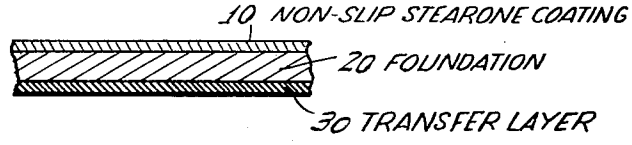
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METHOD OF RENDERING TRANSFER SHEETS RESISTANT TO CURLING AND SLIPPING AND RESULTANT ARTICLE

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INVENTOR.
Laurence C. Roulston
BY
Johnson and Kline
ATTORNEYS

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METHOD OF RENDERING TRANSFER SHEETS RESISTANT TO CURLING AND SLIPPING AND RESULTANT ARTICLE

Laurence C. Roulston, Islington, Ontario, Canada, assignor to Columbia Ribbon and Carbon Manufacturing Co., Inc., Glen Cove, N. Y., a corporation of New York

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The present invention is concerned with novel coatings for rendering carbon paper slip-resistant, non-curling and attractive, and with carbon papers bearing such coatings.

In the early development of carbon paper transfer sheets, an important difficulty was encountered in that paper sheets bearing a wax transfer layer tend to curl into a roll. This is due to the fact that the paper and the wax layer have different coefficients of expansion.

To overcome this curling problem, the back surface of the carbon paper, opposite the transfer layer, was coated with a wax layer which counteracted the curling effect of the transfer layer and rendered the carbon paper non-curling.

However, this gave rise to another problem since the wax coating on the back side of the carbon paper left the sheet very slippery and difficult to handle. This was a great disadvantage particularly where the carbon paper was to be used together with other paper sheets in a typewriter, since the carbon paper tended to slide over the other sheets and out of position so that portions of the desired carbon copy were missed.

To overcome these difficulties it has been proposed to add tacky or rubbery compositions to the wax backing to render the carbon paper non-slip. However, though in most instances the non-slip problem was overcome, new problems were created. Most important is the fact that the tacky or sticky nature of the back coating creates undesirable sticking together of the carbon paper when it is stored in reams or in boxes under conditions of high heat or humidity. Separation of the carbon papers results in ink offset from the transfer layer to the tacky backing of the underlying carbon sheet, or transfer of the backing layer to the pigment layer of the overlying carbon paper, or both. Obviously the result is that the carbon sheets are rendered useless and must be discarded.

It is therefore an object of the present invention to provide a non-slip, non-curl coating for the back of carbon papers which coating is neither tacky, nor sticky, nor dirty.

It is another object of this invention to produce non-slip, non-curl carbon papers which may be stored under all reasonable conditions of temperature and humidity without any detrimental effects.

It is still a further object of this invention to produce non-slip, non-curl carbon papers which have attractive glossy back coatings and which are nevertheless free of the tendency to stick to each other.

These and other objects are accomplished according to the present invention as more fully set forth hereinafter.

The drawing represents a carbon paper according to the present invention having a foundation sheet **20**, a conventional transfer layer **30** on one surface thereof and a non-curl, non-slip coating **10** on the opposite side thereof.

The many objects of the present invention are accomplished by coating the reverse side of carbon paper with a wax coating composition containing diheptadecyl ketone. The wax coating renders the carbon paper non-curl while the diheptadecyl ketone renders it non-slip without making it tacky, sticky or dirty.

The following example is set forth as illustrative and should not be construced as limitative.

Example

	Lbs.
Stearone	40
Dilwax 75 (microcrystalline mineral wax)	8
Carnauba wax	5

The above materials were melted and mixed together at approximately 200° F. to form a uniform smooth coating composition. This composition was then applied to the back of conventional carbon paper by the hot melt method in a coating weight of 1½ lbs. per ream 17 x 22–500. Upon cooling, there resulted carbon paper having excellent non-curl and non-slip properties.

As may be seen from the foregoing example, stearone, also known as diheptadecyl ketone or 18-pentatriacontanone, is compounded with conventional waxes to form a carbon paper back coating composition in which the stearone is present as the major ingredient. Stearone has been found effective in amounts ranging from about 50% to about 90% by weight based upon the total weight of the back coating composition. The use of small amounts detracts from the desired non-slip properties while the use of large amounts renders the back coating more or less brittle. Therefore the preferred range is from about 65% to about 85% by weight of stearone to about 15% to about 35% by weight of wax.

No criticality exists with respect to the waxes employed since they will generally be selected depending upon the nature and properties of the waxes employed in the transfer layer. Suitable waxes preferably high melting in the range of 145°–200° F. and may be selected from the animal, vegetable and mineral waxes such as carnauba, ouricury, paraffin, beeswax, raw montan, microcrystalline petroleum wax, oxidized petroleum wax (emulsifiable type), as well as many others. The Dilwax 75 of the example is a basic straight mineral wax, solvent-extracted from petroleum, a true microcrystalline wax having a melting point of about 181.8° F.

The coatings are applied to the back of the carbon paper in any conventional manner using roll or knife coating machines. If desired, the back coating may be applied at the same time the carbon transfer coating is being applied to the opposite side. The back coating weight may be greatly varied between ½ and 2 pounds per ream 17 x 22–500 depending upon the nature of the paper and the coating weight of the transfer layer. However, a coating weight of from 1 to 1½ pounds per ream 17 x 22–500 is generally preferred. These coatings are clean and will not smudge or offset under normal pressures, as for instance may be exerted upon the carbon paper while typing or making erasures or corrections.

As is obvious to those skilled in the art, the non-slip coatings of the present invention may be applied to any type of transfer sheet such as those of the conventional carbon paper, hectograph or planographic types. However, the main use of non-slip back coatings is in the carbon paper field with which the present invention is most concerned.

Variations and modifications may be made within the scope of the claims and portions of the improvements may be used without others.

I claim:

1. A non-curling slip-resistant transfer sheet coated on one side with a transfer layer containing imaging material and on the reverse side with a wax composition containing from about 50% to about 90% by weight of stearone.

2. A non-curling slip-resistant carbon paper coated on one side with a carbon transfer layer and on the reverse side with a wax composition containing from about 50% to about 90% by weight of stearone.

3. A non-curling slip-resistant carbon paper coated on one side with a carbon transfer layer and on the re-

verse side with a wax composition comprising from about 15% to about 35% by weight of wax and from about 65% to about 85% by weight of stearone.

4. A non-curling slip-resistant carbon paper coated on one side with a carbon transfer layer and on the reverse side with a wax composition containing microcrystalline mineral wax and from about 50% to about 90% by weight of stearone.

5. The method of rendering transfer sheets resistant to curling and slipping which comprises applying to the back side of the transfer sheet a coating composition prepared by melting and mixing from about 10% to about 50% by weight of wax and from about 50% to about 90% by weight of stearone.

6. The method of rendering carbon paper resistant to curling and slipping which comprises applying to the back side of the carbon paper a coating composition prepared by melting and mixing from about 15% to about 35% by weight of wax including microcrystalline wax and from about 65% to about 85% by weight of stearone.

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