

E. S. MOWRY.
ART OF METAL COATING METALLIC ARTICLES.
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1,397,175.

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Fig. 1.

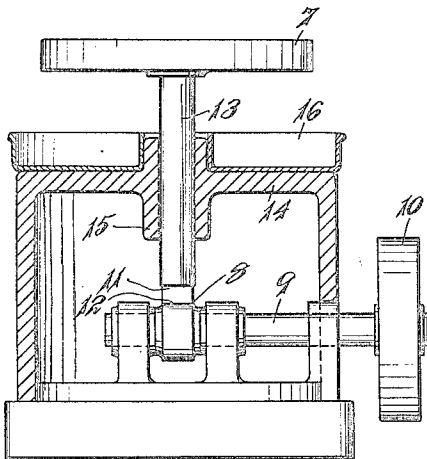


Fig. 2.

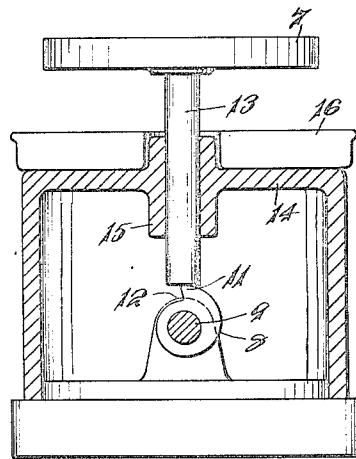
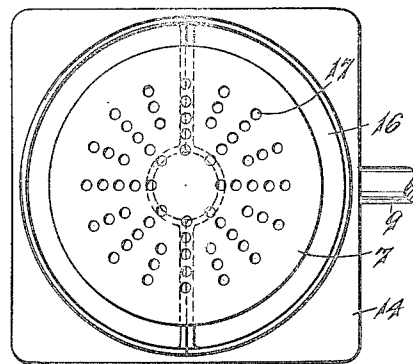
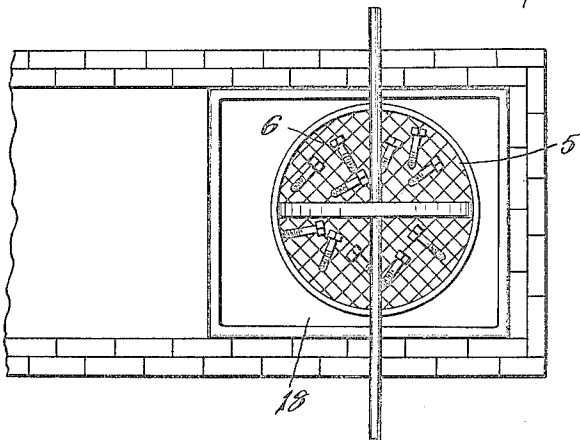


Fig. 3.



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ART OF METAL-COATING METALLIC ARTICLES.

1,397,175.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDWARD S. MOWRY, a citizen of the United States, and a resident of Middletown, in the county of Middlesex and State of Connecticut, have invented a new and Improved Art of Metal-Coating Metallic Articles, of which the following is a specification.

My invention relates to the art of applying a metallic coating or finish to metallic articles, especially of the smaller sorts, and an object of my invention, among others, is to provide a method for treating such articles that will produce an even coating of the material on the articles and an extremely smooth finish therefor.

One form of device embodying my invention and in the construction and use of which the objects herein set out, as well as others, may be attained, is illustrated in the accompanying drawings, in which—

Figure 1 is a view in vertical section through an apparatus suitable for the practice of my improved process.

Fig. 2 is a view in vertical central section through the same on a plane located at right angles to the plane of section of Fig. 1.

Fig. 3 is a top view of my improved device shown as located in proximity to the receptacle containing the molten metal.

In the operation of applying a metallic coating to articles, especially of the smaller sorts, and in which a perforated receptacle or container with the articles therein is dipped in a heated liquid mass of the coating material, the container, after being removed from the receptacle containing the liquid coating material, is shaken to remove the excessive material from the articles.

When the container with the coated articles therein is removed from such receptacle the coating material quickly cools and thereby thickens, and it is, therefore, of the utmost importance that the operation for removing the excessive material shall take place at the earliest possible moment. This is true as to articles coated with lead, tin, zinc and other material and it is especially true in the process of galvanizing articles, although my invention is not limited to a process in which zinc is applied as a coating material.

In the process of applying a zinc coating, however, the zinc, comprising a large part of the galvanizing material, has an affinity

for iron, of which the articles to be galvanized are commonly made, and quickly amalgamates therewith. This, together with the rapid cooling of the coating material, results in a rapid thickening of such material and causes it to be unevenly deposited on the articles and the coating to be too thick in spots unless the articles are treated in a very rapid manner after being removed from the liquid bath, a matter of seconds in the time of treatment producing great changes in the condition of the coating material and, therefore, in the results obtained in the coating operation.

It, therefore, becomes essential that the articles be subjected to the operation for removing the surplus coating material as quickly as possible after they are removed from the liquid bath. I have found that if such articles be subjected to sharp heavy blows, such as is obtained by dropping the articles for a considerable distance onto a solid body, the removal of the surplus material will be attained in the shortest possible time, the coating will be evenly distributed over the articles and all surplus material will be removed. This operation may be attained by subjecting a container with the articles therein to sharp heavy blows, but in order that said container, which is preferably composed of wire netting or other perforated material, shall withstand such blows, and that the weight of the articles therein shall not cause the bottom of the container to be broken through, I support such container with its bottom resting upon a heavy table that I cause to be raised and then dropped for a considerable distance onto a solid stop, the bottom of said container being flat whereby shock impulses are applied uniformly over its entire bottom. A satisfactory apparatus for accomplishing this purpose embodies a cam secured to a shaft rotated as by means of a pulley. This cam has a nose constituting the highest portion of the cam, there being a sudden drop from this highest portion of the cam to the lowest portion thereof, which constitutes a solid abutment to receive the shock of the heavy table and its load, said table being supported on a post projecting through the top of the frame of the apparatus, said top being provided with a bearing for the post. A separable pan

16 may be located on the top 14 to receive any surplus metal forced from the articles within the basket and passing through perforations 17, such perforations, however, not being sufficient to destroy the solidity and rigidity of the table. This table is placed adjacent to a receptacle 18 containing the liquid coating material in which the container is placed. This enables the container to be quickly and rapidly placed and does not require time to affix the container to apparatus for agitating it. The articles may be placed in the container in quantity to produce the proper amount of weight and the table may be caused to fall for a considerable distance. I have found four inches or more to produce satisfactory results. This falling action may be quickly repeated, say two or three times a second, with a result that the excess material is removed from the articles before it has time to amalgamate therewith to an extent to produce an uneven and rough coating, and the support of the receptacle or container upon the table enables it to successfully withstand what would otherwise be severe treatment.

While the illustration and description herein refers to a cam as a means for raising and dropping the table it will be understood that any other suitable apparatus may be employed for this purpose, and also that the container may be of any well known form in metal coating operations.

In accordance with the provisions of the patent statutes, I have described the principles of operations of my invention, but I desire to have it understood that the method described is only illustrative and that the invention may be carried out by other means.

I claim—

1. The method of coating metallic articles, with metal that consists in placing said articles in a container, then subjecting said articles to a bath of molten metal, and finally subjecting said container with the articles therein to a plurality of shock impulses applied uniformly over the bottom of said container.

2. The method of coating metallic articles, with metal that consists in placing said articles in a perforated container, then subjecting said articles to a bath of molten metal, and finally subjecting the container with the articles therein to a plurality of shock impulses applied uniformly over the bottom of said container.

3. The method of coating metallic articles, with metal that consists in placing said articles in a perforated container, then subjecting said articles to a bath of molten metal, and finally subjecting the container with the articles therein to a plurality of shock impulses applied over the entire area of the bottom of said container whereby the nature and force of the shock upon the articles in the container is uniform throughout the entire mass.

4. The method of coating metallic articles with metal that consists in placing said articles in a container, then subjecting said articles to a bath of molten metal, and finally subjecting said container with the articles therein to a plurality of rigid unyielding shock impulses applied uniformly over the bottom of said container.

EDWARD S. MOWRY.