

UNITED STATES PATENT OFFICE.

HENRY WELTE, OF ZNAIM, AUSTRIA.

MANUFACTURE OF METAL-COATED ARTIFICIAL STONES.

1,258,282.

Specification of Letters Patent.

Patented Mar. 5, 1918.

No Drawing.

Application filed November 10, 1915. Serial No. 60,750.

To all whom it may concern:

Be it known that I, HENRY WELTE, a subject of the Austrian Empire, and a resident of Znaim, Moravia, Empire of Austria, have invented certain new and useful Improvements in the Manufacture of Metal-Coated Artificial Stones; 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.

This invention relates to the manufacture of metal coated artificial stones and metal coated articles of artificial stone mass, and has for its object to provide a process for producing such stones and articles in a single course of manufacture. The metallic coating produced according to this invention is very compact and the novel process necessitates no application of particular subsidiary means, the metallic coating being produced in connection with the usual shaping of the artificial stones or artificial stone masses.

The novel process consists in impressing the metal in form of a compact surface coating during the shaping of the artificial stones or articles of any kind and from any ground material capable of being hardened to a solid body. Upon the artificial mass, or below the same, just as the manner of pressing requires it, the powdered metal is spread and combines during the pressing action which results in the desired shaping, with the ground mass as superficial homogeneous layer. The shape of the finished product is solely determined by the necessary mold, thus articles which can be produced in molds by application of pressure may unexceptionally be provided with a metal coating in accordance with this invention. The pressing action must be carried out under high pressure such, for instance, as may be obtained in hydraulic presses. Preferably, the particles of the metal powder are given globular or ragged shape. It will be found useful to add a small proportion of graphite to the metal powder, for instance, 0.5 per cent. The graphite renders the coating more uniform, in a measure facilitates the impressing, prevents oxidation due to moisture during any final finishing operations, and facilitates electroplating when it is desired to electroplate the article. Any metal may be employed, preferably metals that admit of being readily com-

pressed, such as lead, zinc, tin, copper, aluminium, iron, and metal alloys. Of suitable alloys there might be mentioned lead containing a small proportion of tin or antimony, brass, bronze.

If metals are employed which are not readily compressible, the formation of the coherent surface coating may be accomplished by first applying the powder of a softer metal and thereupon spreading a layer of a harder metal. So for instance a layer of powdered lead may first be applied to the artificial mass and above that layer a layer of powdered iron. It is just as useful to work with mixtures of different metal powders, especially if metals are applied that differ in their capability to yield to pressure.

In any case, the metallic powder is to be applied through a sieve or by strewing, in a thin layer, taking care that the edges receive a uniform deposit. The forming plates which are to impart the surface shape are smoothed as far as possible by grinding and even a polishing action, to prevent the finished article from taking on a surface structure during the shaping process. The finished metal coating may be subjected to a grinding, a polishing, and an edging action, if desired, and may be given a further coating of another metal through galvanizing.

The applicability of the novel process extends to any artificial stone mass which solidifies or hardens through the application of pressure, be it in consequence of the presence of a cementing medium, or be it through felting or as the result of a special after treatment. Artificial stone mass containing as cementing agent, lime, hydraulic lime, gypsum, or cement of any kind, would be suitable for this process. In such cases the dressing may be accomplished by a simple mixing operation, or through pulping in a rag-engine and pre-molding in a cylinder-engine if it is intended to manufacture asbestos-cement-slate. In a like manner masses may be used which contain cements, resins, agglutinants, and oils as binding agents. Furthermore, fiber masses which are combined directly through compression, or through previous felting, as for instance, papier-mâché, felt, asbestos mass, may be provided with a metal coating while undergoing shaping. As a matter of course, the shaped articles may be subjected to an after treatment in case the mere application of

the shaping pressure, or the felting action, is not sufficient to impart to them the intense hardness of which they are capable. Such after treatment may consist in exposure to the air if a drying action is required, or in absorbing carbonic acid as with lime-masses or an oxidation is required (as with oil-masses), or in treating with steam if a hardening is wanted of the kind obtained in the production of calcareous sandstone.

If the novel process is applied with calcareous sandstone masses as ground material, the procedure would be as follows: The calcareous sandstone mass consisting of sand and slaked lime is dressed as usual, introduced into the pressing mold, evened somewhat superficially, and provided with a thin layer of powdered lead through a sieve. Then the usual shaping action under high pressure follows, whereafter the molded body is transferred to the hardening chamber from which a calcareous sandstone of the usual property and having on one side a uniform, compact, and well adhering lead coating is obtained.

For manufacturing metal coated asbestocement-slate the procedure would be as follows: The felted mass pile coming from the shaping press is cut to the desired form provided with a layer of metal, for instance, lead, and then subjected to a very high pressure in the drying press.

As far as the artificial masses can be colored, the coloring of the ground mass may just as well be applied in connection with the new process, if desired.

In a like manner can finished articles of natural stone or artificial stone mass be provided with a metal coating by bespreading the same through a sieve with powdered metal, and converting the thus produced layer into a coherent coating by a rubbing or an impressing action. As regards the manner of applying the various metals, and as regards their form, additional ingredients, and mixtures and their deposition in superposed layers the same applies that has been explained above.

It is of advantage to deposit soft and hard metals in superposition or in admixture. For instance, a brick or tile to be metal coated can first be bestrewn with powdered lead and then with powdered iron whereupon both layers are pressed in or rubbed in together. In a like manner can a mixture of powdered lead and powdered iron be applied directly. As ground mass, any molded mass, burned bricks, artificial material, cemented by means of hydraulic binding agents, such as cement, cementation substances, pasteboard, wood, and the like are suitable. With articles of a regular shape the layer of metallic powder, instead of being rubbed in, may be hammered on by hand or the layer of powdered metal

may be pressed in by means of a hydraulic press.

The thus produced metal coated artificial stones or articles, such as plates, stones, pipes, or any other bodies obtained by a molding and forming action, are weather-proof in a higher sense, are water-proof, may be rendered acid-proof by selecting the proper metal for the coating, and can be soldered. This latter property is of special value. The joining of single plates to a structure is facilitated thereby; as an illustration may be mentioned the building of a safe and tight roof of lead coated asbestocement-slates. Besides the application as weather-proof building material, the novel products will be found useful for decorative, sanitary, and technical purposes of a general character. As instances of such uses may be mentioned the employment of the new articles for bathing tubs, bathrooms, rinsing tables, ice-chests, wall coverings, electrical fuses, and the like. As regards the chemical industry, the new products are of value as acid-proof materials for lining vessels and receptacles and for making conduits and ventilator pipes.

The articles thus provided with a metal coating, especially if consisting of artificial stone mass, may be conveniently given a glaze if possessed of an earthy character. Glaze or enamel is powdered upon the metal coating and the article then subjected to low heat. It may be necessary to previously clean the metal coating, or to apply a grounding enamel.

What I claim as my invention and desire to secure by Letters Patent of the United States, is:

1. The process of coating non-metallic articles, which comprises coating the article with powdered metal, subjecting the article so coated to pressure sufficient to form the article and to deform the particles of metal on its surface, and thereafter plating the surface of deformed metal particles.

2. The process of coating plastic articles with metal, which comprises bestrewn the surface of a plastic article with powdered metal deformable under the action of the forming pressure and simultaneously forming and compressing the article and coating.

3. The process of coating plastic articles, which comprises bestrewn the unfinished article with a mixture of powdered metal and graphite, and subjecting the article with the mixture thereon to shaping pressure.

4. The process of coating plastic articles, which comprises bestrewn the unfinished article with a mixture of powdered metal and graphite, and subjecting the article with the mixture thereon to shaping pressure, said metal being deformable under the shaping pressure.

5. The process of manufacturing metal

UNITED STATES PATENT OFFICE.

GEORGE W. WEBB AND JAMES A. WEBB, OF JOHNSON COUNTY, KANSAS, ASSIGNORS TO
WEBB BROTHERS BELTING COMPANY, OF KANSAS CITY, MISSOURI, A CORPORATION
OF MISSOURI.

BELT-FASTENER.

1,258,281.

Specification of Letters Patent.

Patented Mar. 5, 1918.

Application filed September 11, 1916. Serial No. 119,432.

To all whom it may concern:

Be it known that we, GEORGE W. WEBB and JAMES A. WEBB, citizens of the United States, residing in the county of Johnson and State of Kansas, have invented certain new and useful Improvements in Belt-Fasteners; and we do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

Our invention relates to belt fasteners and more particularly to means for connecting the ends of belts of transmission, elevating or conveying types, so that an endless band may be formed, the principal object of the invention being to provide fastening devices, which may be quickly and easily applied and will so connect the ends of a belt as to obviate any excessive protuberances of the connection and avoid weakening of the belt at the joint.

In accomplishing this object we have provided improved details of structure, the preferred forms of which are illustrated in the accompanying drawings, wherein:—

Figure I is a perspective view showing the ends of a belt connected by fastening devices constructed according to our invention.

Fig. II is an enlarged longitudinal section through the belt showing fasteners in place.

Fig. III is a detail perspective view of one end of a belt showing the manner of inserting and bending the fasteners.

Fig. IV is a similar view of a fastener wherein the points of the back lapped portions are inserted into the body of the belt between the end of the belt and the line of perforations.

Fig. V is a similar view showing the pointed ends of the connecting devices inserted in the belt perforations adjacent the loop portions.

Referring more in detail to the drawings:—

1 and 2 designate ends of a belt of ordinary leather or canvas construction, which are brought together and connected to form an endless transmission band.

Located at the ends of the belt are fastening devices embodying our invention,

comprising links 3 formed from single strands of suitable wire, which are projected through alining apertures 4 adjacent the belt ends. Each of the link strands is bent upon itself to form a body loop 5, which seats in a perforation 4, and the ends of the strands are extended forwardly slightly past the belt end and turned back to form double registering loops 6 and to overlie opposite sides of the belt, the free ends of the strands being preferably extended back of the line of apertures and provided with inturned points 7 which are projected into the body of the belt to anchor the devices thereto.

A number of the fastening devices are located at each end of the belt, with the loops 6 projecting from the ends of the belt and in registration with each other, so that a pin 8 may be projected therethrough, the fasteners at each end of the belt being spaced, so that they may mesh with those at the opposite end of the belt and register therewith to receive the pin 8 that hingedly connects the fasteners and joins the ends of the belt.

In using the fastening devices, the belt is cut to the desired length and the free ends preferably perforated to receive the fastener wires. The wires, cut to the desired length with the ends pointed are projected through the belt, through the perforations when such are provided. The ends of the wires are then extended forwardly and bent back, preferably over a form (not shown), to overlie faces of the belt opposite those from which they originally project, to form the double loop at the outer end of the fastener. The points at the free ends of the strands are then preferably bent rearwardly to form hooks and pressed into the belt to anchor the free ends of the fasteners. When the perforations are formed in the belt otherwise than by forcing the fastener wires there-through, care is taken to properly space the perforations in the belt ends, so that the fasteners, when placed, will register with each other and be separated a sufficient distance to mesh with fasteners on the opposite end of the belt.

When both ends of the belt have been equipped with the fasteners, the ends are brought together, so that the outer loops register and a pin 8, preferably of buckskin or other very tough material, is pro-