

Sept. 19, 1950

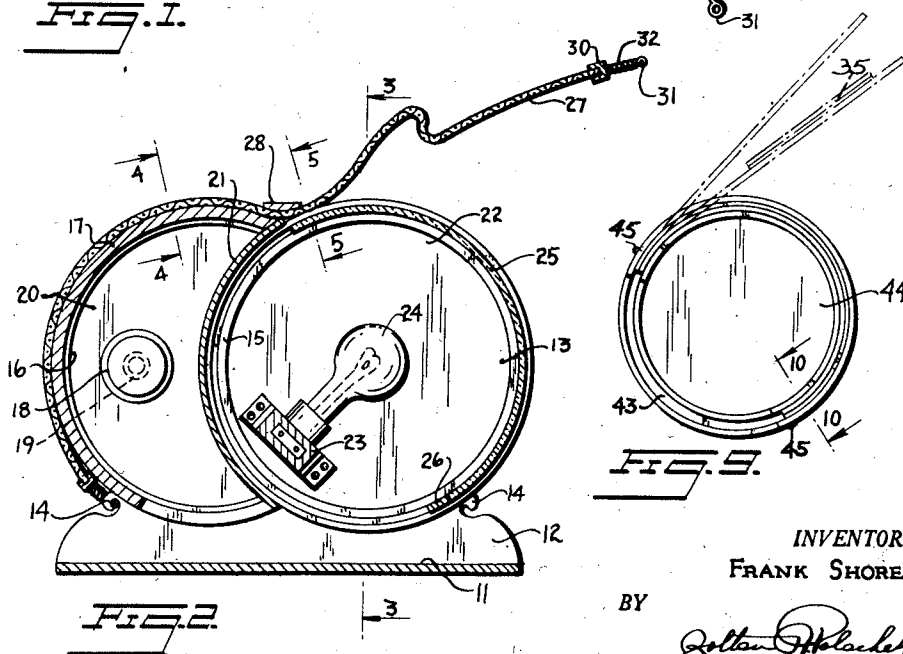
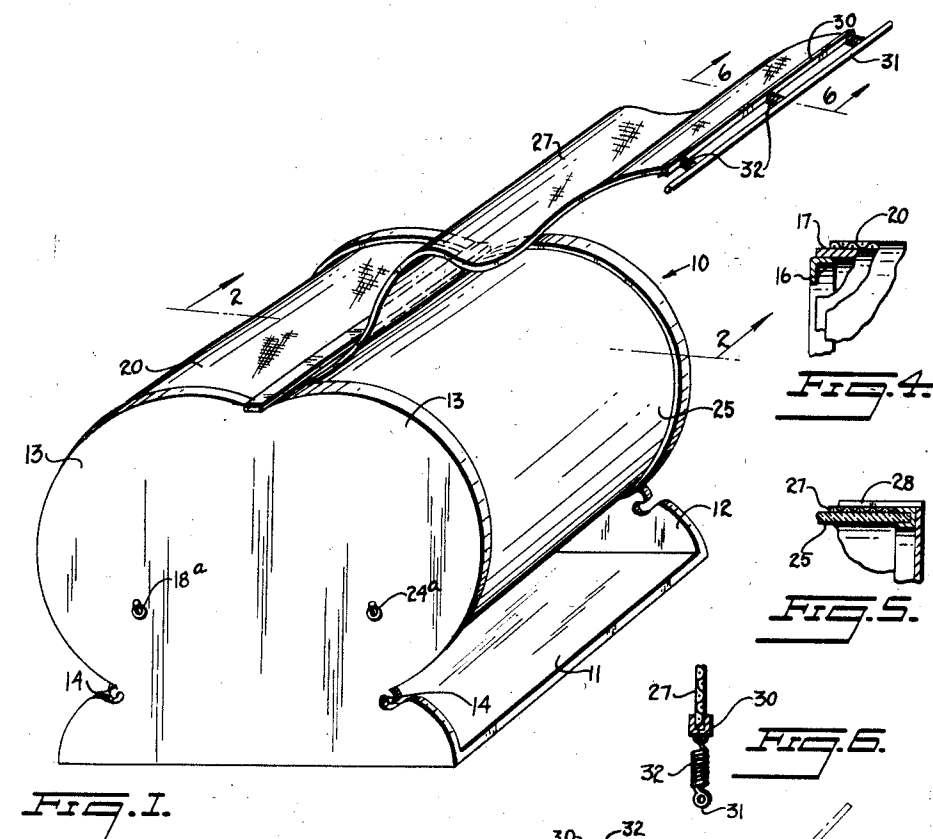
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2,522,804

COMBINED PHOTO COPYING AND DRYING MACHINE

Filed June 25, 1946

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

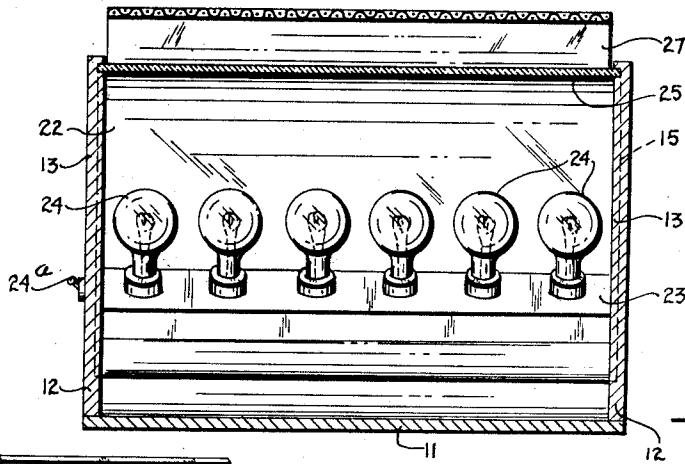


FIG. 10.

FIG. 3.

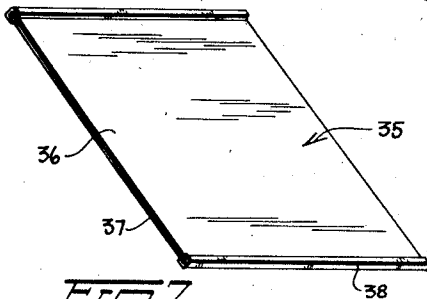


FIG. 7.

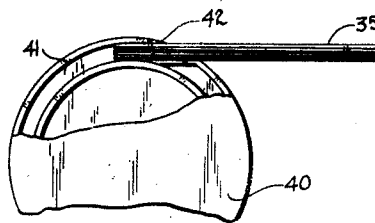


FIG. 8.

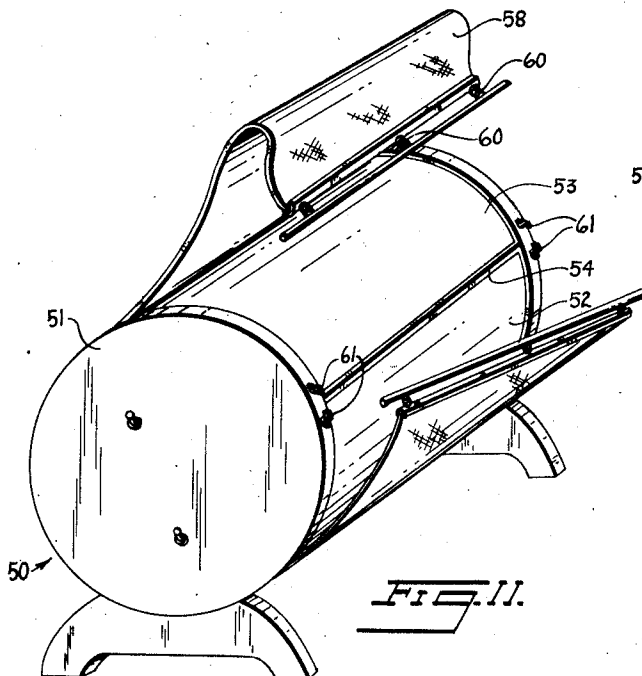


FIG. 11.

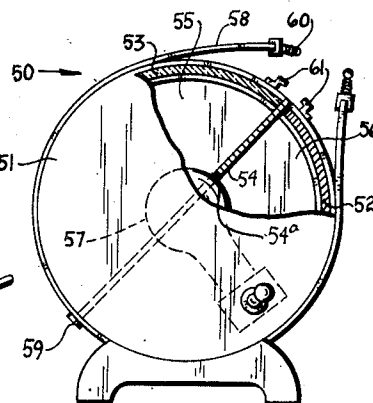


FIG. 12.

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2,522,804

COMBINED PHOTO COPYING AND DRYING MACHINE

Frank Shore, New York, N. Y.

Application June 25, 1946, Serial No. 679,123

1 Claim. (Cl. 95—77.5)

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This invention relates to photo-copying machines and in particular to one for the making of blue prints or photographic reflex copying, the invention being similar to that disclosed in my now abandoned application, Serial No. 672,105.

A particular object of the invention is to provide a combined photo-copying and drying machine in which a chemically treated paper may be employed to copy directly from the original, by exposure to light and means being also employed for drying the prints after developing.

A particular object of the invention is to provide a device which is space-saving in character, that will be silent in operation and may be operated at low cost and by a person without previous experience in using a machine of the type referred to.

A still further object of the invention is to provide a machine of the character referred to that may be used simultaneously for the printing and drying operations and which is so constructed that access is readily afforded to the interior parts of the machine so that the light source used in the printing and drying may be readily replaced and also to provide a portable machine that may be used in subdued light to rapidly produce the prints.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, 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 view in perspective of a machine constructed in accordance with the invention and employed for the purpose of copying and drying.

Fig. 2 is a section on the line 2—2 of Fig. 1 showing the relative arrangement of the light and heat sources within the machine and the construction of the latter.

Fig. 3 is a section on the line 3—3 of Fig. 2 showing the arrangement of the glass for supporting the matter to be printed.

Fig. 4 is an enlarged section on the line 4—4 of Fig. 2, showing a fragment of the machine to illustrate the relative arrangement of the parts thereof.

Fig. 5 is a section on the line 5—5 of Fig. 2 showing the mounting of the glass cover therein.

Fig. 6 is an enlarged section on the line 6—6 of Fig. 1 showing the means for attaching the end of the blanket in place.

Fig. 7 is a view in perspective of a modified form of print holding means that may be used instead of the glass support.

Fig. 8 is a fragmentary view of one end of a

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printing cylinder showing the method of mounting the print holding member illustrated in Fig. 7.

Fig. 9 is a view in cross section through a cylinder showing a modified method of mounting the print holding unit illustrated in Fig. 7.

Fig. 10 is an enlarged section on the line 10—10 of Fig. 9 showing the method of fastening the end of the print holder in place.

Fig. 11 is a view in perspective of a modified form of the invention showing the incorporation in a single cylindrical member of printing and drying sections.

Fig. 12 is an end view of the machine illustrated in Fig. 11, a part thereof being shown in section to illustrate the interior construction thereof.

Referring to the drawings in detail, 10 indicates a combination copying and drying machine consisting of a base 11 having end walls 12 which are shaped to provide intersecting cylindrical portions 13 and hook portions 14. The end walls 12 are spaced any desired distance apart depending upon the size of the prints to be handled by the machine and the inner faces of the end walls 12 are shaped to provide a cylindrical channel 15 and a semi-cylindrical edge band 16, the latter of which is arranged to carry an opaque wall 17 made of thin metal or any other suitable material that will evenly distribute heat radiated by the heating element 18 which is mounted in socket 19 at one or both socket ends of the dryer unit 20.

The edge band 16 is suitably joined to the peripheral surface of the channel 15, the latter of which supports an interior heat reflecting wall 21 which separates the drying chamber 20 from the printing chamber 22 of the machine. The latter is completed by a socket carrier 23 extending between end walls 13 thereof to support a bank of lamps 24 for the purpose of providing the light necessary for the printing operation. Suitable switches 18a and 24a are mounted in the end wall of the unit to control the heating element 18 and the lamps 24 respectively and if desired the switch 24a may be of the resistance type for controlling the intensity of illumination afforded by the lamps 24. The channel 15 slidably supports an arcuate sheet of glass 25 forming a front wall therein and arranged to abut at its lower edge a stop strip 26 extending between the walls 13 and also constituting a stop for the upper edge of the glass sheet 25 when the latter is pushed, in sliding movement, through the channel 15 to open the front of the machine to afford access to the lamps 24.

If desired, a tubular light or lights may be satisfactorily substituted for the bank of lamps 24 heretofore described.

In order that prints may be held against the wall 17, use is made of an opaque curtain 27 secured at its mid-portion beneath a strip 28 which extends across the top of the machine at

the center thereof, the opposite ends of the curtain or blanket 27, as illustrated in Fig. 6, being provided with an edge reinforcement 30, a holding rod 31 and springs 32 interposed between the reinforcement 30 and the holding rod 31. It is quite evident that when the blanket is in position against the glass 25 or wall 17, it may be securely held tautly in place against the tension of the springs 32 holding the rod 31 in the hook portions 14 of the machine frame.

The wall 21 is opaque and provides at one side thereof, a light reflecting surface which will evenly distribute the heat from the heating element 18 on the wall 17 so that fast and even drying of the prints placed on the wall is obtained. The wall 21 also functions to keep the excess light in the drying chamber 20 out of the printing chamber 22 whose lamps 24 may be adjusted to supply a light of lower intensity than that provided by the heating element 18.

Instead of the glass wall 25, there may be used an envelope 35 made from clear acetate material arranged in contacting plies 36 and 37 held together at their edges by the binding strips 38. As illustrated in Fig. 8, the envelope 35 can be detachably mounted in the printing cylinder 40 by insertion in the channel 41 thereof through an opening 42 provided therein. When the chemically treated paper and form to be copied are inserted between the sheets 36 and 37 the envelope is inserted into the channel 41 and the blanket closed thereover for exposure of the print, after which the envelope 35 may be removed and the printed matter taken out.

In Fig. 9 a modified form of the use of the envelope 35 is shown in which the latter may be permanently mounted within the channel 43 of a printing cylinder 44 and the plies of said envelope held closed at the lower end by the snap fingers 45 disposed at opposite sides of the machine. When the fasteners 45 are released, the flexible nature of the acetate sheets, making up the envelope will cause them to assume the position illustrated in outline in Fig. 9 to permit ready removal of the reproduced matter.

In the modified form of the invention illustrated in Fig. 11, use may be made of a single cylinder member 50 consisting of the side walls 51, channeled to receive at one side of the cylinder a transparent closure 52 made of acetate, glass or other suitable material and an opaque wall 53 at the opposite side thereof, the device being divided by a flat wall 54 into semi-cylindrical portions 55 and 56 constituting drying and printing chambers respectively in one of which is mounted the combined heating and illuminating means 57. Wall 54 is provided with a suitable opening 54^a to permit element 57 to reach both portions 55 and 56. In this form of the invention a surrounding blanket 59 is employed which may be secured in place by a strip 59 so that the spring ends 60 of the blanket may be secured in the hooks 61. If desired, one of the acetate sheets or plies 36 may be opaque and sheet 37 transparent in which instance use of the curtain may be dispensed with.

It is evident, therefore, that I have provided in a combined photo-copying and drying machine, a unitary construction that provides for simultaneous printing and drying of different sets of prints that may be passed progressively from the printing to the drying section of the machine to afford a rapid printing and drying process, it being evident that the operator of the machine standing at one end thereof can feed the

machine with material to be printed and dried and may remove the same therefrom with a minimum of effort.

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 claim.

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

In a combined photo printing and drying machine having a base wall and a pair of upstanding end walls, concentric circular tracks mounted on the inner faces of the end walls, stop members mounted in said tracks adjacent the bottom thereof, a semi-cylindrical transparent member slidably mounted in said tracks having a bottom edge engaging said stop members, a substantially semi-cylindrical hollow body secured between the end walls and having its top edge closely adjacent the top edge of said transparent member, a light source mounted concentrically within said transparent member, a heater mounted eccentrically within said hollow body, the light source and heater lying on a line parallel to the base, an arcuate wall mounted between the end walls concentric with said tracks and depended downward from the adjacent top edges of said transparent member and said hollow body between said light source and said heater, so that one side of said arcuate wall reflects light from said light source toward said transparent member while the other side of said arcuate wall reflects heat from said heater toward said hollow body, a blanket mounted intermediate of its ends at the junction of the adjacent top edges of said transparent member and said hollow body to have its ends individually extendable about the outer periphery of said transparent member and the outer periphery of said hollow body to independently hold material to be printed on the outer periphery of said transparent member and material to be dried on the outer periphery of said hollow body, and means independently releasably securing the free ends of said blanket in position, and a strip extended between the side walls at the junction of the top edges of said transparent member and said hollow body and beneath which and to which the intermediate portion of said blanket is attached.

FRANK SHORE.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
771,775	Fullman	Oct. 4, 1904
1,156,477	Grosvenor	Oct. 12, 1915
2,024,678	Brunk	Dec. 17, 1935
2,090,389	Kunstadter	Aug. 17, 1937
2,182,325	Tucker	Dec. 5, 1939
2,290,478	Matlas	July 21, 1942
2,335,742	Creanze	Nov. 30, 1943
2,345,196	Heyman	Mar. 28, 1944
2,436,085	Ainering	Feb. 17, 1948

FOREIGN PATENTS

Number	Country	Date
325,465	Germany	Sept. 13, 1920
693,002	Germany	June 29, 1940