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OPAQUE WASHABLE PLAYING CARD AND METHOD OF MANUFACTURING SAME

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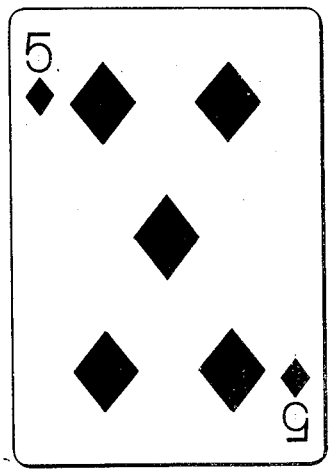

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UNITED STATES PATENT OFFICE

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OPAQUE WASHABLE PLAYING CARD AND METHOD OF MANUFACTURING SAME

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This invention relates to opaque washable playing cards and to methods of manufacturing same.

A great variety of proposals have already been made to replace the white or light colored cardboard from which playing cards are usually manufactured by an unsoilable or washable material. However, no one has yet succeeded in producing a practicable substitute for this purpose, because the requisite materials such for example, as thin metal sheets, impregnated or varnished papers, dressed fabrics or the like differ too much in character from the usual cardboard playing cards. The best results have hitherto been obtained by using thin sheets of celluloid or analogous materials containing a large proportion of white or light-coloured mineral powders, and closely resembling cardboard playing cards in their external appearance. In spite of numerous attempts, however, these celluloid playing cards have not been commercially successful because they did not fulfill the most important requirement, namely preventing the markings on the cards from showing through. It has hitherto been impossible to make any card of celluloid or similar artificial substances, without such card being highly permeable to light rays, and revealing the markings on the card immediately, or at least in the event of a source of light being present in the vicinity of the player, that is to say, when striking a match or when switching-on a table lamp. This was due to the fact that the celluloid-like compositions were incapable of taking up more than a certain amount of filling ingredients and that any excess involved the loss of strength, the material becoming brittle or easily tearable. On the other hand, the usual pigments, such as zinc white, lithopone, calcspar, talc, magnesium carbonate and the like, do not possess sufficient covering power. Whereas there is no difficulty in rendering plates of a thickness of one or more millimetres completely opaque it is impossible, with the usual filling materials, to impart opacity to sheets of a thickness of a quarter of a millimetre, such as required for the manufacture of playing cards. Even sheets which contain 50% or more of their weight of zinc white are permeable to light when they are held up against a source of illumination, and thus render the markings on a card recognizable.

It has now been ascertained that this permeability to light can be obviated by employing as pigments, mineral powders of low specific gravity, which are very voluminous and therefore have a high covering power in association with powders of higher specific gravity which, in general, do not have sufficient covering power or which cannot be incorporated with the celluloid-like materials in sufficient amounts. Such mineral powders comprise for example, bismuth oxychloride, bismuth sub-nitrate, antimony oxide, mercurous chloride, titanium oxide, zinc sulphide, and the like. Certain quantities of such pigments can be added to the usual filling ingredients without altering the properties of these latter in other respects and particularly without increasing their brittleness; and in this manner, an astonishingly high covering power is obtained. Thus for example, sheets 0.25 to 0.3 mm. thick can be made by known methods, from nitro-cellulose, cellulose acetate, alkyl cellulose, alkyl-cellulose acetate and similar pastic compositions, by the addition of a mixture of 4 parts of zinc white and 1 part of titanium white; and such sheets will no longer allow light to pass through even from a strong source of illumination.

By adding other mineral pigments, or also soluble colouring matters, these card blanks can be coloured as desired, in lighter or darker tones; they can be easily printed without any need for fixing the impression by subsequent varnishing, and the resulting cards are very difficult to distinguish from those printed on cardboard. They are as opaque as the latter, but are superior in respect of strength (especially resistance to creasing); moreover they are impervious to water and dirt and have the advantage of being less easily torn or buckled.

The surface of the card blanks produced in this manner is preferably rendered matt

before printing, whereby it takes the printing inks far better, and readily enables multi-colour impressions to be obtained by the offset process, in power presses.

After printing, the matt surface may, if desired, be made semi-glossy or highly glazed by calendering, or with the aid of a surfacing press, or in any other way.

The accompanying drawing illustrates a playing card made from a blank prepared in accordance with the present invention.

We claim:—

1. An opaque washable playing card blank consisting of a sheet of cellulose derivative composition of a thicknes of below about 0.35 mm. with which has been incorporated a mixture of powdered mineral filler of low specific gravity and high covering power and a powdered mineral filler of high specific gravity and low covering power.

2. An opaque washable playing card blank consisting of a sheet of cellulose derivative composition of a thickness of below about 0.35 mm. with which has been incorporated a mixture of powdered zinc white and a less quantity of powdered titanium white.

3. An opaque washable playing card blank consisting of a sheet of cellulose derivative composition of a thickness of below about 0.35 mm. with which has been incorporated a mixture of the order of 4 parts of powdered zinc white and 1 part of powdered titanium white.

4. An opaque washable playing card blank consisting of a sheet of cellulose derivative composition of a thickness of below about 0.35 mm. with which has been incorporated a mixture of powdered mineral filler of low specific gravity and high covering power and a less quantity of a powdered mineral filler of high specific gravity and low covering power.

In testimony whereof we affix our signatures.

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