July 4, 1939. R. M. LYNN 2,164,614

DRIER FOR PHOTOGRAPHIC PRINTS AND THE LIKE

Filed Oct. 11, 1937

Fig. 1.

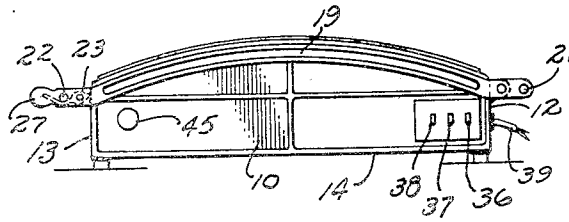


Fig. 2.

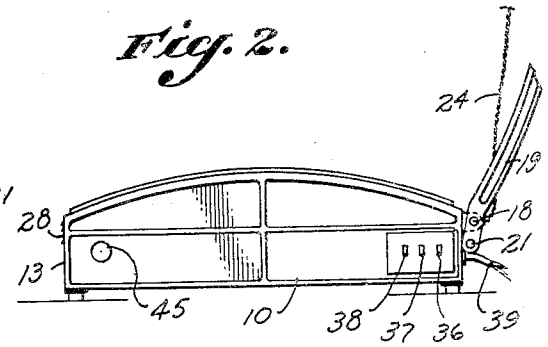


Fig. 3.

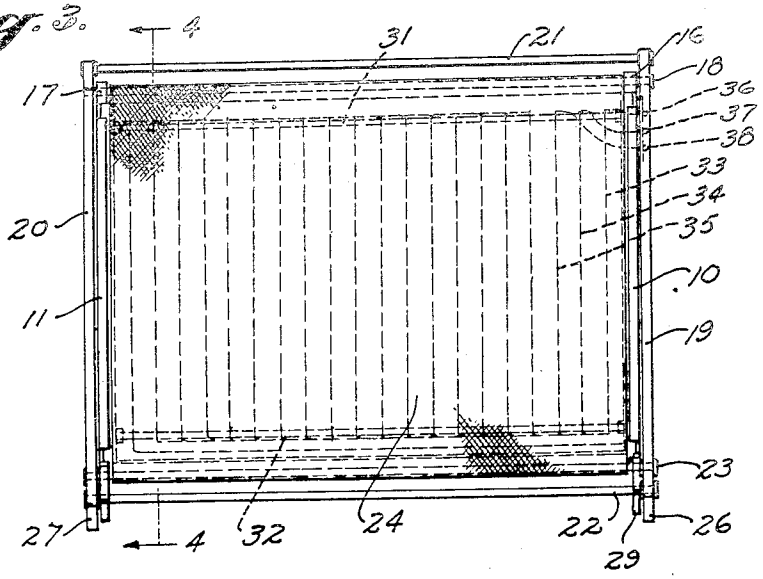
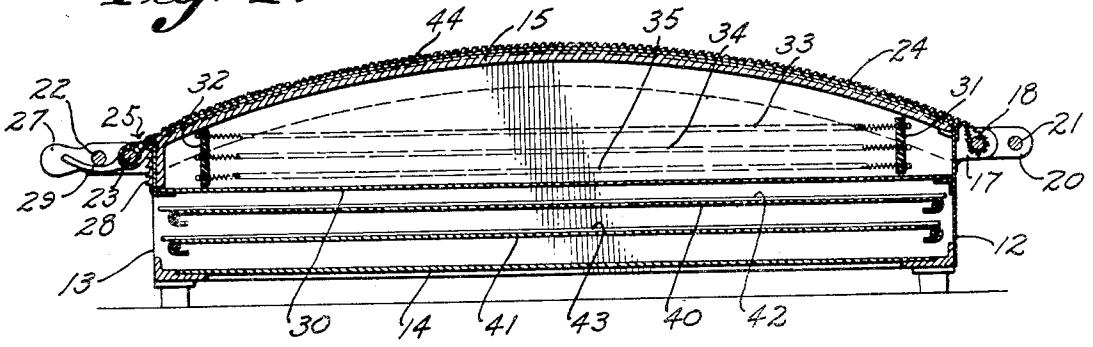


Fig. 4.



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DRIER FOR PHOTOGRAPHIC PRINTS AND THE LIKE

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Application October 11, 1937, Serial No. 168,314

3 Claims. (Cl. 34—16)

My invention relates to equipment for drying photographic prints and the like.

It is customary in drying glossy photographic prints to lay the prints face down on a smooth surface, generally a plate provided for this purpose and called a "squeegee tin" which consists of a rectangular sheet of metal which has been chromium plated or enameled on one side. The prints are simply spread out on the squeegee tin without anything to hold them down flat against its surface or to prevent them from blowing away. Dull prints are generally dried by placing them face up on the squeegee tin or other surface. As a result of these drying methods, the prints curl and dry non-uniformly, causing specks and spots to appear and requiring the prints to be straightened after drying. In straightening the prints they are often broken because of the brittleness of some overdried surface portion. Besides these difficulties, the ordinary process is slow and cumbersome.

It is an object of my invention to provide a drier for prints which is convenient and fast in operation, and which results in uniform drying of the prints without curling, specking or spotting.

Another object is to provide a drier which makes it possible to leave in the print a desired amount of moisture so that the print remains flexible and is not easily cracked.

Another object is to provide a drier which is suitable for drying prints of either dull or glossy finish.

Another object of my invention is to provide a drier that presses the prints tightly between two surfaces while they are being dried.

A further object is to provide a drier in which the heat is uniform over the drying surface and is adjustable and may be held constant at the desired temperature.

Still another object is to provide a drier which employs for a smooth surface the common squeegee tin, making it unnecessary to resurface any permanent part of the equipment after long use. The squeegee tin is simply discarded when worn out and another substituted for it.

These objects are attained in a manner which will be clear from a consideration of the following description taken in connection with the accompanying drawing, of which:

Fig. 1 is an elevational view of my drier with the fabric surface and its tightening frame in the operating position.

Fig. 2 is an elevational view of my drier with the fabric and its tightening frame in the raised position in which it stands while loading and unloading prints.

Fig. 3 is a plan view of the dried with the fabric and its tightening frame in the operating position, showng much of the internal construction in dotted lines.

Fig. 4 is an elevational view in section of the drier taken along the line 4—4 of Fig. 3 in the direction of the arrows as shown.

My drier has a main frame constructed with end plates 10 and 11, preferably of cast metal to which are attached side members of sheet metal 12 and 13 and a sheet metal bottom 14. A convex sheet metal cover 15, preferably formed in the shape of a portion of a cylindrical surface with its axis parallel to a longitudinal edge of the frame, rests on the frame and covers the entire top of it. The end plates 10 and 11 have extending lugs 16 and 17 respectively which are bored to receive a rod 18 which passes therethrough. Pivoting on the rod 18 is a tightening frame comprising arcuate members 19 and 20 which are joined by a rod 21 at the back and by other rods 22 and 23 at the front. Encircling rod 18 at one end and rod 23 at the other is a heavy pre-shrunk absorbent fabric 24 made from Egyptian long fibre cotton and which is adapted to overlie the metal sheet 15 and permit the rod 23 to be brought below the adjacent edge of the drying surface to be latched in that position by means of the mechanism 25 provided. The members 19 and 20 end at the front in handles 26 and 27 for convenience in raising and lowering the fabric and its tightening frame. The latching mechanism 25 comprises at both sides of the drier ratchets 28 with buttress shaped teeth attached stationarily to the drier frame and pawls 29 pivoted about the rod 23 and adapted to engage the ratchets 28 when the tightening frame is lowered to stretch the fabric 24 tightly over the drying surface. After engagement with the ratchets, pawls 29 are held from rotating by coming to a stop against the rod 22.

To release the latch, the extending ends of the pawls are depressed with the thumbs while pressure is applied downward to members 19 and 20. Spiral springs on the rod 23 which are attached to the pawls and to the adjacent members of the tightening frame maintain the pawls in position to engage the ratchets.

Within the main frame and supported thereby in a spaced relation to the cover 15 is a plate of metal 30 which together with the side and end walls of the frame and the cover 15 define a compartment within which is located electrical heat-

ing units which are adapted to provide heat for the cover 15. The electrical heater is preferably constructed as follows. Strips 31 and 32 of transite or other suitable electrical insulating material are attached to the walls of the heating compartment, and spirally coiled wire of high electrical resistance is strung between the insulating strips. The wire is preferably arranged in three sections 33, 34, and 35, each of which traverses substantially the whole length and width of the heating compartment. This construction results in substantially uniform heating of the whole surface 15. The three sections of heater may be individually controlled by three switches 36, 37, and 38, respectively, which receive electrical power through the attached cord 39. A rheostat may be included in series with one or more of the heater sections to permit finer variation of the heating power between the fixed steps. I may also provide an adjustable thermostat, which may be of the bimetallic type, in metallic contact with the surface 15 and including contacts which are in series with the supply circuit from cord 39 in such a manner that the electric heating circuit is maintained accurately at the temperature for which the thermostat is set. A ruby light 45 is connected to be illuminated whenever any circuit is energized.

The space lying between the plate 30 and the bottom 14 is provided with shelves 40 and 41 which are adapted to hold squeegee tins such as 42 and 43, respectively, which are not in use.

The drier is operated as follows. The fabric 24 and its associated tightening frame are lifted permitting the rod 21 to rest against the back wall 12 to hold the fabric tightening frame in the lifted position. Glossy finish prints to be dried are placed face down upon a chromium plated squeegee tin 44. The squeegee tin and prints are placed on the metal surface 15 with the prints on top. The fabric tightening frame is lowered with the fabric which forces the ordinarily flat squeegee tin to take the convex shape of the surface 15. The tightening frame is forced down until the fabric 24 is taut over the whole upper surface of the drier, forcing the prints into close contact with the squeegee tin and with the fabric. The latch operates to maintain the tightening frame and its fabric in this position. Assuming the heat has not been turned on, the switches 36, 37, 38, are operated to energize the heater. Either one, two or three sections of the heater may be employed to maintain the temperature at the desired value for the particular work at hand. Generally the drying is continued four or five minutes after the drier has come to proper temperature. During drying the fabric 24 absorbs a substantial quantity of water from the wet prints which increases the efficiency of drying. As drying proceeds, the moist fabric steams and shrinks somewhat increasing the tightness with which the prints are pressed. If drying is stopped at the proper stage, sufficient moisture will be found to be retained by the prints, by virtue of contact with the moist fabric, that the prints are flexible and not easily cracked by bending. Since the drying is uniform no specks or spots will be found on the prints. Since the prints are held tightly against a smooth surface during drying, no curling of the edges will be observed in the prints. When drying has been completed, the latch 25 is loosened and the fabric and tightening frame lifted. The squeegee tin is removed whereupon the prints may readily be taken off.

The procedure in drying dull finish prints is the same except that no squeegee tin need be used, but the prints are placed directly on the convex metal surface 15 with their faces up toward the fabric 24. Other papers such as photostats, blueprints, etc., can obviously be dried in the same manner.

While I have shown and described one particular embodiment of my invention, it is understood that various changes and modifications in design and construction may be made without departing from the spirit of the invention and the scope of the appended claims.

What I claim and desire to secure by Letters Patent is:

1. A drier for photographic prints and the like comprising a main frame supporting a convex surface, means for heating said surface, a tightening frame pivotally mounted on said main frame to pivot about an axis parallel to said surface and located adjacent one edge thereof, a fabric sheet adapted to overlie said surface, one end of said sheet being secured unyieldingly adjacent said edge and the other end of said sheet being unyieldingly secured to said tightening frame, in such manner that lowering said tightening frame stretches said fabric sheet tightly over said surface, and means to latch said tightening frame in the lowered position.

2. A drier for photographic prints and the like comprising a main frame supporting a convex surface, means for heating said surface, a tightening frame pivotally mounted on said main frame to pivot about an axis parallel to said surface and located adjacent one edge thereof, a fabric sheet adapted to overlie said surface, one end of said sheet being secured unyieldingly adjacent said edge and the other end of said sheet being secured to said tightening frame adjacent the free end thereof, in such manner that lowering said tightening frame stretches said fabric sheet tightly over said surface, and a releasable ratchet and pawl latch interposed between the free end of said tightening frame and said main frame for retaining said tightening frame in its lowered position.

3. A drier for photographic prints and the like comprising a main frame supporting a convex surface, means for heating said surface, a tightening frame pivotally mounted on said main frame to pivot about an axis parallel to said surface and located adjacent one side of said main frame, said tightening frame having a portion adapted to abut said main frame in the raised position of said tightening frame, a fabric sheet adapted to overlie said surface, one end of said sheet being secured unyieldingly adjacent said pivot axis and the other end of said sheet being unyieldingly secured to the free end of said tightening frame, and means to releasably latch said tightening frame in a lowered position, all in such manner that said tightening frame is retained by gravity in the raised position with the entire convex surface of said drier unobstructed by said fabric sheet or said tightening frame and that lowering of said tightening frame to the lowered position stretches said sheet tightly over said surface.

ROBERT M. LYNN.