United States Patent [19]

Robinson

[11] **3,880,686**

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[54] **SIMULATED PAINTING WITH BRUSH OR PALETTE-KNIFE STROKES, AND METHOD OF MAKING THE SAME**

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[22] Filed: **Aug. 9, 1973**

[21] Appl. No.: **387,202**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 334,365, Feb. 21, 1973, abandoned, Continuation-in-part of Ser. No. 342,322, March 16, 1973, abandoned.

[52] **U.S. Cl.** **156/59;** 156/245; 161/18; 264/219

[51] **Int. Cl.** **B44c 3/02**

[58] **Field of Search** 161/18; 156/59; 264/219, 264/220

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Attorney, Agent, or Firm—Michael S. Striker

[57] **ABSTRACT**

A silicone rubber mold is made of a painting having brush or palette-knife strokes. A sheet of transparent vinyl is placed over a printed reproduction of this painting, and the mold is placed over the sheet. The latter is then bonded to the reproduction while simultaneously being flow-molded under application of heat and pressure, so that the sheet is provided with relief replicas of the brush or palette-knife strokes.

6 Claims, 9 Drawing Figures

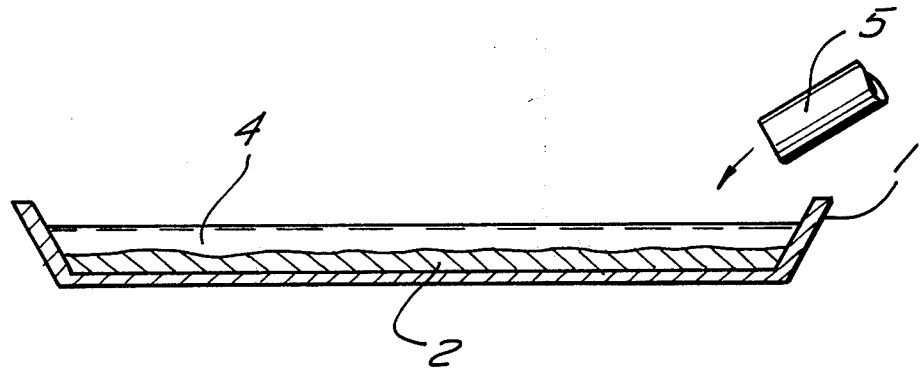


FIG. 1

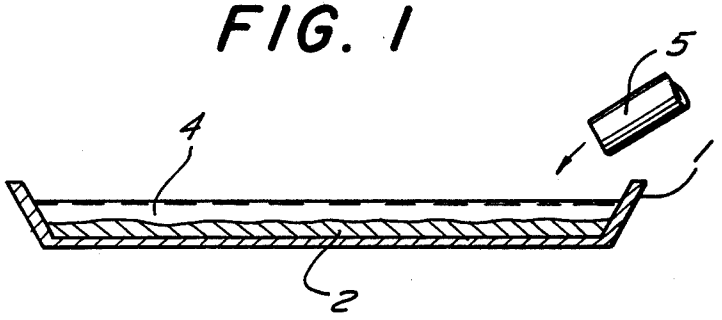
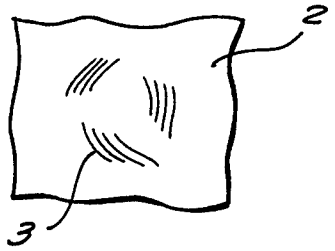


FIG. 2



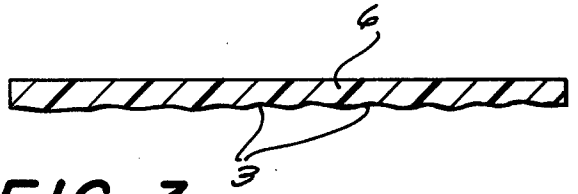


FIG. 3

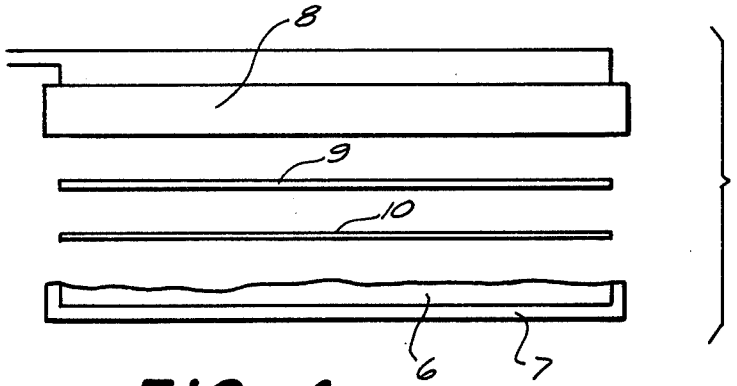
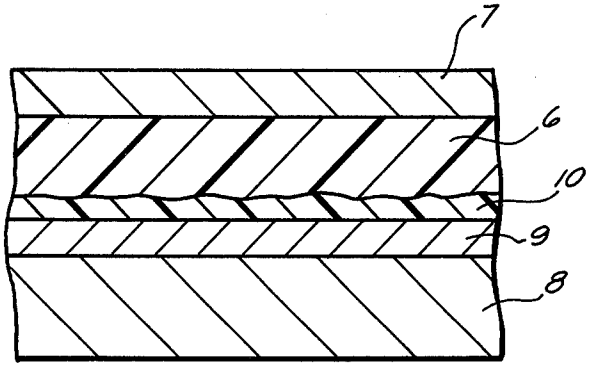


FIG. 4

FIG. 5



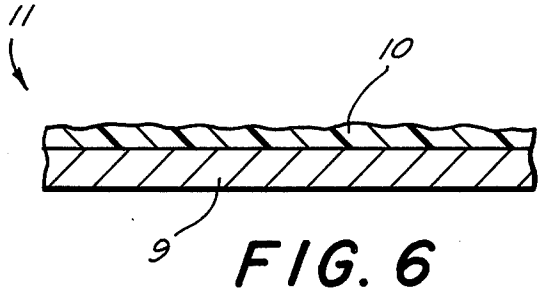


FIG. 6

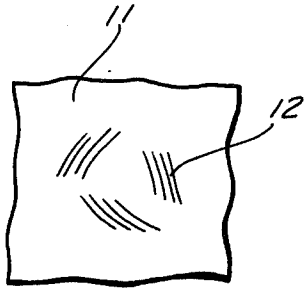


FIG. 7

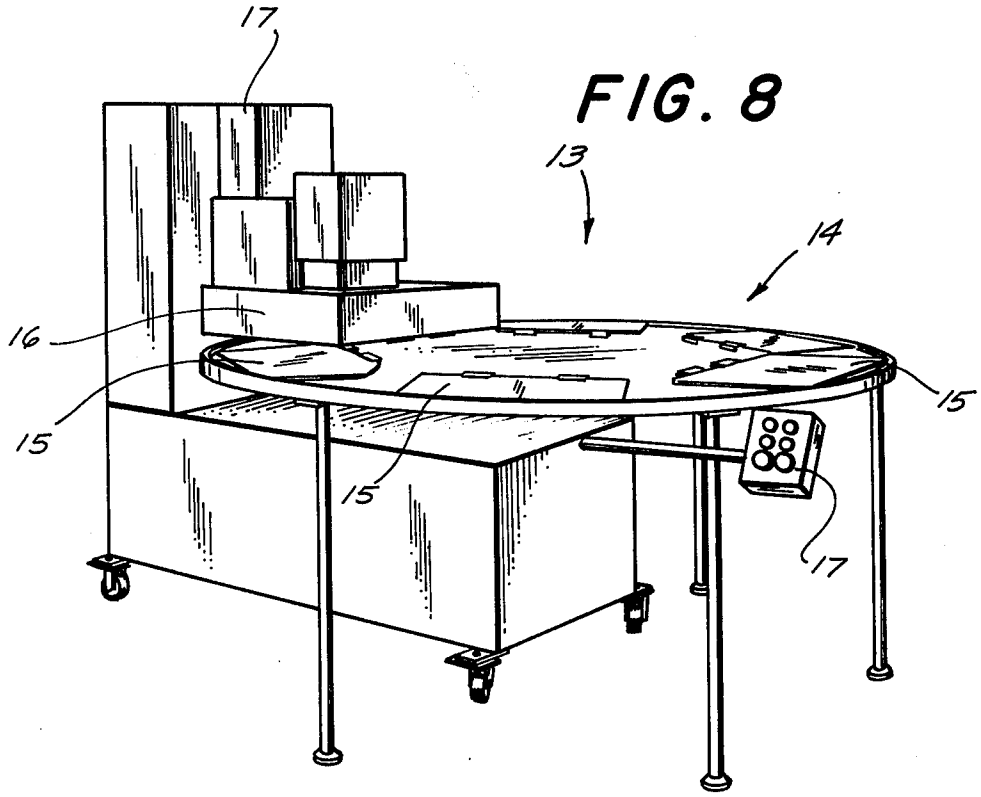


FIG. 8

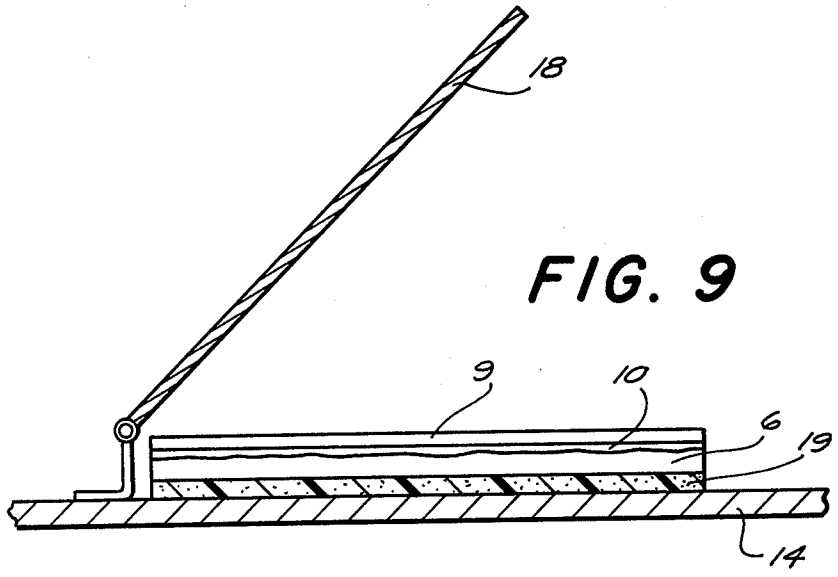


FIG. 9

SIMULATED PAINTING WITH BRUSH OR PALETTE-KNIFE STROKES, AND METHOD OF MAKING THE SAME

CROSS-REFERENCE TO RELATED APPLICATIONS

This is a continuation-in-part of my copending applications Ser. No. 334,365 (filed on Feb. 21, 1973) and Ser. No. 342,322 (filed on Mar. 16, 1973), both now abandoned.

BACKGROUND OF THE INVENTION

The present invention relates to paintings having simulated brush and/or palette-knife strokes.

There is a considerable demand for good reproductions of actual paintings. Such reproductions find a ready market for the purpose of decorating hotel and motel rooms, schools, offices, restaurants, as well as homes. The difficulty with such simulated paintings is that they are not readily producable in such a manner that they will in fact appear genuine except upon close inspection. Therefore, the customary type of picture used for the above-mentioned purposes is a printed picture where brush strokes or palette-knife strokes are rather inadequately simulated by impressing indentations into the paper or cardboard on which the reproduction is printed. This is, of course, an immediately detectable device which, if anything, points up the fact that these "paintings" are prints.

Such indentations are embossed in form of regular or irregular dimensional effects having little relationship to actual brush or palette-knife strokes, and definitely no relationship to the particular picture in question because they are imprinted all over the paper or cardboard on which the picture is printed. Another approach known from the art is to emboss the paper or cardboard with a standard pattern intended to simulate brush strokes, but here again the resemblance to actual brush strokes or palette-knife strokes is so poor that the appearance of the picture is incapable of affording the desired effect.

It has already been proposed to arrive at more realistically appearing simulations by laminating a transparent thermoplastic sheet material, such as polyvinyl chloride, to the surface of a printed reproduction of a painting. The term painting as used herein should be understood to refer to oil paintings, paintings utilizing acrylic paints, casein paints, or any other paints which when applied will create raised brush strokes or palette-knife strokes. Once the sheet is laminated to the printed picture, brass embossing dies are used together with dielectic heat transfer techniques well known to those skilled in the art, to emboss simulated brush strokes into the thermoplastic material. The arrangement of the brush strokes is such that they harmonize with the actual painting.

The brush strokes are produced by embossing the metal plates by photoengraving or manual embossing techniques, reproducing the brush strokes which are found on the original painting which is being simulated. The trouble with this latter approach is that the metal of which the dies must be made is expensive, that the dies are rather difficult to use without creating large numbers of rejects and other problems, and even more importantly that it is most expensive to produce the dies in the first place, that is to produce intaglios of the brush strokes manually or by photoengraving in the metal of the die.

SUMMARY OF THE INVENTION

It is, accordingly, a general object of the present invention to overcome the disadvantages of the prior art.

More particularly, it is an object of the present invention to provide a novel and improved simulated painting having reproductions of brush strokes and/or palette-knife strokes which are found on the original painting which is being simulated.

Another object of the invntion is to provide such a simulated painting which can be produced readily and at economically very attractive cost.

A concomitant object of the invention is to provide a novel method of making the improved simulated paintings according to the invention.

Yet an additional object of the invention is to provide such a method which is simple and inexpensive.

A further object of the invention is to provide such a method which lends itself to production of the novel simulated paintings on a large scale.

In keeping with these objects, and others which will become apparent hereafter, one feature of my invention resides in a novel simulated painting. Briefly stated, the novel painting comprises a first layer of sheet material having a face provided with a two-dimensional reproduction of the painting to be copied; a second layer of transparent synthetic plastic sheet material overlying said face and having one side directed towards and bonded to the same, and another side directed away from the face; and three-dimensional replicas of the brush or palette-knife strokes of the painting to be signed, formed by flow-molding on the other side from the material of the second layer and at locations corresponding to those of the original strokes.

The resulting picture is a printed reproduction of the original painting, covered with what is, to all intents and purposes, an unnoticeable surface film of thermoplastic material which, due to the brush strokes or palette-knife strokes found in it, gives the appearance of an actual painting. Moreover, due to the nature of the transparent thermoplastic sheet material, the finished reproduction is washable which is important in commercial uses, it is tear resistant and has other advantages which make it highly advantageous for many uses where conventional merely printed paintings or painting reproductions could not readily be used, aside from their aesthetic appearance.

The novel features which are considered as characteristic for the invention are set forth in particular in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a diagrammatic vertical section illustrating how a mold is made from a painting to be reproduced;

FIG. 2 is a fragmentary top plan view of a painting to be reproduced;

FIG. 3 is a side elevational view showing the finished mold;

FIG. 4 is a side elevational view showing how the fin-

ished mold is used to produce the simulated painting;

FIG. 5 is a fragmentary side elevational view showing a detail of the various components of FIG. 4 in contacting condition;

FIG. 6 is a view similar to FIG. 5 illustrating only the components of the simulated painting;

FIG. 7 is a view similar to FIG. 2 but illustrating the simulated painting;

FIG. 8 is a somewhat diagrammatic view of an apparatus suitable for making the novel painting; and

FIG. 9 is a section taken on line VIII—VIII of FIG. 7.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Discussing the drawing in detail, and firstly FIGS. 1–3 thereof, it will be seen that reference numeral 1 identifies a receptacle in which there is located a painting 2 whose painted surface faces upwardly and is provided with brush strokes or palette-knife strokes 3 (see FIG. 2) which it is desired to reproduce. Of course, and especially if the painting should happen to be a valuable one, it is possible to produce a reproduction of the original painting by making a painted copy, or for instance be making a plaster of paris or similar simulation whereon the original brush strokes are reproduced with care and as closely as possible in appearance and location as those on the original painting. It is also possible to use a printed reproduction of the painting, and to paint the brush strokes or palette-knife strokes thereon, for example with a transparent (clear or semi-clear) acrylic paint, such as that known under the tradename "LIQUATEX." However, in many instances it will be possible to use the actual painting because the silicone rubber of which the mold is to be made will not adhere to the material of the painting, especially if one of the various commercially available release agents is used before the silicone rubber is applied.

Reference numeral 5 designates a funnel, pouring spout or similar device by means of which a layer 4 of silicone rubber in flowable condition is poured into the receptacle 1. Silicone rubber has been used in recent years for the purpose of making molds or dies, which have been particularly found advantageous in the shoe manufacturing industry where they are used extensively to reproduce and simulate many leather surface effects. Silicone rubber in itself is of course very well known, as is its use to make dies or molds as just outlined above. Various different types of silicone rubber are suitable, such as for example the silicone rubber compounds known to the industry as RTV (room temperature vulcanizing) compounds, which are available from General Electric and Dow Chemical, among others.

The rubber is allowed to cure for some time after the layer 4 has been deposited, and it should be understood that it is of course possible to brush the layer 4 onto the surface of the painting 2 rather than to pour it. In any case, when the rubber has solidified it can be lifted off, forming the rubber mold 6 which has on one surface the intaglio replicas of the brush strokes 3.

Referring now to FIGS. 4–6, it will be explained how the mold 6 is used to produce a simulated painting.

Reference numeral 7 in FIG. 4 designates a holder of suitable type which requires no detailed discussion except to point out that it must be capable of holding in place the mold 6 so that its surface having the brush strokes 3 will be exposed. FIG. 4 shows the holder 7 facing upwardly, open, with all other components being arranged above the holder 7 and the mold 6 therein. It is, however, possible to reverse the relationship. The other components will then be located below the holder 7, and the mold 6. In fact, it is possible to dispense with the holder 7 entirely in many applications.

In the embodiment as shown in FIG. 4, reference numeral 8 designates a platen which is located above the holder 7. Placed between the platen 8 and the mold 6 is a print 9, that is a printed reproduction of the painting 2. Placed between the print 9 whose printed surface faces downwardly, and the mold 6 is a sheet 10 of transparent thermoplastic material, such as polyvinyl chloride. Thereupon the holder 7 and the platen 8 are pressed together by appropriate means, for instance a hydraulic ram or the like, and dielectric heating techniques —well known per se to those skilled in the art— are employed to soften the material of the sheet 10. It should be understood that is is possible to move the platen against the stationary mold, to move the mold against the platen which would then be stationary, or to move both the mold and the platen. Of course, the lamination step can be carried out separately, that is the sheet 10 can be laminated to the print 9 in a separate operating step before the two are placed between the platen 8 and the mold 6. In any case, when pressure is exerted by holder 7 and platen 8 upon the sheet 10 and the print 9, with the material of sheet 10 in soft condition, the replicas of the brush strokes which are formed on the mold 6 will form correspondingly configurated brush strokes or palette-knife strokes in the surface of the sheet 10 which faces the mold 6. The appearance and configuration of the components 6, 10, 9 and 8 are shown in FIG. 5. This is a technique known to those skilled in the art as "flow-molding," The vinyl of sheet 10 offers resistance to the passage of the RF waves (used for dielectric heating), so that the material of sheet 10 is briefly liquefied in its entirety. Since pressure is applied at the same time, the liquefied vinyl material is forced to flow into the intaglio depressions of the mold 6, and at the same time the thickness of sheet 10 is correspondingly reduced at the location where this material originates. The vinyl and mold may either be left to cool by themselves, or they may be positively cooled by heat-exchanging contact with a cooling medium. In any case, during cooling the material of sheet 10 resolidifies, except that due to the filling of the recesses in mold 10 with the temporarily liquefied material, the exposed surface of the sheet 10 now has raised three-dimensional replicas of the various brush strokes or palette-knife strokes.

Subsequently, the holder 7 with the mold 6 on the one hand, and the platen 8 on the other hand are separated from one another and the finished simulated painting 11 can be removed. It is clear that the sheet 10 is bonded to the print 9 and is provided, as shown in FIG. 7, with simulations 12 of the brush strokes or palette-knife strokes 3 found on the original painting or on the simulation of the original painting which has been produced for the purpose of taking from it the mold 6.

It will be appreciated that the outlined method of making a mold of the surface of the painting to be reproduced is highly inexpensive, because all that is really involved is the expense of the silicone rubber which is placed onto the surface of the painting and allowed

to set. No photoengraving is necessary, or manual engraving, and the material of the silicone rubber is, of course, inexpensive as compared to brass or other materials which are necessary for making a conventional engraved mold. If desired, a more permanent type of silicone rubber or an epoxy can be used to make from the original mold a more permanent (longer life) one, a so-called "second stage" or even a "third stage" mold. The expense of producing the mold **6** is therefore only a mere fraction of that involved in producing a similar mold from metallic material, and the mold is, of course, much simpler to handle than those of metallic material. The brush stroke reproductions are highly accurate with respect to their location on the original painting and all details of the painting surface —brush strokes, palette-knife strokes or the like—will be faithfully reproduced. In fact, I have found that in many instances even the texture of the canvas on which a painting may be painted, will be faithfully reproduced by the mold and will subsequently be imparted to the vinyl sheet **10** of the simulated painting **11.**

As mentioned before, in most instances it will be possible to make an actual cast of the actual painting which is to be reproduced, thus assuring an accuracy which has not heretofore been paralleled in the simulation of paintings. If a release agent is used, known to those skilled in the art, the silicone rubber of the mold will definitely not adhere to the surface of the painting **2.** Of course, if the painting is highly valuable then it may be desired, as pointed out above, to make a painted copy which is as faithful as possible to the original, or perhaps to make a simulation of the painting surface by means of plaster of paris or the like wherein again the brush strokes or palette-knife strokes have been simulated as faithfully as possible to the original.

Simulated paintings made in accordannce with the present invention have an appearance and a quality which makes them quite difficult to spot as simulations or replicas, especially when they are framed, and which thus provides paintings of high quality and considerable aesthetic appearance. On the other hand, the inexpensive manner in which the mold can be produced, and the equally inexpensive manner in which the mold can be used to in turn produce the simulated paintings, assure that these paintings can be made at low expense and can thus be made available for general use at a cost which is little if at all higher than that of conventional printed replicas of paintings whose aesthetic appearance is incapable of simulating the appearance of the actual painting itself.

Instead of thermoplastic material in sheet form (i.e., the sheet **10**). it is also conceivable to apply the material already in liquid form, or even in form of granules. If sheet material is used, various thicknesses may be suitable. A thickness of about 20 mil has been found especially satisfactory. The pressure employed may be about 120 lbs/sq.in., although higher or lower pressures can be used, depending upon the RF strength and the material of sheet **10.** The exact RF strength, thickness of sheet **10,** flow-molding time (during whichh RF is applied) and cooling time (before the pressure is removed and the painting removed from the mold) can be empirically determined by those skilled in the art, in dependence upon the requirements of a given situation and upon the interaction of the variable outlined above.

A mat of silicone foam may be placed between the reproduction **9** and the platen **8,** and/or between the mold **6** and the holder **7.** This aids in forcing the liquefied material of sheet **10** with the brush stroke or palette-knife stroke intaglios of the mold, and also helps to compensate for any irregularity in the thickness of the mold.

An apparatus for carrying out the present invention is shown—by way of example—in FIGS. **8** and **9.** Such apparatus is commercially available from Compo Industries, Inc, of Waltham, Massachusetts; it is known as a COMPO-FIT H.F. FLOW MOLDING MACHINE.

The apparatus, generally designated with reference numeral **13,** has a turntable **14** which is provided with a plurality of operating stations **15** (in this case, six of them). As the turntable **14** rotates about a vertical axis these stations **15** are sequentially moved beneath the shield **16** which serves to prevent uncontrolled escape of RF energy. Radio frequency energy—produced in a generator located in housing **17**—are now directed through the turntable and workstation located beneath the shield **16.** At the same time, pressure is exerted on the platen **18** (see FIG. **9**) of the workstation. This pressure is pneumatic, but could of course be hydraulic or mechanical. The RF energy level and the pressure level are both adjustable and can be set to the values desired.

The shield **16** is continuously cooled. Thus, when the heating and pressure cycle is completed, the workstation remains in position under the shield **16** for a further time period (e.g. some second), during which the station is cooled by contact with the cooled components within the shield, whereupon the station is moved out from beneath the shield by rotation of the turntable **14** (at the same time, the next station **15** moves beneath the shield **16**).

The apparatus can be controlled from an operator control station **17.**

FIG. **9** shows one of the stations **15** in open position. The hinged platen **18,** which is of metal as is the table **14,** is raised. Located beneath it on the table **14** is a silicone foam mat **19** which supports the mold **6.** On top of the mold is the vinyl sheet **10,** and on top of this the painting reproduction **9** which is printed on paper or cardboard. If the thickness of mold **6** is not even, shims or paper or the like may be used to raise the affected mold portion so as to prevent improper formation of the brush stroke or palette-knife stroke replicas.

Of course, the heating of the plastic could be less than required for flow-molding, and the surface of the plastic would then simply be embossed with the desired brush or palette-knife strokes. Also, it should be appreciated that I prefer to usually adhesive-coat the paper of the printed painting (e.g. with a heat-activated acrylic adhesive, such as available from Monsanto or Mica Corp., or with polyvinylacetate). Such adhesive could be sprayed on, poured on or applied in sheet form. Of course, if the paper is porous, the adhesive is not needed, because then the vinyl plastic will adhere to it without the adhesive.

It will be understood that each of the elements described above, or two or more together, may also find a useful application in other types of applications differing from the type described above.

While the invention has been illustrated and described as embodied in the making of simulated paintings, it is not intended to be limited to the details

shown, since various modifications and structural changes may be made without departing in any way from the spirit of the present invention.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can, by applying current knowledge, readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention and, therefore, such adaptations shouldd and are intended to be comprehended within the meaning and range of equivalence of the following claims.

What is claimed as new and desired to be protected by letters Patent is set forth in the appended claims:

1. A method of making a painting having simulated brush strokes or palette-knife strokes, comprising the steps of providing a painting having brush strokes or palette-knife strokes; directly taking of said painting a silicone rubber mold having the strokes thereon in form of corresponding recesses; placing a sheet of transparent themoplastic sheet material over a printed reproduction of said painting; and forming said sheet at elevated temperature and under application of pressure in a said mold with raised replicas of said strokes while sealing said sheet to said printed reproduction, thereby producing a simulated painting having raised replicas of said strokes formed on said sheet.

2. A method as defined in claim **1**, wherein the step of providing said painting comprises forming the strokes to be simulated on a reproduction of the original painting with a painting medium, and permitting the medium to set before taking said mold.

3. A method as defined in claim **1**, wherein the step of taking said mold comprises applying silicone rubber in flowable state onto said painting, allowing the silicone rubber to set so as to obtain said mold, and thereupon removing the thus obtained silicone rubber mold from said painting.

4. A method as defined in claim **1**, wherein said thermoplastic sheet material is polyvinyl chloride.

5. A method as defined in claim **1**, wherein the step of forming comprises applying said mold to said sheet under pressure, and dielectrically heating said sheet so as to flow mold the material of the same.

6. A method as defined in claim **1**, wherein the step of forming comprises subjecting said sheet to RF heating under simultaneous application of pressure, to thereby flow-mold the sheet to the contour of the mold-surface of said silicone rubber mold.

* * * * *