Dec. 15, 1925. 1,565,310

H. W. A. DIXON

MARKING OR BRANDING OF CARBON PAPER

Filed Aug. 5, 1924

Fig. 1,

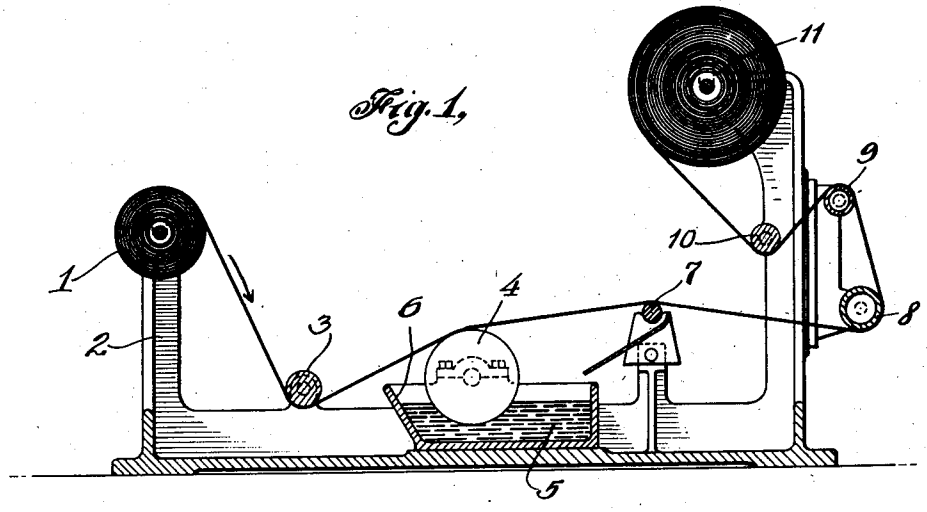


Fig. 2,

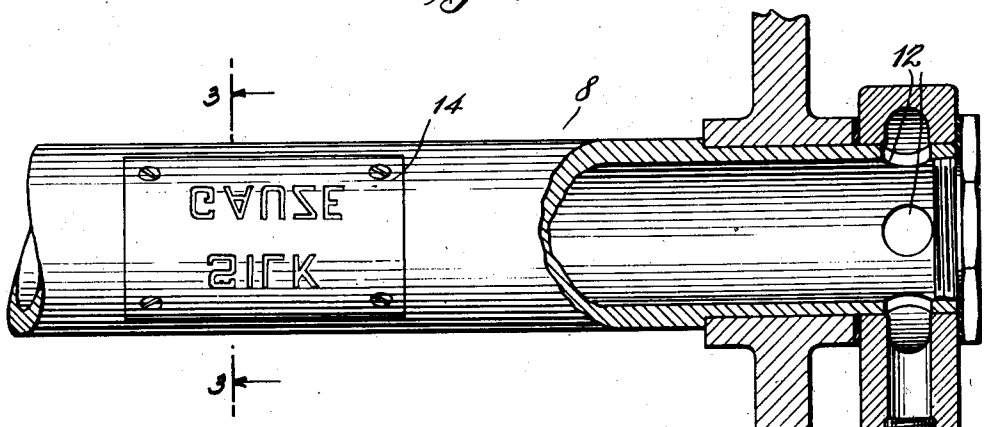


Fig. 3,

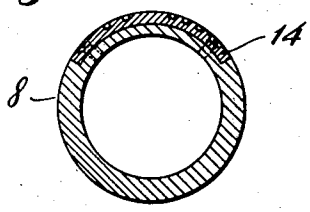
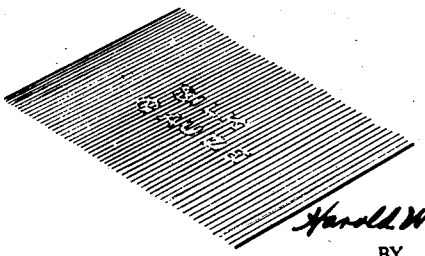


Fig. 4,



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UNITED STATES PATENT OFFICE.

HAROLD W. A. DIXON, OF HOLLIS, NEW YORK, ASSIGNOR TO COLUMBIA RIBBON & CARBON MANUFACTURING COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

MARKING OR BRANDING OF CARBON PAPER.

Application filed August 5, 1924. Serial No. 730,307.

To all whom it may concern:

Be it known that I, HAROLD W. A. DIXON, a subject of the King of Great Britain, and a resident of Hollis, in the county of Queens and State of New York, have invented certain new and useful Improvements in the Marking or Branding of Carbon Paper, of which the following is a specification.

My invention relates to transfer paper, commercially known as carbon paper, and one of the objects thereof is the provision of an improved method of providing one side of such a sheet with a predetermined marking, such as a brand, a name, a letter, or other marking.

A still further object of the invention is the provision of a method in which selected portions of the paper employed as the backing of the sheet or carrier for the transfer material is subjected to different temperatures to cause the amount of ink absorbed thereby to be varied at the selected portions to thereby produce a well defined marking on the back of the sheet.

In the manufacture of carbon paper it is customary after the backing sheet, which is more or less absorbent, has received its coating of ink, to bring the sheet into contact with a steam heated roll to cause the paper to absorb the ink. The back of the carrier sheet by this prior process becomes uniformly dark in color, the depth of this color depending upon the size of the steam heated roll, its temperature, and the speed with which the paper passes over it.

My improved method consists in bringing the carrier sheet into contact with a heated device, a roller, for example, selected portions of this heated device being of different temperatures, thereby varying the temperature of selected portions of the backing sheet. By this method the amount of ink absorbed by the backing sheet or paper is varied, producing a well defined brand or mark on the back of the sheet, the color of which is lighter or darker in color than the remainder of the sheet, depending upon whether the temperature of the heated device at these selected portions is lower or higher than the remaining portion of the device.

Obviously various types of apparatus may be employed in the practice of my invention, one form having been illustrated more or less diagrammatically in the accompanying drawings.

In these drawings,

Fig. 1 shows in sectional elevation an apparatus which I have found suitable for my purpose;

Fig. 2 is a part sectional elevational view of a roll bearing the design which is to be applied to the transfer sheet;

Fig. 3 is a section through this roll taken on the line 3—3 of Fig. 2; and

Fig. 4 shows the reverse side of a transfer sheet manufactured in accordance with my method.

Referring to the drawings in detail, 1 designates the supply roll of backing paper mounted for rotation in the frame 2. This frame carries an idler or guiding roller 3, and the paper from the roll 1 is passed beneath this roller and from thence is led over and in contact with the top of an inking roller 4.

This inking roller is preferably heated and rotates in contact with transfer material 5, also heated and usually composed of carbon and other materials, and contained in a tank 6. The paper passes from the inking roller 4 to an equalizing rod 7, which removes the surplus transfer material or ink from the face of the backing paper, the surplus material being returned to the tank 6.

From the equalizing rod the paper passes beneath a roller 8, shown in detail in Fig. 2, selected portions of this roller being heated to different temperatures as will be pointed out hereinafter, the back of the transfer sheet being brought into contact with this roller. The paper is then led over a cooling roll 9, around idler 10, to wind-up roll 11.

The roller 8 (see Fig. 2) is hollow, and at intervals its periphery is provided with orifices 12, through which steam is admitted from the steam pipe 13 to the interior of the roller so as to heat the same. The surface of his roller is provided at suitable intervals with the design which is to be applied to the transfer sheet. In the present instance, merely by way of example, I have shown this design cut in a plate 14 set into and fastened to the face of the roller. It will be understood, of course, that this design may be cut directly into the surface of the roll itself, and if desired the depressions or cut-out portions constituting the design

may be filled with suitable material which will not conduct heat. The design illustrated consists of the words "Silk gauze" in reverse, although, of course, any design may be employed. I might mention also that several designs may be applied to the roll, suitably spaced about its periphery, depending upon the desired spacing of the design on the paper itself, as well as the diameter of the roll, all of which is clear to anyone skilled in this art.

In the practice of my improved method the paper from the roll 1 is passed through the machine as illustrated in Fig. 1. As the backing or carrier paper passes through the machine it contacts with the surface of the inking roller 4 to receive its coating of transfer material or ink from the tank 6, and as the coated side of the backing paper comes in contact with the equalizing rod 7 the excess ink is removed. The paper next passes to the roller 8, the reverse or uninked side of the backing sheet contacting with this device, and inasmuch as selected portions, that portion making up the words "Silk gauze", is at a lower temperature than the remainder of the roller, it will be apparent that the selected portion of the backing sheet registering with the design "Silk gauze" will be heated to a lower temperature than the remainder of the backing sheet, and consequently will not absorb as much ink as the remainder of the paper, with the result that the back or reverse side of the backing sheet will bear the design "Silk gauze" in a lighter color than the remainder of the reverse side of the sheet. Should it be desired to have this design appear darker than the remainder of the sheet, it is merely necessary to heat the design itself while maintaining the remainder of the roller relatively cool. After the paper passes about the roller 8 it is passed about the cooling roller 9, the reverse side of the transfer sheet contacting with this roller. From there the paper passes under the idler roller 10 to the winding roller 11.

It will be seen, therefore, from the foregoing that I have provided an improved process whereby the amount of ink absorbed by selected portions of the backing sheet is varied relatively to the amount absorbed by the remainder of the sheet, thereby enabling me to apply any desired design to the sheet.

It is to be understood that the apparatus and other details of my invention above described may be varied within the boundaries of my invention.

What I claim is:

1. In the manufacture of transfer sheets comprising a backing and a coating of transfer material the process which consists in heating different parts of the backing to different temperatures to produce a defined marking on the uninked side of the backing sheet.

2. The process which consists in applying the transfer material to a backing sheet, heating different parts of the backing to different temperatures to cause the amount of transfer material absorbed by different parts of the backing sheet to be varied and then chilling or coating the transfer material to produce a defined marking on the backing.

3. The process of providing a transfer sheet with a marking, which process consists in bringing the back of the sheet into contact with a device having selected portions of different temperature from the remainder of the device and of suitable form to produce the required marking.

4. The process of providing the reverse side of a transfer sheet with a marking, which process consists in bringing the reverse side of the sheet into contact with the surface of a marking device portions of which are of different temperatures.

5. The process of providing a transfer sheet with contrasting surfaces in predetermined regions, which process consists in providing the backing of the sheet with a coating of impression material, then subjecting a selected portion of the backing to a different temperature from that of the remainder of the backing, whereby different portions of the backing will absorb different amounts of impression material.

6. A transfer sheet selected portions of which contain less absorbed transfer material than other portions to provide a design on the sheet contrasting in color with the remainder of the sheet.

7. A transfer sheet comprising transfer material and a sheet of absorbent material providing a support for the transfer material, predetermined portions of the absorbent sheet containing a different amount of absorbed transfer material than the remainder of the absorbent sheet to provide a marking on the reverse or paper side of the transfer sheet.

This specification signed this 31st day of July, 1924.

HAROLD W. A. DIXON.