Jan. 23, 1934. J. S. GREENE 1,944,600

PHOTOGRAPHIC PRINT DRIER

Filed Jan. 28, 1931

Fig. 1

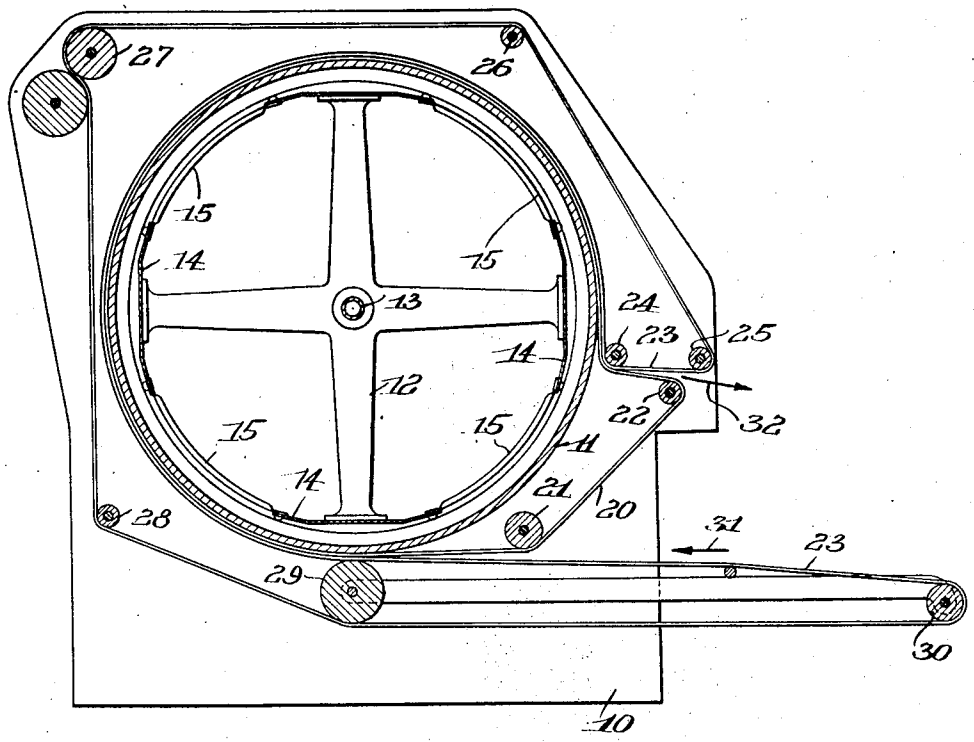
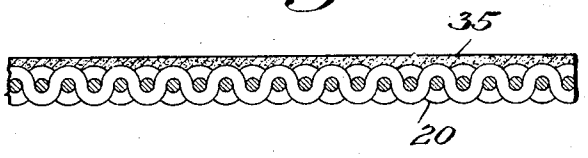



Fig. 2




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## PHOTOGRAPHIC PRINT DRIER

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7 Claims. (Cl. 34—4)

This invention relates to a drier for use in drying any material and particularly adapted for drying photographic prints. One object of the invention is the provision of a generally improved and more satisfactory drier and one which will stand up well in service and require relatively little replacement.

Another object of the invention is to provide an improved drier belt so that scorching or burning of the belt is substantially reduced or entirely eliminated.

A further object is the provision of a drier which will satisfactorily dry prints when run at temperatures materially lower than the temperatures which it has heretofore been necessary to use.

A still further object is the provision of a drier which will smooth or iron out prints better than has been done by prior constructions.

Another object of the invention is the provision of a simple and satisfactory method of making drier belts.

To these and other ends the invention resides in certain improvements and combinations of parts, all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawing:

Fig. 1 is a diagrammatic vertical section taken through a photographic print drier constructed in accordance with a preferred embodiment of the invention, and

Fig. 2 is an enlarged view of a fragment of the drier belt.

According to the present invention, the details of the drier except with regard to the belt may be of any usual or known construction. For example, the drier comprises a side frame 10 on which is rotatably mounted a drum 11, and within the drum are spiders 12 mounted on an axle 13, the spiders carrying mounting plates 14 between which electric heating elements 15 are secured to provide a source of heat for heating the drum 11.

An inner belt 20 encircles the drum 11 with one side thereof in contact with the drum, and is led over guide rollers 21 and 22 as clearly shown in Fig. 1. An outer belt 23 also partially encircles the drum and is led over guide rollers 24, 25, 26, 27, 28, 29, and 30. Suitable driving mechanism is provided for rotating the drum 11 in a clockwise direction when viewed as in Fig. 1, and the driving mechanism may also be connected to part or all of the guide rollers over which the belts travel.

When the driving mechanism is operative, the belts move in the direction of the arrow 31, and a print deposited on the outer belt 23 at a point adjacent to arrow 31 will travel leftwardly toward the drum and will be embraced between the two belts and carried around the heated drum until the belts separate again between the guide rollers 22 and 25, at which point the print will issue from between the belts as indicated by the arrow 32. Both the inner and outer belts are preferably made of fabric, such for example as canvas, so that they will absorb moisture from the prints and thus dry them more rapidly.

According to the present invention, the inner belt 21 is provided with a metallic coating on the face toward the drum, which metallic coating is preferably in the form of finely divided particles of metal, such for example as metallic paint. Preferably so-called aluminum paint is used, which is usually made from powdered aluminum bronze.

Fig. 2 shows on an enlarged scale a theoretical cross-section through the inner belt constructed according to the present invention. The base or body of the belt, as shown at 20, is of a textile fabric such as heavy canvas or duck. The metallic coating is indicated at 35, and is intimately bonded with the fabric by partially filling the interstices therein.

In applying the metallic paint to the fabric, it is found that improved results are obtained if the paint be mixed with a thin oil of a non-penetrating, quick-drying character which will not permeate the fabric all the way through, but which will mainly remain on the side to which it is applied, so that the print in being dried does not come into contact with an oily surface. In actual use a satisfactory oil for this purpose is found to be an oil readily obtainable on the commercial market under the trade name of "Lionoil" and made by Berry Brothers.

A mixture which is satisfactory in use consists of two tablespoonfuls of aluminum bronze powder added to a pint of the above mentioned "Lionoil", and thoroughly mixed. Preferably the mixture is applied to the fabric by means of a spray gun, as when it is applied in this manner it permeates and penetrates the fabric so that it becomes intimately and tenaciously bonded therewith, although it does not pass through the fabric to the opposite side. Two coats are preferably used, the second coat being applied also by a spray gun after the first coat has dried.

It is found in actual practice that when the inner belt has had a metallic coating applied

thereto as above disclosed, and particularly an aluminum coating, remarkable and superior results are obtained. The life of the belt is greatly prolonged while at the same time the prints are dried in a more satisfactory manner.

It is desirable to build driers as small and compact as possible, and yet to have a large capacity. To obtain a large capacity with a relatively small drum, a relatively high degree of heat must be used, and it has heretofore been customary to operate driers of this kind at a temperature of about 300° Fahrenheit. When a plain uncoated fabric belt is used in contact with the drier drum at such a temperature, the belt becomes charred and burned so that its life is ordinarily only a few weeks, after which it must be replaced.

When using a belt with a coating according to the present invention, however, it is found by actual tests and experiments that, using the same temperatures, the life of the belt is materially longer and it does not char or burn to an extent necessitating replacement when used even several times as long as it has been possible to use prior uncoated belts. Furthermore, it is found that the life of the belt is further lengthened because it is possible to obtain equally satisfactory drying of the prints by using a lower temperature of the drum.

For instance, whereas it has been necessary to use a temperature of about 300° Fahrenheit with uncoated belts, the drier will operate satisfactorily at a temperature of only about 250° Fahrenheit when the belt is coated in accordance with the present invention. This seems to be due to the fact that the metallic coating on the belt provides a smooth and even surface which makes a better contact with the drum than a plain fabric belt and the metal coating extending partially through the belt also serves to conduct the heat from the drum to and through the belt better than is done by a plain fabric belt, so that the print is satisfactorily dried with a materially less temperature within the drum.

Furthermore, the metallic coating of the present invention serves to stiffen the belt materially. While it does not prevent the belt from bending around the drum and the guide rollers, it does stiffen it to such a material extent that the belt smooths or irons out the prints better than a plain fabric belt.

Thus the use of a belt coated according to the present invention results in a more satisfactory drier which is economical because it requires less heat than heretofore, and in which the belt need not be replaced as often as heretofore. Furthermore, aside from the features of economy, the work produced by such a drier is superior to the work done by prior driers because of the better ironing or smoothing effect produced by the improved belt.

While one embodiment of the invention has been disclosed, it is to be understood that the inventive idea may be carried out in a number of ways. This application is therefore not to be limited to the precise details described, but is intended to cover all variations and modifications thereof falling within the spirit of the invention or the scope of the appended claims.

I claim:

1. A photo print drier comprising a source of heat and a belt movable relative to said source of heat with one side of said belt toward said source, said belt having a coating of finely divided particles of metal including aluminum on the side thereof toward said source of heat.

2. A photo print drier comprising a source of heat and a belt movable relative to said source, said belt including a textile fabric having a coating of finely divided particles of metal on the side thereof toward said source of heat.

3. A photo print drier comprising a source of heat and a belt movable relative to said source, said belt including a textile fabric having a coating of metallic paint on one side thereof.

4. A photo print drier comprising a source of heat and a belt movable relative to said source, said belt including a textile fabric having a coating of metal intimately bonded with said fabric throughout substantially the entire area thereof on the side thereof toward said source of heat.

5. A drier comprising a rotary drum, a source of heat within said drum, and a belt partially encircling the drum with one side of the belt in contact therewith, said belt comprising a layer of fabric having a layer of metallic paint on the side thereof in contact with the drum.

6. A drier comprising a rotary drum, a source of heat within said drum, and a belt partially encircling the drum with one side of the belt in contact therewith, said belt comprising a layer of fabric having a layer of aluminum paint on the side thereof in contact with the drum.

7. A drier comprising a rotary drum, a source of heat within said drum, an inner belt partially encircling the drum with one side of the belt in contact therewith, and an outer belt partially encircling said drum and inner belt so that a print to be dried may be carried between said inner and outer belts, said inner belt comprising a layer of fabric having a coating of metallic paint on the side thereof in contact with the drum, to reduce scorching of the belt and to stiffen it to increase its smoothing action on a print being dried.

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