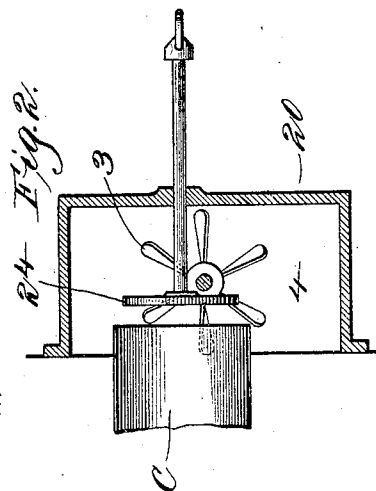
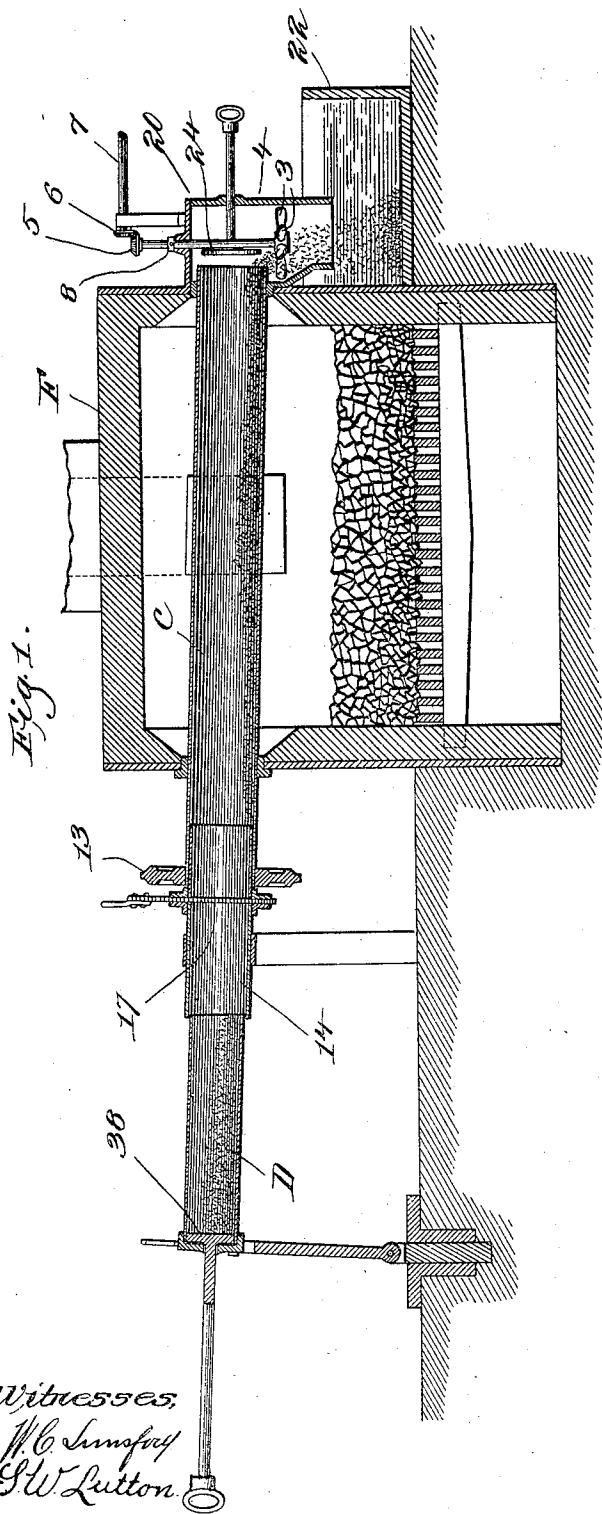


No. 806,900.

PATENTED DEC. 12, 1905.

W. A. LEONARD.
GALVANIZING APPARATUS.
APPLICATION FILED DEC. 19, 1902.



Witnesses,
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GALVANIZING APPARATUS.

No. 806,900.

Specification of Letters Patent.

Patented Dec. 12, 1905.

Application filed December 19, 1902. Serial No. 135,854.

To all whom it may concern:

Be it known that I, WILLIAM A. LEONARD, a citizen of the United States, residing at West Wareham, in the county of Plymouth and State of Massachusetts, have invented an Improvement in Galvanizing Apparatus, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to a galvanizing apparatus and is an improvement upon the apparatus for which I obtained a patent, No. 660,579, dated October 30, 1900. The machine described in said patent comprises a container or retort which extends through a suitable furnace and which is adapted to receive or contain the articles to be galvanized, the flux and the zinc, tin, or other coating metals. The discharge end of the retort extends into an open-bottomed casing, the open end of which is immersed in a body of water, thus making it a sealed casing. In the operation of the apparatus when the articles in the container have become coated with metal or galvanized they are discharged into the sealed casing and dropped into the body of water or other cooling medium, where they become sufficiently cooled to be handled. While this apparatus effectively coats the articles with metal, I have found from experience that the melted metals with which the articles are being coated cause some of them to adhere together, and after they have dropped into the cooling medium and the coating has become chilled such articles become rigidly secured together. When the patented apparatus is used for galvanizing nails or tacks or similar articles, those articles which have adhered or have been soldered together, as it were, by the coating metal have to be subsequently treated for the purpose of separating them.

It is the object of my present invention to provide an improved galvanizing apparatus which shall contain, in addition to and in combination with the features employed in my patented device, a separator situated in the sealed casing and at the discharge end of the container which operates to separate the articles as they are discharged from the container, thereby insuring that they will separately drop into the cooling medium. This positively prevents any adhering together of

separate articles, and thus eliminates the necessity of subsequently treating the articles to separate those which may have adhered.

In the drawings, Figure 1 is a central sectional view of the form of galvanizing apparatus illustrated in my above-mentioned patent having my improvements added thereto, and Fig. 2 is a horizontal section through the casing.

In Fig. 1 in the drawings the furnace F, the container or retort C, having the sprocket-wheel 13 thereon, by means of which it may be rotated, the charging-cylinder D, carrying the gate or valve 17 and the tank or vessel 22 for containing the water or other cooling medium into which the galvanized articles are deposited, and the sealed casing 20 are or may be all as illustrated and described in the said patent. My present improvement consists in combining with these elements a separator which is situated in the sealed casing 20 and is interposed between the delivery end of the container or retort C and the cooling medium, the function of which separator is to separate the articles as they are delivered from the container, so that they will fall separately into the cooling medium, thereby removing any danger of their sticking or adhering together. The separator which I have chosen to illustrate in this embodiment of my invention comprises one or more blades which are made to move across the path of the falling articles as they are discharged from the container with sufficient frequency so that each article will be struck by the blade or one of the blades, whereby the articles are thrown separately against the side of the casing 20 or into the cooling medium. This blade may either have a vibrating motion or rotary motion or any other character of motion so long as it performs the function intended. I prefer, however, to give it a rotary motion in a substantially horizontal plane. In such case the separator will consist of one or more arms or blades 3, extending radially from a vertically-arranged shaft 4, which is supported in any suitable way by the casing 20. The shaft is so supported and the blades are of such a length that as the shaft rotates the blades pass in succession across the path of the falling objects. In order to accomplish the purpose intended, it is necessary to give the shaft such a speed of rotation that it will be impossible

for any article to fall between any two blades without being struck by one of the blades. The speed of rotation which is necessary to accomplish this will obviously depend upon
 5 the number of blades employed and the width thereof. Any suitable means may be employed for rotating the shaft 4, and I have herein illustrated said shaft as projecting through the casing 20 and as carrying at its
 10 upper end a bevel-gear 5, which meshes with a bevel-gear 6 on a driving-shaft 7, the shaft 4 being illustrated as being held in position by means of a collar 8.

It will be noted that the bearings for the
 15 vertical shaft 4 are situated entirely above the delivery end of the retainer, and therefore are out of the way of the materials and the liquid or galvanizing material delivered from the retainer. This construction prevents the bearing
 20 from being injured by having the galvanizing fluid discharged over them.

With this construction and from the above description it will be obvious that each article as it is delivered from the container will be
 25 struck by the separator and will be thrown either against the side of the casing 20, from which it will drop into the water, or directly into the water. As soon as the articles are separately deposited into the water and cooled
 30 there will be no chance for them to stick together, and any subsequent treatment of the articles for the purpose of separating them will therefore be unnecessary.

I have herein illustrated the shaft 4 as situated to one side of the axial line of the con-

tainer C in order to accommodate the scraper 24.

Various changes may be made in the details of the structure without departing from my invention.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a galvanizing apparatus, a rotary substantially horizontal container or retort for the articles to be galvanized, a furnace to heat said retort, a water-sealed casing surrounding the discharge end of the container and a suspended separator in said casing said separator comprising an arm movable in a horizontal
 45 plane across the path of the articles as they are delivered from the container.

2. In a galvanizing apparatus, a furnace, a container adapted to be heated by the furnace, a water-tank, a casing surrounding the delivery end of the container and having a discharge-opening below the surface of the water in the tank, a vertical shaft in said casing, a plurality of blades projecting horizontally from said shaft below the delivery end of the
 50 container, the bearings for said shaft being all above the delivery end of the container, and means to rotate the shaft.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM A. LEONARD.

Witnesses:

FRANK A. BESSE,

E. A. G. ALINNOUS.