(No Model.)

W. B. SPEAR.

METHOD OF PRODUCING DEFINITE PATTERNS ON ZINC COATED PLATES.

No. 484,472. Patented Oct. 18, 1892.

Fig. 1.

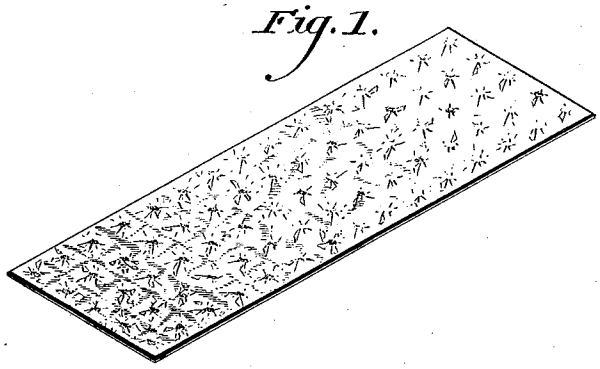


Fig. 2.

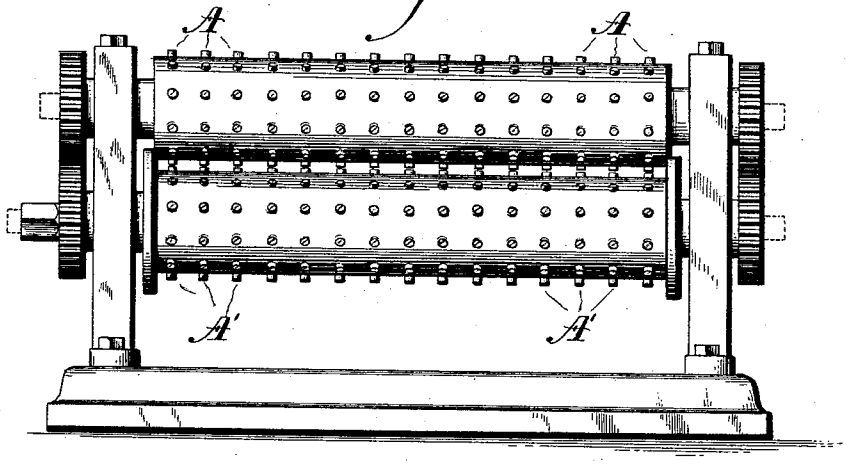
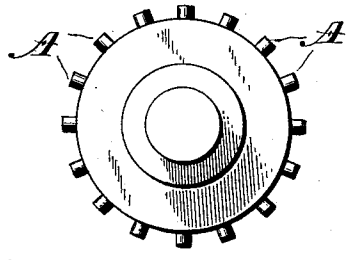


Fig. 3.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WICKHAM B. SPEAR, OF PHILADELPHIA, PENNSYLVANIA.

METHOD OF PRODUCING DEFINITE PATTERNS ON ZINC-COATED PLATES.

SPECIFICATION forming part of Letters Patent No. 484,472, dated October 18, 1892.

Application filed January 27, 1892. Serial No. 419,400. (No specimens.)

To all whom it may concern:

Be it known that I, WICKHAM B. SPEAR, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia, in the State of Pennsylvania, have invented a new and useful Method of Producing Definite Patterns on Zinc-Coated Plates, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 exhibits a sheet of galvanized iron as the same appears after it has been subjected to my process; Fig. 2, an elevation of a pair of rollers whereby my process may be conveniently applied; and Fig. 3, an enlarged end view of one of the rolls, clearly exhibiting the points or "spuds" hereinafter referred to.

The process of coating iron with zinc, resulting in the production of what is commonly known in commerce as "galvanized iron," is too well known to require to be herein described.

It has been observed by all manufacturers and users of galvanized iron, doubtless, that the zinc-coated plates after being drawn from the galvanizing-tanks assume a mottled appearance, owing to crystallization of the zinc in the act of cooling, which fact is due to irregularity or want of uniformity in the cooling—in other words, to differences of temperature existing in iron, or to varying currents of air that come in contact with the metal; but such mottled appearance is wholly without regularity or uniformity and adds nothing to the appearance of the finished plate.

My invention has in view the regulation or control of the crystallization, with the view of thereby causing or effecting well-defined patterns on the surface of the zinc; and to this end it consists in applying to the zinc-coated plate, immediately upon its withdrawal from the galvanizing-tanks or before the zinc has begun appreciably to set, metallic points, which are cold and which may be arranged in any figures, as desired, and may also embrace any device or name. The effect of bringing such cold surfaces in contact with the hot zinc-coated plate is to arrest the crystallization of the zinc immediately under the surface of the cold metallic points and to cause a crystallization of the zinc which radiates from and surrounds such points of contact, the ultimate effect being, as stated, the production of well-defined patterns within reasonable limits, thus adding to the appearance and commercial value of the finished plate.

The most convenient and best manner of carrying my invention into effect, as I believe, is to cause the plate, immediately upon its removal from the galvanizing-tank, to be passed between rolls from which metallic points or spuds A A′ project, as illustrated in Figs. 2 and 3. These rolls and the housings in which they are mounted may be of any of the forms in general use and may be driven by any source of power, and these particulars need not be further described; but to carry out the invention there must be points of metal projecting from one or the other of these rolls, or from both, according as it is desired to produce a pattern on only one or on both sides of the galvanized plate, as shown at A A′, Figs. 2 and 3. These points or projections may be made integral with the rolls or may be inserted therein, as desired, and they may be of uniform size and arranged in parallel rows or may be of varying areas and arranged in diamond or other figures. The best effects will be secured when these metallic points are kept as cold as possible, and hence it is desirable that the rolls be made hollow and that a stream of water be passed through them while being operated, and the best method of conducting my process is to pass the sheets directly from the galvanizing-tank into and through the impression-rolls above described and illustrated in Fig. 2, since in such case no material change in temperature will have occurred in the sheets prior to their being brought in contact with the points on the impressing-rolls, and the best effect will thus be secured, and also the two processes of galvanizing and that herein described can be be made continuous and the same motive power be applied for passing the plates through the galvanizing tank and rolls, respectively.

I make no claim whatever for any special form of rolls, nor do I limit myself to any particular figure produced thereon by any special arrangement of the spuds or points; but

What I do claim, and desire to secure by Letters Patent, is—

The method herein described of producing definite patterns on zinc-coated metal plates, which consists in placing the zinc-coated plate, immediately upon its removal from the galvanizing-tank and before the zinc has begun appreciably to set, in contact with metallic spuds or points and supplying said spuds or points with a cooling agent, substantially as described.

In testimony whereof I have hereunto subscribe my name, in the presence of two witnesses, on this 14th day of October, A. D. 1891.

WICKHAM B. SPEAR.

Witnesses:
GEO. W. REED,
CHAS. C. COLLIER.