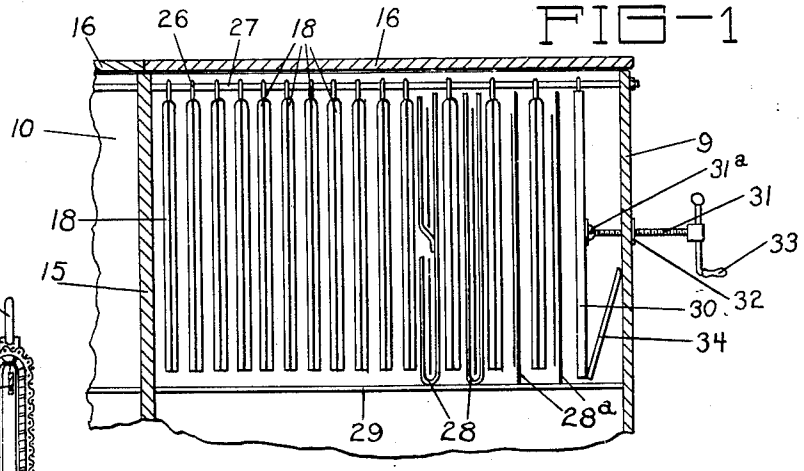
Jan. 24, 1939. H. K. WILLIAMS 2,144,864

PHOTOGRAPHIC PRINT DRYING MACHINE

Filed March 24, 1937 2 Sheets-Sheet 1

FIG-1



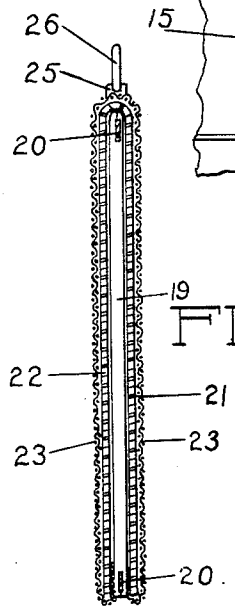


FIG-2

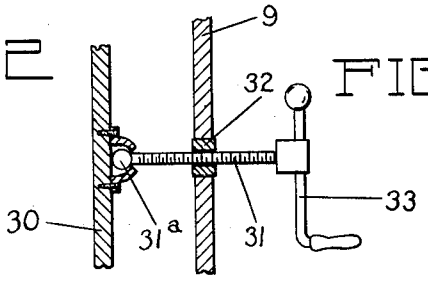
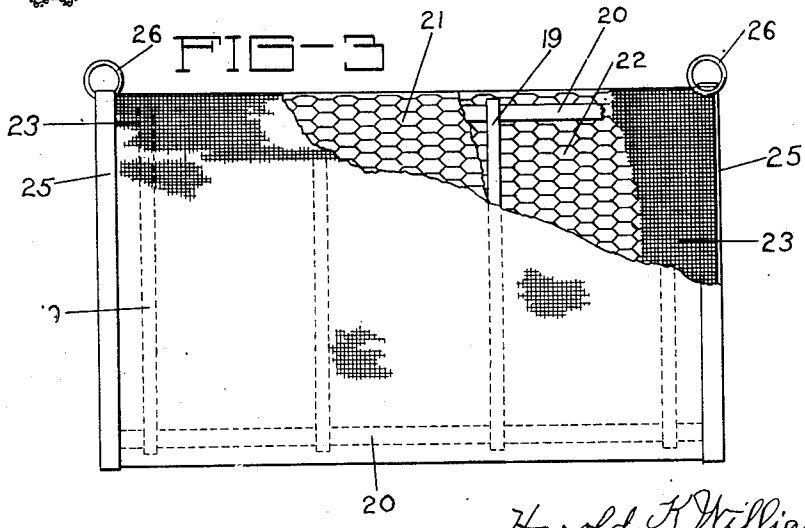


FIG-4

FIG-3



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PHOTOGRAPHIC PRINT DRYING MACHINE

Filed March 24, 1937 2 Sheets-Sheet 2

FIG-5

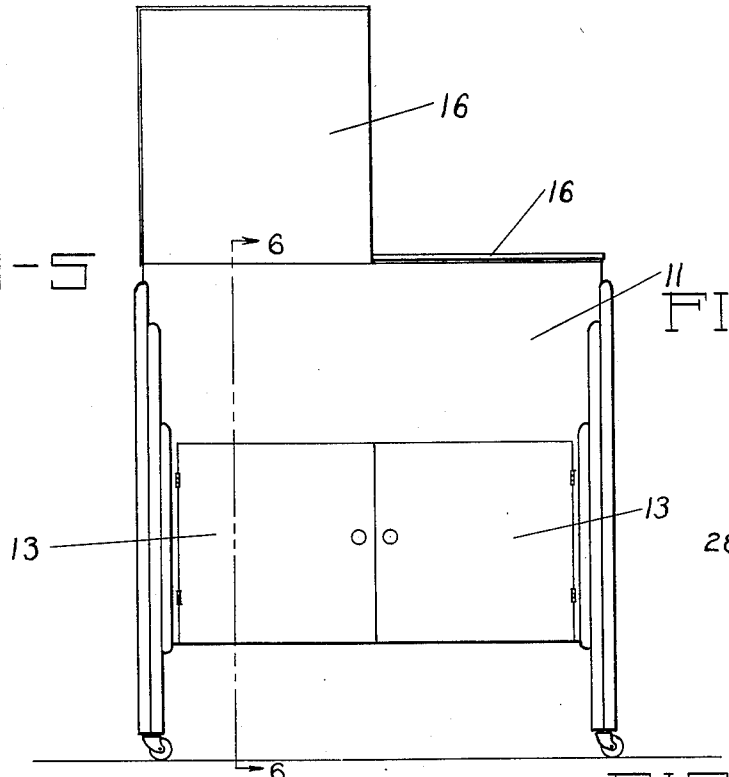


FIG-7

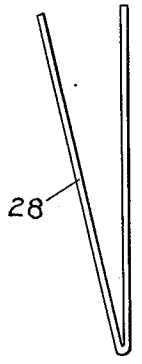


FIG-8

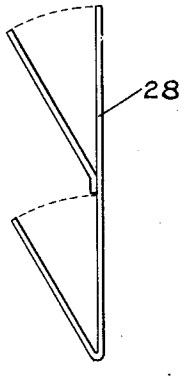
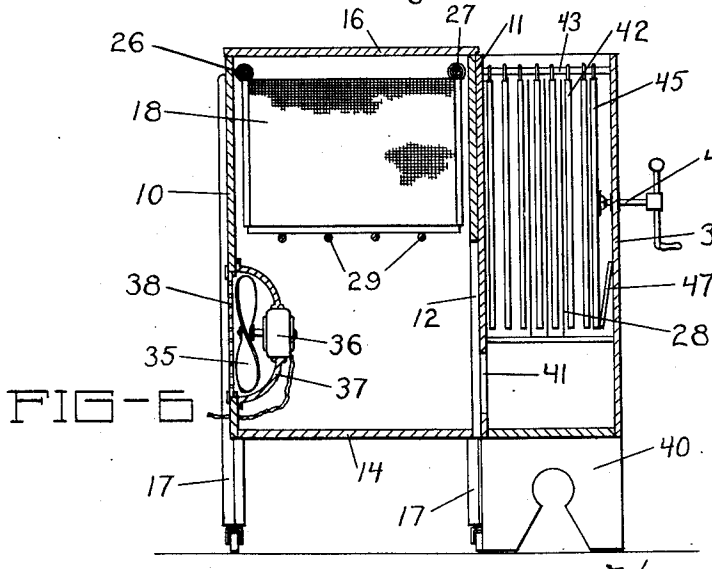


FIG-6



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Patented Jan. 24, 1939 2,144,864

UNITED STATES PATENT OFFICE

2,144,864

PHOTOGRAPHIC PRINT DRYING MACHINE

Harold K. Williams, Moline, Ill.

Application March 24, 1937, Serial No. 132,734

4 Claims. (Cl. 34—19)

My invention has reference to a machine for drying photographic prints, of that class which was set forth in my former application for Letters Patent of the United States filed September 9, 1935, Serial No. 41,101 upon which Letters Patent No. 2,090,168 were issued Aug. 17, 1937. The chief purpose of the present invention is to increase the efficiency and speed of operation of such devices. By the use thereof the time required for drying prints of various kinds can be reduced at least fifty per cent. As in the former machine, it is possible to dry the prints so that they will lie perfectly flat, and so they will not change color or become brittle. It is also possible by the use of the present machine to dry photographic prints of various kinds, matte prints, ferro-type prints, and kodak films.

The drying of the prints is accomplished by supporting them on plates or in containers in spaces between ventilating panels through which a current of air is circulated, with a maximum amount of circulation. As set forth herein each of said panels is of metallic construction, formed preferably of stainless material, having a central body portion of expanded metal, and an outer covering therefor of woven wire netting. The construction is such that the walls of the panels are in parallel relation with each other and with the walls of adjacent panels, with smooth faces between which the prints and their holders are held with all parts in uniform contact with the panels. A pressure is then applied to the panels to exert a uniform force upon the prints held between the same.

In addition to the main part of the machine there is shown at attachment by means of which the range of the machine can be extended, and the utility thereof greatly increased.

The above named, and other features and advantages of the invention will more fully appear from the following specification, reference being had to the accompanying drawings, in which:

Fig. 1 is a fragmentary view showing a print drying compartment with one of the side walls removed.

Fig. 2 is an enlarged vertical section of one of the panels 18.

Fig. 3 is a side view of one of said panels, partly broken away.

Fig. 4 is a detail of the screw mechanism.

Fig. 5 is a front elevation of a cabinet equipped with the invention.

Fig. 6 is a vertical cross-section through the cabinet, and through the auxiliary cabinet 38, on the broken line 6—6 of Fig. 5.

Fig. 7 is a detail of a container for photographic prints while they are going through the drying process.

Fig. 8 is a view of a similar container for smaller sized prints.

The invention embraces a cabinet, formed of end walls 9, a back 10, and front wall 11, provided with an opening 12, normally closed by a pair of doors 13, having a hinged connection with the cabinet at their outer edges. The cabinet is also fitted with a bottom piece 14, and in the present showing a partition 15 separates the upper part of the cabinet into two compartments, one of which is more particularly disclosed in Fig. 1. Each of said compartments is closed by means of a lid 16, independently hinged to the cabinet at their rear edges. The cabinet is preferably supported at a convenient height by legs 17.

Each of said compartments is provided with a plurality of ventilated print drying panels 18, each provided with a skeleton frame-work consisting of vertical bars 19 united by cross-pieces 20. Fixed to the sides of said frame are supports 21 and 22, formed of expanded metal of small mesh, and preferably shaped from a single sheet of the metal, folded over the frame at the upper side. The edges of the expanded metal meshes are disposed outwardly, with all of the edges at each side being in the same plane, and the outer faces of the supports in planes parallel with each other, and with the faces of the other supports in the series.

Secured to each of the supports 21 and 22 is a sheet of wire netting 23 of fine mesh, also preferably formed of a single sheet, reflexed at the upper edge of the panel. The ends of the netting are united by binders 25, in the upper ends of which are rings 26, mounted on rods 27 in the upper part of the compartment, and having a slidable engagement therewith. The supports 21 and 22 are attached at their lower edges to the bars 19 by means of solder or similar uniting means.

As before mentioned, the metal parts which make up the panels 18 are of stainless material, and this is specially desirable with the netting sheets, against which the backs of the damp prints rest when they are mounted on plates for drying. The supports for said sheets are of a rigid character, and hold the same positively in place throughout, precluding any possibility of the netting buckling or being distorted, and insures a perfectly flat drying of the prints which rest against such sheets. The support of said sheets by the expanded metal is also with a

minimum point contact, with a maximum amount of spacing between the contact edges for the passage of air or moisture.

The prints are supported by means of containers 28 or on plates 28a, supported in the spaces between the panels 18 by means of a series of rods 29 supported in the compartment beneath the panels, and in parallel relation with the rods 27. The containers and plates are slidable on said rods 29, to conform to changes in the positions of the panels 18. In one end of the compartment is a board 30, with which is connected a screw 31, rotatable in a threaded bearing 32 in the cabinet wall, and provided with a handle 33 for operation. The lower end of the end space is closed by a hinged shutter 34, working automatically. This last described apparatus is similar to that set out in said former application. When the series of panels is fully loaded with prints the operation of the screw applies a compressive force thereto, holding the same in place during the drying operation.

The board 30 is caused to press more perfectly and uniformly against the next adjacent panel 18 by means of a ball and socket connection between the end of the screw 31 and said board, as indicated at 31a in Fig. 4.

In the lower part of the cabinet is a rotary fan 35, connected with and driven by an electric motor 36, supported by a frame 37, fixed to the rear wall 10. In rear of the fan is an opening 38 in said wall, and the fan is operated to cause a circulation of air downwardly in the cabinet, and outwardly through said opening, in a similar manner to that set forth in said former application. For this operation it is essential that the lid 16 above the cabinet which is loaded for operation be open, and the current of air passing downwardly through the panels 18 quickly and effectually dries the prints supported in the spaces between said panels.

As a general thing only one of the compartments is operated at a time, and the lid of the idle one is closed, preventing circulation of the air therethrough. The closed lid also provides a handy support for prints and their holders that are being loaded in the other compartment, or removed therefrom.

In Fig. 7 is shown one of the containers 28, consisting of blotter sheets or other absorbent material, suited to the shape and size of the print. For prints of smaller size a holder 28 is provided, with a pair of pockets, one above the other, suited to the size of the smaller prints. When small prints are dried in the larger pockets there is danger of their sliding down into the lower part of the pocket, with injurious effects on the prints. The pockets are also of uniform thickness. In the case of ferro-type prints, plates of the usual types would be used for supporting the prints. Kodak pictures are similarly prepared for drying, with a number thereof adhering to a plate. Upon drying, prints that become loose when the panels are separated, will fall downwardly between the rods 29 into the bottom of the cabinet, from which they can be removed through the doors.

In Fig. 6 is shown a form of the machine in which an auxiliary cabinet is made use of in which it is possible to make use of plates or holders of a greater size than can be used in the main machine. For this purpose the doors 13 of the cabinet are opened and the auxiliary cabinet, shown at 39, is placed against same, and supported in such position by legs 40. The inner face of the cabinet 39 has an opening 41, registering with the opening 12 in the main cabinet. In the upper part of the cabinet are panels 42, similar to those hereinbefore described, and provided with rings for slidable action on rods 43. In the lower part of the cabinet is a series of rods 44, for the support of ferro-type plates or other holders in the spaces between the panels. At the front of the cabinet 39 is a board 45, operated by a screw 46, by which pressure can be applied to the panels and contents thereof. A shutter 47 is hinged to the lower part of the board 45, for automatic closure of the space between the board and cabinet. For the operation of the auxiliary cabinet the lids of the main cabinet are closed, and the operation of the fan 35 causes a circulation of air downwardly through the panels 42, and out through the opening 38. It is possible to use plates and containers in the auxiliary cabinet of standard 18 inch by 24 inch size When it is not desired to use the same it can be set aside, and the doors 13 closed for use of the machine in usual manner.

What I claim, and desire to secure, is:

1. In a photographic print drying machine, a ventilator panel, consisting of a central frame, spaced sheets of expanded metal mounted on said frame, with the edges of the expanded metal disposed laterally of the central frame, and perforate plates supported on the outer faces of said sheets.

2. In a photographic print drying machine, a ventilator panel consisting of a support, sheets of expanded metal mounted on said support in parallel spaced relation with each other, and with the edges of the expanded metal disposed laterally of the support, and plates of wire mesh netting supported on the outer faces of said sheets.

3. A photographic print drying machine, comprising a cabinet, a compartment therein, a cover for said compartment adapted to be held in open position, a pair of rods in the upper part of said compartment, metallic panels provided with means for slidable connection with said rods, and having vertical air passages, print holding devices alternating with said panels, means for supporting said print holding devices for adjustable movement with said panels, means for exerting a compressive force on said panels and print holding devices, and means for causing a circulation of air through said panels.

4. A photographic print drying machine, comprising a cabinet, a plurality of ventilator panels supported in said cabinet so as to be laterally movable, print holding devices alternating with said panels and adjustable therewith, a compressor board movably supported and in contact with one of said panels, a screw mechanism mounted in the wall of the cabinet, and having a ball and socket connection with said board, a shutter automatically closing the space between said board and cabinet, and means for causing the circulation of air through said panels.

HAROLD K. WILLIAMS.