

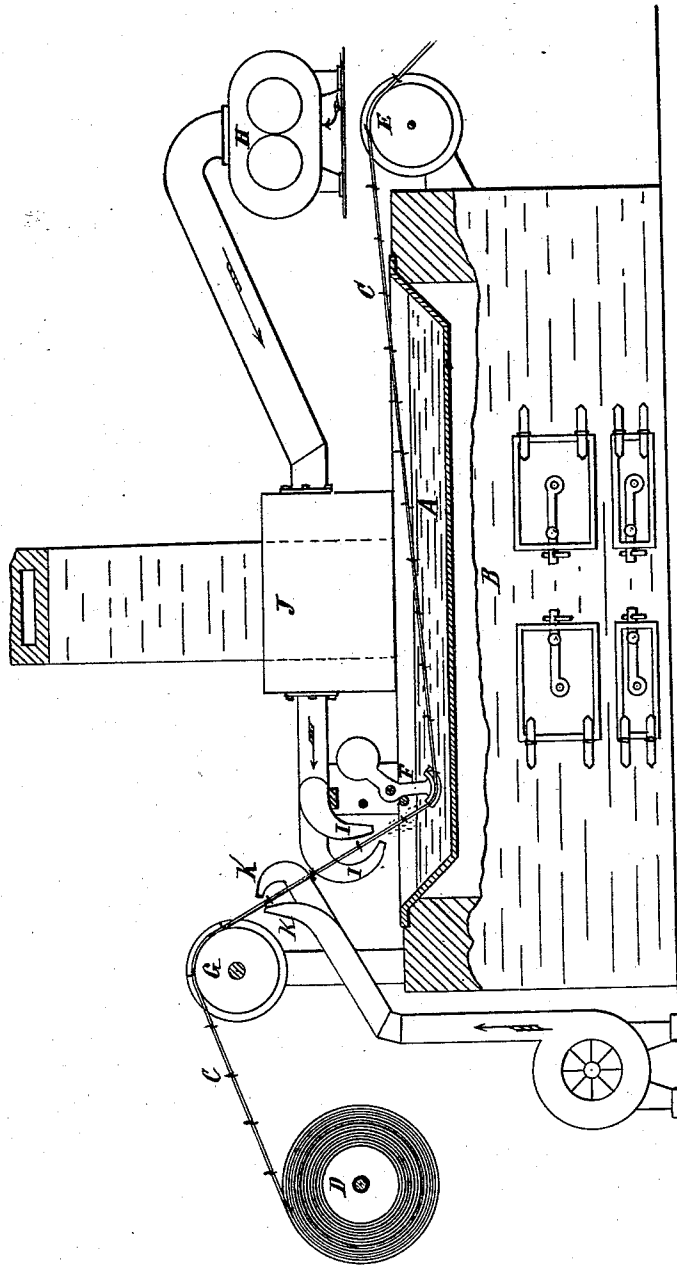
(No Model.)

H. A. YOUNG.

ART OF REMOVING SURPLUS MATERIAL FROM ARTICLES COATED
WITH MELTED METAL.

No. 287,076.

Patented Oct. 23, 1883.



WITNESSES,

Austin W. Matthews.
Edwin H. Lykes

INVENTOR,

Horace A. Young
By Chas. H. Burleigh
Att'y.

UNITED STATES PATENT OFFICE.

HORACE A. YOUNG, OF WORCESTER, MASSACHUSETTS.

ART OF REMOVING SURPLUS MATERIAL FROM ARTICLES COATED WITH MELTED METAL.

SPECIFICATION forming part of Letters Patent No. 287,076, dated October 23, 1883.

Application filed June 5, 1882. (No model.)

To all whom it may concern:

Be it known that I, HORACE A. YOUNG, of Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in the Art of Removing Surplus Material from Articles Coated with Melted Metal; and I declare the following to be a description of my said invention sufficiently full, clear, and exact to enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, which forms a part of this specification.

My present invention has reference to an improved method of wiping or cleansing the surface of articles after they have been passed through a surface-coating bath of melted tin, zinc, lead, or other material, to prevent the formation of bunches or irregularities on the surface, and to remove any surplus coating material that may adhere to the surface, the prime objects of the invention being to provide a process adapted for practically and conveniently cleansing barbed wire, fencing-strips, wire rope, &c., or articles having irregularities and projections which interfere with the ordinary devices employed for wiping the surface; also, to afford means for quickly and conveniently cooling the surface-coating as soon as it is properly cleansed or wiped.

My invention consists in projecting or discharging upon the barbed wire, fencing-strip, wire rope, or other article, as it emerges from the bath of melted coating metal, a forced blast of steam, preferably superheated or at an elevated temperature somewhat corresponding to the temperature of the molten metal of the bath, or a temperature sufficiently high to obviate the chilling or cooling of the coating, said steam-blast being directed and concentrated upon the fence-wires or other articles by means of suitable nozzles or tuyeres, so as to impinge upon the surface at a proper angle of inclination and with suitable force to lay the surface-coating level and even upon the various wires, strands, barbs, or other irregularities, and to blow off the surplus material and any adhering foreign substances, so that the surface-coating, when cooled, will be evenly laid and free from numerous bunches and

roughness, and the collection of heavy deposits of coating metal in the depressions and angles will practically be prevented. By employing the heated blast the entire surface-coating is kept in a liquefied condition until it has been properly cleansed and its surface properly leveled. A cold or refrigerant blast is used immediately following the steam-blast, for the purpose of cooling the surface-coating before it comes in contact with the guides or winding devices and becomes thereby roughened or injured.

The accompanying drawing illustrates the nature of one form of apparatus for cleansing barbed wire, fencing-strips, &c., by my improved process. I do not, however, desire to confine myself to this or any particular arrangement of parts in the mechanical construction of the apparatus, since my improved process may be effectively worked on any suitably-arranged apparatus without change in the nature of my invention.

In the apparatus shown, A indicates the bath of melted zinc or other coating material, kept constantly heated by the furnace B in the ordinary manner.

C indicates the barbed wire, fencing strip, or rope, which is drawn forward through the bath by the winding-drum D, and properly guided and directed by suitably-arranged guides E, F, and G.

H indicates a generator for supplying steam under pressure to the discharge-nozzles I.

J indicates a superheater or device for elevating the temperature of the blast to the required degree.

The nozzles I are directed upon the barbed wire near the point where it emerges from the molten bath, and they are arranged so that the forced blast will impinge upon all parts of the wires, barbs, &c., as they pass upward from the surface of the molten coating material before the coating has cooled sufficiently to become solid, so that the steam will blow off all superfluous adhering particles, and thus effect the cleansing and leveling of the surface-coating, leaving only a thin smooth film of coating upon the barbed wire, fencing-strips, or other articles under treatment.

The degree of force at which the steam-blast is projected can be varied to suit the particu-

lar requirements of the work and the kind of coating employed, while the degree of temperature of the blast would also vary somewhat for different metals used and the fusible properties of the same, but should be sufficiently high to avoid solidifying the coating until the surface is properly cleansed and leveled.

K K indicate the nozzles for projecting a blast of cold air or other gas upon the wires or articles for cooling the surface-coating immediately after the surface has been cleansed or wiped. Said nozzles K are located to act in order after the nozzles I, and are supplied by a blowing device, L, conveniently located for the purpose.

The air or gas for the cooling operation may, if desired, be artificially refrigerated, so as to increase its effectiveness, any suitable frigerific apparatus being employed for such purpose.

I do not herein make claim to the process of coating articles by passing them through a bath of molten metal, since such operation has been heretofore performed, but with other processes of cleansing than that hereinbefore described.

What I claim as of my invention, and desire to secure by Letters Patent, is—

1. The improvement in the art of removing surplus coating material from the surface of barbed fence-wire and similar articles in the operation of galvanizing or surface-coating the same, which consists in passing the wire, immediately upon its issuing from the bath of molten material, through a strong blast of steam, and immediately thereafter through a blast of cold air or gas, both of which blasts are directed to impinge upon the coating, as hereinbefore set forth.

2. In an apparatus for coating barbed fencing, wire, wire rope, and similar articles with melted zinc, tin, or other material, the combination, with the bath A and the exit-guides F and G, of the hot-blast nozzles I and the cold-blast nozzles K, relatively arranged for directing currents upon the surface-coating, substantially as set forth.

Witness my hand this 2d day of June, A. D. 1882.

HORACE A. YOUNG.

Witnesses:

CHAS. H. BURLEIGH,
AUSTIN W. MATHEWS.