Oct. 11, 1938. H. F. COLVIN 2,133,081

DECORATED ARTICLE AND PROCESS FOR MAKING SAME

Filed May 10, 1937

Fig. 1.

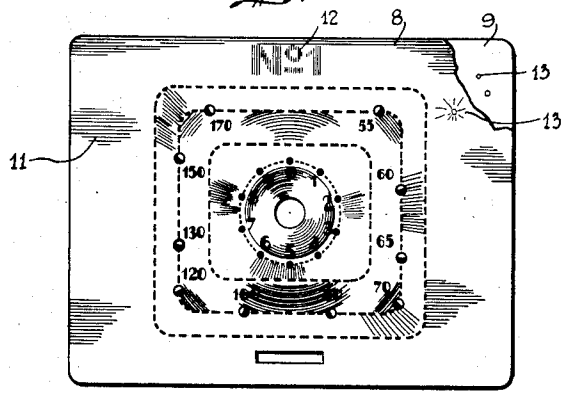
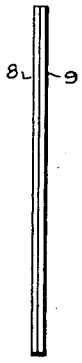


Fig. 2.



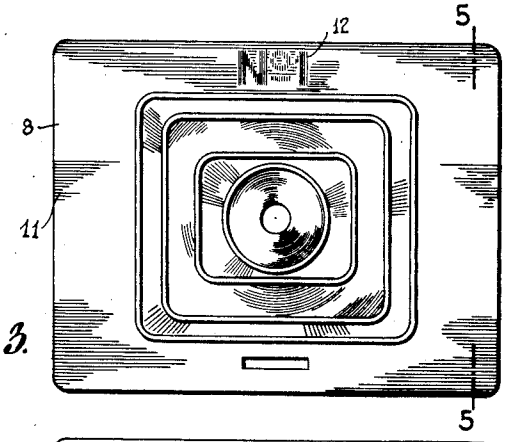


Fig. 3.

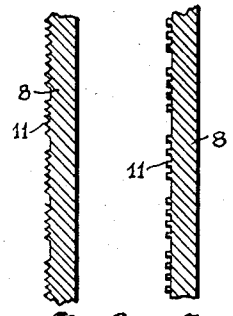


Fig. 6. Fig. 5.

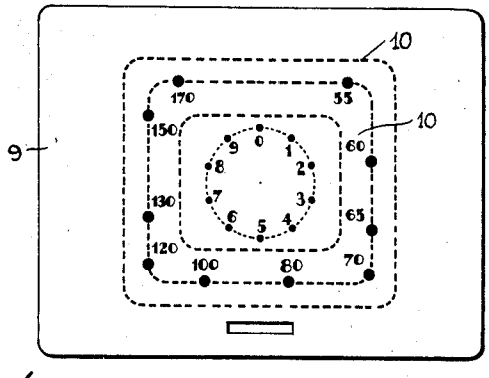


Fig. 4.

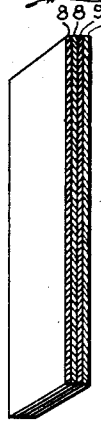


Fig. 7.

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UNITED STATES PATENT OFFICE

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DECORATED ARTICLE AND PROCESS FOR MAKING SAME

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Application May 10, 1937, Serial No. 141,642

17 Claims. (Cl. 41—19)

This invention relates to an ornamented article wherein a lamina or surface of imprints, indexes, characters, patterns or pictures is embedded between two sheetings preferably of plastic material being printed or otherwise impressed on the inner surface of one of said sheetings and at least one of said sheetings is transparent and is multitudinously indented or embossed forming a decorative design which is correspondingly appropriate for said imprints; and to the process for making such articles as above mentioned, comprising the impression of imprints on one of the constituent sheetings, the composition of the sheetings by welding or cementing two or more sheetings and embossment of a design on an outer transparent sheeting by means of an engraved mould heated to a temperature sufficient to soften said sheet to be molded under pressure.

My invention has for its primary objects to provide articles of manufacture which has enamel finished appearance through the refractive, reflective and diffractive effects of a surface layer embossed in appropriate design to correspond with imprints underneath which may be a clock face, radio control indexes or the like; to provide a decorative iridescent surface on an article of manufacture in a pattern appropriate for imprints thereunder; to provide an article of manufacture having an ornamental surface which is multitudinously indented to form a pattern and inscriptions, letters, numerals or figures, appropriate for indexes and a design embedded thereunder; to provide an efficient and inexpensive process for making such articles as above mentioned; and the employment of a translucent sheeting upon which imprints are impressed for obtaining translucent back ground for said imprints, instead of coating with or spraying translucent material for the same purpose.

With the above and other objects in view, my invention comprises certain details of construction and arrangement of parts as will be hereinafter more fully described, illustrated and claimed, the reference being had in the accompanying drawing which forms a part of this specification and in which:

Fig. 1 is a face view of a decorated article in form of a sheet or slab partly broken away embodying this invention.

Fig. 2 shows a side view thereof.

Fig. 3 represents the first or top sheeting of said article.

Fig. 4 is the second or bottom sheeting.

Fig. 5 depicts an enlarged cross section along line 5—5 of Fig. 3 of a fragment of the first sheeting appearing in Fig. 3.

Fig. 6 shows a modification of the preceding fragment also in a similar cross-section.

Fig. 7 is a perspective view of a modified embodiment of my invention having a plurality of impressed sheetings as its constituents.

Similar numerals designate corresponding parts throughout several views.

Referring to Figs. 1 and 2, numeral 8 designates a top layer or sheeting, under which a second sheeting 9 is located. The top and second sheetings may be of the same plastic material, such as celluloid pyroxylin, other ethers and esters of cellulose, or horn like materials having approximately the physical properties of cellulosic materials, or such materials generally now known in the trade as "Vinylite" and "Lucite." While the top sheet should be transparent or substantially so to expose the inner surface of the second sheeting to view, the latter may either be transparent, translucent or opaque. The translucency of the second sheeting relying on colored or black pigments therein is preferable to that obtained by coating or spraying colored material thereon.

As shown in Fig. 4 the second sheeting 9 carries imprints 10 printed thereon, such as that of a clock face or of radio dial indexes. Upon this printed surface the top sheeting 8 is welded under pressure or cemented by a suitable solvent of the material of which the sheetings are made.

As indicated by the parallel and radial lines the top sheeting (see Fig. 3) is multitudinously indented or grooved by placing one of the surfaces thereof in contact with a mold on which a pattern is previously engine turned or otherwise engraved, and subjecting to suitable temperature and pressure. This may be done any time before, during or after welding or cementing though the molding can be more conveniently performed at the same time when welding.

Figs. 5 and 6 show the grooves 11 on the top sheeting 8 in a section cut thereacross. The grooves may have flat ridges and bottoms parallel to the plane of the sheeting as in Fig. 5 or may be saw toothed as in Fig. 6.

It is well known that if the number of the grooves per unit length is sufficiently large an iridescent effect, similar to a phenomenon appearing in a diffractive grating or in mother-of-pearl, will result in beautifying the surface more prominently when the grooves are saw tooth shaped as in Fig. 6.

However, I do not limit my invention in the fineness of grooving, nor in the shape of grooves.

It goes without mentioning that the top sheeting may be impressed with the imprints of index or the like on the inner surface and embossed on the outer surface thereof, leaving the second sheeting blank except its own coloring or translucency.

The embossed design or pattern 11 on the top sheeting may be made appropriately to correspond with the imprints 10 on the other surface or on the second sheeting, as the case may be, and these two impressions 10 and 11 are superimposed in harmonizing relation (see Fig. 1).

Needless to add, the indented pattern 11 on the top sheeting may include numerals or characters 12 when desired, as illustrated at the top parts of Figs. 1 and 3.

Furthermore facets may be formed in the top sheeting 8 by the introduction of irregular sides and bottoms of the grooves or of small grains of foreign matter 13 between the sheetings in order to further enhance the appearance of the article.

There is a relation between the depth of the engraving or embossing 11 on the embossed plate or sheet 8 and the thickness of such top sheet 8 which prevents distortion of the imprint 10.

In the preceding description, I have referred to an ornamented article consisting of only two sheetings, but it is apparent that a plurality of such sheetings may be incorporated together by welding or otherwise.

In Fig. 7 there are superposed four sheetings for example, two of embossed outer sheetings 8 which give a more complicated but beautiful appearance because of the moire effect resulting from embossing, say for example, parallel grooves as indicated by the numeral 11 which is provided on the outer surfaces of the outer sheets 8 and of the depth perception due to the doubling-up of the imprints 10.

I am aware that means for obtaining enamel finish effect by coating the surface of an article with transparent material or placing a sheeting of similar material thereon, and means for obtaining iridescent effect by means of parallel grooves are known in the prior art, but that the combination of an embedded imprinted surface and embossed surface in appropriate relation to the imprints is novel.

In the prior art, the process for composing sheetings together is dependent upon a cementing material and process for coloring a sheeting or rendering it translucent is dependent upon spraying colored or translucent material on a transparent sheeting. These processes are unsatisfactory, owing to the facts that the spreading of cementing material uniformly is a difficult matter and that spraying coloring material causes or tends to cause buckling of a thin sheeting. In the present process such hazardity is entirely avoided.

From the foregoing description taken in connection with the annexed drawing, the construction and arrangement of parts and method of manufacture will be readily apparent to those skilled in the art to which this invention appertains, and while I have illustrated and described articles and process for making the same as I now thought to be the best embodiments of my invention, I wish to have it understood that the articles herein shown and described and the process herein described are merely illustrative, and therefore, that such modifications may be made when desired as to fall within the scope of the invention as claimed.

Having thus described my invention what I claim as new is:

1. A decorated article of manufacture, which comprises at least two sheetings of plastic material and a lamina, bearing imprints and embedded therebetween, one of said sheetings being transparent to expose said imprints to view and being multitudinously grooved to form a pattern appropriate for said imprints.

2. An ornamented article of manufacture, which comprises two sheetings of plastic material welded together, one of said sheetings having imprints on the inner surface thereof, and the other having a surface embossed to form a pattern appropriately corresponding to said imprints and being transparent to expose said imprints through said embossed surface.

3. An article of manufacture, which comprises two sheetings of plastic material pressed together to embed therebetween imprints on one of said sheetings, one of said sheetings being transparent and embossed in parallel grooves to form a pattern appropriate for said imprints.

4. An article of manufacture, which comprises at least two sheetings of plastic material superposed one over the others embedding an imprinted surface therebetween, one of said sheetings being finely grooved to form a pattern appropriate for the imprints on said surface to impart thereto an iridescent effect.

5. A decorated article of manufacture, which comprises a plurality of plastic sheetings composited one over the other embedding an imprint between two adjacent sheetings, at least one surface thereof embossed in form of a multitudinously grooved pattern appropriate for said imprint to create a moire effect.

6. A decorated article of manufacture, which comprises a substantially transparent sheeting of plastic material having opposite imprint and embossed surfaces, the embossed surface being appropriate for said imprint.

7. A process for making decorated articles, which comprises impressing imprints on a plastic sheeting, welding a transparent plastic sheeting thereon so as to imprison said imprints therebetween, and embossing said latter sheeting to form a pattern appropriate for said imprints.

8. A process for making decorated articles, which comprises impressing imprints on a transparent plastic sheeting, welding another plastic sheeting therewith so as to embed said imprints, and multitudinously indenting said transparent sheeting to form a groove pattern appropriate for said imprints.

9. A process for manufacturing ornamented articles, which comprises impressing imprints on a surface of a plastic sheeting, embossing on a sheeting a pattern in form of grooves appropriate for said imprints, and compositing said sheetings together so as to embed said imprints therebetween.

10. A process for manufacturing decorated articles, which comprises impressing imprints on a surface of a transparent plastic sheeting, embossing the opposite surface thereof to form a pattern appropriate for said imprints.

11. A process for making decorated articles, which comprises impressing imprints on a surface of a plastic sheeting, embossing transparent plastic sheetings at least at two surfaces thereof to form patterns in multitudinous grooves appropriately harmonious to said imprints, and said sheetings being composited one upon the

other so as to embed said imprints and to produce a moire effect.

12. A decorated article of manufacture, which comprises a plastic sheeting having imprints impressed on a surface thereof, a sheeting having embossed thereon a pattern in the form of grooves appropriate for said imprints, said sheetings being composited together embedding said imprints therebetween.

13. A decorated article of manufacture, which comprises a plastic sheeting having imprints impressed on a surface thereof, a sheeting having embossed thereon a pattern in the form of parallel grooves appropriate for said imprints, said sheetings being composited together embedding said imprints therebetween.

14. A decorated article of manufacture, which comprises a plastic sheeting having imprints impressed on a surface thereof, a sheeting having embossed thereon a pattern in the form of concentric grooves appropriate for said imprints, said sheetings being composited together embedding said imprints therebetween.

15. A decorated article comprising a plurality of sheets of plastic material permanently secured together, said sheets having an imprint surface and grooved surface in different plane and each having a pattern depicted thereon appropriate to each other.

16. A decorated article comprising a plurality of sheets of plastic material permanently secured together, said sheets having an imprint surface and grooved surface in different planes, the imprint surface having different printed patterns thereon, and the grooved surface having different ornamental grooved patterns thereon, the grooved patterns and printed patterns being arranged in corresponding relation.

17. A decorated face dial comprising a plurality of sheets of plastic material permanently secured together, said sheets having an imprint surface therebetween with different printed areas and having a grooved surface in front of said imprint surface with different grooved areas of contrasting appearance and substantially corresponding with the printed areas.

HENRY F. COLVIN.