UNITED STATES PATENT OFFICE.

EMIL MAHLA AND CARL BRAUN, OF NUREMBERG, GERMANY.

MANUFACTURE OF WRITING-PENCILS.

SPECIFICATION forming part of Letters Patent No. 553,414, dated January 21, 1896.

Application filed June 11, 1895. Serial No. 552,410. (No specimens.) Patented in Germany June 27, 1893, No. 79,509, and in England November 1, 1893, No. 20,617.

To all whom it may concern:

Be it known that we, EMIL MAHLA and CARL BRAUN, subjects of the King of Bavaria, and residents of Nuremberg, Germany, have invented certain new and useful Improvements in the Manufacture of Writing-Pencils, (for which we have obtained Letters Patent No. 79,509, dated 27th day of June, 1893, in Germany; and in Great Britain and Ireland No. 20,617, dated November 1, 1893;) and we do hereby declare the following to be a full, clear, and exact description of the same.

It is a matter of common knowledge that writing-pencils are commonly made by inclosing the bar, stick or supply of lead, colored chalk, slate, or the like within two or more grooved wooden halves or sections glued together. This method is somewhat expensive and inconvenient, and the pencils so made are apt to break open and the inserted leads or sticks liable to slip out owing to their insecure attachment to the case.

In our invention the lead or other substance employed as the marker is inclosed in a plastic mass of appropriate material, which by its subsequent drying and contraction firmly binds the marker within the case so formed.

In carrying out our said invention we make the lead or marker in the usual manner and of any desired substance, such as graphite or colored chalk. We then prepare the casings as follows: We take any suitable material which after being pressed and dried has those advantageous qualities of wood which permit of its being easily sharpened or cut, and which has the additional quality of being molded while in a moist state and contracting on drying. There are numerous substances which possess these desired qualities, among them being artificial wood when powdered and mixed with some adhesive material, celluloid, cellulose and the like.

Whatever be the material employed we first put it into a plastic condition by moisture or other suitable means. We then put it through a press or former, preferably of the hydraulic type, and which has a core of the same diameter as that of the lead or marker of the pencil which is to be made. By this means there is formed, if the flow of the material through the press be uninterrupted, an endless tube. This is cut into suitable lengths, and while these are still moist the previously formed leads or markers are inserted therein, and the tubes thus inclosing the lead or marker are then dried by any suitable means, when it will be found that the contraction of the tubes in drying will cause them to firmly grip the leads or markers and hold them securely in place. Of course care must be taken to ascertain by previous experiment in each case the precise relation between the size of the lead or marker and the interior diameter of the tube which will produce the best result, because if the tube is too large the lead will fall out, and if too small may be injured.

We are aware that attempts have been made to form writing-pencils by simultaneously forming an inner tube of coloring material and an outer casing of plastic material, but the formation of a proper lead or marker under such conditions is well nigh impossible. By this method of carrying out our invention, an absolutely firm union of the lead with the case is obtained throughout its entire length without the use of any adhesive substance, and thus breaking of the case and slipping of the lead is absolutely prevented. Any shape of pencil may be obtained by using appropriate press outlets or molds for the plastic case. Further, owing to the avoidance of the intermediate steps of the old process of manufacture, the cost of production of the pencils is very considerably reduced.

We claim as our invention—

The process of making writing-pencils herein described, which consists in forming tubes by pressure from a plastic mass of suitable contractile material, inserting leads or markers in said tubes while they are still moist, but after the same are completed, and subsequently drying the tubes so filled.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

EMIL MAHLA.
CARL BRAUN.

Witnesses:
ANDREAS STICK,
OSCAR BOCK.