

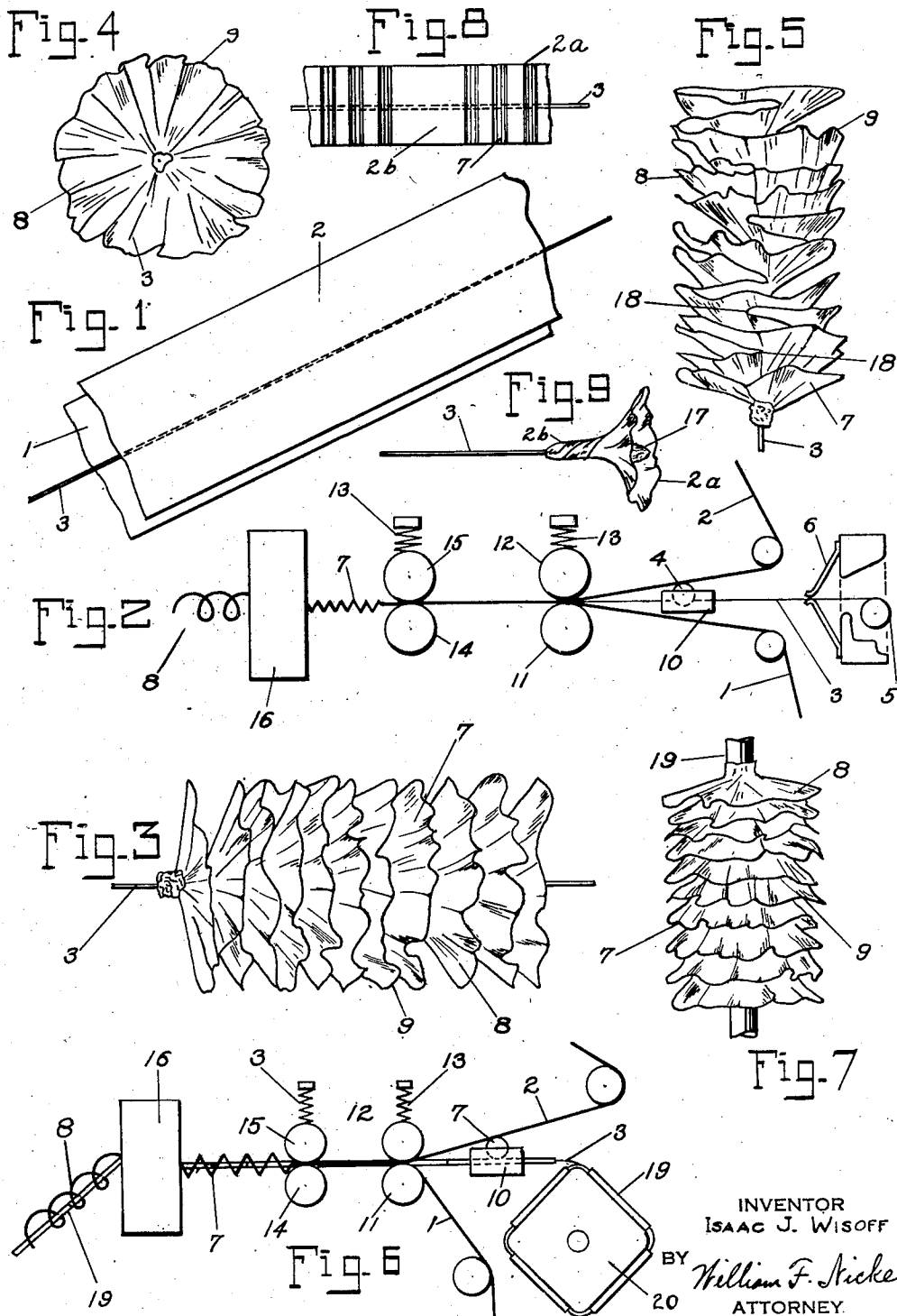
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2,112,723

DECORATIVE MATERIAL

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UNITED STATES PATENT OFFICE

2,112,723

DECORATIVE MATERIAL

Isaac Joseph Wisoff, Brooklyn, N. Y.

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8. Claims. (Cl. 41—10)

This invention relates to improvements in decorative material and an object thereof is to provide a decorative member comprising an element or section wrought of one or more flat strips of suitable material that is first gathered up or transversely fluted or corrugated, but is not pierced or perforated; and then twisted edge-wise or spirally to impart to it the shape in which it is intended to be used. In this way successive bunched portions are made up in the strip, and the required transverse dimension is imparted to the product.

It has been proposed to adapt for ornamental purposes strips of crepe paper or the like by transversely plaiting or folding the strips and threading a cord or wire through the plaited portions to hold them in the desired relation; the strips being afterwards twisted into the form of a spiral, with the successive turns thereof more or less close together. The threading of the wire or cord through the plaited portions is done by piercing the latter with a needle holding the cord in the eye thereof. This method answers very well for a substance such as paper which is fibrous and to some extent tough and tenacious; but is unsuitable for the working of such a material as a strip of transparent cellulose or "cellophane" that is relatively brittle and, although of relatively great strength as long as it is not torn or pierced, can still be ripped very easily when a break or a crack is once produced. The manufacture of strips of plaited and twisted "cellophane" therefore cannot be performed in this way.

It is an additional object of this invention to provide a decorative material comprising one or more "cellophane" strips plaited or folded cross-wise and with the bends or folds therein maintained without penetrating the strip. Thus all risk of ripping or tearing the product in the course of its formation is obviated.

It is also an object of this invention to provide decorative material comprising bent or plaited "cellophane" strips twisted into a spiral without leaving unbalanced forces therein to create a tendency for the strip to become untwisted or the material itself to gather and form loops or kinks. This end is attained by causing the turns to set in their final form after revolving successive portions of the strip in different directions; one longitudinal portion being first turned or twisted one way and the next portion the opposite way. The torsional reactions of the adjacent portions thus balance each other and no unwinding or kinking of the finished article

is permitted. Each length or piece of the material, (unless it is worked further into special shape) is capable of remaining straight and undistorted when finished, the turns are permanent and the product has all the appearance, flexibility and other physical qualities desired.

A further object of this invention is to provide decorative material comprising one or more strips in which the formation of transverse folds or bends is accomplished by stresses in the material imparted thereto by an ordinary element such as a feed roll with a smooth surface instead of a gear having teeth or a plaiting roll having axial ribs and operating to exert a molding action on the material. In practice the material is formed without molding and with a minimum variation in the original set shape of each strip, so that virtually all of the original strength is retained.

Other objects and advantages are set forth in the ensuing specification which, taken with the accompanying drawing, makes clear the nature of the invention. But the disclosure is illustrative only, and the features of the product, are to be regarded as new to the full extent indicated by the broad terms in which the appended claims are expressed.

On the drawing:

Figure 1 shows the essential elements of which the material is made;

Figure 2 is a diagrammatic view showing the steps by which the product is turned out;

Figure 3 is a side view and Figure 4 an end view of a portion of the completed material;

Figure 5 is a similar view from another angle;

Figure 6 is a diagrammatic view to illustrate the making of a modification of said material;

Figure 7 shows a section of the modified material when finished; and

Figures 8 and 9 show another form into which the material can be worked.

On the drawing the same characters identify the same parts throughout.

This application is a continuation in part of my prior application entitled "Apparatus for producing decorative material", Serial No. 77,920, filed May 5, 1936. The apparatus referred to herein is fully shown and described in said prior application.

In particular description of the drawing the numeral 1 indicates an elongated strip which is preferably "cellophane" or similar material of the desired width and color; and 2 indicates a matching strip which, in the process of making the decorative material, is caused to adhere to

the first strip. When the two strips 1 and 2 are being attached to each other a filament, such as a cord or wire core 3, is laid between them, and the two strips and the cord or wire are moved in such a manner and under such conditions that the cord is put under some tension to retard it while rollers carry the strips rapidly forward to gather or shorten them and form transverse bends or corrugations. A suitable motor furnishes the power which acts through an arrangement of gears or pulleys and moves the strips and cord. The strips 1 and 2 are drawn from reels not shown and the latter runs over a roller 4 which applies adhesive to one side thereof. The cord or wire may also come from a reel 5 and is engaged by suitably mounted springs or spring presser members 6 which bear upon the cord and tend to hold it back. As indicated in Figure 1 the strip 1 is the lower strip and the underface of the other strip 2 passes over the roller 4; the cord or wire moving between them. Owing to the quicker forward feed of the strips and the backward tension on the cord or wire 3, the strips are gathered up in the folds 7 as stated above. In the final stage of the operation the double strip is twisted to form spiral sections or bunched portions 8, the edges of which present a scalloped or wavy appearance 9 due to the corrugations, bends or folds 7. The final product will be a rope like member, the diameter or thickness of which will be approximately equal to the width of the strips 1 and 2, or whichever of these is wider.

The roller 4 will be disposed to turn in a box 10 of glue or other adhesive, so that its lower face will carry the glue up to the strip 2. This roller may be grooved for passage of the cord or wire, that need not engage or make contact with the roller, and the wire or cord may run clear of the glue or pick up some of it when the wire or cord runs through the box, as desired.

The decorative material can thus be made of various thicknesses and various colors. If "cellophane" is used the result is a length of rope which is very pleasing to behold.

The strips are next run between a lower roller 11 and an upper roller 12. The upper roller 12 is forced downward by adjustable springs indicated at 13 which make the rollers 11 and 12 press the strips 1 and 2 into efficient adhesion with each other.

After passing between the rolls 11 and 12 the strips and cord pass under a roll 15 resting with sufficient pressure on a feed roll 14. These rolls are forced together by similar springs the same as the rolls 11 and 12. Both the roller 14 and the roller 15 are driven by the motor above mentioned, thus drawing the strips and cord or wire through them. Beyond the rollers 15 and 16 the two strips are twisted by hand or automatically by a twister 16 to form the spirals 8.

As depicted in Figure 2 the pleats 7 occur in the glued strips between the rollers 14 and 15 and the twister. They are caused by these rollers forcing or feeding the strips ahead faster than the wire or cord 3, retarded by the members 6, can move with the strips. Thus a considerable length of strips is gathered up on the wire or cord, and after twisting the spirals become set permanently. By the time the material is through the twister the glue is dry and the spirals retain the form eventually given them. In fact when the material is delivered by the machine beyond the twister the turns have become firm and stiff because the glue has now hardened and the turns are fixed to such an extent that

untwisting can occur only if a considerable force is exerted upon them. A periodic reversal of the direction of the twisting, as more fully described below, eliminates entirely all tendency of the material to form kinks or knots at any point in its length.

With this apparatus the two strips are compressed together with the cord or wire between them as they pass between the rollers 11 and 12. The rollers 14 and 15 and the drag or pull of the members 6 on the cord or wire 3 create the transverse bends or folds 7, which appear as soon as the strips have passed the rollers 14 and 15 (see Figure 2). The double strip is twisted as it comes from the last named rolls and the spiral or bunched portions make it resemble a rope or cable. A section of the material as it appears when finished is shown in Figures 4 and 5. The edges of the successive turns or spirals look scalloped or pleated because of the transverse folds or bends that are fashioned in it before twisting. It can be used in long lengths to make festoons or garlands or in short lengths to make wreaths. The strips may be of the same or unequal widths, and different colors may be employed to give variegated effects. The material is decidedly ornamental and glistens prettily in the light of electric lamps and other kinds of illumination.

Besides garlands and wreaths a short length of the finished product can be utilized to make an ornamental object by being attached to a stem or support in upright position, with suitable trimmings, particularly if wire instead of a cord is used.

Also by using a single strip and periodically removing the tension from the cord or wire either by hand or automatically the strip coming from the apparatus can be so worked that portions 2a with folds 7 alternate with portions 2b having no folds or perfectly flat. See Figure 8. By cutting the product into lengths each consisting of one flat portion and one corrugated portion such portions can be twisted to resemble artificial flowers or buds, (see Figure 9) and used for decorative purposes on hats and other articles of clothing, the portion 2a representing the bud or flower and 2b the adjacent part; and some of the material is bunched at the center 17. Also if the strips are provided with fringed edges the resultant "rope" can be cut up into lengths suitable for neck pieces and trimmings for clothing.

The transverse bends or plaits extend across the core 3 from edge to edge of the strips as shown in Figure 8, in both this form and the preceding where the strips are worked with transverse bends over the entire length without any intervening flat portions 2b. Since a much greater length of strips than of the core is used, because of the transverse bends or corrugations therein, and since none of these bends are pierced by the core, the core lies along the same face of each strip, to wit, the inner face, and the plaits or corrugations engage the core between them when the strips are adhesively secured together.

The core 3 will be substantially straight as the strips are gathered into the transverse bends or folds and it continues to be substantially straight as indicated in Figures 3 and 5, even after the operation of twisting is finished.

The twister and the remainder of the apparatus being fully set forth in my aforesaid application there is no need to describe it in greater detail than above. However, the operation of the twister must be dwelt upon to some extent, be-

cause the flat strips as above stated cannot in passing through the twister be rotated always in the same direction, for reasons now to be explained fully.

5 If the twister were to turn the plaited strips 1 and 2 continuously in one direction, the operation would give to the material an unbalanced torsion which would tend in spite of the glue to unwind or untwist the strips or to form kinks
10 therein. To eliminate this objection the twister shown in Figure 2 is actuated so as to revolve the plaited strips first in one direction and then in the other. Thus successive portions are oppositely twisted and the torsion of one portion is
15 balanced by the torsion of the next so that no force arises tending to untwist the strip. This effect is illustrated very clearly in Figure 5, whereon the points at which the twist or spirals are reversed are indicated at 18. Each spiral
20 may run in opposite direction with respect to the adjacent spirals or the reversal may occur at every few turns instead of in successive turns. This method enables the material to be made with no propensity to kink or knot, even when
25 long pieces are run off from the apparatus and facilitates smooth, continuous operation and large output.

Another form is shown in Figure 7 whereon the strips are wound about a short length of tubing
30 19 of glass or other substance to make an element to serve as a branch or limb for an artificial Christmas tree having a trunk with a number of sockets into which the tubes 19 are inserted to be mounted. The strips are first pleated as before and then wound in spirals on the tubes or
35 cores 19, and the spirals may further, if desired be periodically reversed as outlined in connection with Figure 5. To do this, apparatus as diagrammatically presented in Figure 6 is used.
40 Here the tubes are shown as strung like beads on the wire or cord, which is wound on a square reel 20, the faces of which are of the same size as the lengths of the tubes. The wire and tubes run past the roller 7 and the rollers 11 and 12
45 are grooved to enable the tubes to pass freely while the strips are pressed and made to stick together. The rolls 14 and 15 are likewise grooved and act to force the strips ahead on the tubes to pleat or crinkle them. In the twister the
50 spirals are formed and after the twisting is done, the wire is pulled out. Thus the tubes are separated and become distinct units.

The product which is the result of this invention can be easily and cheaply made by the apparatus and method above described and formed
55 into a variety of ornamental designs and objects.

Having described my invention, what I claim as new and wish to protect by Letters Patent of the United States, is:

1. A decorative member comprising strip material twisted into spiral form and containing turns wound in opposite directions at predetermined intervals to prevent kinking.

2. A decorative member comprising strip material twisted into spiral form and containing turns wound in opposite directions at predetermined intervals to prevent kinking, said turns having scalloped edges.

3. A decorative member comprising a pair of superposed thin transparent strips of "cellophane" material, said strips being disposed face to face, a filament between said strips, the strips and the filament being secured together adhesively without either of the strips being pierced by
15 said filament, said strips being gathered into transverse folds and twisted into closely adjacent spirals about said filament.

4. The decorative member according to claim 3 wherein the spirals extend in opposite directions at predetermined intervals.

5. A decorative member comprising superposed strips secured together, said strips having a core in the form of a piece of tubing between their opposing surfaces and being transversely plaited,
25 said strips being also twisted into closely adjacent spirals.

6. A decorative member comprising two superposed strips secured together, a core in the form of a piece of tubing extending along the opposed
30 surfaces of said strips in between them, said strips being transversely plaited and twisted into spiral form and containing opposed turns to prevent kinking.

7. A decorative member comprising a pair of superposed thin transparent strips of "cellophane" material, said strips having a longitudinal core between them, said strips being originally much longer than said core but being formed into transverse plaits and secured adhesively together without any of said plaits being pierced
40 by said core, said strips being twisted into set spirals about said core.

8. A decorative member comprising a pair of superposed thin transparent strips of "cellophane" material, said strips having a longitudinal core between them, said strips being originally much longer than said core but being formed into transverse plaits and secured adhesively together without any of said plaits being pierced
50 by said core, said strips being twisted into set spirals about said core, the plaits in the strips extending from one side to the other across the core which is disposed between the inner faces of the strip.

ISAAC J. WISOFF.

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CERTIFICATE OF CORRECTION.

Patent No. 2,112,723.

March 29, 1938.

It is hereby certified that error appears in the above numbered patent requiring correction as follows: In the grant, lines 1 and 13, and in the heading to the printed specification, line 3, name of inventor, for "Isaac Joseph Wisoff" read Isaac J. Wisoff; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 31st day of May, A.D. 1938.

(Seal)

Henry Van Arsdale,
Acting Commissioner of Patents.