Dec. 28, 1943. F. WOLF 2,337,954

AIR COOLING WAVE DEVICE

Filed April 26, 1943

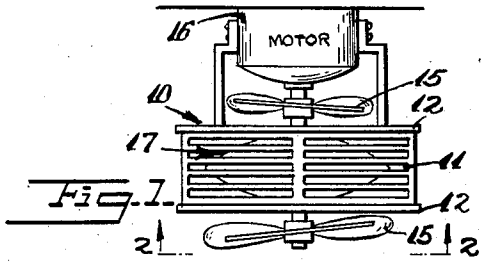


Fig. 1.

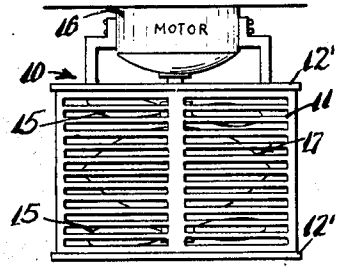


Fig. 6.

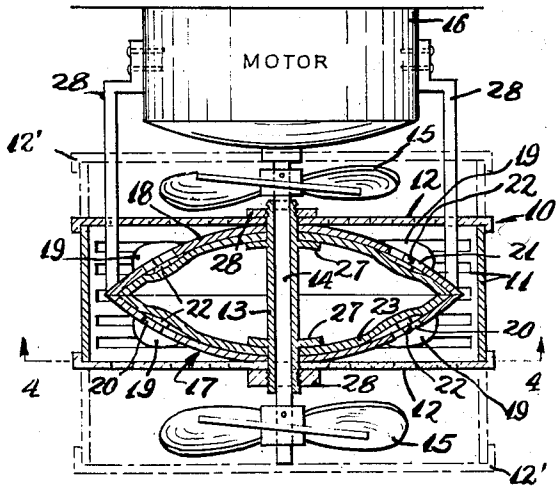


Fig. 3.

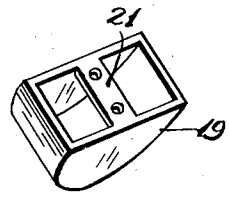


Fig. 5.

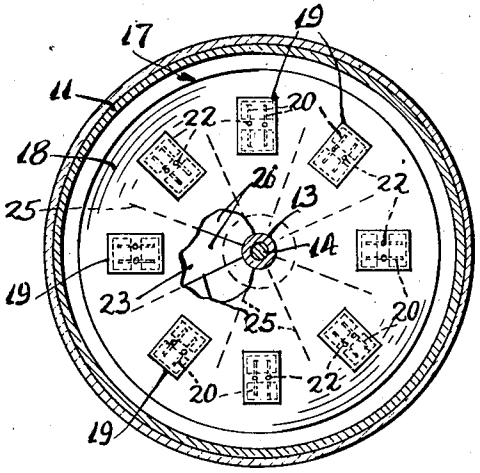


Fig. 4.

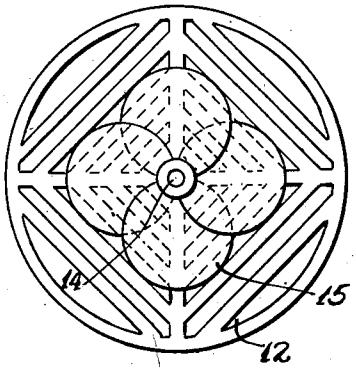


Fig. 2.

INVENTOR.
Frank Wolf
BY Zoltan Polachek
ATTORNEY

Patented Dec. 28, 1943

2,337,954

UNITED STATES PATENT OFFICE

2,337,954

AIR COOLING WAVE DEVICE

Frank Wolf, Middle Village, Long Island, N. Y.

Application April 26, 1943, Serial No. 484,641

7 Claims. (Cl. 230—274)

This invention relates to new and useful improvements in an air cooling wave device.

More specifically, the invention proposes the construction of a device as mentioned which is characterized by a casing having a slotted side wall and slotted end walls. It is proposed that driven propellers blow air into the casing through the end walls. A certain new construction is proposed within the casing for deflecting the air out through the slotted side wall.

It is proposed that the new construction within the case be so designed that the emerging air comes out in predetermined waves.

More specifically, the invention contemplates an air cooling device as mentioned which may be conveniently suspended from a ceiling, or mounted on a wall or other support, and which will blow the air laterally instead of directly forwards.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawing, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawing forming a material part of this disclosure:

Fig. 1 is a side elevational view of an air cooling wave device constructed in accordance with this invention.

Fig. 2 is an enlarged bottom view looking in the direction of the line 2—2 of Fig. 1.

Fig. 3 is a vertical sectional view of the wave device.

Fig. 4 is a horizontal sectional view taken on the line 4—4 of Fig. 3.

Fig. 5 is a perspective view of one of the small deflectors used in the device.

Fig. 6 is a similar view to Fig. 1, but illustrating another form of the invention.

The new air cooling device, according to this invention, includes a casing 10 having a slotted side wall 11 and slotted and slightly flexible end walls 12. A tube 13 extends centrally through the said end walls 12. A shaft 14 is rotatively mounted through the tube 13. Propellers 15 are removably mounted on the shaft 14 outside of said end walls 12 and are for the purpose of blowing air towards each other and through the slots of the end walls 12 into the casing 10.

An electric motor 16 is connected with the shaft 14 for driving the propellers 15. A deflector 17 is fixedly mounted within the casing 10 and has curved faces 18 facing the end walls 12 deflecting the air which is blown into the casing 10 laterally out through a central zone of the side wall 11 of the casing 10. A plurality of small spaced deflectors 19 are mounted on the curved face 18 of the said deflector 17 and are for the purpose of guiding some of the air through end zones of the said side wall 11.

Preferably, the casing 10 is constructed of sheet metal. The end walls 12 are in the nature of covers which are removably mounted on the side wall 11. The deflector 17 is hollow and preferably made from sheet metal. It is formed with radial slots 20 at points beneath the small deflectors 19. Each small deflector 19 is also constructed of sheet metal and has a bar portion 21 across its back face. A pair of headed studs 22 is mounted on each bar portion 21 and slidably engage through the slots 20. An inner member 23 of substantially the same shape as the deflector 19 is mounted on the deflector 17 and frictionally engages the heads of the studs 22 for holding them in fixed positions.

This inner member 23 is formed with a plurality of radial slots 25 dividing off apex-like sections 26 which have a certain resiliency because they are thus free. These apex-like sections 26 are normally clamped down tight. The tube 13 is provided with flanges 27 engaging the points of the apex sections 26. Nuts 28 are threadedly engaged on the ends of the tube 13 and when turned tight, flex the walls 12 and similarly flex the adjacent portion of the deflector 17 and so grip and engage the apex-like portions 26. The deflector 17 is supported by brackets 28 extended through one of the walls 12 and attached upon the motor 16.

The operation of the device is as follows:

The motor 16 drives the propellers 15 which blow air through the slots of the end walls 12 into the casing 10. This air strikes the curved faces 18 of the deflector 17 and travels along the curved faces to the periphery of the deflector 17. From the periphery the air passes out through the central zone of the side wall 11. Some of the air which travels along the faces 18 of the deflector 17 is further deflected by the small deflectors 19. This air is deflected so as to pass through end zones of the side wall 11.

The area of discharge of the air through the side wall 11 may be controlled by shifting the positions of the smaller deflectors 19. To do this, the nuts 28, the propellers 15, the end covers 12 are removed from the side wall 11, exposing the small deflectors 19. The deflectors 19 may be shifted now along the slots 20 because when the nuts 28 are removed the apex portions 26 of the inner member 23 became free. When the parts are reassembled and the nuts 28 are tightened, the apex portions 26 will be clamped down again, and the member 23 will frictionally engage the heads of the studs 22, holding the small deflectors 19 in adjusted positions.

The propellers 15 may also be within the end walls 12' as shown in Fig. 6 and with dot and dash lines in Fig. 3, so that the air current may be sucked in by the propellers through the openings of the end walls 12' and forced against the

deflectors 17 and against the small deflectors 19, without any intermediate obstruction.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

1. An air cooling wave device, comprising a casing having a slotted side wall and slotted and slightly flexible end walls, a tube extending centrally through said end walls, a shaft rotatively mounted through said tube, propellers on said shaft outside of said end walls for blowing air through the slots of said end walls into said casing, means for driving said shaft, a deflector fixedly mounted in said casing and having curved faces for deflecting said blown air through the central zone of said side wall of said casing, means on said tube for clamping said end walls of said casing, and spaced small deflectors mounted on the curved faces of said deflector for deflecting some of the blown air through the end zones of said side wall of said casing.

2. An air cooling wave device, comprising a casing having a slotted side wall and slotted and slightly flexible end walls, a tube extending centrally through said end walls, a shaft rotatively mounted through said tube, propellers on said shaft outside of said end walls for blowing air through the slots of said end walls into said casing, means for driving said shaft, a deflector fixedly mounted in said casing and having curved faces for deflecting said blown air through the central zone of said side wall of said casing, means on said tube for clamping said end walls of said casing, and spaced small deflectors mounted on the curved faces of said deflector for deflecting some of the blown air through the end zones of said side wall of said casing, said end walls being removed.

3. An air cooling wave device, comprising a casing having a slotted side wall and slotted and slightly flexible end walls, a tube extending centrally through said end walls, a shaft rotatively mounted through said tube, propellers on said shaft outside of said end walls for blowing air through the slots of said end walls into said casing, means for driving said shaft, a deflector fixedly mounted in said casing and having curved faces for deflecting said blown air through the central zone of said side wall of said casing, means on said tube for clamping said end walls of said casing, and spaced small deflectors mounted on the curved faces of said deflector for deflecting some of the blown air through the end zones of said side wall of said casing, said tube having perforations within said deflector, and nuts mounted upon the outer ends of said tube and engaging said end walls.

4. An air cooling wave device, comprising a casing having a slotted side wall and slotted and slightly flexible end walls, a tube extending centrally through said end walls, a shaft rotatively mounted through said tube, propellers on said shaft outside of said end walls for blowing air through the slots of said end walls into said casing, means for driving said shaft, a deflector fixedly mounted in said casing and having curved faces for deflecting said blown air through the central zone of said side wall of said casing, means on said tube for clamping said end walls of said casing, and spaced small deflectors mounted on the curved faces of said deflector for deflecting some of the blown air through the end zones of said side wall of said casing, said means for driving said shaft comprising a motor connected with the shaft.

5. An air cooling wave device, comprising a casing having a slotted side wall and slotted and slightly flexible end walls, a tube extending centrally through said end walls, a shaft rotatively mounted through said tube, propellers on said shaft outside of said end walls for blowing air through the slots of said end walls into said casing, means for driving said shaft, a deflector fixedly mounted in said casing and having curved faces for deflecting said blown air through the central zone of said side wall of said casing, means on said tube for clamping said end walls of said casing, and spaced small deflectors mounted on the curved faces of said deflector for deflecting some of the blown air through the end zones of said side wall of said casing, said deflector being hollow and formed of sheet metal.

6. An air cooling wave device, comprising a casing having a slotted side wall and slotted and slightly flexible end walls, a tube extending centrally through said end walls, a shaft rotatively mounted through said tube, propellers on said shaft outside of said end walls for blowing air through the slots of said end walls into said casing, means for driving said shaft, a deflector fixedly mounted in said casing and having curved faces for deflecting said blown air through the central zone of said side wall of said casing, means on said tube for clamping said end walls of said casing, and spaced small deflectors mounted on the curved faces of said deflector for deflecting some of the blown air through the end zones of said side wall of said casing, said deflector being hollow and formed of sheet metal, said means on said tube for clamping said end walls and casing comprising flanges on said tube adjacent the inner faces of the side walls of said deflector, and nuts threadedly engaged on the ends of said tube and engaging said end walls.

7. An air cooling wave device, comprising a casing having a slotted side wall and slotted and slightly flexible end walls, a tube extending centrally through said end walls, a shaft rotatively mounted through said tube, propellers on said shaft outside of said end walls for blowing air through the slots of said end walls into said casing, means for driving said shaft, a deflector fixedly mounted in said casing and having curved faces for deflecting said blown air through the central zone of said side wall of said casing, means on said tube for clamping said end walls of said casing, and spaced small deflectors mounted on the curved faces of said deflector for deflecting some of the blown air through the end zones of said side wall of said casing, said deflector being hollow and formed of sheet metal, said means on said tube for clamping said end walls and casing comprising flanges on said tube adjacent the inner faces of the side walls of said deflector, and nuts threadedly engaged on the ends of said tube and engaging said end walls, each of said small deflectors being supported with studs engaging through radial slots in the side walls of said deflector, and a member within said deflector having flexible portions engaging the heads of said studs and being held in position with said flanges and nuts.

FRANK WOLF.