Feb. 3, 1948. H. W. BEERNINK 2,435,420

DRIER FOR PHOTOGRAPHIC PRINTS

Filed May 22, 1945 2 Sheets-Sheet 1

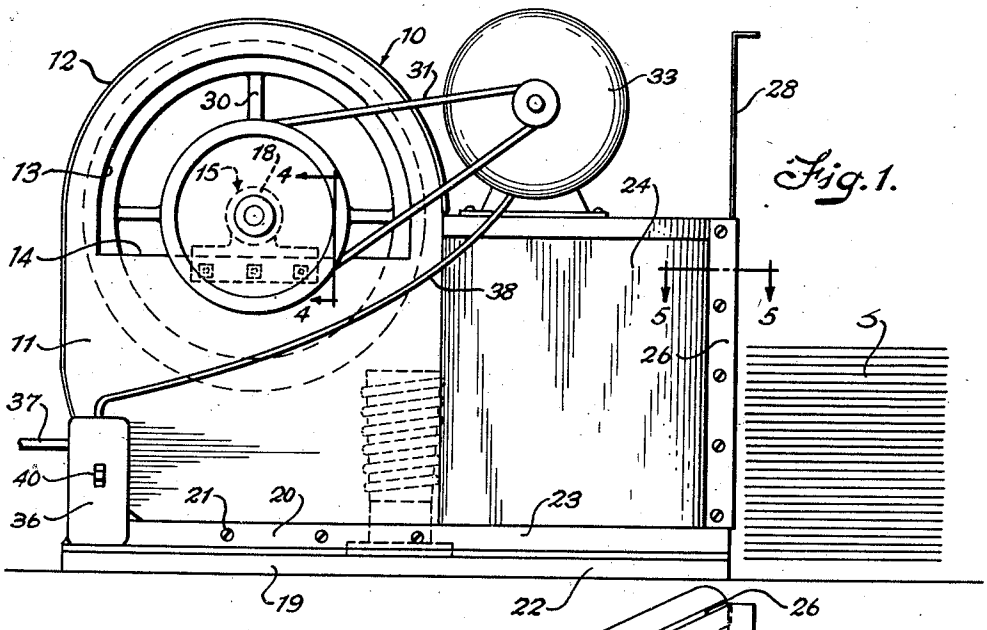


Fig. 1.

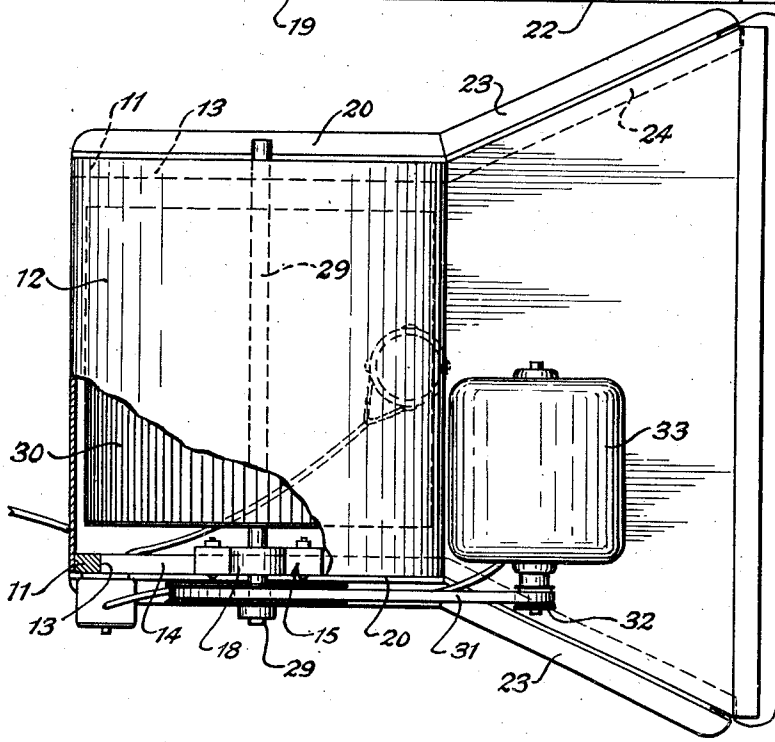


Fig. 2.

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Fig. 3.

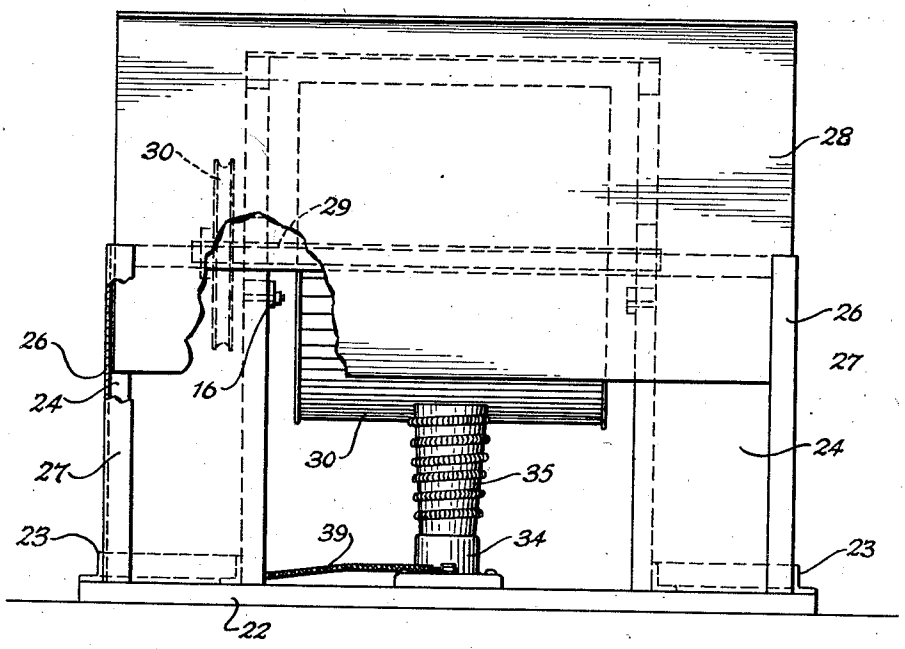


Fig. 4.

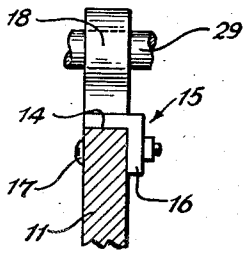
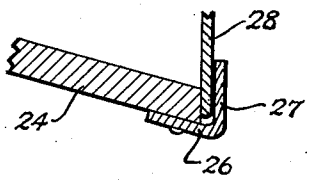


Fig. 5.



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UNITED STATES PATENT OFFICE

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DRIER FOR PHOTOGRAPHIC PRINTS

Harold W. Beernink, Holland, Mich.

Application May 22, 1945, Serial No. 595,177

1 Claim. (Cl. 34—243)

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This invention relates to drying photographic prints, and more particularly to an apparatus for extracting moisture from a plurality of prints arranged in a stack in a flattened position so as to overcome their tendency to curl.

A primary object of the invention is rapidly to extract moisture from the prints without causing discoloration as frequently occurs when heat is employed as the drying medium.

Another object is to assure that the air blast which is used for drying the print is heated simultaneously with its creation. The above and other objects may be accomplished by employing my invention which embodies among it features stacking the prints to be dried between alternate layers of blotting paper and corrugated board and directing a heated air blast against and through the stack so that as the air contacts the moisture absorbing board so that the moisture will be readily absorbed therefrom and the prints rapidly dried. Other features embody a motor driven fan adapted to create an air blast, a housing for directing the air blast against a stack containing photographic prints to be dried, a heating element in the passage by which the temperature of the air blast created by the fan may be elevated to a point where it will rapidly absorb moisture from the stack but below a temperature which is likely to cause discoloration of the prints contained in the stack.

Other features embody simultaneously establishing the flow of electrical current through the heating unit with the establishment of the flow of current through the motor and the consequent operation of the fan.

In the drawings:

Figure 1 is a side view in elevation of print drying apparatus embodying my invention.

Figure 2 is a top plan view of Figure 1.

Figure 3 is a front view in elevation of Figure 1.

Figure 4 is an enlarged fragmentary detailed sectional view taken on line 4—4 of Figure 1, and

Figure 5 is a fragmentary horizontal sectional view taken on line 5—5 of Figure 1.

Referring to the drawings in detail, my invention embodies a fan housing designated generally 10, which comprises a pair of end walls 11, the upper edges of which are of semi-circular form to support a sheet metal housing 12. Each end wall is formed near its upper end with a substantially semi-circular opening 13, the bottom wall 14 of which is disposed in a horizontal plane to form a support for a bearing bracket

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designated generally 15. Each such bearing bracket comprises an angle body 16, the horizontal leg of which lies on the upper face of the wall 14 while the vertical leg lies against the inner side of the wall 11 and is secured thereto by bolts 17. Projecting upwardly intermediate the ends of the body 16 is a bearing 18 for a purpose to be more fully hereinafter described. As illustrated, the bottom edges of the end walls 11 curve inwardly from their rear sides and join a bottom plate to be more fully hereinafter described.

The bottom plate above referred to comprises a rectangular body 19 having secured adjacent opposite ends angles 20 the vertical legs of which are attached by screws 21 to the end walls 11 above referred to. It will thus be seen that a fan housing is produced which is substantially rectangular in plan with the bottom 19 serving as the bottom wall of this housing. Extending forwardly from the front edge of the body 19 is a tapered projection 22 which like the main body portion 19 carries angles 23 the rear ends of which abut and form substantially continuations of the angles 20 previously mentioned. Secured to the vertical legs of the angles 23 are vertically extending side walls 24 forming a flared chamber which is closed by a cover 25 but is open at its forward end. Carried by the extreme forward end of the walls 24 are angle members 26 the front legs 27 of which are spaced from the extreme forward edges of the walls 24 to form guides in which a panel 28 is vertically slidable.

Rotatably mounted in the bearings 18 is a shaft 29 between the ends of which is mounted a fan 30 comprising a hollow drum-shaped body having radial fan blades so disposed about its periphery that air is drawn into the interior of the fan through the openings 13 in the end walls and discharged through the open front side of the lower portion of the housing defined by the end walls 11 and the metal cover 12. One end of the shaft 29 projects beyond its bearing and carries a pulley over which a drive belt 31 is trained. This drive belt also runs over a pulley 32 carried by one end of the drive shaft of an electric motor 33 which is secured as shown to the top or cover 25 of the forward flared chamber defined by the bottom 22, the side walls 24 and the top 25.

Secured to the bottom 19 near its junction with the bottom 22 is an electrical socket 34 carrying a heating unit 35. It is obvious that more than one heating unit may be employed by multiplying the number of sockets 34 so as

to provide adequate heat for the air blast which is being discharged upon rotation of the fan 30.

Mounted on the exterior of one of the end walls 11 is a switch box 36 which may be connected by cable 37 to a suitable source of power supply and leading from the switch box are cables 38 and 39 which are connected respectively to the power receiving contacts of the motor 33 and the socket or sockets 34. The details of the wiring are not deemed necessary as any common wiring system which will accomplish the functions may be used. It is important, however, that the wiring be such that when the switch lever 40 in switch box 36 is moved to "on" position, the motor and the electric heating unit 35 should be energized and likewise when the switch lever is moved to "off" position, all flow of current to either of the units shall be discontinued.

In operation the photographs to be dried are stacked between layers of blotting paper and corrugated board to form a stack S on a support in front of the discharge opening of the drying unit. In this position the stack will be in the path of the blast of air being delivered from the drying unit when the motor 33 is set into operation and due to the slight heating effect produced by the electrical heater 35 the temperature of the air will be raised to a point where it will readily absorb the moisture contained in the stack S. It is important that the temperature be held low enough to avoid injury to the photographic prints contained within the stack and to this end I have found if the temperature of the drying air is raised to a temperature of about 10° F. above normal room temperature not only is its drying qualities materially improved but a rapid drying of the photographic prints can be accomplished without danger of discoloration.

While in the foregoing there has been shown and described the preferred embodiment of this invention it is to be understood that minor changes in the details of construction, combination, and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

I claim:

Apparatus for drying a stack of sheets which includes a base, a pair of spaced parallel walls rising from the side edges of the base each terminating at its upper end in a semi-circular extension, at least one of the extensions having a substantially semi-circular air inlet opening, a hood attached to the back edges of the side walls and extending upwardly and around the semi-circular extensions to form a fan chamber, a shaft rotatably supported on the side walls and extending transversely therethrough substantially in alignment with the axis of the semi-circular extensions, a fan mounted on the shaft within the fan chamber, a pair of spaced divergent walls at the front edge of the side walls, a top wall joining the uppermost edges of the divergent walls to form a flared discharge nozzle through which an air blast created by the rotation of the fan within the fan chamber will be directed outwardly, a motor mounted on the top and having driving connection with the shaft, an electrical heating unit adjacent the junction of the fan chamber and the discharge nozzle, an electrical switch carried by the fan housing and adapted coincidentally to complete a power circuit through the motor and the heating unit and a panel mounted at the forward ends of the divergent walls to move vertically and regulate the size of the discharge end of the discharge nozzle.

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