

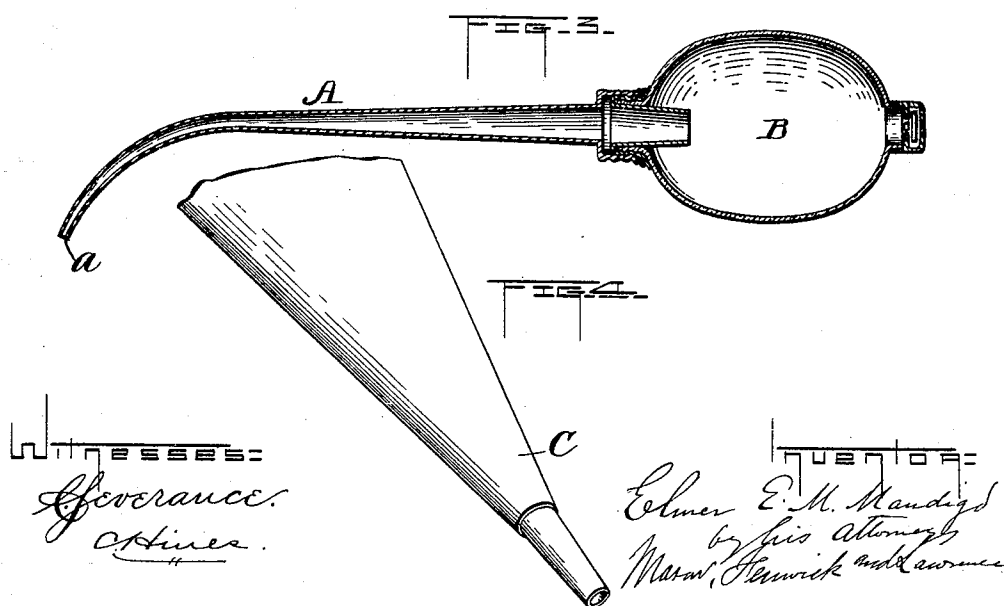
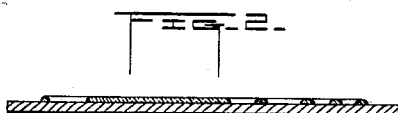
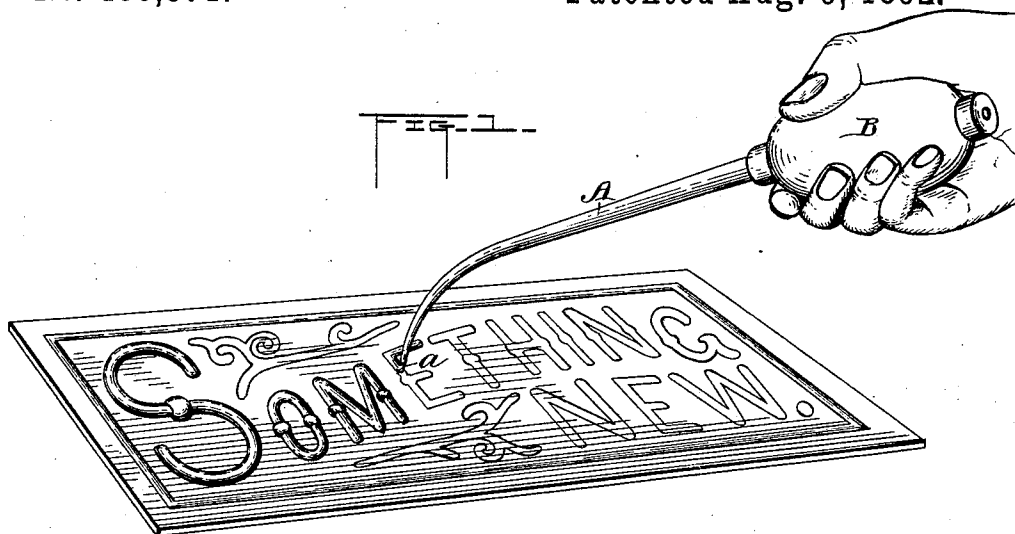
(No Model.)

E. E. M. MANDIGO.

SIGN HAVING ORNAMENTAL LETTERS OR DESIGNS IN RELIEF FORMED OF
A COMPOSITE MATERIAL AND METHOD OF MAKING THE SAME.

No. 480,371.

Patented Aug. 9, 1892.



UNITED STATES PATENT OFFICE.

ELMER E. M. MANDIGO, OF NASHUA, NEW HAMPSHIRE.

SIGN HAVING ORNAMENTAL LETTERS OR DESIGNS IN RELIEF, FORMED OF A COMPOSITE MATERIAL, AND METHOD OF MAKING THE SAME.

SPECIFICATION forming part of Letters Patent No. 480,371, dated August 9, 1892.

Application filed March 25, 1892. Serial No. 426,417. (No specimens.)

To all whom it may concern:

Be it known that I, ELMER E. M. MANDIGO, a citizen of the United States, residing at Nashua, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Signs Having Ornamental Letters or Designs in Relief, Formed of a Composite Material, and Method of Making the Same; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention consists in raised letters, ornaments, and the like on a suitable base, produced from the novel composite material hereinafter described; also, in the method of making the same from the composite material. Under my invention the ornaments and letters produced are adapted to be illuminated with silver, gilt, or gold.

In the drawings, Figure 1 is a perspective view showing a sign with a design of letters and ornaments outlined upon it, a portion of said design of letters and ornaments having raised composition letters and ornaments formed over them in accordance with my invention, this view also showing the means for and manner of applying the composite material. Fig. 2 is a cross profile or sectional view of the sign with raised letters and ornaments of composite material. Fig. 3 is a section of the apparatus used for carrying and conducting and flowing the composite material upon the outlined design, and Fig. 4 is a filling-funnel used in connection with the bulb or chamber of the apparatus shown in Fig. 3.

To make raised letters and ornaments of composite material in accordance with my invention, I prepare a composite material which will flow through a curved tube A having a very small exit *a*, by pressure upon it, by means of a flexible air-bulb B in which it is contained, in the same manner as fluids are expelled from a syringe. This composition must consist of four parts whiting, three parts varnish, two parts glue, and one part spirits of turpentine. It has been found that if whiting and varnish only are used as a composite material the product will shrivel up and become wrinkled before fully dried. The propor-

tions I give above are the best; but they might be slightly varied and answer a good purpose. It has also been found that too much spirits of turpentine will dry the product too soon and it will cleave from the card or base, and that without glue the product takes too long to dry and will not be sufficiently firm and adhesive to the surface, and that too much glue will make the composite material too brittle, and when the card or base is bent or crimped the material will break like glass and come off in time.

In making the composite material the glue and varnish are first mixed together while each is boiling hot and the whiting is mixed with these and all ground together while the spirits of turpentine are being added. The mixture finished is left to stand a few hours before using.

It is all important to keep the mixture in a fluid condition, so as to be used through the tube A, and therefore it is manufactured each day or two. If left longer it becomes less free to flow and small lumps or grains form and stop its flow through the tube. The composition after being applied for producing letters or ornaments upon the outlined design is allowed to set or harden by exposure to the atmosphere, and when set it is solid and durable and at the same time flexible enough to admit of the sign, card, or other base being bent without liability of cracking the letters or ornaments.

The operation of making a sign or card in accordance with my invention is as follows: The prepared material is introduced into the bulb B by unscrewing the hollow tube A and inserting the end of the funnel C into the opening from which the tube was removed and pouring the liquid composite material into the bulb in proper quantity. The funnel is removed and the tube replaced. A design of letters and ornaments is then outlined upon a sign, card, or base, as illustrated in Fig. 1. The operator takes the bulb B in his hand and brings the end *a* of the tube A over the letters and ornaments, and while he is following the outlines compresses the bulb and forces out the composite material in sufficient quantity to make raised letters and ornaments corresponding to the design. While

the composite material is fluid or moist the operator sprinkles or lays silver, gilt, or gold material upon the raised letters and ornaments for the purpose of illuminating the same. The letters and ornaments of the finished sign are allowed to dry and harden.

This method of making raised letters and ornaments on cards or signs is very expeditious and cheap and insures a very beautiful effect, and does away with the expensive and slow method of molding each letter and ornament with implements which shape the letters and ornaments.

What I claim as my invention is—

1. As a new article of manufacture, raised letters, ornaments, and the like formed on a base of a composite material consisting of whiting, varnish, glue, and spirits of turpentine, substantially as herein described.
2. The method herein described of making raised composite letters and ornaments on

signs, cards, or other base, consisting in providing a flowing composite material which will harden under exposure to the atmosphere and admit of bending without liability of cracking, placing this material in a compressible bulb having a conducting and discharging tube, preparing a design of the letters and ornaments upon the base, following the outline with the tube, compressing the bulb, and thereby continuously forcing out the fluid material through the tube upon the design and allowing the finished letters and ornaments to harden and become set, substantially as described.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

ELMER E. M. MANDIGO.

Witnesses:

R. T. SMITH,

W. H. CAMPBELL.