

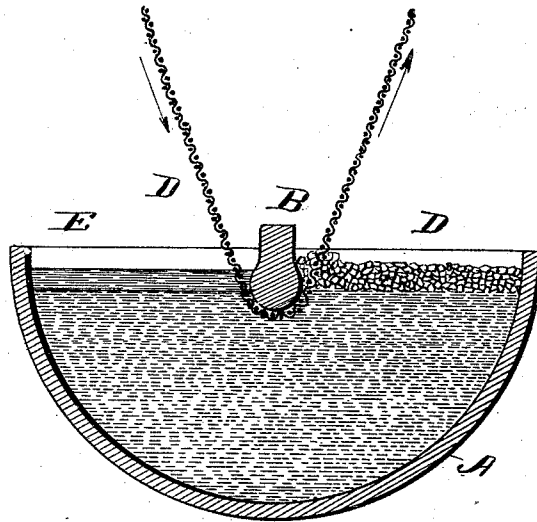
(No Model.)

C. B. RUMSEY.

PROCESS OF GALVANIZING OR TINNING WIRE CLOTH.

No. 474,567.

Patented May 10, 1892.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES B. RUMSEY, OF HOMER, NEW YORK, ASSIGNOR TO THE WIRE FABRIC COMPANY, OF SAME PLACE.

PROCESS OF GALVANIZING OR TINNING WIRE-CLOTH.

SPECIFICATION forming part of Letters Patent No. 474,567, dated May 10, 1892.

Application filed March 7, 1892. Serial No. 424,054. (No model.)

To all whom it may concern:

Be it known that I, CHARLES B. RUMSEY, of Homer, in the county of Cortland and State of New York, have invented certain new and useful Improvements in the Process of Galvanizing or Tinning Wire-Cloth, &c.; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming a part of this specification, and to the letters of reference marked thereon.

In the process of galvanizing and tinning by dipping in a bath of molten metal, particularly as applied to wire-cloth, one of the most delicate and difficult operations to properly perform is the removal of surplus metal from the surface of the wires, so as to produce a thin, uniform, and bright coating upon the entire surface of each wire, leaving the meshes open and unclogged.

The usual practice has been to conduct the material to be coated through the bath of molten metal and through a layer or mass of comminuted material, which acts mechanically to remove the surplus coating material while still in fluid or semi-fluid condition.

In the accompanying drawing the figure is a diagrammatic view illustrating one well-known form of apparatus employed for this purpose.

A designates the melting-pot, which is provided with a bridge-piece or partial partition B, whose lower edge extends below the surface of the molten metal. On one side of the partition—that on which the wire-cloth D is introduced and conducted into the bath—the surface of the molten metal is protected by a suitable flux E, and on the opposite side of the partition, or that from which the wire-cloth is withdrawn after passing beneath the partition, a layer or stratum D of the material employed as a wiper is floated upon the surface, so that as the wire-cloth emerges from the coating metal it will be passed through the layer D, the particles composing the latter operating to remove surplus material.

Various materials have heretofore been proposed and used for the wiper—such, for example, as sand, whiting, loam, charcoal, asbestos, coke, and coal-dust—but each has been found in practice deficient and defective in

various particulars. Of these several materials sand is the one most commonly employed, the angular form of the grains adapting it to enter the meshes and remove the surplus coating material, while its weight is such as to permit it to float on the surface of the molten metal and at the same time produce a movement of the particles in contact with the wire-cloth to present fresh grains to its surface. Owing, however, to minute size of the grains and the smooth surface of the same, the sand packed and became entangled in the meshes of the cloth. Besides, owing to its weight, if a sufficiently deep layer was employed to produce the requisite wiping action, it would produce distortion of the wires and the lower strata would be immersed in the liquid and raised to too high a temperature. Efforts were made to overcome these and other defects incident to the use of sand by the employment of charcoal, coke, and coal-dust, the principal advantages gained being, in the case of charcoal and coke, less weight and a thicker layer, and in the case of coal-dust larger particles, as compared with sand, and a thicker layer, the angular characteristics of the grains of sand being preserved. Coke was found deficient in hardness and added the element of porosity to such a degree as to neutralize most if not all its advantages on the score of less specific gravity; but the coal-dust was not free from defects, in that it was friable, and in proportion as the grains were enlarged the area of the smooth or non-wiping surfaces were increased, and as the angles wore down the proportion of fine particles or dust was enlarged, thereby diminishing the excursions of the particles and reducing the area and extent to which the grains were shifted, so as to present fresh wiping surfaces.

Now as the result of practical experience, I have discovered that all of the advantageous features of coal-dust, coke, charcoal, and sand, without their attendant disadvantages and inherent defects, can be secured by the employment of comminuted gas-retort carbon, or, as it is generally termed, "gas-carbon." This material is hard, light, and of a close granular texture, presenting sharp points not only on the edges but on the faces of the fracture. It is sufficiently refractory to withstand

the heat of the metal bath without detriment, and can be floated in a comparatively thick layer upon the surface of the molten metal. The gas-carbon is broken into small fragments
5 and separated by screening or otherwise into grades adapted to different sizes of wire and mesh. As compared with coal-dust, the gas-carbon is noticeably free from smooth surfaces, hence is better adapted as a wiper, and
10 as compared with coke it is harder and free from the pores and pockets for the retention of metallic particles. Being harder and less friable, it is less subject to wear than either coal-dust or coke, and hence will retain its angular features longer, and by reason of its angular and rough surface the particles which
15 will traverse farther and produce a more extended agitation of adjacent particles, thereby effecting a more general movement of the
20 particles and frequent renewal or change of particles in contact with the wire.

Having thus described my invention, what I claim as new is—

1. That improvement in the art of coating 25 or galvanizing metallic articles which consists in subjecting such articles to the action of a molten-metal bath and to the wiping action of floating particles of gas-carbon, substantially as described. 30

2. In the art of tinning or galvanizing wire, wire-cloth, netting, and similar articles, the combination, with the molten-metal bath in which the article is immersed and coated, of a wiper composed of gas-carbon in the form 35 of comminuted particles floated in a layer or stratum upon the surface of the molten metal at the point when the article is withdrawn or emerges from the molten metal, substantially as described.

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Witnesses:

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