This invention has reference to a new and improved method of coating iron or steel sheets with a protective metallic coating, the article so coated and the apparatus for coating. An example of such a coating is zinc spelter.

The invention has for its principal object the method of applying by wiping a protective metallic coating, as for example zinc spelter, to iron or steel sheets so as to provide such sheets with a heavier metallic coating on one side of the sheet than on the other side thereof and to the sheet so coated. Such a sheet has considerable utility and an especial advantage when subjected to outdoor use, as for example when used for roofing purposes, as experience has demonstrated that metallic coated sheets, especially if coated with zinc spelter will rust on their outside or exposed surfaces sooner than they will on the inside. Therefore, by providing such sheets with a protective coating on one side and a light protective coating on the other side, the heavier coated side can be used as the exposed side and give longer life thereto, resulting in greater economy in the use of such sheets.

The invention has for another object an improvement in the feed-out rolls of galvanized pots which make it possible to obtain a heavy coating on one side of iron or steel sheets and a lighter coating on the opposite side thereof.

Further objects will more fully appear from the following description:

That the invention may be more fully understood reference is had to the accompanying drawing forming part of the description illustrating a preferred embodiment of the invention, in which:

Fig. 1 is a detail sectional view of an apparatus embodying my invention by means of which it is possible to coat an iron or steel sheet with a heavy metallic coating on one side and with a lighter coating on the opposite side;

Fig. 2 is a detail in plan showing improved feed-out rolls, whereby it is possible to coat an iron or steel sheet with a heavier metallic coating on one side thereof and with a lighter coating on the opposite side;

Fig. 3 is a detail sectional view showing an iron or steel sheet with a heavy metallic coating on one side thereof and a lighter coating on the opposite side.

Like characters of reference denote corresponding parts throughout the figures.

In the drawing I have illustrated the use of the invention with zinc spelter wherein a galvanizing pot of the usual construction is designated 1 in which is placed in the usual manner, molten lead a on the surface of which floats the molten zinc b. 2 and 3 designate, respectively, the feed-out rolls arranged to co-operate in the usual manner and between which the coated sheets 4 are directed, as they leave the coating bath, as indicated in Fig. 1.

It is a common practice in galvanizing with zinc spelter to provide the feed-out rolls of the pot with corresponding grooves whereby the coated sheets as they emerge from the bath and from between these rolls shall have an equal amount or weight of zinc coating on opposite sides of the sheets, and in fact to insure a uniform thickness of coating throughout, on opposite sides of the sheets.

By my method and apparatus and to obtain a heavier coating of zinc spelter on one side of the iron or steel sheet than on the opposite side thereof, I provide the roll 2 with a predetermined number of circular grooves 5, but of fewer number than in the roll 3 and in the roll 2 I provide a predetermine number of circular grooves 6 but of greater number than in the roll 2, somewhat as shown in Fig. 2. Practice will determine the number and depth of the grooves in each roll, in respect of each other, as well as the spacing of such grooves in each roll. To keep the grooves in the respective rolls clean to insure a proper application of the coating to the surfaces of the sheet, I provide the cleaners or scrapers 7 and 8 coating with the grooves in the respective rolls 2 and 3, see Figs. 1 and 2.

While the invention is especially useful where the metallic coating is zinc spelter, there will be instances where other metallic coatings may be found equally useful and I, therefore, do not wish to be limited to zinc spelter.

What I claim is:

The herein described method of coating iron or steel sheets with a protective metallic coating of greater thickness on one side face of the sheet than on the opposite side, which consists in passing the sheets through a metallic coating bath to deposit the coating on each of the opposite side faces of the sheet, and then in simultaneously applying the coating by means of a pair of grooved rollers, the grooves on one being greater in number than those of the other and engaging the sheets as they emerge from the bath, so that the coating on the one side face of the sheet is thicker than on the opposite side thereof, and their respective thicknesses are uniform throughout.

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