Oct. 10, 1950 S. WALLACE 2,525,159

PHOTOGRAPHIC PRINT DRIER

Filed Jan. 14, 1949 2 Sheets-Sheet 1

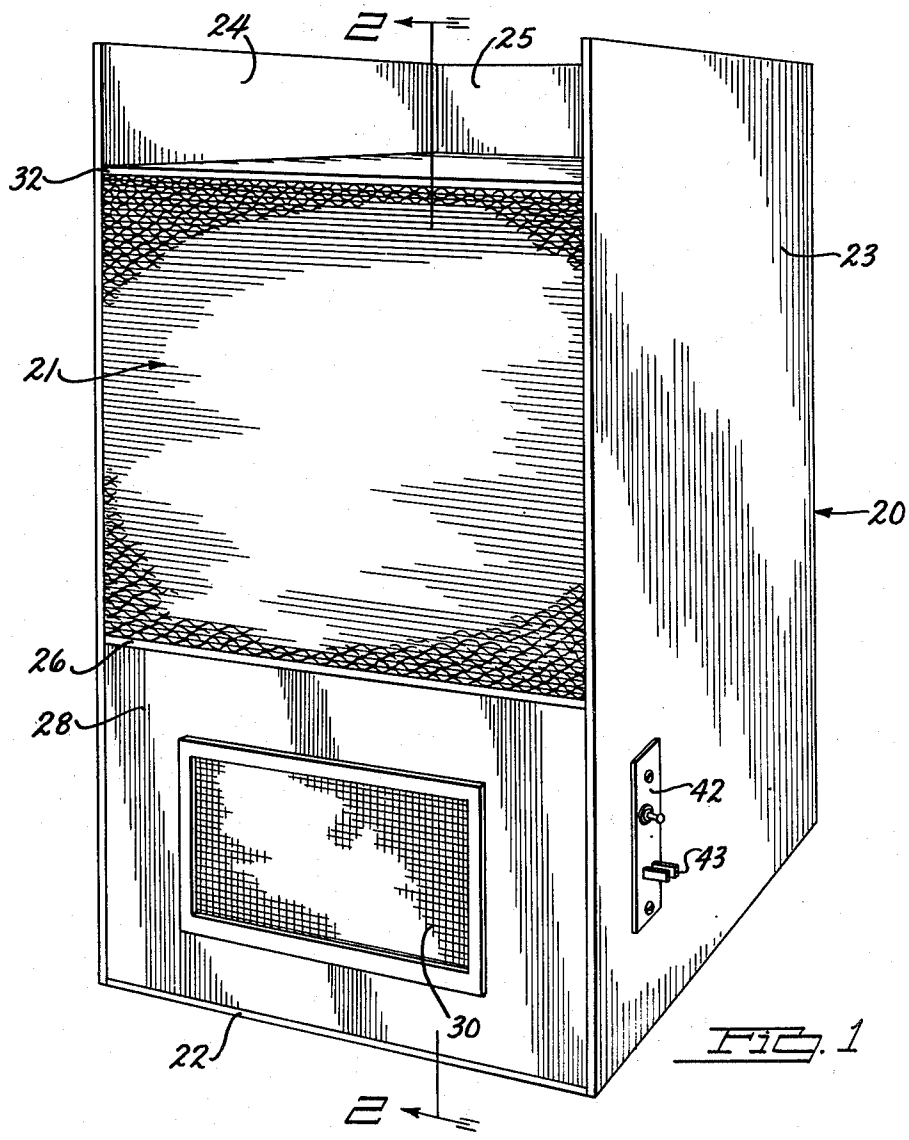


Fig. 1

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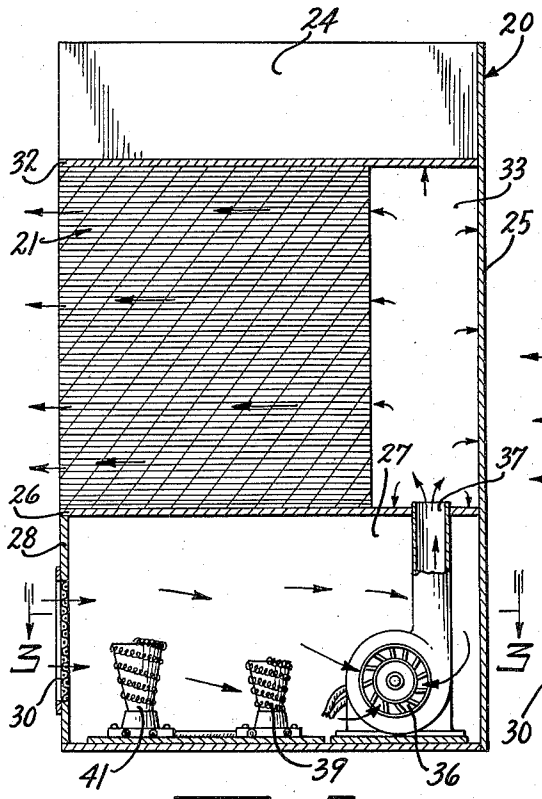


Fig. 2

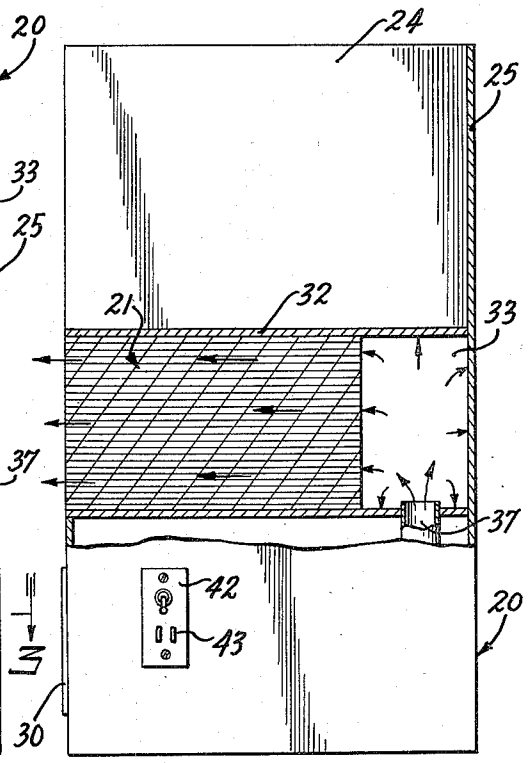


Fig. 4

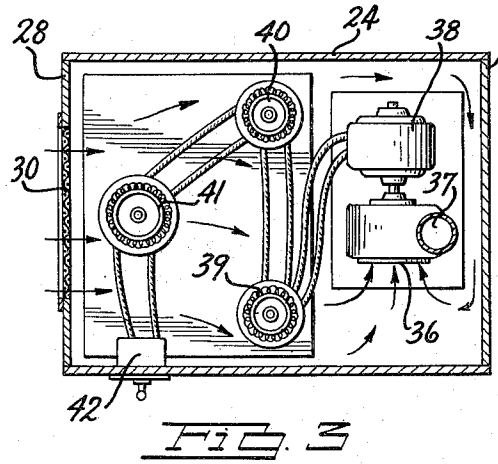


Fig. 3

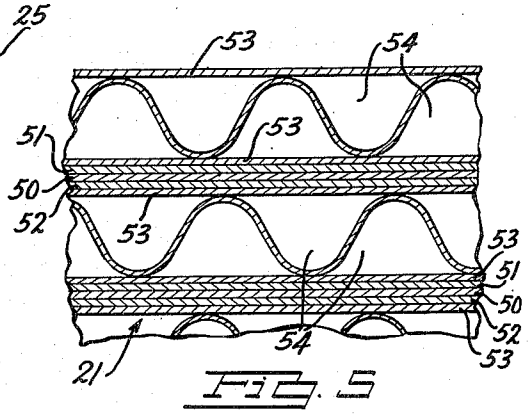


Fig. 5

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PHOTOGRAPHIC PRINT DRIER

Stanley Wallace, Detroit, Mich.

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6 Claims. (Cl. 34—94)

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This invention generally relates to driers and particularly pertains to a novel, useful, and inventive matt-drier for drying photographic prints.

The general objects of the invention are to provide a photographic print matt-drier which is of simple and inexpensive construction, easy to operate, and more efficient and uniform in operation and in results than matt-driers used by photographers in drying prints at the present time.

The principal object of the invention is to provide a matt-drier for photographic prints which provides uniform drying throughout the drying surfaces of the entire drying area of the device by furnishing equal air pressure for each and every air channel or vent effecting equal evaporation and drying over the entire area of the stack of matts and prints regardless of the size of the stack placed in the device or the location of any individual print or matt.

Another principal object of the invention is to provide an air-pressure distribution-chamber which is automatically established at a size proportional to the particular size of the stack of matts arbitrarily placed in the drier by the placing of the drier top within the device on the stack.

An object of the invention is to provide a top for the dryer receivable within the side walls and rear wall of the device in sealing relation thereto and supported by the stack of matts and prints to be dried in sealing relation thereto so that the matts are compressed by the top member over their entire area and an air-pressure distribution-chamber is formed at the enclosed end which is vented by air channels in the stack leading to the exposed end of the stack of matts.

An object of the invention is to provide a means for furnishing air supply under pressure to the distribution-chamber which air supply means is capable of producing a pressure and is capable of resisting a reverse flow from the enclosed distribution-chamber.

A further object of the invention is to provide an intake channel below the matt stack containing a blower and heaters leading to the distribution-chamber for heating the air and supplying same to the distribution-chamber above.

These and other objects and advantages will appear more clearly from the following specification, the appended claims, and the attached drawings.

In the drawings:

Fig. 1 is a perspective view of the device of

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the invention as seen from the open end thereof showing the front and right side of the device.

Fig. 2 is a vertical cross-sectional view of the device as seen in Fig. 1 taken on the line 2—2 thereof.

Fig. 3 is a horizontal cross-sectional view of the device as seen in Fig. 2 taken on the line 3—3 thereof.

Fig. 4 is a view similar to Fig. 2, partly in cross-section and partly in elevation showing the device loaded with a smaller stack of matts than in Fig. 2.

Fig. 5 is a fragmentary greatly enlarged view of a portion of the face of the stack of matts and prints showing in detail the various components of the matt stack.

Referring to the drawings, Fig. 1 illustrates the matt drier 20 of the invention, loaded to slightly less than capacity with a stack 21 of matts, prints and corrugated boards positioned therein.

It will be noted that the outside case of the matt drier 20 is made up of bottom member 22, right side member 23, left side member 24, and back member 25.

Spaced above the bottom member 22, is false bottom member 26 which has the dual function of supporting the stack 21 and creating chamber 27, Fig. 2, between the bottom member 22 and the false bottom member 26 and the lower portions of the side and back members 23, 24, and 25 while removable front closure member 28 provided with grid 30 allows the passage of air into the chamber 27.

Referring to Fig. 2, it will be noted that the stack 21 is substantially spaced from the back member 25, while automatically adjustable top member 32 rests on top of stack and sealably contacts side members 23 and 24, and the back member 25, forming an enclosed chamber 33 bounded by the top member 32, the false bottom 26, the side members 23 and 24, the back member 25, and the inside end of the stack 21.

Within the chamber 27, Figs. 2 and 3, are positioned blower 35 having intake 36 within the chamber 27, and exhaust 37 above the false bottom 26, discharging into the chamber 33.

Motor 38 drives the blower 35 and is connected in series with electrical heaters 39, 40, and 41, together with switch 42 equipped with plug connections 43 for facilitating connection to a power source.

Referring to Fig. 5, it will be noted that the stack 21 is made up of photographic prints 50 with blotter 51 positioned on one side thereof,

and linen sheet 52 positioned on the other side thereof with the print, blotter, linen sheet lamination being sandwiched between corrugated boards 53, having channels 54 therein for the transmission of air therethrough.

Fig. 4 illustrates a smaller stack 21 positioned within the device 20 with the top member 32 shown in a lower position automatically producing a chamber 33 of reduced size as illustrated in Fig. 2.

It can now be seen that any size stack 21 of prints 50, blotters 51, linen sheets 52, and corrugated boards 53, can be positioned within the drier 20, provided the stack 21 does not extend above the side members 23 and 24, and the back member 25, together with allowing sufficient space for the positioning of the top member 32 on the stack 21 so that the chamber 33 can be formed behind the stack 21.

The stack 21 can be reduced to the minimum of two (2) corrugated boards 53 with the lamination of prints 50, blotters 51, and linen sheets 52 therebetween. However, such a condition is rarely occasioned in that it is the general practice to dry as many prints at the same time as possible.

In operation, the user places the corrugated board 53 on the false bottom 26, positioning the corrugated board 53 so that it is even with forward edges of the side members 23 and 24 and spaced from the back member 25. He then places a linen sheet 52 on the board; then the wet prints 50 face down on the linen sheet; then a blotter 51 over the wet prints; then a second corrugated board 53 over the blotter 51. At this point the operator has created one tier or strata of the stack 21. He then places more linen sheets, prints, blotters, and boards in the drier 20 depending on the number of wet prints that it is necessary to dry in the same manner as hereinbefore stated which is the usual practice in the art.

After the operator has built up a stack 21, such as illustrated in Figs. 2 and 4, or to any other height, he then places the top member 32 on a stack with the edge portions of the top member 32 in sealing relationship with the side members 23 and 24 and the back member 25, thus forming the distribution chamber 33, which is vented to atmosphere via the channels 54 in the corrugated boards 53.

Having connected the device to a source of power by means of the plug connections 43, the operator places the switch 42 in the "on" position, thereby energizing the heaters 39, 40, and 41 and the motor 38 within the lower chamber 27. As the motor 38 drives the blower 35, air is drawn through the grid 30 of the front closure member 28, past the heater units 39, 40, and 41 which heat the air, thereby rendering it capable of absorbing more moisture than otherwise, after which it enters the blower intake 36 and is delivered via the blower exhaust 37 within the confined chamber 33 which is vented to atmosphere by the channels 54.

It can be thus seen that the air is drawn in through the lower chamber 27 beneath the stack 21 and delivered to the chamber 33, where, due to the fact that the air is under compression therein, it exerts force equal in all directions as it is a fluid under pressure. Thus, in chamber 33, equal force is placed on each vent channel 54 so that the flow of air from the chamber 33 is absolutely equal in all channels 54, thereby giving completely equal evaporation within the stack 21, regardless of location.

The blower 35, which is a centrifugal type, furnishes a large volume of air under pressure to the chamber 33 and it will be noted that due to the fact that the blower exhaust 37 disposes its stream of air into the chamber 33 at a 90° angle to the vents 54, no directional influence is occasioned by the flow of air into the chamber 33 on the vents 54, as air in the chamber 33 will remain static until there is a sufficient head of pressure to overcome the friction in the channels 54. The blower is capable of building up pressure in the chamber 33 due to the fact that it exercises centrifugal force on the fluid air and delivers it in an irreversible stream into the chamber 33 regardless of the size of the chamber 33 as regulated by the size of the stack 21.

Relative to the circulation of air to effect the drying of the photographic prints placed in the drier, the air enters into the chamber 27 through the grid 30 and enters the blower 35 via the blower intake 36 and is transmitted into the chamber 33 via the blower exhaust 37. The chamber 33 is vented to atmosphere via the channels 54 in the corrugated boards 53 and the air that is delivered to the chamber 33 travels through the stack 21 in the channels 54 absorbing the moisture from the wet prints and carrying the moisture out of the stack 21 and disposing of same in the surrounding atmosphere.

It will be noted that the positioning of the heating units and blower in the chamber beneath the stack 21 and chamber 33 with the intake 30 below the exhaust portions of the vents 54 allows the device to be positioned in a corner of a room with the back 25 against the wall; in other words, the air is taken in on the same side of the device from which it is exhausted and from which side the device is also loaded and unloaded.

The forming of the chamber 33 behind the stack 21 and the delivering of air into the chamber 33 at a 90° angle to the vents 54 in the stack 21 eliminates all directional influence of the incoming air on vents 54 so that no particular vent 54 or section of vents is influenced by the delivery of air into the chamber 33. When the air is delivered into the chamber 33, a uniform pressure is produced within the chamber which uniformally bleeds to atmosphere through the vents 54 and due to this factor equal evaporation is effected in all portions of the stack 21 including top, side, and corner portions which, heretofore, in devices common to the art, did not receive equal air delivery and, therefore, did not produce equal drying. The instant invention thus provides a drier for photographic prints which will dry uniformally in all portions of the stack which feature has not been accomplished in any prior device for drying photographic prints.

Various additions, deletions, changes, and modifications can be made in the device without departing from the spirit of the invention or the scope of the appended claims which define the invention.

I claim:

1. In a matt drier comprising a case, a partition dividing said case into two compartments, an open face on said case, a stack of matts, prints and corrugated boards positionable in one of the compartments in spaced relation to the back of said case, and a sealing member receivable within said case on said stack forming an air chamber behind said stack, channels in said stack leading from the chamber to said face and to atmosphere, an air pump in the second compartment, a duct leading from said pump to the air chamber in the first compartment behind said stack, and air heaters in the second compartment, said

pump being directed to draw air via said open face into the second compartment past said heaters, and to deliver air via said duct into the air chamber behind said stack wherefrom the air is conducted to atmosphere via said channels in said stacks with the air absorbing moisture from said stack as it passes through said channels.

2. In a device as set forth in claim 1, said duct delivering air into the air chamber behind said stack at an angle of 90 degrees to said channels in said stack to avoid aiding flow of air in same said channels by the directional influence of the air delivery to the air chamber.

3. In a device as set forth in claim 2, said duct delivering air into the air chamber behind said stack at an angle of more than 90 degrees.

4. In a matt drier comprising a case, a partition in said case defining compartments forming an intake air chamber and an outlet air chamber, said case having an open face providing the open side for the two compartments, a stack of matts, prints, and corrugated boards positionable in the compartment defining the air outlet chamber in spaced relationship to the back of said case, and a top receivable within said case and positionable on said stack sealing said stack in the air outlet chamber with the space between said stack and the back of said case defining an air distribution chamber, channels in said stack venting said air distribution chamber to atmosphere, a duct entering into the air distribution chamber at at least 90 degrees to said channels, a pump delivering air via said duct to said air distribution chamber from said air intake chamber, and heaters in said air intake chamber ahead of said pump for heating the air feeding into said pump.

5. In a matt drier, a compartment comprising a bottom wall, a back wall, and two side walls, an air inlet duct leading to the compartment supplying air thereto in a direction parallel to said back wall, means for supplying air to said duct under pressure; said compartment being adapted to receive a stack of matts, prints and channel-members positionable in the compartment in spaced relation to the back of the compartment; and a top receivable between said side walls and against said back wall in sealing relation therewith and adapted to be positioned on top of the stack within the compartment to form an air distribution chamber with the other members behind the stack.

6. A photographic print drier comprising a compartment for receiving the prints to be dried comprising a bottom wall, side walls, and a back wall and adapted to receive the stack of prints, matts and channel-members in spaced relation to said back wall, a top positionable on a stack within said compartment adapted to abut said side walls and said back walls in sealing relation therewith; said back wall and the portions of said side walls, bottom wall and top member projecting beyond said stack toward said rear wall forming an air distribution chamber behind said stack; an air duct leading into the chamber at an angle avoiding directional influence on the channel-members leading from the air distribution chamber to atmosphere, and means for supplying air to said duct under pressure whereby the chamber behind said stack accumulates the air delivered by said means and provides equalized pressure on each channel-member leading through the stack thereby avoiding directional influence of the air feeding through said duct on the channel-members.

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