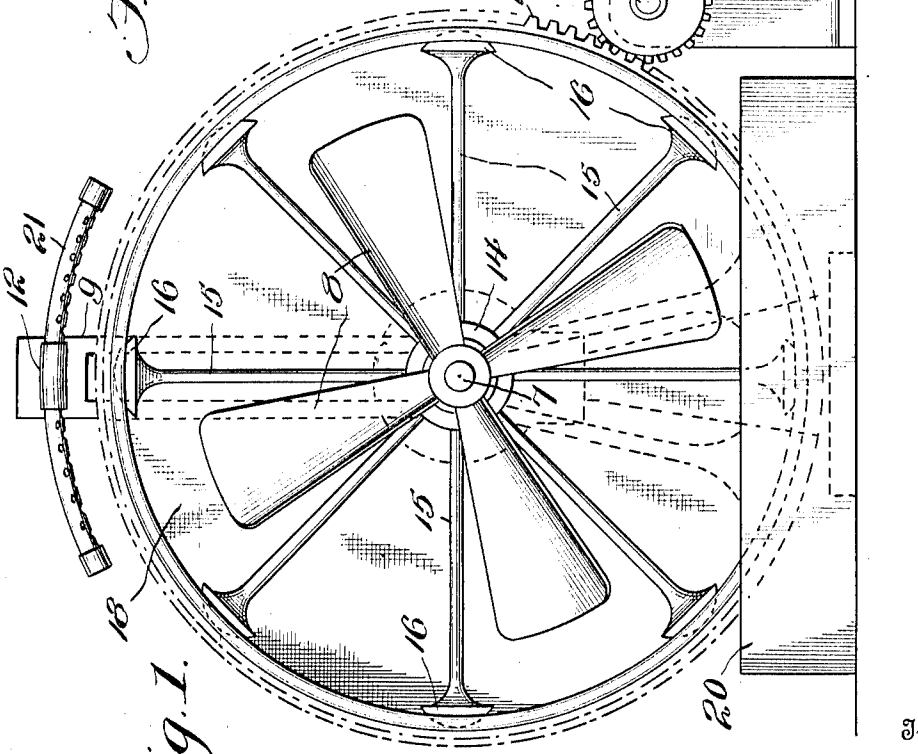


Fig. 1.

Witnesses

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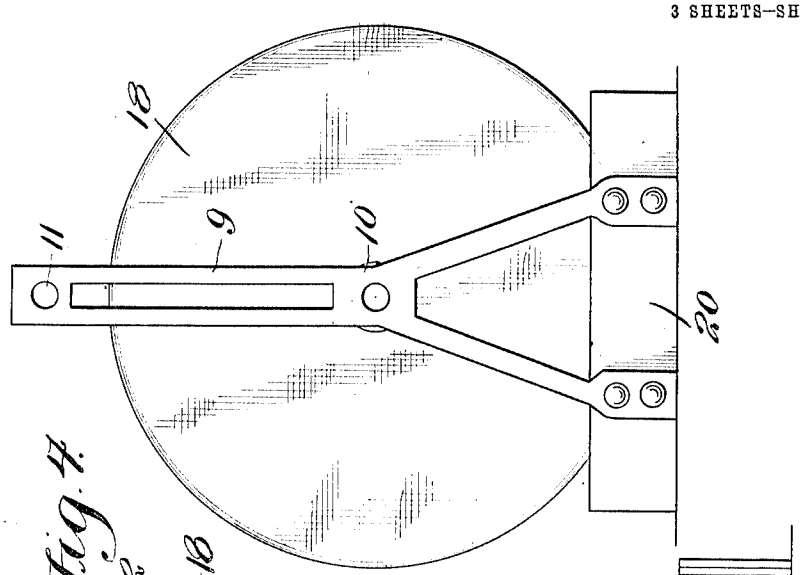


Fig. 4.

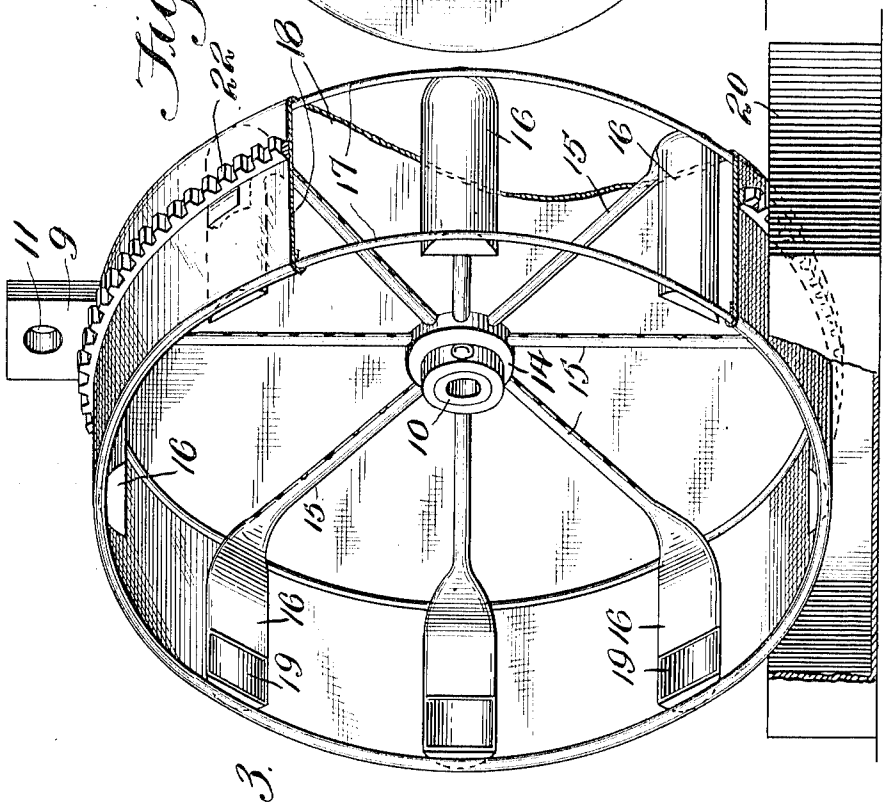


Fig. 3.

Witnesses

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3 SHEETS—SHEET 3.

Fig. 7.

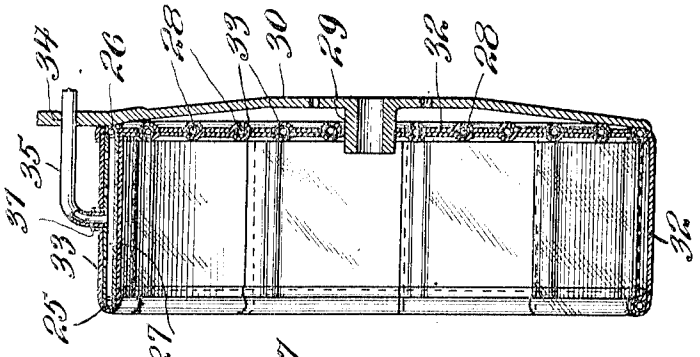


Fig. 6.

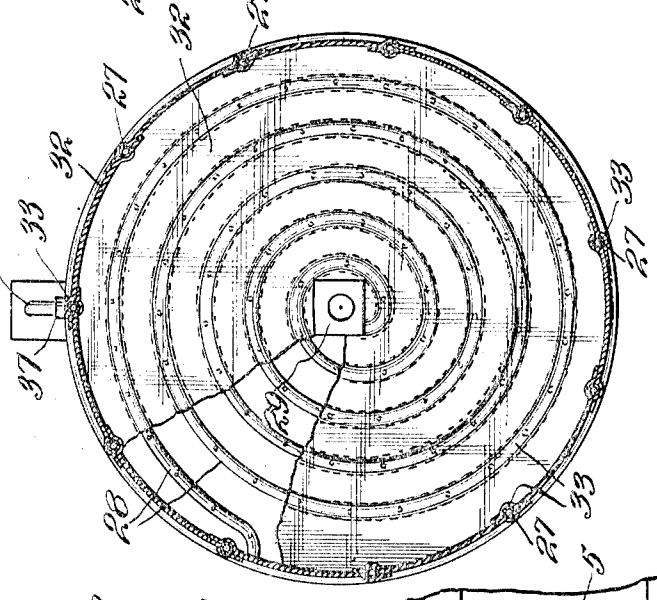
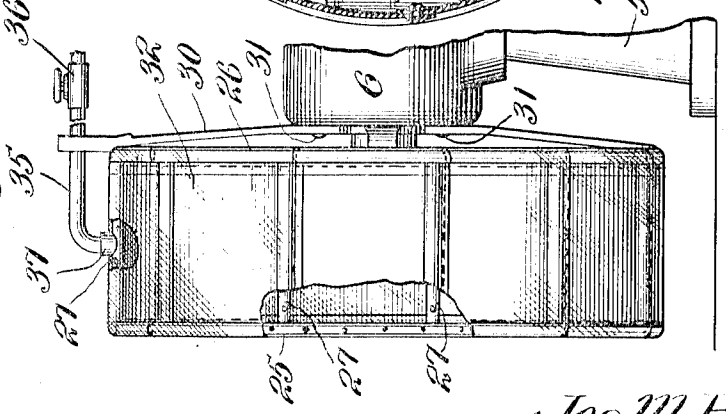


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

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COOLING ATTACHMENT FOR FANS.

1,074,037. Specification of Letters Patent. Patented Sept. 23, 1913.

Application filed September 21, 1911. Serial No. 650,581.

To all whom it may concern:

Be it known that I, JOE M. BARRY, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Cooling Attachments for Fans, of which the following is a specification.

The invention relates to a cooling device, and more particularly to the class of cooling attachments for rotary fans.

The primary object of the invention is the provision of an attachment of this character in which the air, acted upon by the fan, will be subjected to a cooling means, so as to reduce the temperature of the air, thereby assuring cool breezes during the working of the fan.

Another object of the invention is the provision of a cooling attachment of this character in which the rotary fan wheel will be confined within a housing, the walls of which are of foraminous material, preferably of an absorbent character, so that the same may be moistened, whereby the air sucked in from the rear of the fan will be subjected to the moistened walls, thereby assuring cool air currents when thrown forward by the fan wheel, and at the same time freeing the air, acted upon by the fan, from dust and other foreign matter, so as to assure purification of the air when subjected to the action of the fan.

A further object of the invention is the provision of a fan attachment of this character which is capable of being mounted upon varying styles of fans of the rotary type, and that is thoroughly reliable and efficient in its purpose, and inexpensive in manufacture.

With these and other objects in view, the invention consists in the construction, combination and arrangement of parts, as will be hereinafter more fully described, illustrated in the accompanying drawings, and pointed out in the claims hereunto appended.

In the drawings: Figure 1 is a front elevation of a fan showing the attachment applied thereto constructed in accordance with the invention. Fig. 2 is a vertical longitudinal sectional view of the attachment, showing the fan in side elevation. Fig. 3 is a perspective view of the attachment, the same being partly in section. Fig. 4 is a rear elevation thereof. Fig. 5 is a fragmentary side elevation of a fan showing a slight modification of cooling attachment applied thereto, the same being partly broken away. Fig. 6 is a vertical sectional view through the attachment, the fan being removed. Fig. 7 is a vertical transverse sectional view through the attachment.

Similar reference characters indicate corresponding parts throughout the several views of the drawings.

Referring to the drawings by numerals, the fan comprises a standard 5 which is of any ordinary well-known construction, 6 the shaft casing, 7 the shaft, and 8 the blades of the fan, the fan being operated either electrically or otherwise in any ordinary well-known manner, and is merely shown for the sake of illustrating the manner of the application of the cooling attachment, forming the subject matter of the present invention, and as will be hereinafter more fully described.

The cooling attachment comprises an upright 9, provided with a sleeve extension 10, medially of its length, the said sleeve being loosely fitted about the shaft 7 of the fan, while at the upper end of the upright 9 is formed an eye 11, through which is passed a water supply pipe 12, the latter being fitted in the eye in any suitable manner, and is provided with a cut-off valve 13, the water supply pipe 12 being connected to a water main or other supply medium (not shown) in the ordinary well-known manner.

Rotatably mounted upon the sleeve 10 is a hub 14, into which are fitted the inner ends of radially extending hollow perforated arms 15, the outer ends of which are formed with outturned right-angular hollow cups 16, to which are fixed a pair of spaced annular rings 17 forming a frame supporting a foraminous covering 18, preferably of absorbent material, the covering 18 being disposed upon the frame, so as to close the periphery and the inner or rear side thereof, while the forward or outer side remains open, so as not to impede the air currents driven forwardly by the blades 8 of the fan. The covering 18 is secured to the hollow arms 15 in any suitable manner. The cups 16, at the outer ends of the arms 15, are provided with inlet openings 19 at their inner sides, so that water may enter and fill the cups 16 on the rotation of the frame, whence the said water will be conveyed through the hollow arms 15 to the

covering 18 for moistening the same, the said cups being adapted to receive a water supply in a manner presently described.

Fixed to the lower end of the upright 9 is a water tank or receptacle 20, the lower portion of the frame being partially submerged in the body of water contained within the tank or receptacle 20, so that on the rotation of the frame, the cups 16 submerged in the body of water will become filled, and their contents delivered to the covering 18 for the moistening thereof, so that the air sucked in at the rear of the fan will be drawn through the covering 18 while moist, thereby cooling the air when forced forwardly from the fan, thereby assuring a reduction in the temperature of the air, and at the same time removing dust and all other foreign matter therefrom, so that the air will be purified when being circulated by the fan.

Fixed to the free end of the water supply pipe 12, above the frame of the cooling attachment, is an arcuate-shaped perforated spraying key or head 21, so that water emitted therefrom will be sprayed onto the covering 18 at the periphery of the frame for the moistening of the said covering. It is, of course, understood that the water tank or receptacle 20 may be entirely dispensed with, if desired, but should this be the case, the spray of water from the water supply pipe 12 will have to be directed both at the periphery and at the rear of the frame for the moistening of the covering 18 thereon.

Disposed circumferentially of the frame of the cooling attachment and fixed to the outer sides of the water cups 16 is a toothed gear 22, meshing with a pinion 23 fixed to a shaft 24, the same being operated through the medium of a motor, or directly from the shaft 7 of the fan, although the said shaft 24 may be operated in any desirable manner, so that the frame of the cooling attachment will continuously rotate at a slower speed than the speed of rotation of the fan, during the working thereof.

It is evident that the covering 18 on the rotary frame of the cooling attachment will be continuously sustained moist during the working of the fan, so that the air will be subjected to a cooling medium, thereby maintaining the air at a cool temperature, and at the same time rendering it free from dust and foreign matter, thereby assuring purification of the air while the fan is in operation.

In Figs. 5, 6 and 7, there is shown a slight modification of the invention, wherein the cooling attachment comprises a frame, including spaced front and rear annular perforated tubes 25 and 26, respectively, the same united by means of spaced perforated cross tubes 27 which are brazed or otherwise secured thereto for establishing communication with each other, so that water may freely circulate through the tubes. Disposed within the inner tube 26, at the rear end of the frame, is a convoluted or spirally arranged hollow perforated tube 28, the outer end of which is brazed or otherwise secured to the inner tube 26 at a suitable point thereof for direct communication therewith, while the inner end of the tube 28 is connected to and closed by means of a bearing or sleeve extension 29 formed on the brace bar 30, the same being fixed to the inner annular tube 26 in any suitable manner. The sleeve or bearing 29 is adapted to surround the shaft 7 of the fan 5, while the brace bar 30 is fastened, as at 31, to the body 6 of the fan, thereby securely mounting the cooling attachment upon said fan, so that the attachment will surround the fan wheel, in a manner similar to the attachment shown in Figs. 1, and 2 of the drawings. Covering the cross tubes 27 and the periphery of the frame, and also the inner or rear side thereof is a foraminous covering 32, preferably of absorbent material, the said covering 32 being provided with casings 33 receiving the tubes 25, 26, 27 and 28, as shown. The water circulating through the tubes 25, 26, 27 and 28 will percolate onto the covering 32, saturating the same to render it moistened, so that the air sucked in from the rear of the fan will be subjected to the moistened covering 32, whereby such air will become cooled prior to its being blasted forwardly from the fan.

The brace bar 30 is extended upwardly a distance beyond the uppermost point of the frame to form a bearing eye 34, through which is trained the water supply pipe 35 provided with the usual cut-off valve 36, said pipe being connected through the medium of a union 37 with one of the cross tubes 27 for communication therewith, so that water conveyed through the pipe 35 will be distributed through the tubes 25, 26, 27, and 28, whence the said water will be percolated onto the covering 32 for the moistening thereof, and in this manner the air acted upon by the fan will become cooled prior to the circulation thereof by the said fan, thus reducing the temperature of the air.

What is claimed is:

1. The combination with a portable fan having a rotary bladed wheel, of a cooling attachment, comprising a frame formed of a plurality of perforated tubes at the periphery and rear of the wheel and supported by the axis of said wheel and receiving the same whereby the said wheel will be located wholly within the frame, a surface closing the frame at the periphery and at the rear thereof and adapted to receive moisture, and means for moistening the said surface.

2. A cooling attachment for portable fans,

comprising a tubular frame adapted to be supported by the bladed wheel shaft of a fan for entirely inclosing the said bladed wheel at the periphery and at the rear thereof, a covering on the frame about the periphery and rear thereof and adapted to receive moisture, and means for supplying moisture to the said covering.

3. A cooling device for rotatable fans, comprising a standard, a hub intermediate the ends of said standard for loosely engaging the shaft of a fan, a foraminous frame carried by said hub, and means carried by the standard for the moistening of said frame.

4. A cooling device for rotary fans, comprising a standard, a frame supported thereby, hollow perforated arms mounted in said frame and having cups at the free ends thereof in communication with the same, means for supplying water to said cups, and a foraminous covering partially encircling said frame and adapted to be moistened by the water from said arms.

5. The combination with a fan having a rotary bladed wheel, of a frame surrounding the bladed wheel, hollow perforated arms mounted in the frame and having water cups at their free ends, a water tank adapted to supply water to the water cups, a foraminous absorbent covering closing the inner side and the periphery of the frame and adapted to be moistened by the water from the said hollow perforated arms in the frame, and means for rotating the said frame.

6. The combination with a fan having a rotary bladed wheel, of a frame surrounding the bladed wheel, hollow perforated arms mounted in the frame and having water cups at their free ends, a water tank adapted to supply water to the water cups, a foraminous absorbent covering closing the inner side and the periphery of the frame and adapted to be moistened by the water from the said hollow perforated arms in the frame, means for rotating the said frame and means for supplying the water to the periphery of the frame.

7. A cooling device for rotary fans, comprising a standard, a frame rotatably supported thereby, hollow perforated arms mounted in said frame, a foraminous absorbent covering closing the inner side and periphery of said frame, means carried by said standard for supplying water to said arms for moistening the inner side and periphery of said covering, and means for rotating the said frame.

8. The combination with a fan having a wheel, of a cooling device, comprising a hollow tubular frame inclosing the periphery and inner side of the wheel, a covering at the periphery and inner side of the frame and adapted to receive moisture, the said frame being provided with a plurality of perforations for admitting moisture to the covering, means for supplying water to the frame, whereby the said water will be discharged through the perforations onto the covering, and means for supporting the frame on the fan.

9. The combination with a portable fan, of a hollow perforated frame adapted to entirely close the wheel of the fan both at the periphery and rear thereof and having a center support engaging the axis of such wheel, whereby the frame will be supported upon the fan, a foraminous absorbent covering about the periphery and rear of the frame, and means for supplying fluid to the hollow frame, whereby said fluid will discharge through the perforations therein onto the covering.

10. A cooling device for rotary fans comprising a frame formed from hollow tubing and adapted to be supported by said fan and extended about the rear and periphery of its wheel to wholly inclose the latter, and a foraminous covering on the periphery and rear of the frame, said frame being perforated to emit fluid on to the covering.

11. The combination with a fan having a rotary bladed wheel, of a foraminous element having water cups, a water tank mounted below the said foraminous element, absorbent substance arranged on said element and adapted to be moistened by the water from said water cups, and means for rotating the said foraminous element.

12. The combination with a fan having a rotary bladed wheel, of a water distributing element located contiguous to the bladed wheel and having water collecting means, a water tank arranged below said element, and an absorbent covering upon the element and adapted to be moistened by the water from the said collecting means.

In testimony whereof I affix my signature in presence of two witnesses.

JOE M. BARRY.

Witnesses:
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BENNETT S. JONES.