May 8, 1928. 1,668,846

N. S. HARTER

WIRE FABRIC HANDLING MEANS

Original Filed June 22, 1923 2 Sheets-Sheet 1

FIG. 1.

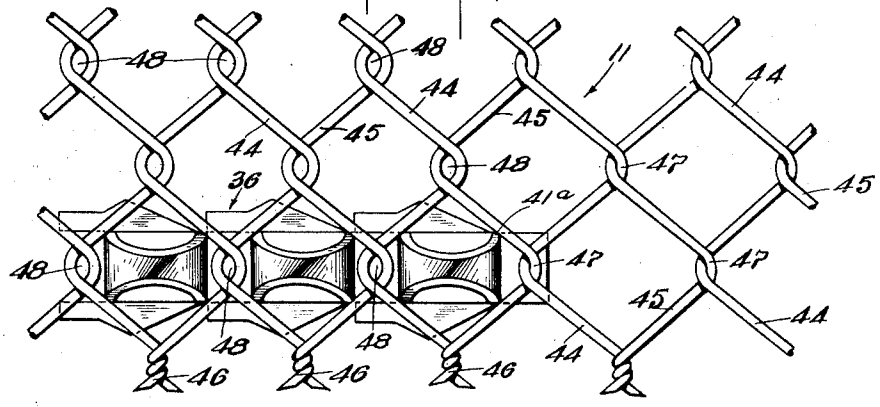
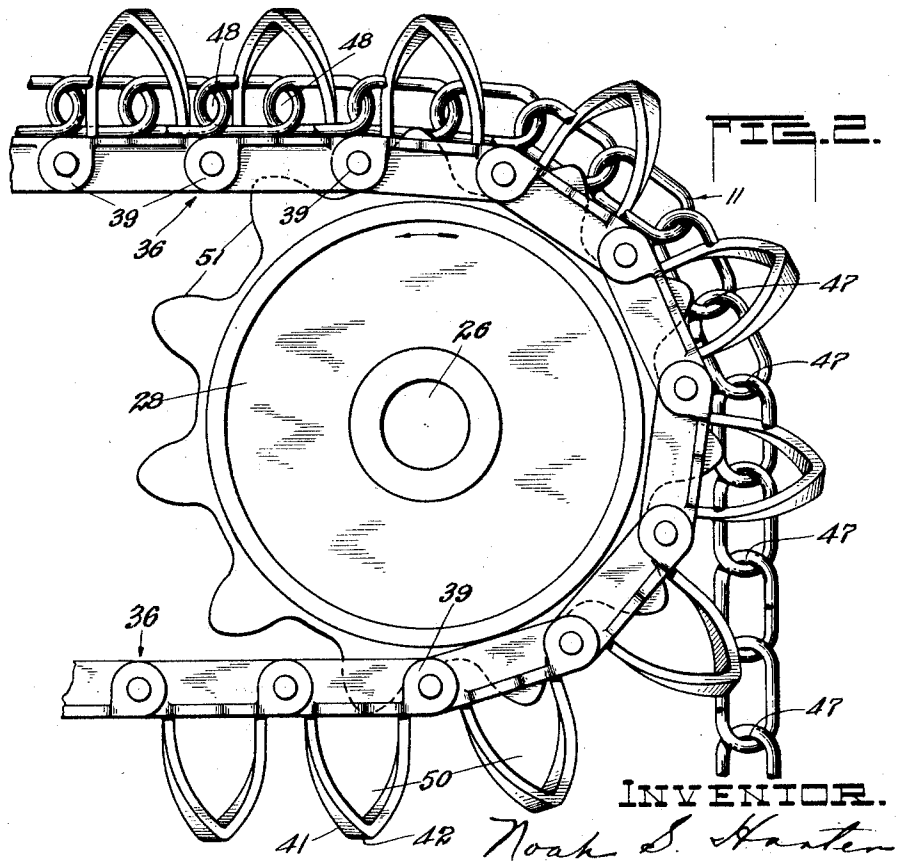


FIG. 2.



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FIG. 5.

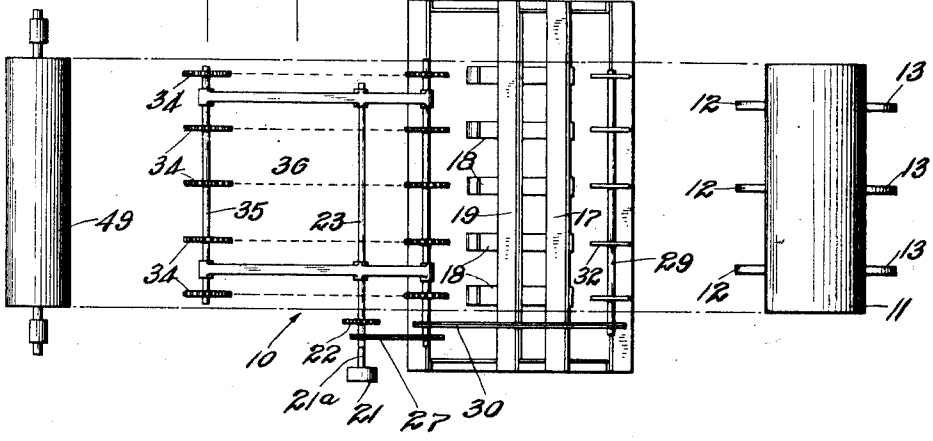
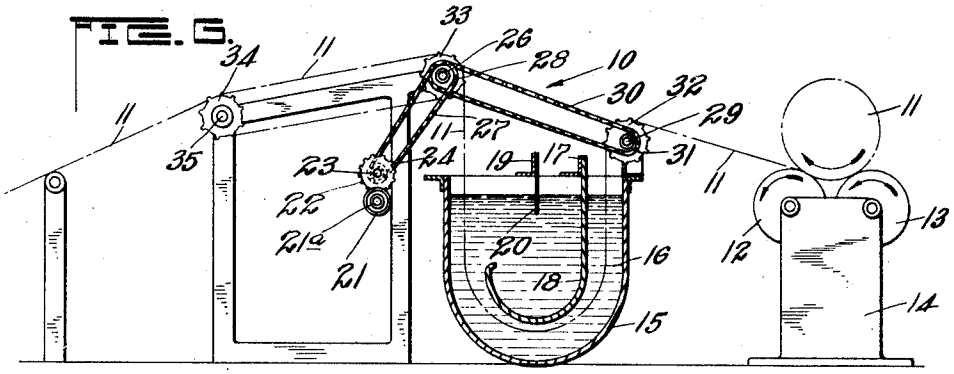


FIG. 6.



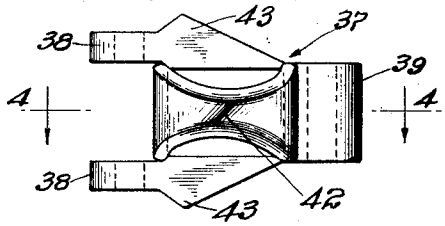
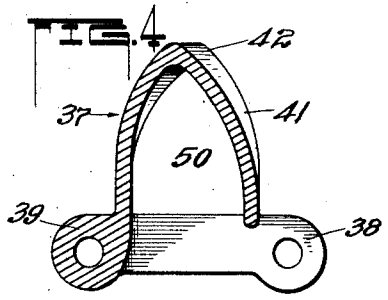


FIG. 3.

FIG. 4



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UNITED STATES PATENT OFFICE.

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WIRE-FABRIC-HANDLING MEANS.

Original application filed June 22, 1923, Serial No. 647,096. Patent No. 1,489,076. Divided and this application filed March 28, 1924. Serial No. 702,587.

This invention relates to a means for zinc-coating wire fabric after weaving.

One of the objects of the invention is to provide a chain to be used to uniformly and smoothly zinc-coat "chain-link" wire fabric after weaving, in which fabric the members or pickets thereof are interlinked with adjacent members and movable relatively thereto.

Another object is to provide an improved means for accomplishing the above mentioned object and adapted to prevent the adjacent picket members from adhering together after galvanizing until the zinc-spelter has cooled and set, whereby the zinc coating is evenly distributed over the wire members forming said pickets.

A further and more specific object is to provide an improved apparatus for carrying out my improved process.

Other objects and advantages of my invention will become readily apparent to persons skilled in the art from a consideration of the following description when taken in conjunction with the drawings, wherein:—

Fig. 1 is a plan view of a fragment of the fabric and chain by which it is moved thru the bath.

Fig. 2 is an elevation thereof.

Fig. 3 is a plan view of a link of the conveying chain.

Fig. 4 is a central section thereof taken on line 4—4 of Fig. 3.

Fig. 5 is a schematic plan view of an apparatus for zinc-coating "chain-link" fabric.

Fig. 6 is a side elevation thereof.

In all the views the same reference characters are employed to indicate corresponding parts.

The invention will be explained with respect to its use for zinc-coating fencing, of the type known as "chain-link" fabric, in which a series of transversely extending picket members are interlinked by interconnection of their mesh forming portions. As the interlinked portions of these pickets are loose and movable relatively to each other to a limited extent, it is desirable that the arcuate bends of the interlinked portions be positively held apart after being zinc-coated, until the coating has become hardened by cooling, or drying, to insure a smooth, uniform and evenly coated surface on the wires.

In any event the reticulated fabric is submerged in or drawn through a suitable bath of coating material, preferably zinc-spelter, and preferably while continuously moving said fabric, and after being submerged, the coated fabric is allowed to cool and harden before being wound into a roll for shipment.

In the drawings I have illustrated schematically an apparatus by which my invention may successfully be carried into effect.

The apparatus is generally indicated by 10, in which a roll 11 of uncoated fabric, which is to be coated, is preferably mounted on a series of rollers 12 and 13 supported on a suitable pedestal 14.

A tub or kettle 15 contains the coating material, which may be molten zinc-spelter when the fabric is to be galvanized. The spelter 16, or other coating material, may be heated in the kettle or pan by any suitable means.

Located in the kettle and secured to an angle bar 17 are a series of J-shape fabric guide bars 18, and secured to an angle bar 19 is a dividing plate 20.

The fabric 11 is preferably moved through the kettle between the sides and bottom thereof and the guide bars 18. The guide bars prevent the fabric from rising in the bath out of contact with the coating material.

Any suitable means may be employed for operating the moving parts of the apparatus. The power may be applied to a pulley 21 on a shaft 21ª which is geared to a shaft 23 through suitable gear wheels, only one of which, however, is shown, this being the gear wheel 22 on the shaft 23. A sprocket pinion 24 on shaft 23 drives shaft 26 through a sprocket chain 27 and a sprocket wheel 28 on said shaft 26.

A shaft 29 mounted above the remote edge of the kettle 15 is driven from a sprocket wheel, not shown, on shaft 26 by a chain 30 which passes about a sprocket wheel 31 on shaft 29. By this means shafts 26 and 29 are preferably driven at the same speed.

A series of fabric-moving sprocket wheels 32 are mounted on the shaft 29. These sprocket wheels have sprockets properly spaced to enter into the mesh openings of the fabric formed by its interlinked portions to move the fabric.

Special sprocket wheels 33 are mounted

on the shaft 26 and similar sprocket wheels 34 are mounted on shaft 35. These special sprocket wheels engage and drive special chains 36, shown in full lines in Figs. 1 and 2 and in dotted lines in Figs. 5 and 6, and said chains engage and move the fabric after it leaves the bath, as clearly shown enlarged in Figs. 1 and 2.

The chain 36, of which three links are shown in Fig. 1, is composed of a series of links 37, individually shown in Figs. 3 and 4. Each link 37 has spaced lugs 38—38 with aligned openings to receive a pintle which passes through a perforation in the single lug 39 of an adjacent link, as clearly shown in Fig. 2. Between the lugs of each link and rising therefrom is a tooth or hollow arch-like structure 41 tapered toward its top portion and slightly skewed, as at 42 to more readily enter the meshes of the fence fabric. The arch portion or tooth 41 of each link, is substantially rectangular near its bottom end, in plan outline, to enter the meshes formed by adjacent wires to separate their arcuate and interlinked bends when the links of the chain are in a single horizontal plane, as shown in Fig. 1. Each link is provided with laterally extending side wings 43 to more properly support the fabric.

In the "chain-link" fabric illustrated, each picket consists of two wires 44 and 45 formed with alternately disposed angular bends and interlinked with each other and with adjacent wires and twisted together at their terminal ends, as at 46. When the fabric is not under stress the pickets may be moved relatively to each other. Normally the interlinked arcuate bends of the wires 44 and 45 are in mutual contact, as shown at 47, when hanging by their weight or when strain is applied to them, tending to separate them.

As the fabric is drawn from the bath by the chains 36, the teeth 37 thereof, which first enter the meshes between the respective wires forming the fabric, radiate from the axes of the sprocket wheels 28, see Fig. 2, and as they each successively assume an approximately common horizontal plane, their arch like structures 41 enter the meshes formed by the angular interlinked portions of adjacent wires. The interlinked arcuate bends 47 of said wires settle down between the rectangular bases of said teeth 37, the corners 41^a of said rectangular bases. The interposition of the interlinked arcuate bends 47 of the wires between the bases of the teeth 37 acts to separate the interlinked arcuate bends 47, as at 48, by forcibly restricting the distance of separation between adjacent pickets. The pickets are thus forcibly held apart until after the release of the fabric by the chains as they pass around the sprocket wheels 34. Such separation of the wires, as at 48, takes place before the coating has set, and immediately after the changing position of the angular bends in the wires, due to their movement over the sprocket wheels 28, so that the coating may have a chance to uniformly cover the bends in the wires before setting and thereby produce an evenly coated fabric throughout, to be subsequently rolled on the reel 49 for shipment or storage.

The relation of the sprocket wheels to the molten bath 16 and their speed is such that the fabric is drawn from the bath and the wires separated before the coating has cooled. The zinc-coating is thus allowed to spread uniformly over the wires, due to the angular bends therein and the positions they are caused to assume as they are carried over the sprockets 28. The molten spelter will normally flow over the angular bends in the wires as they are drawn from the bath owing to their being at an inclination to the surface of the bath when leaving the same, and the surplus spelter will naturally drain back into the bath and yet, at the same time, leave a comparatively heavy coating of spelter on the wires.

This application is a division of the application filed by me June 22, 1923 bearing Serial No. 647,096, issued April 1, 1924, as Patent No. 1,489,076.

What I claim is:—

1. In an apparatus of the character described, a plurality of chains for moving a wire fabric of "chain-link" character, each chain including hinged links, and each link having a hollow arched-tooth slightly skewed adapted for entrance between the linked wires of the fabric to forcibly separate such wires.

2. In an apparatus of the character described, sprocket chains composed of hinged links, each link having a hollow arched shaped tooth to receive the teeth of a sprocket wheel, and said teeth being tapered toward their top portions.

3. A sprocket chain for moving a wire fabric composed of a plurality of picket members loosely interlinked and movable relatively to each other, said chain including a series of hinged links, rounded projections for insertion within the meshes of the fabric and adapted to separate the pickets from contact with each other when said links are in a common plane.

4. A sprocket chain comprising a series of links, each link having an opening to receive a tooth of a sprocket wheel and a hollow tapered arch-like tooth spanning said opening with a slightly skewed face.

In witness whereof, I have hereunto affixed my hand this 25th day of March, 1924.

NOAH S. HARTER.