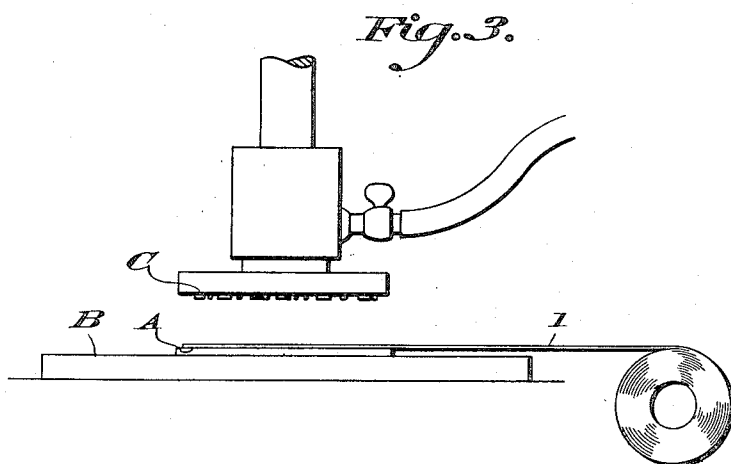
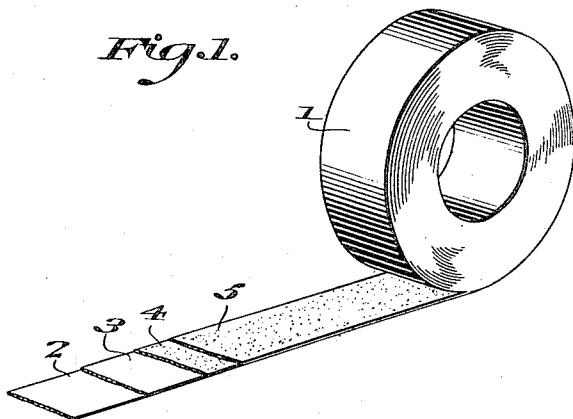


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METALLIC LEAF RIBBON.
APPLICATION FILED MAR. 17, 1914.

1,124,114.

Patented Jan. 5, 1915.



Witnesses

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UNITED STATES PATENT OFFICE.

FRANK H. DAVIS AND CHARLES SCHUMACHER, OF BROOKLYN, NEW YORK.

METALLIC-LEAF RIBBON.

1,124,114.

Specification of Letters Patent.

Patented Jan. 5, 1915.

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To all whom it may concern:

Be it known that we, FRANK H. DAVIS and CHARLES SCHUMACHER, citizens of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Metallic-Leaf Ribbons, of which the following is a specification.

Our invention relates to a novel and improved gold or other metallic leaf ribbon, designed for use in the ornamentation of leather, cloth or other surfaces with gold or other metallic leaf.

In the ordinary process of employing and applying metallic leaf, such as gold leaf, for stamping, embossing or otherwise ornamenting surfaces of the character described, the leather, paper, cloth or other material is first embossed, printed or stamped with the desired matter which is to be gold-leafed. The impressed surfaces, if not printed with a liquid size or cementitious ink, are then coated with oil or dusted with a dry size, such as pulverized resin, so that the metallic leaf will adhere thereto. The foil of gold is then either taken from a book, in the loose manner in which it is put up, and applied to the printed or embossed surfaces, or a roll of gold leaf, consisting of a ribbon of loose gold foil backed by a ribbon of paper, is put into a holder and passed over the impression to apply the gold thereto. The leafed surface is then oiled and put back in the press, and the compressed surface stamped again to firmly apply the gold leaf. The application of the oil, usually olive oil, is made in order to hold the leaf in position and prevent it from blowing away, and when a hot stamp or die is employed gives a burnishing effect, whereby the luster of the leaf is improved. In the use of a hot die, the heat and pressure of the die will also serve to fuse or melt the dry size, when the latter is employed, by which the leaf is caused to adhere to the embossed surface. In some cases the dry size is used without coating the leaf with oil, and in other cases the oil is used without previously employing the size, the main object of employing the size and oil being to hold the applied leaf intact while it is being stamped against the embossed surface. The material thus leafed is then removed from the press and the surplus gold leaf removed. The use of a size or oil in the manner described is necessary where the

gold leaf is used directly from a book, or where it is put up in roll form with a carrying ribbon or tape of paper or other protective material, since the gold leaf must be firmly impressed and caused to adhere to the surface. This ordinary process of gold leafing involves a series of steps, requiring considerable time and expert manipulation, making the process comparatively expensive, while at the same time such process is wasteful of the leaf, since the leaf or foil, employed in a loose condition, is liable to be blown away. Moreover, a considerable amount of waste occurs owing to the impossibility of recovering from the embossed surface all of the excess amount of the leaf applied thereto. Furthermore, it has been impossible heretofore to apply gold or other metallic leaf to fine fabrics and other delicate surfaces, since the use of oils or sizes in the methods heretofore employed has rendered it impossible to apply the leaf without injury to the goods or marring them so as to render the goods unmarketable.

One object of our invention is to provide a novel and improved gold or other metallic leaf ribbon whereby these objections are avoided and whereby the surface may be stamped or embossed, and the metallic foil applied and burnished in a single operation.

Another object of the invention is to provide a metallic leaf ribbon by means of which gold or other metallic foil may be applied to delicate fabrics or other delicate goods without marring or injuring the same.

Another object of the invention is to provide a metallic leaf ribbon which, in its application, reduces the amount of time, care and skill required to apply it to the surface.

Another object of the invention is to provide a metallic leaf ribbon in which the metallic foil is secured to a carrier strip by means of a combined adherent and burnishing medium, capable of holding the particles of the leaf intact against loss and in a smooth and even film which retains its smoothness and pliability, allowing the foil to be put up and sold as an article of manufacture without liability of deterioration thereof from age or climatic conditions, the character of the combined adhering and burnishing substances being such as to permit the foil to be separated from the strip for application under heat and pressure.

A still further object of the invention is to provide a metallic leaf ribbon which pre-

vents the foil from being blown away and lost, which insures the transfer to the embossed surface of sufficient only of the foil to cover said surface, and which enables the excess of unused foil to be recovered without waste.

The invention consists of the features of construction, combination and arrangement of parts herein fully described and claimed, reference being had to the accompanying drawing in which:—

Figure 1 is a perspective view of a roll of metallic leaf ribbon made in accordance with our invention, showing the end of the ribbon unwound from the roll and in section to illustrate the construction. Fig. 2 is a view of a section of the ribbon showing the face of the ribbon as it appears after a transfer impression has been made. Fig. 3 is a view showing, conventionally, the stamping or embossing process.

In carrying our invention into practice, we provide a leaf ribbon 1, which may be wound in roll form with or without the use of a wooden core, but which may be put up in any other suitable manner for use. This leaf ribbon comprises a carrier strip 2, of paper or other suitable material, having upon its face a coating 3 of a combined adherent and burnishing substance, of the character hereinafter described. Over this layer 3 of the adherent and burnishing substance is a layer or coating 4 of gold leaf, and preferably applied to the outer surface or face of the leaf 4 is a coating 5 of a suitable size, such as hereinafter described. The carrier strip and metal foil or leaf may be made of various sizes or widths, and may be put up in book, roll or other suitable form for use. The ribbon leaf thus constructed in smooth and pliable, non-sticky under all ordinary atmospheric temperatures, and may be handled without liability of loss of the metallic foil from the carrier strip, since the particles of the foil are both bound together and caused to adhere to the surface of the carrier strip by the combined adherent and burnishing substance, rendering the ribbon capable of being sold as an article of manufacture, as the foil will be held and preserved in a smooth and pliable strip for a practically indefinite period. The combined adherent and burnishing substance or medium employed is preferably yellow beeswax, cut or thinned out by the action of a suitable solvent, such as benzin or its equivalent. Yellow beeswax is used, instead of white beeswax, for the reason that it contains a proportion of the saccharine constituents of the original wax, mainly honey, which renders it sufficiently tacky or sticky to hold the particles of the gold leaf bound in a smooth manner against separation, while at the same time securing the ribbon of foil thus formed to the carrier strip. In prepar-

ing the adherent and burnishing substance, approximately one ounce of yellow beeswax is placed in a vessel, with one quart of benzin or its equivalent, and the two boiled for a period of about ten minutes, whereby the beeswax is dissolved and thinned out to the desired consistency. The liquid adherent is then applied, either hot or cold, to the surfaces of the paper carrier strip, the gold leaf or foil then being applied over the adhesive coating, while the carrier strip is resting on a hot iron, or after the gold is applied it is rolled down smooth upon the carrier strip by means of a hot iron, the solvent thus being evaporated and the particles of the gold smoothly laid while the adherent is kept in a soft condition, so that when the adherent solidifies the particles of gold will be bound together and firmly secured to the carrier strip. In practice, said gold leaf may be lifted out of an ordinary gold leaf book by means of a suitable pad and be deposited upon the prepared surface of the carrier strip.

While not absolutely essential under all conditions, it is desirable for general work, and also for very fine work, to provide means whereby the gold when transferred will adhere positively to the embossed or stamped surface, and only at the points where it is applied. To adapt the ribbon for this purpose, we provide the face of the foil 4 with the coating of size 5, which preferably consists of a thin layer of transparent varnish or cement, such as French varnish. This varnish is in liquid condition and is applied to the face of the leaf by means of a brush or otherwise, and upon the evaporation of its solvent forms a smooth layer which gives additional protection to the foil and cooperates with the coating 3 to hold the foil intact and secured to the carrier strip.

In the process of employing the metallic leaf ribbon for ornamenting a surface the surface "A" which is to be ornamented, and which may be of leather, cloth, paper or other material, is placed in a suitable press upon a backing or platen "B" and between the same and a suitable die, printing or stamping element "C", which may be heated in any preferred manner. The free end of the carrier strip is then unwound from the roll and a portion of the strip, face downward, disposed between the surface "A" and the die "C", which latter is then moved toward the backing, thus making an impression through the strip 1 on to the surface "A". Under the heat and pressure of the impression portion of the die, which may consist of ordinary type faces, the films 3 and 5 are fused or melted by the heat along the regions of contact and transferred with the immediate portions of the gold film adhering thereto to the surface "A". This effects a cleanly transfer from the strip 1 of

only such portions of the adherent material, gold leaf and size as are directly impressed by the type faces or embossed surfaces of the die, leaving the remainder of the films or layers intact with the carrier strip, as shown in Fig. 2. The amount of gold leaf not used is thus preserved upon the carrier strip, from which it cannot be blown away and lost, and from which it may be recovered by burning the strip and subjecting the gold to an ordinary recovery process. The portion of the sizing 51 which is fused and adheres to the surface "A", firmly secures the transferred particles of the gold thereto, while the portion of the layer 3 which is separated from the strip 1 and is transferred with the gold to the surface "A" is acted upon by the heat and pressure from the iron to impart to the transferred gold a brightness or luster which can not otherwise be produced, the adherent material thus serving in this connection as a burnishing medium. When the die is retracted and the used portion of the carrier strip removed from the face of the material "A," the gold leafed surface appears in its completed state, requiring no cleaning or removal of excess material, as only the exact amount of gold is applied to form the desired design or impression. Hence it will be seen that by means of a metallic ribbon leaf of the structure defined and the mode of action set forth, the surface "A" is stamped or embossed, gold-leafed and burnished, as well as sized, in a single operation, doing away with a large number of the steps commonly employed and obviating the loss of gold which commonly occurs. Furthermore, this construction of metallic leaf ribbon and mode of action enables the work of embossing or stamping to be carried out in an extremely simple, cleanly and efficient manner, and without the care and trouble required under ordinary processes. As the size is applied to the goods simultaneously with the gold leaf, which is in the form of a self supporting film, and is thus transferred in a sharp and cleanly manner, delicate fabrics and other delicate surfaces may be gold-leafed or ornamented in this manner without injuring or marring the same, since the application of oil or the use of size in a broad-cast manner is avoided. By this means, silks, fine linen and other goods which can not be ornamented with gold or other metallic leaf under ordinary processes may be ornamented in a most delicate and exquisite manner without liability of injuring or marring the same. Delicate surfaces ornamented in accordance with our process are, on the contrary, left in a proper condition to be sold as the finest grade goods.

A gold, silver or other metallic leaf foil put up in ribbon form in accordance with

our invention is adapted to be sold in the open market for use at any time, since it is not affected by ordinary heat or moisture and will not crumble or break, but always remains smooth and pliable. The outer layer of size with which the metallic ribbon is coated not only assists the adherent layer in holding the film of gold intact, and in protecting the face of the metallic leaf from moisture, but further serves as a binding medium which facilitates the cleavage of the stamp portion of the metallic film from the remainder of the film, allowing sharp impressions of the most delicate character to be made. The adherent substance of yellow beeswax possesses sufficient adhesiveness to hold the particles of gold intact and secured to the carrier strip, while permitting it to separate therefrom along the lines where heat and pressure are applied, and at the same time serves as a burnishing agent by which a bright luster is imparted to the transferred gold. Furthermore, the adherent material serves to render the metallic film self supporting and pliable, so that the size may be applied to the film without liability of the film being broken or brushed away.

Our invention provides a metallic leaf ribbon which differs radically from prior metallic leaf ribbons, in that the metallic leaf is secured to the carrier strip by a vehicle which acts not only as an adherent and burnishing medium, but also as a physical agent to make the bound particles of the gold film pliable. The use of yellow beeswax for this purpose is of great value and importance, since it possesses a stickiness or tackiness, which is not present in white beeswax or in paraffin or other similar waxes. The yellow beeswax is also peculiarly valuable because it contains just a sufficient amount of honey to render the adherent composition flexible and adhesive to the right degree, owing to the combination with the wax of an adhesive substance natural to it and for which it has an affinity, and which is present in it in the right proportions. Furthermore, yellow beeswax possesses a fineness of texture which admirably adapts it for the purpose, and such substance does not become brittle, but remains plastic, owing to the presence of the honey therein. These results can not be gained by the use of white beeswax or paraffin with a foreign adhesive, for the reason that such waxes will not combine with resinous or other adhesives in such a manner as to secure uniformness and fineness of texture, plasticity, elasticity and adhesiveness to the degree required. Paraffin, would be, if employed; inefficient for the reason that it has a coarseness of texture not adapted to permit fine lines to be transferred by pressure. This substance is also objectionable because of its tendency

to crack or crumble, under which the metallic leaf would break up, also because of its tendency to spread instead of fusing locally when heat is applied thereto, and
5 also because it leaves a cloudy film upon the surface of the gold, which can not be removed without injury to the embossed work.

I claim:—

10 1. A metallic leaf ribbon comprising a carrier strip having a film of gold upon the face thereof secured thereto by a wax containing a sticky substance.

15 2. A metallic leaf ribbon comprising a carrier strip having a film of gold upon the face thereof secured thereto by an animal wax containing a small amount of sticky substance.

20 3. A metallic leaf ribbon comprising a carrier strip having a film of gold upon the face thereof and secured thereto by a film of yellow beeswax.

25 4. A metallic leaf ribbon comprising a carrier strip having a film of gold upon the face thereof secured thereto by a layer of beeswax having a sticky medium incorpo-

rated therewith, and a coating of size applied to the face of the film.

5. A metallic leaf ribbon comprising a carrier strip having a film of gold upon the face thereof secured thereto by a film of 30 yellow beeswax, and a coating of size applied to the face of the film.

6. A metallic leaf ribbon comprising a carrier strip having a film of gold secured thereto by a layer of beeswax having a sticky 35 medium incorporated therewith, and a sizing coat of French varnish upon the face of the film.

7. A metallic leaf ribbon comprising a carrier strip having a film of gold upon the 40 face thereof secured thereto by a film of yellow beeswax, and a sizing coat of French varnish upon the face of the film.

In testimony whereof we affix our signatures in presence of two witnesses.

FRANK H. DAVIS.

CHARLES SCHUMACHER.

Witnesses:

JOHN H. ROSE,

GEORGE KILLIAN, Jr.