Aug. 30, 1932. H. McGINNIS 1,875,084

ADJUSTABLE WIPING DEVICE FOR COATED WIRE

Filed Oct. 18, 1929

Fig. 1.

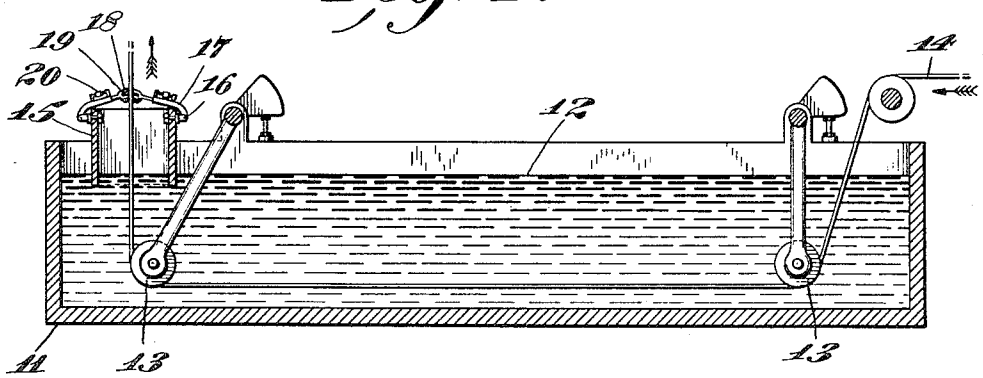


Fig. 2.

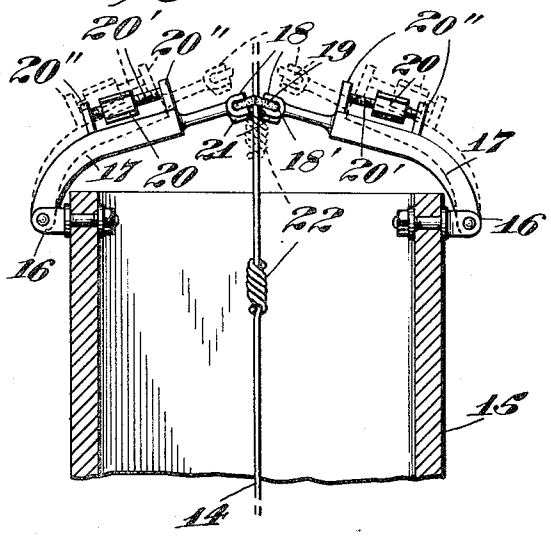


Fig. 3.

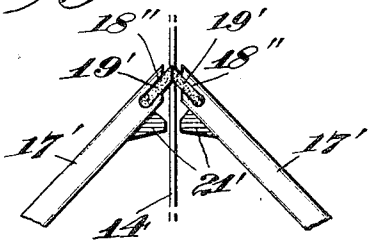


Fig. 4.

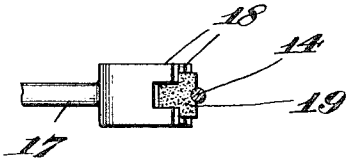
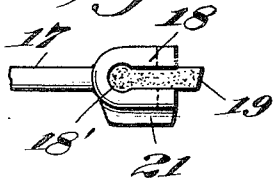


Fig. 5.



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UNITED STATES PATENT OFFICE

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ADJUSTABLE WIPING DEVICE FOR COATED WIRE

Application filed October 18, 1929. Serial No. 400,509.

My invention relates to improvements in apparatus for use in coating wire and more especially to the manner of mounting the wipers for removing the surplus coating material after the wire has passed through a bath of spelter or other molten metal.

Hitherto it has been customary to utilize asbestos "wipes", having screw or lever adjustment only for the manufacture of a tight wiped galvanized wire. Wire of this character owing to the removal of a large proportion of the spelter picked up by the wire during its passage throughthe galvanizing tank is only susceptible of withstanding Preece immersion tests of two to three minutes. Where the wire is required to withstand a more protracted Preece test, it has been customary to pass it vertically through a box containing sand, charcoal, or similar material suitably moistened with a fatty substance.

In the case last mentioned the thickness of coating is controlled by the "head" of wiping substance maintained in the box. As long as this head and its close contact with the wire can be accurately maintained a fairly even coating of material will be left on the wire. However, owing to the natural vibration of the individual wires as they pass through the tank at moderate speed and also due to the periodical passage through the bath and the wiping box of splice-joints, connecting one spool of wire with the next, the sand, or charcoal is periodically disturbed from its close contact with the wire. This tends to give an uneven coating.

One of the objects of my invention is to overcome this defect of having uneven thicknesses of coating on galvanized wire or the like.

Another object of my invention relates to the apparatus for controlling within reasonable limits the actual thickness of the coating applied to the wire.

A further object of my invention is to provide novel hinged holders for the wipers having projections or abutments adapted for engaging the splice-joints in the wire before it reaches the wipers in such a manner as to swing the wipers out of engagement with the wire during the period of time the said joints are passing between the wipers thereby preventing injury to the same.

Having thus given a general description of my invention, I will now, in order to make the same more clear, refer to the accompanying sheet of drawing in which like characters of reference indicate like parts.

Fig. 1 is a diagrammatic longitudinal section of a galvanizing tank equipped with my special wiping device;

Fig. 2 is a view of the wiping device drawn on a larger scale than that shown in Fig. 1;

Fig. 3 is an alternative detail view of a portion of the arms appertaining to said wiping device;

Fig. 4 is a top plan view drawn on a larger scale of the jaw end portion of one of the wiper arms as illustrated used in Figs. 1 and 2; and

Fig. 5 is a side elevation of the end of the arm shown in Fig. 4.

Referring now to the characters of reference on the drawing and first more especially to Figs. 1, 2, 4 and 5, the numeral 11 indicates a galvanizing tank, filled up to the level 12 with spelter, having the customary roller sinkers 13, which are adapted to hold the wire 14 immersed in the molten bath while passing through the galvanzing tank.

Disposed transversely at the exit end of the tank is an open ended box structure 15 having attached thereto near its upper opposite side edges hinge members 16 adapted to pivotally support a pair of arms 17. The number of these pairs of arms 17 which are disposed transversely of the galvanizing tank 11, will of course depend upon the number of wires being galvanized or coated. Each arm is suitably inclined towards the wire, each having jaws 18 at their inner ends which are enlarged at their inner faces as at 18′ for holding an asbestos wiper 19. On the upper side of each arm an adjustable counterweight 20 is provided which is mounted on a screw threaded shaft 20′ journaled in bearings 20″ so that the pressure exerted by the asbestos wiper on the wire may be varied or adjusted as required. Projecting downwardly from the jaw end of each of the wiping arms 17 is a projection 21 adapted under normal con-

ditions to extend close enough to the wire so that the passage of a splice-joint 22 in the continuously fed wire strand through the wiping device will engage the projections and cause the inner ends of the opposed wiping arms to raise sufficiently for the passage of the splice-joint, without disturbing the asbestos wipers held within the jaws of said arms.

In Fig. 3 I have shown an alternative arrangement, wherein the arms 17′ are disposed in a more acute angular position in respect to the wire than those shown in Figs. 1 and 2. In certain cases, where only a slight degree of wiping is required, and the pressure of the wiping arms thereon is to be at a minimum this angular disposition is to be preferred. As in the case of Figs. 1 and 2 these arms 17′ have jaws 18″ in which are mounted asbestos wipers 19′ and the degree of wiping pressure may be adjusted by suitable counterweights. Tripping projections 21′ are likewise provided for engaging the spaced joints in its passage through the device.

The operation of my device is as follows: Assuming that the parts are in the position illustrated in Figs. 1 and 2 of the drawing and the strand of wire is being continuously fed through the molten bath in the galvanizing tank 11 and then passing outwardly therefrom through the open ended box structure 15 and between the asbestos wipers 19 held by the jaws 18. Under normal conditions the arms 17 will remain in the position indicated in full lines, the wipers engaging the wire and wiping off the surplus and a greater or less amount of the coating material from the wire 14 whereby a coating of even thickness is obtained which can be varied by shifting the positions of the counterweights 20 to give the wipers 19 a greater or less pressure on the wire. This continues until a splice-joint is encountered and engages the projections 21 which will raise the inner ends of the arms 17 carrying the wipers 19, and owing to the speed of the joint therein when it comes in contact with these projections the arms will be given a certain amount of momentum which will swing the arms into the position indicated in dotted lines in Fig. 2 and during the interval which elapses until the arms return to their normal position the splice-joint passes freely between the inner ends of the swinging arms 17 without injuring the wipers. Automatically protecting the wipers during the passage of the splice therethrough by mounting them in this manner has a great advantage over devices now in use as heretofore they have had to be replaced frequently or removed altogether, and in other devices they have to be raised manually by hand when the splice-joint passes between the wipers, all of which requires constant attention.

Although I have shown and described my invention in considerable detail, I do not wish to be limited to the exact and specific details shown and described, but may use such substitutions, modifications, or equivalents thereof as are embraced within the scope of my invention or as pointed out in the claims.

Having thus described my invention what I claim and desire to secure by Letters Patent is:

1. In a wire-wiping apparatus, comprising a tank, a molten bath therein, an open ended box structure mounted thereon, a pair of arms having their lower ends pivoted to either side of the open box structure, upwardly and inwardly inclined swinging opposite ends having jaws formed therein, wipers mounted in the jaws on said opposite ends adapted to normally engage each other and to surround and wipe an advancing strand of wire, and means for varying the pressure of the wipers on the strand of wire.

2. In a wire-wiping apparatus, comprising a tank, a molten bath therein, an open ended box structure mounted thereon, a pair of arms having their lower ends pivoted to the opposite sides of the open box structure, upwardly and inwardly inclined swinging opposite ends having jaws formed therein, wipers mounted in the jaws on said opposite ends adapted to normally engage each other and to surround and wipe an advancing strand of wire, and an adjustable weight mounted on each arm adapted to vary the pressure of the wipers on the strand of wire.

3. In a wire-wiping apparatus, comprising a tank, a molten bath of spelter therein, an open ended box structure, a pair of arms each having its lower end hinged near the top opposite edges of the open ended box, a jaw formed in the inner ends of the arms, wipers mounted therein each arm adapted to normally extend inwardly until the wipers engage each other and surround and wipe an advancing strand of wire, a projection formed on the jaw end of each arm adapted to engage a splice-joint in the strand of wire, and adjustable weights mounted on the arms for varying the pressure of the wipers on the strand of wire.

4. In a wire-wiping apparatus, comprising a tank of molten coating material, an open ended box structure mounted on the tank, a pair of arms having their lower ends pivoted to the sides of the open box structure, having upwardly and inwardly inclined swinging opposite ends having jaws formed therein, wipers mounted in the jaws on said opposite ends adapted to engage each other and to surround and wipe an advancing strand of wire, means for holding the wipers in contact with the wire, means for varying the pressure of the wipers on the strand of wire, and means on the arms for engaging a splice-joint in the strand of wire for swinging the wipers out of engagement with the wire.

5. In a wire-wiping apparatus, comprising a tank of molten coating material, an open ended box structure mounted on the tank near one end, a pair of arms having their lower ends pivoted to the open ended box structure near the top side edges having upwardly and inwardly swinging opposite ends with jaws formed therein, wipers mounted in the jaws adapted to engage each other and to normally surround and wipe an advancing strand of wire, and a projection extending from the inner ends of each of the arms for engaging a splice-joint in the strand of wire for swinging the wipers out of engagement with the strand of wire.

6. In a wire-wiping apparatus, the combination of a pair of arms pivotally mounted at one end in spaced relation to each other, said arms having swinging opposite ends inclined towards each other with jaws formed therein, wipers mounted in the swinging ends of the arms for normally engaging each other, adjustable means mounted on the arms for varying the pressure of the wipers on an advancing strand of wire, and a projection formed on the jaw ends of the swinging arms adapted to be engaged by a splice-joint in said strand of wire for swinging the wipers out of engagement with the strand of wire.

7. In a wire-wiping apparatus, the combination of a tank of molten coating material, an open ended box structure mounted on the tank, a pair of arms pivotally attached at their lower ends to the open ended box structure, said arms having swinging opposite ends inclined towards each other with jaws formed therein, wipers mounted in the jaws of the swinging ends of the arms for normally engaging each other, adjustable means mounted on the arms for varying the pressure of the wipers on an advancing strand of wire and a projection extending downwardly from each of the jaw ends of the swinging arms adapted to be engaged by a splice-joint in said strand of wire for swinging the wipers out of engagement with the splice-joint and strand of wire.

8. In a wiping apparatus, the combination of a tank of molten coating material, an open ended box structure mounted on the tank, a pair of arms pivotally attached at their lower ends to the opposite side edges near the top of the open ended box structure, said arms having swinging opposite ends inclined towards each other with jaws formed therein having enlarged inner faces, wipers mounted in the jaws of the swinging ends of the arms for normally engaging each other, spaced journal bearings extending from each of the arms, a screw threaded shaft having its ends journaled in the bearings, a counterweight adjustably mounted on each of the screw threaded shafts for varying the pressure of the wipers on an advancing strand of wire, and a projection extending downwardly from each of the jaw ends of the swinging arms adapted to be engaged by a splice-joint in said strand of wire for swinging the wipers out of engagement with the splice-joint and strand of wire.

9. In a wire-wiping apparatus, a pair of arms having lower outer pivoted ends, said arms having upwardly and inwardly inclined swinging movable inner ends formed with jaws with wipers mounted therein applicable for normally engaging a continuously fed strand of wire from opposite sides, means on the arms adapted to engage a splice joint in the strand of wire for automatically swinging the wipers out of engagement with the wire and means for varying the pressure of the wipers on the strand of wire.

10. In a wire-wiping apparatus, the combination of a pair of arms pivotally mounted at one end in spaced relation to each other, said arms having swinging opposite ends inclined towards each other and formed with jaws, wipers mounted in the jaws formed in the swinging ends of the arms for normally engaging each other and adapted to wipe an advancing strand of wire, means on the arms when engaged by a spliced joint of the advancing strand of wire for automatically swinging the wipers out of engagement with the said wire, and means for varying the pressure of the wipers on the strand of wire.

11. In a wire-wiping apparatus, a tank, an open ended box structure mounted thereon, a pair of arms having their lower ends pivoted in fixed spaced relation to each other on the open ended box structure, said arms having upwardly and inwardly inclined swinging ends each having a jaw with a wiper mounted therein adapted to engage each other and applicable to surround and wipe an advancing strand of wire, and adjustable means mounted on the arms for varying the pressure of the wipers on the strand of wire.

12. In a wire-wiping apparatus, comprising a tank, an open ended box structure mounted thereon, a pair of arms having pivotally fixed lower ends attached to the open box structure, said pair of arms having upwardly and inwardly inclined swinging opposite ends with jaws formed therein, wipers mounted in the jaws on said opposite ends adapted to normally engage each other and to surround and wipe an advancng strand of wire, and adjustable means for varying the pressure of the wipers on the strand of wire.

In testimony whereof I hereunto affix my signature.

HARRY McGINNIS.