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IMITATION MOTHER-OF-PEARL AND PROCESS OF MAKING THE SAME.

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This invention relates to imitation mother-of-pearl and the process of making the same.

The object of the invention is to provide a plastic composition in imitation of mother-of-pearl and having therein the peculiar wavy sheen or lustre effects which is characteristic of the genuine mother-of-pearl, the wavy sheen or lustre effects being indiscriminately interspersed throughout the composition.

In my pending application Serial No. 672,470, filed November 3, 1923, I have shown, described and claimed an apparatus for and process of manufacturing imitation mother-of-pearl, wherein a pigment is incorporated in and uniformly distributed throughout a mass of plastic material, and this mass is then so manipulated as to cause the incorporated and distributed particles of pigment to become laid or disposed in a particular manner to give a substantially uniform directional trend thereto. The mass so treated, in the form of thin sheets, is stacked into a pile and the pile compressed under heat and pressure into a homogeneous mass, and is ready for the market, or it may be sheeted into thin sheets which are employed in the fabrication of various commercial articles.

According to the mode of procedure set forth and claimed in my application above identified, after the desired pigment is thoroughly incorporated in and distributed throughout the plastic mass, the mass is so manipulated as to lay or dispose the particles of pigment in a substantially uniform directional trend. One way of accomplishing that result is disclosed in said application, whereby the mass containing the incorporated and distributed pigment particles, for example, fish scale pigment, is heated or cooked to the extent of being reduced to a state of more or less fluidity or flowing plasticity. While in this state the fluid mass is forced by means of a piston plunger operating in a chamber containing the said mass, and, while still maintained under heat, through a die having a slit or opening of fixed restricted area. This results in extruding the mass in the form of a thin sheet or body which is ironed or calendered. This ironing or calendering action causes the particles of pigment contained in the extruded mass to become laid or disposed in a more or less uniform directional trend. The sheets thus produced are then piled into a stack which is subjected to heat and pressure to form the same into a solid homogeneous block or cake. This block or cake is then sheeted into thin sheets which when sufficiently dried are ready for the market or for use in making various commercial articles.

I have discovered that a superior and more beautiful and delicate product is attained, and one which more closely resembles the genuine mother-of-pearl, by producing at indiscriminately interspersed points or locations in the product, the wavy lines of lustre or sheen effects which are characteristic of the genuine mother-of-pearl, and I have discovered that this characteristic wavy lines of sheen or lustre effect can be produced by relatively varying the character in some one or more respects of the thin sheets which are stacked or piled for compression into the homogeneous cake or block, preparatory to sheeting into the thin sheets for fabricating into commercial articles, and then interspersing such relatively differing sheets indiscriminately in said stack or pile.

According to my present invention, I propose to introduce at some point in the operation above described a more or less temporary variation in the procedure, and to distribute at various points in the stack or pile the thin sheets produced by the temporary variations, so that when the stack or pile is pressed into a homogeneous block or cake and then sheeted into thin sheets, such sheets will reveal a wavy sheen or lustre effect at indiscriminately positioned locations therein which imparts a highly pleasing and beautiful appearance more nearly approaching the characteristic sheen and lustre of the genuine mother-of-pearl.

I have found that this wavy effect may be secured in various ways. According to one method, the stack or pile of thin sheets to be formed under heat and pressure is built up with some thin sheets produced at one speed of extrusion of the fluid mass through the heated die and other thin sheets indiscriminately interspersed in the stack or pile, but produced at a different rate of speed of extrusion, the temperature at which the extrusion takes place being maintained constant in both instances. This means that in the case of some of the thin sheets the pressure applied to force the fluid mass through

the die is increased so as to effect the extrusion at a rate such that there is failure to thoroughly or uniformly iron the surface while others of the sheets in the pile are more thoroughly ironed or calendered.

The same result may be obtained by maintaining a constant pressure and speed of extrusion but varying the temperature of the die to impart the relatively different characteristics to the sheets to be stacked up in the pile.

Still another way of accomplishing the result consists in employing extruded sheets of relatively different thicknesses in building up the stack or pile.

According to another method, the stack or pile is built up of indiscriminately positioned sheets which are extruded through dies of relatively different lengths, the extruding pressure and temperature remaining the same.

Another method consists in relatively varying the plasticity of the compositions from which the thin sheets are produced, as, for example, by varying the amount of solvent permitted to remain in the mass by subjecting the same to a longer or shorter period of rolling operation.

In order to secure the variegated effects referred to, I may also employ for indiscriminately located layers in the stack or pile, small pieces or sections of one or another of the relatively varying sheets produced by any of the methods referred to.

The resulting product in the form of a thin sheet into which the homogeneously pressed stack or pile is cut or slit, possesses the beautiful, delicate, irregularly dispersed wavy sheen or lustre effects which very closely approaches and simulates the appearance of the best qualities of genuine mother-of-pearl.

I do not show any apparatus employed in carrying out my present invention, but I have found the apparatus shown, described and claimed in my pending application, above identified, well answers the purpose when controlled and varied in the operation thereof in the manner above set forth.

Having now pointed out the objects and nature of my invention, and the manner of carrying the same into practical effect, what I claim as new and useful, and of my own invention, and desire to secure by Letters Patent, is:—

1. In the manufacture of imitation mother-of-pearl, the process which consists in stacking into a pile indiscriminately sheets of plastic material containing light reflecting pigment particles with faces or facets, said sheets having relatively different light reflecting characteristics, and pressing such pile into a homogeneous body.

2. In the manufacture of imitation mother-of-pearl, the process which consists in stacking into a pile indiscriminately sheets of plastic material containing light reflecting pigment particles with faces or facets, said sheets having relatively different light reflecting characteristics, pressing such pile into a homogeneous body, and then severing such body into sheets.

3. In the manufacture of imitation mother-of-pearl, the process which consists in stacking into a pile sheets of plastic material containing light reflecting pigment particles with faces or facets, said sheets having relatively different characteristics in indiscriminate relation to each other, and pressing such pile into a homogeneous body.

4. In the manufacture of imitation mother-of-pearl, the process which consists in stacking into a pile sheets of plastic material containing light reflecting pigment particles with faces or facets, said sheets having relatively different light reflecting characteristics in indiscriminate relation to each other, pressing such pile into a homogeneous body, and then severing such body into sheets.

5. In the manufacture of imitation products the process which consists in incorporating a pigment having particles with light reflecting faces or facets into a mass of plastic material, then forming the mass into thin sheets having relatively different light reflecting characteristics, then stacking said sheets in indiscriminate relation into a pile, and pressing the pile into a homogeneous body.

6. In the manufacture of imitation products, the process which consists in incorporating a pigment having particles with light reflecting faces or facets into a mass of plastic material, then forming the mass into thin sheets having relatively different characteristics of disposition of said faces or facets, then stacking said sheets in indiscriminate relation into a pile, pressing the pile into a homogeneous body, and then severing the body sheets.

7. The process which consists in stacking into a pile thin sheets of plastic composition containing light reflecting pigment particles with faces or facets, said sheets having relatively differing light reflecting characteristics in indiscriminate relation to each other and compressing such pile into an homogeneous mass.

8. The process which consists in stacking into a pile thin sheets of plastic composition containing light reflecting pigment particles with faces or facets, said sheets having relatively differing light reflecting characteristics in indiscriminate relation to each other, compressing such pile into an homogeneous mass, and sheeting the resulting mass into thin sheets.

9. The process which consists in indiscriminately assembling sheets of plastic

composition having incorporated therein pigment particles having flat light reflecting surfaces, said sheets having relatively differing light reflecting characteristics, and forming such assembly into an homogeneous mass.

10. The process which consists in indiscriminately assembling sheets of plastic composition containing light reflecting pigment particles of relatively differing disposition in the respective sheets, forming such assembly into an homogeneous mass, and sheeting the same into thin sheets.

11. The process which consists in indiscriminately assembling sheets of plastic composition having pigment material of light reflecting particles incorporated therein, and possessing relatively differing light reflecting characteristics, and forming such assembly into an homogeneous mass.

12. The process which consists in indiscriminately assembling sheets of plastic composition having pigment material containing light reflecting particles incorporated therein, and possessing relatively differing light reflecting dispositions of said particles forming such assembly into an homogeneous mass, and sheeting such mass into thin sheets.

13. In the manufacture of imitation products, the process which consists in disposing the light reflecting faces or facets of particles of pigment contained in a plastic mass in unidirectional trend, then disposing the faces or facets of pigment particles of another mass in a relatively different directional trend, and assembling said masses into a homogeneous body.

14. In the manufacture of imitation products, the process which consists is disposing the faces or facets of particles of pigment contained in a plastic mass in unidirectional trend, then disposing the faces or facets of pigment particles of another mass in a relatively different directional trend, assembling said masses into a homogeneous body, and sheeting said body into thin sheets.

15. In the manufacture of imitation products, the process which consists in disposing the faces or facets of particles of pigment contained in a plastic mass in unidirectional trend, then disposing the faces or facets of pigment particles of another mass in a relatively different directional trend, assembling said masses in indiscriminate relation, and forming the assembly into a homogeneous body.

16. In the manufacture of imitation products, the process which consists in disposing the faces or facets of particles of pigment contained in a plastic mass in unidirectional trend, then disposing the faces or facets of pigment particles of another mass in a relatively different directional trend, assembling said masses in indiscriminate relation, forming the assembly into a homogeneous body, and sheeting said body into thin sheets.

17. As a new article of manufacture, a composition of matter containing pigment particles having light reflecting faces or facets disposed to form interspersed wavy lines of sheen or lustre therein.

18. As a new article of manufacture, a plastic composition containing pigment particles having light reflecting faces or facets disposed to form indiscriminately interspersed wavy lines of sheen or lustre effects therein.

19. As a new article of manufacture, a plastic composition containing pigment particles having light reflecting faces or facets disposed to form wavy lines of sheen or lustre effects arranged in groups.

20. As a new article of manufacture, a plastic composition containing pigment particles having light reflecting faces or facets disposed to form wavy lines of sheen or lustre effects arranged in indiscriminately dispersed groups.

21. As a new article of manufacture, a plastic composition containing pigment particles having light reflecting faces or facets disposed to form wavy lines of sheen or lustre therein.

22. As a new article of manufacture, a plastic body having pigment particles with light reflecting faces or facets incorporated therein and disposed in varying directions of trend.

23. Artificial mother-of-pearl comprising a plastic body having particles of fish scale pigment incorporated therein and disposed in relatively varying directions of trend.

24. A homogeneous plastic body composed of a plurality of amalgamated thin sheets each having pigment particles with light reflecting faces or facets incorporated therein, the faces or facets of the pigment particles in one sheet having a relatively different directional trend from those of another sheet.

25. Artificial mother-of-pearl composed of a plurality of thin sheets of plastic material each having particles of fish scale pigment incorporated therein, the light reflecting faces or facets of said particles in one sheet varying in direction of trend from that of the faces or facets of particles in another sheet.

26. A plastic body in the form of a thin sheet consisting in a plurality of homogeneously united portions of plastic material containing pigment particles having light reflecting faces or facets, the directional trend of the faces or facets of said particles varying in the various plastic material portions.

27. Artificial mother-of-pearl in the form of a thin sheet consisting of a plurality of homogeneously united portions of plastic material containing particles of fish scale

pigment, the directional trend of the light reflecting faces or facets of said particles differing in the various plastic material portions.

28. Process of manufacture of substances having a nacreous appearance, and the like, consisting in placing in suspension in a transparent plastic substance a material composed of corpuscles forming minute reflectors, in producing a systematic orientation of the said corpuscles, and immobilizing the said corpuscles in this orientation by the solidification of the said substance, in forming the mass thus obtained into constructive elements, in juxtaposing a plurality of such elements so as to obtain different orientations of the various elements, and in causing the said juxtaposed elements to adhere together.

In testimony whereof I have hereunto set my hand on this 3rd day of March A. D., 1924.

EDWARD F. HIGGINS.