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Fuyuki

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[54] **DRYING MEANS FOR ELECTROPHOTOGRAPHIC COPYING MACHINES**

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[30] **Foreign Application Priority Data**

Sept. 4, 1970 Japan.....45/87645 (utility model)

[52] **U.S. Cl.** **219/216,** 219/388, 355/10

[51] **Int. Cl.**.....**H05b 1/00**

[58] **Field of Search** .....219/216, 388; 355/10, 64; 263/6 E, 8; 250/65 T, 65 ZE

[56] **References Cited**

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[57] **ABSTRACT**

Apparatus for controlling the current to a lamp in an electrophotographic copying machine as provided comprising a resistor mounted in the power circuit to the lamp, said resistor being mounted in the copy paper drying means associated with said copying machine whereby the heat generated by said resistor does not raise the temperature within the copying section of the apparatus.

2 Claims, 2 Drawing Figures

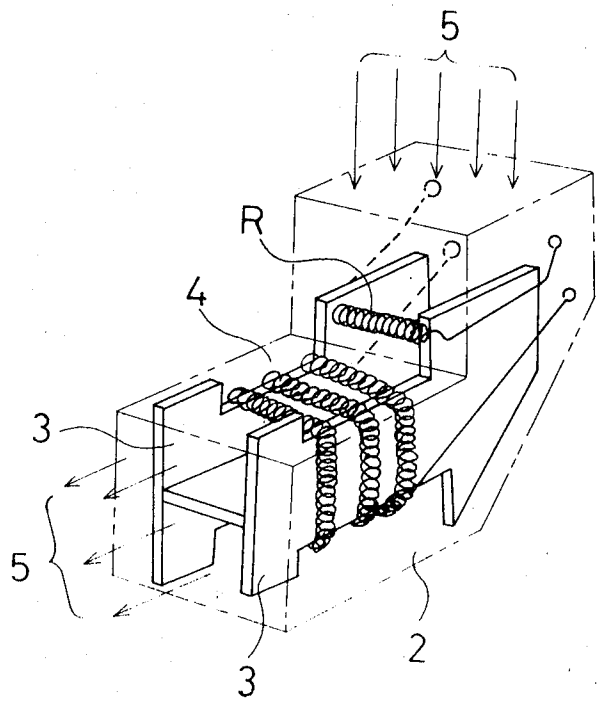


Fig. 1

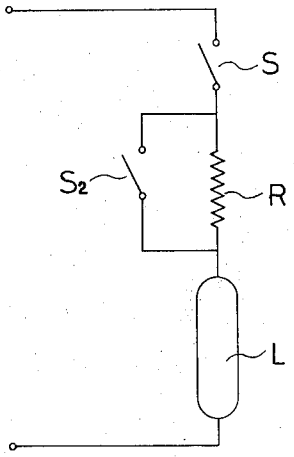
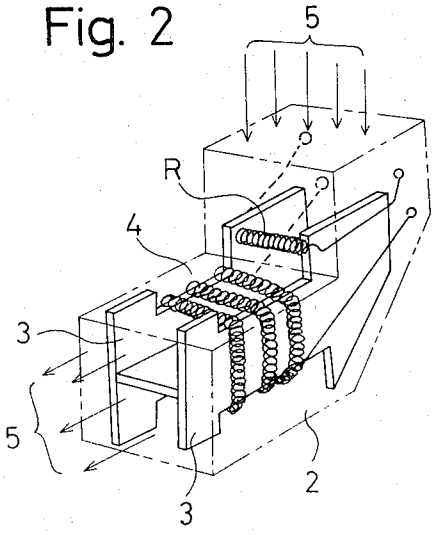


Fig. 2



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DRYING MEANS FOR ELECTROPHOTOGRAPHIC COPYING MACHINES

This invention relates to a drying means for an electrophotographic copying machine using liquid development.

A lightening circuit for an original-illuminating lamp for an electrophotographic copying machine wherein a resistance is adapted to be connected with said circuit when the illuminating lamp is lightened thereby to prevent original-supporting base etc., from overheating due to the illumination of the illuminating lamp is disclosed in the specification of U.S. Pat. application Ser. No. 124,892 which was already filed by the applicant.

However, it was found later on that the above-mentioned lightening circuit for an original illuminating lamp has a drawback that the heat generated by the resistor to be connected with said circuit has adverse influences on the copying machine. Stated more specifically, the heat generated by the resistor raises the temperature within the copying machine considerably and heats the parts therein thereby to cause deterioration of the insulating property of the electrical parts etc. The time during which an electric current is passed through the resistor in one copying cycle is about 0.9 seconds while it takes 2.3 to 6 seconds per one copying cycle. However, in case where copying is made continuously, the temperature within the copying machine will seriously increase due to accumulation of heat generated by the resistor.

The present invention has for its object to eliminate the above-mentioned drawback and also effectively utilize the heat generated in the copying machine by disposing the resistance within the copying paper drying means.

In order that the present invention may be more clearly understood, the following description is given by way of an example with reference to the accompanying drawings, in which:

FIG. 1 shows a lightening circuit for an original-illuminating lamp for use in a copying machine according to the present invention; and

FIG. 2 is a schematic illustration of one embodiment of the present invention.

Referring to FIG. 1, a lightening circuit for an original-illuminating lamp for use in a copying machine according to the present invention is schematically illustrated. Reference numeral L denotes an original-illuminating lamp, S_1 a main switch and R a resistance.

Reference numeral S_2 denotes a micro-switch designed to be closed in the lapse of a predetermined time (0.9 seconds) after main switch S_1 is closed.

When switch S_1 is closed, an electric current is allowed to pass through resistor R and lamp L, thereby lighting up the lamp.

In the lapse of a predetermined time thereafter, micro-switch S_2 is closed, and consequently electric current, flows through lamp L by way of switch S_2 bypassing resistance R, thereby to radiate lamp L under steady state condition.

In FIG. 2, reference numeral 2 denotes a casing of drying means which constitutes a cylindrical tube. Disposed within said casing 2 are support plates 3 made of a heat insulating material such as asbestos, steatites and mica. Wound around support plates 3 is a heater 4 in the form of nicrome wire and a resistance R connected in series with lamp L is connected between support plates 3.

Air flow generated by a fan (not shown) is blown into the casing 2 as shown by arrow mark 5. During its passage through the casing 2, the air is heated by resistor R and nicrome wire heater 4 and the hot wind resulted flows on a copying paper left still undried (not shown) which has passed through a developing solution, thereby vaporizing the solution on the paper to have it dried.

By thus disposing resistor R within the drying means, it is possible to completely eliminate various inconveniences due to the heat generated by resistor R, because the drying means is inherently designed so that the heat generated in it does not adversely affect the mechanism of the copying machine. Further, resistor R can be used for a heater in the drying means so as to achieve effective utilization of heat.

What is claimed is:

1. In an electrophotographic copying means of the type having a copying section, separate means for drying the copy paper, and a power supply circuit for energizing an original illuminating lamp, the improvement comprising a resistor for controlling the electric current supply to said lamp, said resistor being disposed within said means for drying the copy paper whereby the heat generated by said resistor does not raise the temperature within the said copying section.

2. The apparatus specified in claim 1 further including means for bypassing said resistor when full current to said lamp is desired.

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