Dec. 26, 1950 F. G. WILDE 2,535,770

PHOTOGRAPHIC PRINTER AND FILTER FOR USE THEREWITH

Filed Feb. 21, 1948

Fig. 1

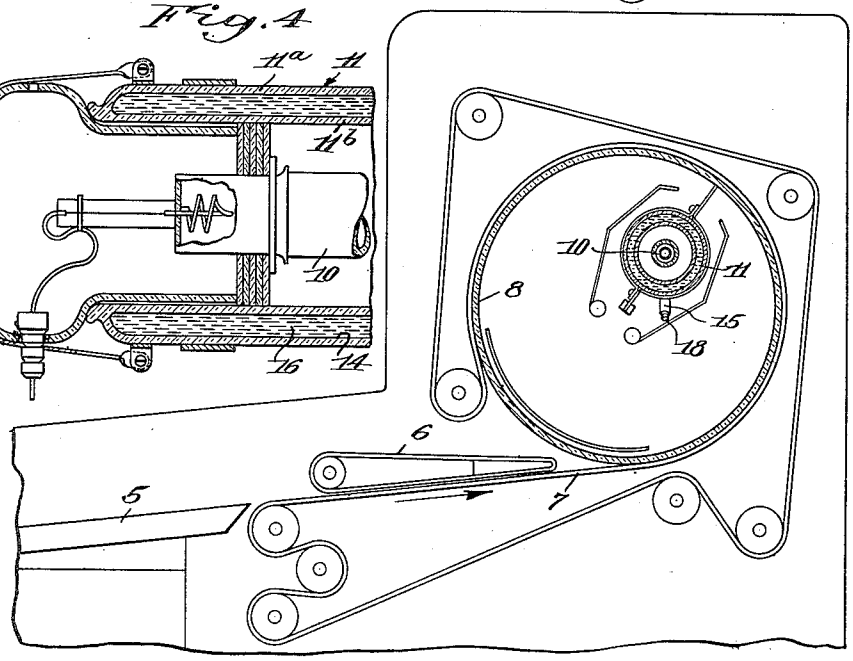


Fig. 4

Fig. 2

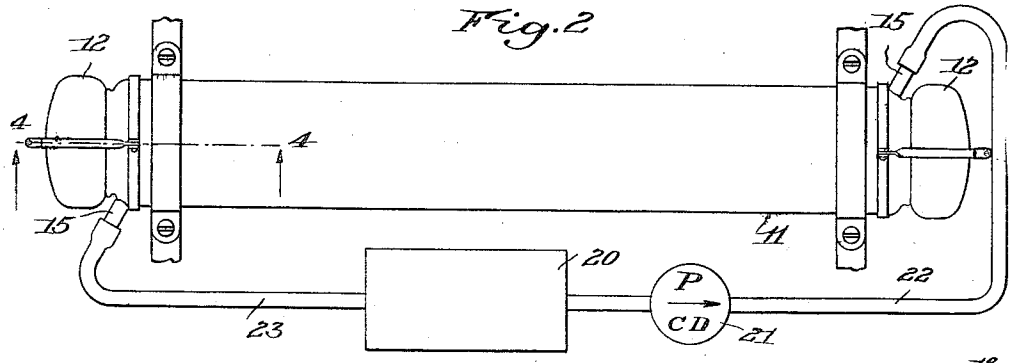
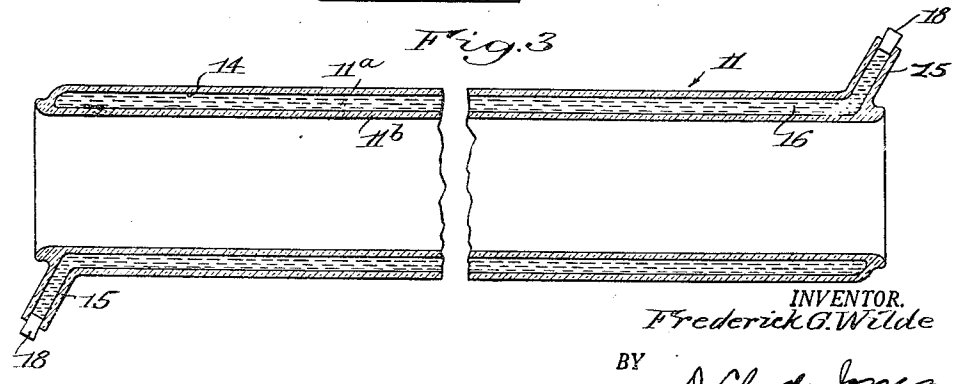


Fig. 3



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PHOTOGRAPHIC PRINTER AND FILTER FOR USE THEREWITH

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Application February 21, 1948, Serial No. 10,033

3 Claims. (Cl. 95—77.5)

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This invention relates to a reproducing apparatus utilizing light and more particularly to a filter for use therein.

In the making of reproductions from photographic films, tracings, or the like, it is necessary in the cases of certain types of photosensitive sheets or papers to be printed, to use a light source of a particular characteristic for example, in the range between 5200 and 5700 angstroms. Since various papers require light of different character, different light filters are utilized to give the required light for any given type of paper. These filters, due to their necessarily curved arrangement in the printer, are currently made of a colored sheet of cellulose acetate. However, the colored cellulose acetate is subjected to such heat while it is in use, that it deteriorates rapidly and must therefore be frequently replaced.

The main feature of the present invention relates to the production of a light filter which obviates the need of using expendable cellulose acetate sheets.

Another feature of the invention relates to a glass filter adapted to be interposed between the light source and the sheet material to be printed, said filter having a chamber adapted to contain a transparent liquid such that it will obstruct the passage therethrough of undesired rays of light.

A further feature of the invention relates to a light filter through which a liquid can be circulated to filter out undesired light rays and to dissipate undesired heat.

Other features and advantages will appear from the detailed description and claims when taken with the drawings in which:

Fig. 1 is a diagrammatic showing of a photographic printer in which the present filter can be used;

Fig. 2 is a side view of the filter unit with a light source therein, the filter unit being so arranged that a cooling and light filtering medium can be circulated therethrough;

Fig. 3 is a longitudinal section through the filter unit of Fig. 2; and

Fig. 4 is a partial section of the filter unit taken on the line 4—4 of Fig. 2, particularly showing the mounting of a quartz lamp and the light filter of the present invention.

Referring especially to Fig. 1, there is shown a printer of the type more fully disclosed in Patent 2,093,785 granted September 21, 1937. This printer comprises a table 5 along which a sheet of film or tracing to be reproduced, together with a photosensitive sheet in superimposed relation therewith, are advanced manually into suitable feed

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mechanism. This mechanism includes the driven feed belts 6 and 7, each belt being guided to have a portion thereof travel in contact with a substantial portion of the other belt to advance the superimposed sheets to the printing station. The belt 7 further travels through a circuitous path whereby it embraces the major portion of the periphery of a rotatable transparent cylinder 8 of heat resistant material such as "Pyrex" glass or the like. The ends of the cylinder are supported for rotation in the printer in the well-known manner. It will be understood that the belts 6 and 7 grip the superimposed sheets to advance them to the point where they are engaged by the rotating cylinder 8 and the belt 7. The belt 7 advances and smoothly holds the superimposed sheets on the periphery of the cylinder for a printing period determined by the rate of travel of the belt. Within the cylinder there is fixedly mounted a light source 10 and an enclosing shield therefor. The light source can be a conventional quartz lamp while the shield comprises a transparent cylinder 11 of heat resistant "Pyrex" glass or the like. The cylinder is preferably open at each end with its openings closed by the end caps 12. The construction of the shield and the mounting of the quartz lamp therein can be similar to that disclosed in the patent of Raymond R. Davis No. 2,457,353, granted December 28, 1948, and assigned to the same assignee as the present application.

In accordance with the present invention the cylinder 11 is made with spaced side walls 11*a* and 11*b* sealed together at their ends to provide a cylindrical chamber 14. This chamber encircles the light source 10 and is coextensive therewith. The cylinder is provided at each end thereof with connection nipples 15 communicating with the chamber. The chamber 14 is filled with a suitable filtering medium 16 which may be clear or colored water as well as a clear or colored high temperature organic liquid such as "Prestone." Where it is not necessary to dissipate heat, the connection nipples 15 can be corked as shown at 18 (Fig. 3). However, the liquid 16 can be circulated as shown in Fig. 2 when heat must be withdrawn from the shield. In this form of the invention, a circulating system is connected to the respective nipples 15. This system comprises the tank 20, the pump 21 and the pipes 22 and 23.

What I claim is:

1. In combination with a printer for photosensitive sheets having a rotatable transparent contact cylinder, an elongated light source mounted within the cylinder to extend lengthwise

thereof, movable belt-like means engaging the outer surface of said cylinder whereby said sheets are brought into contact with said surface to be printed by light transmitted from the source through the cylinder, a stationary transparent light filter open at its ends and enclosing said light source, said filter including an annular chamber interposed between said light source and said cylinder, and a light filtering fluid contained in said chamber through which photographic light is transmitted in the direction of said cylinder.

2. In combination with a printer for photosensitive sheets having a rotatable transparent contact cylinder, an elongated light source mounted within the cylinder to extend lengthwise thereof, movable belt-like means engaging the outer surface of said cylinder whereby said sheets are brought into contact with said surface to be printed by light transmitted from the source through the contact cylinder, a cylindrical stationary transparent light filter open at its ends and enclosing said light source, said filter including an annular chamber interposed between said light source and said contact cylinder, and a light filtering fluid contained in said chamber through which photographic light is transmitted in the direction of said contact cylinder.

3. In combination with a printer for photosensitive sheets having a rotatable transparent contact cylinder, an elongated light source mounted within the cylinder to extend lengthwise thereof, movable belt-like means engaging the outer surface of said cylinder whereby said

sheets are brought into contact with said surface to be printed by light transmitted from the source through the contact cylinder, a cylindrical transparent light filter open at its ends and enclosing said light source, said filter including an annular chamber interposed between said light source and said contact cylinder, a source of light filtering fluid, means for recirculating the filtering fluid through said chamber whereby filtered photographic light is transmitted in the direction of said contact cylinder.

FREDERICK G. WILDE.

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