

Dec. 2, 1958

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METHOD OF PRODUCING A METAL COATING OF
UNIFORM THICKNESS BY SPRAYING
Original Filed Feb. 27, 1952

2,862,837

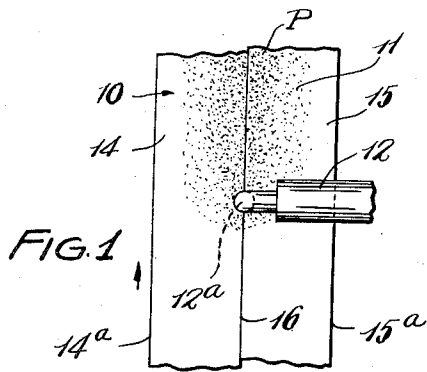


FIG. 1

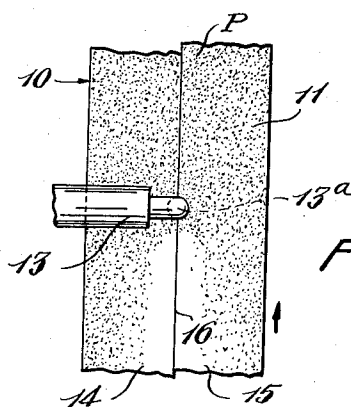


FIG. 2

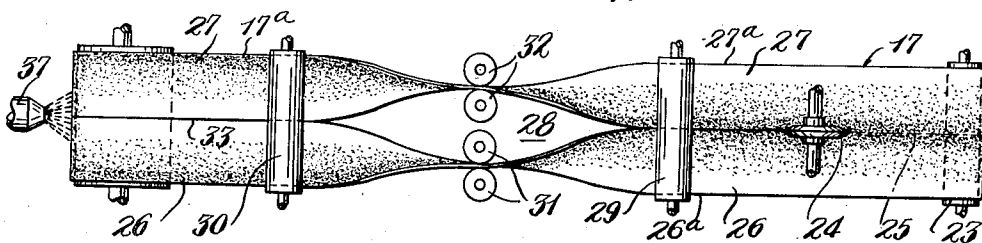


FIG. 4

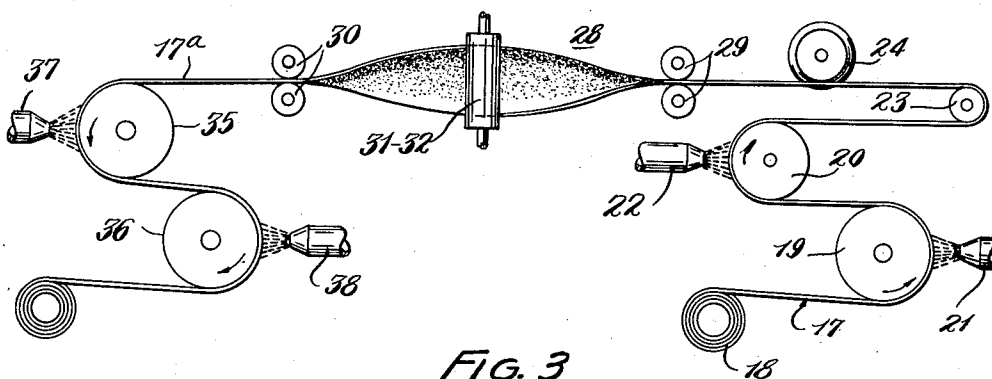


FIG. 3

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METHOD OF PRODUCING A METAL COATING OF UNIFORM THICKNESS BY SPRAYING

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Continuation of application Serial No. 273,594, February 27, 1952. This application September 9, 1955, Serial No. 533,414

19 Claims. (Cl. 117-4)

This invention relates to the production of uniform gauge lengthy metal sheets or strips by means of a continuous spraying operation and wherein there is continuous relative movement between a base strip and the spray means.

Heretofore there have been various methods proposed for the production of thin, porous metal sheets or strips such as are used in the production of various types of electrical condensers. Usually, in the production of strips of this type, a porous gauze or paper base strip is used onto which metallic particles are sprayed to deposit metal on the base strip and form therefrom the continuous, elongate porous metal strip that has desirable properties for use in condenser manufacture.

One difficulty in producing the condenser forming strips is that the sprayed metal particles do not deposit uniformly on the base strip because the sprayed particles tend to be more densely distributed in the center part of the spray zone than at the marginal portions of the spray zone. Also, in many instances, the marginal portions of the zone or field of sprayed metal pass outside of or beyond the edges of the base strip and are wasted and only the center portions of the spray zone produce a deposit on the base strip. Even if attempts are made to salvage the sprayed metal that does not deposit upon the base strip, still such metal must be reprocessed, or at least must be sprayed again in order to effect a utilization thereof.

The general object of the present invention is, therefore, to provide a novel method of depositing metal particles so as to efficiently and economically form a metallic strip which is of a substantially uniform thickness gauge transversely of the strip.

Another object of this invention is to provide a novel method of depositing sprayed metal particles on a base strip in which substantially all of the sprayed particles, including those in the marginal portions of the spray zone, are deposited on the base strip and wherein the application of the sprayed metal particles to the base strip is carried out as a substantially continuous operation and produces a deposit which is of a substantially uniform thickness transversely of the strip.

A further object is to provide a novel method of producing a sprayed metal strip of a uniform thickness in which successive passes of a base strip, with component portions thereof in different positionings relative to spray delivered metal having spray zone portions comprising thickly and thinly distributed particles, produce deposits having an aggregate desired uniform thickness transversely of the strip.

Still another object is to provide a novel method of producing a sprayed metal strip of a uniform thickness in which a base strip comprising two longitudinally contiguous strip elements is sprayed substantially centrally thereof by successive spray fields having portions comprising thickly and thinly distributed particles and in which said strip elements are parted and repositioned

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in a reversed edge-abutting relation between the successive passes through the spray fields.

The foregoing and other objects and advantages of the invention will be made apparent as the specification proceeds.

This application is a continuation-in-part of application Serial No. 15,474, filed March 17, 1948, now abandoned, and is also a continuation of application Serial No. 273,594, filed February 27, 1952, now abandoned.

Reference is made to the accompanying drawings wherein:

Fig. 1 is a plan view illustrating one portion of the spraying operation of this novel method for producing a spray-deposited metal strip of a uniform thickness gauge;

Fig. 2 is a similar plan view illustrating another portion of the spraying operation;

Fig. 3 is a diagrammatic view further illustrating the present method and showing in elevation one arrangement of apparatus by which the method can be carried out; and

Fig. 4 is a diagrammatic showing of the same apparatus as a plan view thereof.

Proceeding now with a more detailed description of the invention, Figs. 1 and 2 show a base strip 10 being moved in successive passes through a spray field composed of metal particles P for producing a deposit 11 of the sprayed metal on the base strip to constitute a metal sheet or strip having a uniform thickness gauge transversely of the base strip. The spray field for the first pass is produced by a suitable spray nozzle 12 of a conventional construction and having a nozzle opening 12^a facing toward the base strip 10. The spray field for the second pass can be produced by the nozzle 12 or by a second conventional nozzle 13 which is substantially identical with the nozzle 12 and has a nozzle opening 13^a facing toward the base strip. The spray field produced by the nozzles 12 and 13 is of the kind comprising a stream of the metal particles P in which the metal particles occur in a relatively thickly distributed relation in the portion or zone surrounding the central axis of the stream and in a relatively thinly distributed relation around the marginal portions of the stream.

As shown in Figs. 1 and 2, the base strip 10 is a relatively wide strip comprising two longitudinally co-extending component strip elements 14 and 15 having a common inner edge line 16 which is located substantially at the longitudinal center line of the base strip. In this instance, the strip elements 14 and 15 are separate individual narrow strips having their inner or adjacent longitudinal edges in meeting or abutting relation and defining the common inner edge line 16. The base strip 10 and the strip elements 14 and 15 thereof preferably comprise a porous base strip material, such as a porous paper or gauze.

The spray nozzles 12 and 13 are disposed relative to the base strip 10 such that the central axis of the spray field or fields being produced thereby is substantially perpendicular to the plane of the base strip and intersects such strip substantially on the longitudinal center line thereof. In accordance with the present invention, the spray field produced by the spray nozzles is narrower in width than the base strip 10 and when directed against the base strip in the relation just mentioned, all of the particles P of the spray field will fall within the outer side edges of the base strip and will be deposited on the base strip and substantially none of the particles will be wasted by passing beyond the outer edges of the base strip.

The metal deposit formed on the base strip 10 by each of the nozzles 12 and 13 will be produced primarily along

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the longitudinal center line of the base strip, that is to say, on the adjacent inner edge portions of the coextending strip elements 14 and 15. The spray deposited metal applied to the base strip by each nozzle will be relatively thick along the center portion of the base strip and will be relatively thin along the outer edges of the deposit. In other words, the layer of spray deposited metal applied to the base strip by each of the nozzles 12 and 13 will be of a somewhat tapering thickness transversely of the base strip having its maximum thickness produced by the dense center portion of the spray field and located at or adjacent the longitudinal center line of the base strip and having relatively thin outer edge portions lying inwardly of the extreme outer edges of the strip elements 14 and 15 and formed by the relatively thin outer peripheral portion of the spray field.

After the base strip 10 has been sprayed centrally thereof by the spray nozzle 12, as shown in Fig. 1, the component strip elements 14 and 15 are parted along the longitudinal common inner edge line 16 and are rearranged in a coextending longitudinally contiguous relation for the second passage of the base strip 10 through the spray field, that is, past the spray nozzle 13. In the rearrangement of the strip elements 14 and 15 their original outer edges 14^a and 15^a are located in abutting engagement such that these original outer edges now form the common inner edge line 16 which is located substantially at the longitudinal center line of the base strip. As shown in Fig. 2, the base strip formed by the rearranged strip elements 14 and 15 has the relatively thickly deposited metal located along their then outer edges and have their thinly coated, or uncoated portions, extending along the longitudinal center line of the base strip.

During the second passage of the base strip 10 through the spray field, that is past the nozzle 13 as shown in Fig. 2, the relatively thick portion of the metal layer then being formed will be applied to the previously uncoated or thinly coated central portion of the base strip and the relatively thin edge portions of the layer then being formed will be applied in overlying relation to the thick portions of the previously applied metal deposit. The two metal layers of tapering thickness thus applied to the base strip during its successive passages through the spray field will aggregate a single layer or metal strip of a substantially uniform thickness transversely of the base strip.

Instead of the base strip 10 being composed of separate individual narrow strips as mentioned above and as shown in Figs. 1 and 2, it may comprise two such coextending longitudinally contiguous strip elements having a common inner edge line and which elements constitute integrally connected portions of a single relatively wide base strip. When such a relatively wide base strip is used in carrying out the present method, the coextending strip elements are parted by cutting the wide base strip longitudinally thereof along its center line, following the first passage of the base strip through the spray field and prior to the above-described rearrangement of the strip elements for the second passage of the base strip through the spray field.

Figs. 3 and 4 show a method similar to that already described above but being carried out as a continuous operation and with the sprayed metal being applied to both faces of the base strip. Figs. 3 and 4 also show one embodiment of apparatus suitable for carrying out this form of the method. Although Figs. 3 and 4 disclose the application of the sprayed metal to both faces of the base strip, the invention also contemplates carrying out the method by applying the sprayed metal to one face only of the base strip and to the use of a base strip formed either by separate narrow strips or by integrally connected coextending strip elements.

As shown in Figs. 3 and 4, a relatively wide base strip 17, being withdrawn from a roll 18, passes in succession over suitably driven backing rollers or mandrels 19 and 20. During the passage of the base strip around these

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rollers, sprayed metal is deposited on both faces of the base strip by spray nozzles 21 and 22 which are of a conventional form. The spray nozzles 21 and 22 deliver streams of metal particles constituting spray fields of the same characteristics as the spray fields produced by the nozzles 12 and 13 and described above, and cause similar metal deposits of a tapered thickness to be applied to the base strip primarily along the longitudinal center portion thereof.

From the rollers 20, the centrally coated base strip 17 then passes around a guide roller 23 and under a slitting wheel 24 which is suitably driven and by which the wide base strip 17 is cut along its longitudinal center line 25 and divided into two longitudinally coextending strip elements in the form of separate narrow component strips 26 and 27.

The two narrow component strips 26 and 27 are led through a turning device 28 comprising longitudinally spaced pairs of horizontally disposed guide rollers 29 and 30, and two pairs of vertically disposed turning rollers 31 and 32 located between the pairs of guide rollers. The strip element 26 extends between the pair of turning rollers 31 and the strip element 27 extends between the pair of turning rollers 32. During the passage of the narrow strips 26 and 27 through the turning device 28, the strips will be twisted in an angular relation and rearranged in a longitudinally contiguous coextending relation to form a similar wide base strip 17^a. During their travel from the guide rollers 29 to the turning rollers, the narrow strips are twisted through approximately 90° and during their travel from the turning rollers to the guide rollers 30, the narrow strips are further twisted through a second 90° in the same direction to thereby invert the narrow strips.

By the above-described parting and twisting of the narrow strips 26 and 27, they will be rearranged in longitudinally contiguous relation with their original outer edges 26^a and 27^a in abutting relation to form the similar wide base strip 17^a in which the then abutting outer edges define a common inner edge line 33 located substantially at the longitudinal center line of the base strip.

In this new or similar base strip 17^a the previously applied sprayed metal deposit will have its portions of maximum thickness located along the outer edges of the narrow strips 26 and 27 and the central portion of the new base strip will be uncoated or only relatively thinly coated. The condition of the base strip 17^a will be similar to the condition of the base strip 10 as described above in connection with Fig. 2, after the rearrangement of the component strip elements but prior to its second passage through the spray field.

The new base strip 17^a is then led around suitably driven backing rollers or mandrels 35 and 36 and past a second pair of spray nozzles 37 and 38. The spray nozzles 37 and 38 are substantially identical with the nozzles 21 and 22 and function in the same manner to apply a second deposit of sprayed metal to opposite faces of the base strip 17^a by directing the spray fields primarily against the central portion of the strip. The sprayed metal deposit produced by the nozzles 37 and 38 corresponds with the spray deposit produced by the spray nozzle 16 of Fig. 2 and described above, that is to say, the spray nozzles 37 and 38 produce a second layer of sprayed metal on the base strip by covering the uncoated or thinly coated central portion with a relatively thick deposit and applying a relatively thin deposit over the thick portions of the first layer.

The sprayed metal deposit thus produced by the method and apparatus of Figs. 3 and 4 will be one in which the two layers of tapering thickness applied to each face of the base strip will aggregate a layer on each face which is of uniform thickness transversely of the base strip.

In the method illustrated in Figs. 3 and 4 and described above, the base strip 17 is a relatively wide strip which

is cut longitudinally to separate the two component strip elements 26 and 27 thereof. Instead of using such a wide base strip and cutting the same longitudinally, the method can be carried out by using a similar relatively wide base strip formed of two component strip elements comprising separate individual narrow strips having their adjacent edges in meeting relation and defining a common inner edge line at the longitudinal center of the base strip. When the base strip is composed of two strip elements comprising separate individual narrow strips as just explained, the cutting wheel 24 is omitted.

Metal coated base strips produced in accordance with this invention have greater electrical capacity than corresponding strips produced in conformity with the prior art. For example, coated base strips produced in accordance with the present invention have shown capacities of between 7.8 and 8.1 microfarads per 6 square inches of material, whereas corresponding areas of base strips produced by other known methods have capacities of only between 5 and 6 microfarads. Both base strips were produced by use of the same amount of sprayed material with the difference being that by practice of this novel method, an efficient utilization of the spray material was achieved. By previous spraying methods much of the metal travels beyond the edges of the base strip and is not utilized in forming the deposit, whereas in the present method this additional metal is deposited on the base strip and is utilized primarily on the edge portions thereof to produce a deposit of uniform thickness. This has appreciably benefited the electrical capacity of the resultant strip material. Electrode sheets made in accordance with the prior art have edge portions which are thinner than their center sections and these thinner edge portions have more resistance than the center sections. A condenser made from an electrode sheet of such variable thickness has a greater power-factor loss than a condenser made from a uniform gauge electrode strip, such as the one produced by the present invention.

Although it has been indicated at a previous point in this application that the base strip may be formed from paper, gauze or other suitable material, the present invention also contemplates depositing the sprayed metal onto a metal tape. The spray deposited metal may be permitted to remain on such tape, or can be stripped therefrom as a sheet after the sprayed metal has solidified. In such latter instances, it may be necessary to treat the metal tape in known manners to prevent adhesion of the deposited metal to the base metal tape. Another possibility in producing a sprayed metal strip in accordance with this invention, is that of forming a spray deposit of metal on a fibrous base strip after which the excess portion, or all exposed material of the fibrous base strip, is burned off or otherwise removed from the resultant strip.

Sprayed metal strips made in accordance with this invention generally are, for example, about two inches in width and have a thickness of about .0035 inch. Similar strips made in accordance with prior spraying practices have varied appreciably (percentage-wise) in thickness at the edges of the strips and have had a thickness of only about .0025 inch at the edge portions. However, by practice of the present invention wherein the edge portions of a base strip are subjected to a principal and to a secondary spraying action, the base strip produced has a substantially uniform thickness laterally of the strip. Furthermore, the strip produced will be uniform in thickness, width and other properties and characteristics at longitudinally spaced portions thereof. When produced by the present method, the strip can therefore be held to very close tolerances and will be of a uniform gauge both longitudinally and transversely.

From the foregoing detailed description and the accompanying drawing, it will now readily be understood that this invention provides a novel method of spraying

metal onto a base strip by which an interstitially porous deposit of metal will be produced efficiently and economically on such base strip having a substantially uniform thickness transversely of the strip. Additionally, it will be seen that the present invention provides for the carrying out of the novel method as a continuous operation and with an efficient use of the sprayed metal. It will also be seen that the parting and rearrangement of the component strip elements of a relatively wide base strip, as provided by this invention, permits the use of conventional spray nozzles since the spray deposits produced by such conventional nozzles are utilized in a reversely tapering relation to aggregate a spray deposit of uniform thickness transversely of the strip.

Although the present invention has been disclosed herein to a somewhat detailed extent, it will be understood, of course, that the invention is not to be regarded as being limited correspondingly in scope, but includes all changes and modifications coming within the terms of the claims hereof.

Having thus described my invention, I claim:

1. In a method of spraying metal onto a base strip the steps of, advancing a base strip, creating a spray field of molten metal and directing the same toward the longitudinal center line of said base strip, parting said base strip along said longitudinal center line and rearranging the resulting strip elements with the original outer edges thereof in substantially longitudinally abutting relation, and directing the spray field toward the longitudinal meeting line of the rearranged strip elements of the advancing base strip.

2. That method of spraying molten metal onto a base strip moved with relation to the sprayed metal to effect efficient deposit of the metal thereon comprising, moving a relatively wide base strip with relation to a relatively narrow field of sprayed molten metal particles to deposit metal primarily on the center portion of the strip, longitudinally separating the strip at approximately its center, abutting the original outer edges of the strip, and moving the abutted original outer edges of the strip with relation to the field so that they pass into and through the spray field substantially at the center thereof to deposit the sprayed molten metal primarily on the then center portion of the strip.

3. That method of spraying molten metal onto a base strip moved through the sprayed metal to effect efficient deposit of the metal thereon comprising, moving a relatively wide base strip longitudinally through a relatively narrower field of sprayed molten metal particles to deposit substantially all of the sprayed metal on the strip and primarily on the center portion thereof, longitudinally separating the strip at its center portion, associating the original outer edges of the strip, and then moving the strip longitudinally through such relatively narrower spray field with the associated original outer edges of the strip passing into and through the spray field substantially at the center thereof to deposit all of the sprayed metal on the strip and primarily on the then center portion thereof.

4. In a method of spraying metal onto a base strip the steps of, advancing a base strip comprising two longitudinally coextending component strip elements having a common inner edge line substantially at the longitudinal center line of the base strip, creating a spray field of molten metal and directing the same against said base strip with the central axis of the spray field substantially intersecting said common inner edge line, parting said strip elements along said common inner edge line and rearranging said strip elements with the original outer edges thereof in substantially abutting relation along a longitudinal meeting line, and directing the spray field toward the longitudinal meeting line of the rearranged strip elements and against the advancing base strip with the central axis of the spray field substantially intersecting said longitudinal meeting line.

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5. In a method of spraying metal onto a base strip the steps of, advancing relatively wide base strip material comprising two component strip elements in coextending longitudinally contiguous relation and having a common inner edge line substantially at the longitudinally center line of the wide base strip material, projecting spray delivered molten metal defining central and peripheral spray zone portions comprising densely and thinly distributed particles respectively, and exposing the base strip material to said spray delivered metal in two successive passes with the central spray zone portion directed toward said common inner edge line and with said peripheral spray zone portions falling within the outer edges of said wide base strip material and during said successive passes forming first and second deposit layers on said base strip material which are of a tapering thickness transversely of the base strip material and are reversely disposed with thick portions of the second deposit layer overlying thin portions of the first deposit layer and with thin portions of the second deposit layer overlying thick portions of the first deposit layer such that said deposit layers aggregate a spray deposited metal strip of a substantially uniform gauge thickness transversely thereof.

6. In a method of spraying metal onto a base strip the steps of, advancing a base strip, creating a spray field of molten metal of varying intensity and having a maximum density adjacent the central axis of the spray field and a minimum density at the outer edge of the spray field, directing said spray field against said base strip with the central axis of the spray field substantially intersecting the longitudinal center line of said base strip and with the outer portions of the spray field falling within the outer edges of said base strip and forming on said base strip a first deposit layer of the sprayed metal which is of decreasing thickness from said longitudinal center line toward said outer edges, parting said strip along said longitudinal center line into two strip elements and rearranging said strip elements with the original outer edges thereof in substantially abutting relation along a longitudinal meeting line, and directing the spray field toward said longitudinal meeting line of the rearranged strip elements and against the advancing base strip formed thereby with the central axis of the spray field substantially intersecting said longitudinal meeting line and with the outer portions of the spray field falling within the then outer edges of said base strip and forming on the base strip a second deposit layer of the sprayed metal which is of decreasing thickness from said longitudinal meeting line toward said then outer edges, said first and second deposit layers forming an aggregate deposit layer having a substantially uniform thickness transversely of the base strip.

7. The method of spraying molten metal onto a base strip as defined in claim 6, in which the spray field is directed against both faces of the base strip prior to the step of parting said base strip, and in which the spray field is again directed against both faces of the base strip subsequent to said step of rearranging said strip elements.

8. That method of spraying molten metal onto a base strip moved through the sprayed metal to effect efficient deposit of the metal thereon comprising, associating two component base strips in edge to edge relation to form a composite base strip, moving the composite base strip through a relatively narrow field of sprayed molten metal particles to deposit metal primarily on the center portion of the composite strip, separating the component strips of the composite strip, abutting the original outer edges of the component strips, and moving the abutted original outer edges of the component strips into and through the field at the center thereof to deposit the sprayed metal primarily on the then center portion of the composite strip.

9. That method of efficiently utilizing metal in a molten metal spray field comprising the steps of, moving a relatively wide composite base strip formed of two coextending

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ing longitudinally contiguous sections of relatively narrow strip through a molten metallic particle spray field narrower than the composite base strip, which spray field is of varying intensity laterally thereof to deposit metal on said base strip in a laterally non-uniform layer thickness, parting and rearranging the sections of narrow strip to provide a similar composite base strip having the original outer edges of the sections of narrow strip now in longitudinally contiguous relation substantially at the longitudinal center line of said similar base strip, and passing said similar base strip through the spray field again to deposit a second metal layer thereon and produce a substantially uniform thickness deposit on each narrow strip.

10. In a method of spraying metal onto a base strip the steps of, advancing a relatively wide base strip, creating a spray field of molten metal of varying intensity and having a maximum density adjacent the central axis of the spray field and a minimum density at the outer edge of the spray field, directing said spray field against said base strip with the central axis of the spray field substantially intersecting the longitudinal center line of the base strip and with the outer edges of said spray field falling within the outer edges of said base strip and forming on said base strip a first deposit layer of the sprayed metal which is of decreasing thickness from said longitudinal center line toward said outer edges, severing said base strip longitudinally along said center line to form two relatively narrow strips, rearranging said narrow strips with the original outer edges thereof in substantially abutting relation along a longitudinal meeting line, and directing the spray field toward said longitudinal meeting line of the rearranged strip elements and against the advancing base strip formed thereby with the central axis of the spray field substantially intersecting said longitudinal meeting line and with the outer portions of the spray field falling within the then outer edges of said base strip and forming on the base strip a second deposit layer of the sprayed metal which is of decreasing thickness from said longitudinal meeting line toward said then outer edges, said first and second deposit layers forming an aggregate deposit layer having a substantially uniform thickness transversely of the base strip.

11. The method of spraying molten metal onto a base strip as defined in claim 10, in which the spray field is directed against both faces of the base strip prior to the step of severing the base strip into said narrow strips, and in which the spray field is again directed against both faces of the base strip subsequent to said step of rearranging the narrow strips.

12. A method of producing a molten spray deposited continuous metal strip having a uniform thickness gauge for all portions longitudinally and transversely of such metal strip comprising the steps of, creating a molten metal spray field of varying density and composed of particles of metal of a given characteristic, subjecting a moving base strip to said spray field with substantially all of the particles of said field falling on said base strip and producing on said base strip a first sprayed metal deposit having a relatively thick portion and a relatively thin portion, and thereafter again subjecting said base strip to such a molten metal spray field of varying density and composed of particles of metal of said given characteristic with substantially all of the particles of said field falling on said base strip for producing a second deposit thereon such that the relatively thin portion of the first deposit is exposed to a relatively dense portion of the spray field to build up the relatively thin portion of said first deposit rapidly and the relatively thick portion of said first deposit is exposed to a relatively less dense portion of the spray field to build up the relatively thick portion of the first deposit more slowly, the exposure of different portions of said first deposit to the subsequent spray application being correlated to produce a uniform

thickness gauge deposit on the base strip composed of particles of metal of said given characteristic.

13. A method of producing a metal strip according to claim 12 in which the axis of said spray field is substantially perpendicular to the base strip and each spray deposit is of maximum density at the center thereof and gradually diminishes in density to the edges thereof.

14. A method of continuously producing metallic strip of substantially uniform thickness by spray deposit comprising moving a base strip at a constant rate through a plurality of molten metal spray fields each of a density varying in a plane substantially perpendicular to the axis of the field to subject at least one face of the base strip transversely thereof to a plurality of spray applications with substantially all of the particles of each spray field falling on said base strip and with each application forming a deposit upon the base strip uniform longitudinally of the strip and of varying density transversely thereof, a thin deposition resulting from one application being reinforced by another application whereby a deposition of substantially uniform depth transversely and longitudinally is provided.

15. A method of producing a molten spray deposited continuous metal strip of uniform thickness comprising subjecting at least one surface of a longitudinally moving base strip to a first spray application in a molten metal spray field of varying density transversely of the strip but uniform longitudinally thereof and having an axis substantially normal to the strip and by it forming a thick deposit and a relatively thin deposit on the base strip with substantially all of the particles of said spray field falling on said base strip, and thereafter subjecting the same face of the base strip to a second similar spray application so that the relatively thin deposit is exposed to a relatively dense spray field to build up the thin deposit rapidly and the thick deposit is exposed to a relatively less dense spray field to build up the thick deposit slowly, the exposure of different sections of the original deposit to subsequent spray deposits being correlated to produce a relatively uniform gauge deposit on the base strip.

16. A method of producing a molten spray deposited continuous metal strip having a uniform thickness gauge for all portions longitudinally and transversely of such metal strip comprising the steps of, creating a molten metal spray field of varying density and composed of particles of metal of a given characteristic, subjecting a moving base strip which is wider than the spray field to said spray field to deposit substantially all of the sprayed material thereon and primarily on the center portion of the base strip to produce a first sprayed metal deposit having a relatively thick portion at the center portion of the strip, parting the strip longitudinally at approximately its center, abutting the original outer edges of the strip to form a composite strip, and thereafter moving the composite strip through a molten metal spray field of varying density and composed of particles of metal of said given characteristic which is relatively narrower than the composite strip so that substantially all the sprayed particles are deposited on the composite base strip and primarily on the central portion of the composite base strip to form a second deposit thereon such that the relatively thin portion of the first deposit is exposed to a relatively dense portion of the second mentioned spray field to build up the relatively thin portion of said first deposit rapidly and the relatively thick portion of said first deposit is exposed to a relatively less

dense portion of the second mentioned spray field to build up the relatively thick portion of the first deposit more slowly, the exposure of different portions of said first deposit to the subsequent spray application being correlated to produce a uniform thickness gauge deposit on the base strip composed of particles of metal of said given characteristic.

17. A method of producing metal strip according to claim 16 in which two individual base strips are located in edge to edge relation to form the original base strip and the two individual strips are separated after the first spray deposit and the original outer edges of the original base strip abutted to form the composite base strip.

18. A method of producing a molten spray deposited continuous metal strip having a uniform thickness gauge for all portions longitudinally and transversely of such metal strip comprising the steps of, creating a molten metal spray field of varying density and composed of particles of metal of a given characteristic, subjecting a moving base strip of porous fibrous material to said spray field with substantially all of the particles of said field falling on said base strip and producing on said base strip a first sprayed metal deposit having a relatively thick portion and a relatively thin portion, and thereafter again subjecting said base strip to such a molten metal spray field of varying density and composed of particles of metal of said given characteristic with substantially all of the particles of said field falling on said base strip for producing a second deposit thereon such that the relatively thin portion of the first deposit is exposed to a relatively dense portion of the spray field to build up the relatively thin portion of said first deposit rapidly and the relatively thick portion of said first deposit is exposed to a relatively less dense portion of the spray field to build up the relatively thick portion of the first deposit more slowly, the exposure of different portions of said first deposit to the subsequent spray application being correlated to produce a uniform thickness gauge deposit on the base strip composed of particles of metal of said given characteristic.

19. The method of producing a particulate interstitially porous metal strip deposit of a uniform thickness and width on a porous base strip comprising, forming a molten-metal-particle spray field of variable density transversely of the base strip, successively passing said base strip relative to said spray field while differently positioning component portions of the base strip relative to each other, and depositing substantially all of the particles of said spray field on said base strip during such successive passing and different positioning and thereby continuously producing such a metal strip deposit having an aggregate desired uniform thickness transversely of the strip deposit.

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