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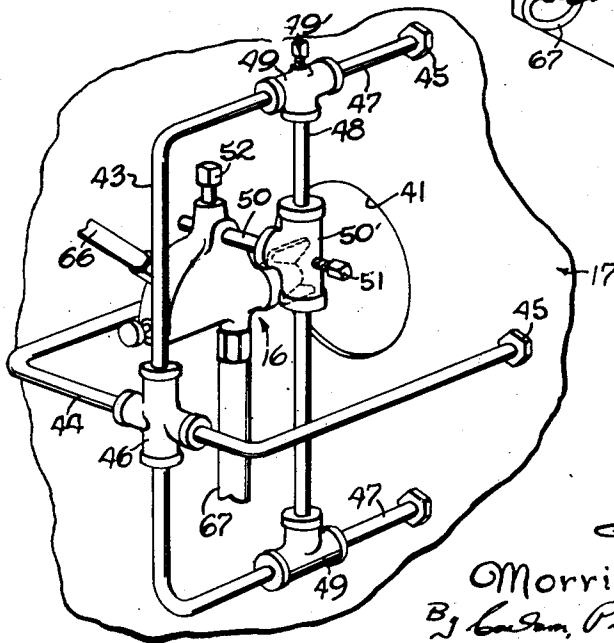
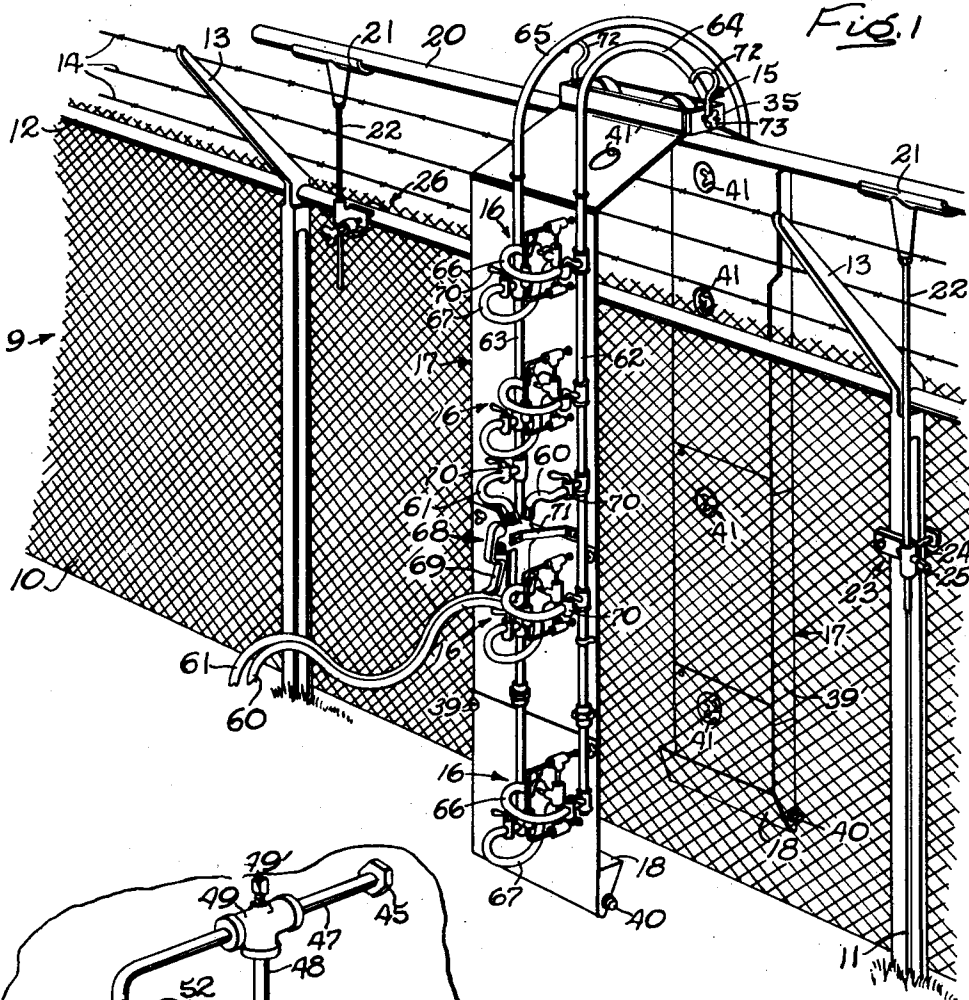
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FENCE PAINTING APPARATUS

Filed Nov. 19, 1945

2 Sheets-Sheet 1



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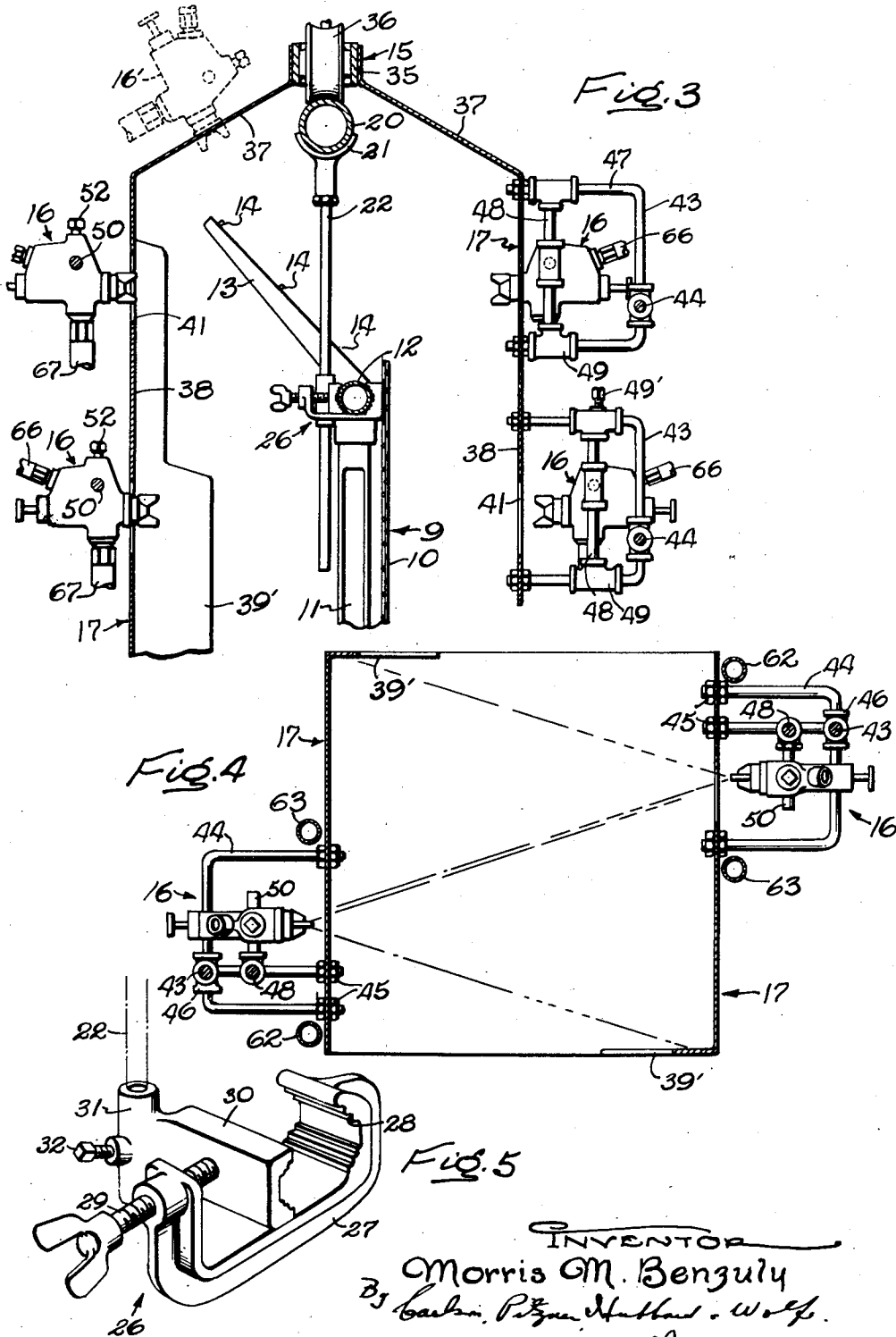
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FENCE PAINTING APPARATUS

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8 Claims. (Cl. 91-45)

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The invention relates to apparatus for spraying liquid coating materials, such as paint, on fences or similar structures and particularly to improved apparatus for spray painting fences constructed of wire mesh or other feraminate material.

The primary object of the invention is to provide improved spray apparatus for painting fences of the above general character which greatly reduces the time and labor required and which avoids waste of material.

Another object is to provide improved fence painting apparatus with which a single workman is enabled to paint wire mesh fences or the like at a rapid rate and which embodies novel means for intercepting and collecting the sprayed paint passing through the fence to avoid waste of the same.

Another object is to provide improved paint spraying apparatus adapted for movement longitudinally of a fence or the like and including novel means adapted to be temporarily mounted on the fence for supporting and guiding the apparatus in such movement.

Still another object is to provide fence painting apparatus which is readily adjustable for fences of different heights.

A further object is to provide improved spray head mounting means of simple and rugged construction which provides a wide range of adjustment for the head.

Other objects and advantages of the invention will become apparent from the following detailed description of the preferred embodiment illustrated in the accompanying drawings in which:

Figure 1 is a perspective view of fence painting apparatus embodying the features of the invention showing the apparatus mounted and ready for use.

Fig. 2 is a perspective view of the structure for adjustably supporting one of the spray heads.

Fig. 3 is a sectional view of the apparatus taken in a vertical plane.

Fig. 4 is a sectional view of the apparatus taken in a horizontal plane.

Fig. 5 is a perspective view of a clamp element for temporarily mounting the track structure on the fence.

While the invention is susceptible of various modifications and alternative constructions, I have shown in the drawings and will herein describe in detail the preferred embodiment, but it is to be understood that I do not thereby intend to limit the invention to the specific form disclosed, but intend to cover all modifications and

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alternative constructions falling within the spirit and scope of the invention as expressed in the appended claims.

The painting of fences such as those used around industrial plants and along railroad properties has always been an expensive and time consuming operation. This is particularly true in the case of fences constructed of woven wire or wire mesh which present a comparatively small surface for the reception of paint as compared to the overall area of the fence. The use of conventional spraying apparatus for painting such fences is precluded by the excessive waste of material involved and by the probability of damaging nearby structures. It has therefore been the practice to paint such fences with ordinary brushes wielded by hand. This of course requires highly skilled labor and is a time consuming and expensive operation.

The present invention overcomes the above difficulties by embodying in a single unitary structure adapted for convenient movement along the fence to be painted, a plurality of spray heads positioned to direct a spray of paint against the fence together with cooperating means for intercepting and collecting the paint which passes through the fence. Preferably sufficient spray heads are provided and they are so arranged as to cover a continuous vertical strip reaching the full height of the fence so that a substantial area of the fence may be coated in a single traverse of the apparatus longitudinally thereof. Support for the apparatus is provided by a track structure of simple and sturdy character adapted to be attached to the fence temporarily. The apparatus is constructed and arranged in a novel manner so that it may be installed and operated efficiently by a single workman who is thus enabled to paint large areas of fence in a minimum amount of time and without waste of material.

Referring to Fig. 1 of the drawings, the improved fence painting apparatus has been shown by way of illustration as applied to the painting of a fence 9 consisting of a woven wire mesh 10 supported on upright posts 11. The particular fence shown is reinforced by a rigid tubular top bar 12 and each post 11 is provided with an upwardly and inwardly inclined extension 13 carrying auxiliary guard wires 14.

In carrying out the invention, I provide a carriage 15 adapted to be supported above the fence in any convenient manner for movement longitudinally thereof. Supported by the carriage are a plurality of spray heads 16 positioned to direct a spray of paint against the fence. The

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spray heads 16 are preferably arranged in two vertically disposed groups on opposite sides of the fence so as to spray both sides of the fence simultaneously. Also supported by the carriage are a pair of shields 17 positioned to intercept the sprayed paint passing through the mesh of the fence. Each shield 17 is provided at its lower end with a receptacle 18 for collecting the paint intercepted by the shields.

While the carriage 15 may be supported in any suitable manner, it is preferred to provide a track structure adapted for convenient temporary attachment to the fence before the painting operation is started and removable therefrom when the painting is completed. The track structure, as shown, comprises an elongated tubular rail 20 supported at spaced points by arcuate cradles 21 carried by vertical rods 22 mounted in suitable brackets attached to rigid portions of the fence structure. Thus for attachment to the post 11, I provide an angular metal bracket 23 having conventional screw clamps 24 for engagement with the post. The bracket 23 is formed with a vertically disposed socket 24 for the reception of the rod 22 and the latter is locked in place by a clamp screw 25.

For attachment to the top bar 12, I provide a bracket 26 (Figs. 1, 3 and 5) comprising a rigid, generally U-shaped body 27 presenting a toothed jaw 28 at one end and a fixed abutment at the other end having a threaded aperture for a clamping screw 29 operative to shift a movable jaw member 30 toward and from the stationary jaw. The movable jaw member is provided with a socket 31 for the reception of the rod 22 and a locking screw 32 serves to lock the rod in adjusted position.

Referring more particularly to Figs. 1 and 3 of the drawings, the carriage 15 in its preferred form comprises a generally rectangular frame 35 in which are journaled a pair of concave rollers 36 adapted to run on the track member 20. The shield members 17 are secured to the carriage 15 so as to depend on opposite sides of the fence 10. In the exemplary apparatus, the shield members are constructed of sheet metal and each has a downwardly and outwardly inclined upper portion 37 terminating in a vertically disposed main portion 38 adapted to extend substantially parallel to the fence. The portions 37 of the shield members are dimensioned so as to provide ample clearance for the guard wire extensions 13 and to allow sufficient clearance for the proper spraying of the fence 10. The main portions 38 of the shield members extend the full height of the fence and are preferably constructed in separable sections secured together as by wing bolts 39 to permit of adjustment for fences of varying heights. An intumed flange 39' extending along one edge of the shield assists in directing the intercepted paint into the receptacle 18.

The lowermost section of each shield member 17 is provided with one of the paint collecting receptacles 18 herein shown as generally trough shaped in form. The receptacle may be conveniently formed integrally with the shield section by bending the lower edge inwardly and upwardly as shown in Fig. 1, such end portions being provided at each side with triangular extensions adapted to constitute the end walls of the receptacle. One end wall of the receptacle is provided with an outlet, normally closed by a plug 40, through which collected material may be removed.

To enable the shields 17 to perform their paint

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intercepting function without interfering with the operation of the spray heads 16, the shields are mounted between the heads and the fence and are formed with openings 41 through which the heads project. As herein shown, the openings 41 are arranged in vertical rows and the row in one shield is offset laterally with the row in the other shield to prevent interference between opposed heads. The inclined upper portion 37 of one of the shields may also be provided with an opening 41' for the accommodation of an auxiliary spray head 16' (Fig. 3) for spraying the guard wires 14 when required.

In the exemplary spraying apparatus shown, the spray heads 16 and 16' are supported directly on the shield members 17 with their nozzles positioned to discharge through the openings 41 and 41'. It will be apparent therefore, that the shield member 17 on one side of the fence is operative to intercept the paint which passes through the fence from the discharge of the spray heads on the opposite sides of the fence. The paint thus intercepted by the shield members drains into the receptacles 18 from which it may be removed for further use.

Novel means is provided for supporting the spray heads 16 for adjustment toward or from the fence, transversely of the fence, or angularly about either of two perpendicularly disposed axes. The supporting means as shown in Fig. 2 comprises a framework including a pair of U-shaped members 43 and 44 arranged in crossed relation and have their open ends rigidly secured to the shield member as by clamping nuts 45. The members may be rigidly joined by a cross member 46 at their crossing point. In the particular structure shown, the member 43 thus provides a pair of vertically spaced horizontally disposed parallel guide elements 47 for supporting and guiding a transverse member 48. The latter is provided at each end with a conventional T-fitting 49 adapted to slide on the element 47 whereby the member may be shifted toward or from the shield 17. A clamping screw 49' threaded into the member 49 serves to lock the same in adjusted position.

The transverse member 48 carries a spray head supporting member comprising, in this instance, a horizontal bar 50 having a T-fitting 50' slidable longitudinally of the transverse member and also rotatable about the latter member as an axis. A set screw 51 is provided for locking the fitting in set position. The bar portion 50 of the supporting member is arranged to seat in the usual recess provided in the spray head 16 and is adapted to be clamped thereto by a set screw 52.

With the above arrangement, the spray head may be shifted toward or from the fence by movement of the T-fittings 49 along the guides 47. Likewise, the spray head may be moved transversely of the fence by sliding the T-fitting 50' along the member 48. Pivotal movement about the axes of the members 48 and 49 permits a wide range of angular adjustment of the head which, in combination with the linear adjustments above referred to, enables the heads to be set for applying a uniform coating of paint over a selected area of the fence.

The particular head 16 shown by way of illustration is of the so-called internal atomization type in which the liquid material or paint is intermingled with air within the spray head and discharged as an atomized spray of generally conical form. The paint and air may be supplied from a conventional paint reservoir and compressor (not shown) through flexible tubes 60 and 61 (Fig.

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1). Distribution of paint and air to the spray heads is effected by means of pipes 62 and 63 running vertically along the shields 17 on opposite sides of the spray heads. Preferably, the pipes on the respective shields are connected by flexible conduits 64 and 65. Each pipe 62, in turn, is connected with the spray heads 16 by branch conduits 66, preferably of a flexible character, and similar branch conduits 67 connect the pipe 63 with spray heads.

For convenience of operation, a common main control device is provided for controlling the operation of all of the spray heads 16. For this purpose, a pair of valves incorporated in a unitary hand piece 68 (Fig. 1) for simultaneous operation by a hand lever 69 are interposed in the conduits 64 and 65 between the reservoir and compressor and the spraying apparatus. Individual shut-off valves 70 may also be interposed in the branch conduits 66 and 67 so that one or more of the heads 16 may be rendered inoperative when desired. The hand piece 68 may be mounted directly on one of the shields 17 as by brackets 71 for convenience in pushing the apparatus along the fence.

In setting up the apparatus for operation, the brackets 23 or 26 with the supporting rods 22 are secured to the fence at suitably spaced points and the rail member 20 is mounted thereon. The rail member may be leveled up with respect to the fence by appropriate adjustment of the rods 22 relative to the supporting brackets. The carriage 15 with one shield 17 attached is then set on the rail 20. To hold the apparatus in place while the other shield is attached, hook members 72 are provided at opposite ends of the carriage for co-action with the rail 20. The hook members are pivotally mounted at the ends of the carriage so that they can be swung under the rail when required and locked in place by wing nuts 73. Upon completion of the assembly the respective spray head groups and shields 17 depend on opposite sides of the fence.

Shield sections may be added or removed as required to adjust the apparatus for the height of the particular fence to be painted. After such adjustments and any adjustments of the individual spray heads necessary to insure effectually coating of a continuous vertical strip of the fence, the apparatus is connected with the paint reservoir and compressor. Painting of the fence may now proceed by merely opening the paint and air valves of the control device 68 and simultaneously pushing the apparatus along the track. As the spray heads are held in fixed relation to the fence by the shields 17, uniform coating of the fence is insured by merely advancing the apparatus at a uniform rate. Upon completion of one section of the fence, the apparatus may be quickly and easily transferred to the adjacent section by simply moving the track structure along to the new section.

Loss of material is reduced to a minimum and adjoining structures are adequately protected by the shields 17 which intercept the paint that passes through the fence. The intercepted paint is collected in the receptacles 18 which may be equipped with suitable strainers for removing foreign particles to condition the paint for reuse.

It will be apparent from the foregoing that the invention provides paint spraying apparatus of novel and improved construction which greatly reduces the time and labor required for painting fences and which eliminates waste of material. The apparatus is of simple and rugged

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construction and sufficiently light weight so that it may be readily assembled and operated by a single workman. Adjustments may be readily made to adapt the apparatus for use on fences of different heights.

I claim as my invention:

1. In apparatus for painting wire fences, in combination, an elongated rail member adapted to be temporarily supported above and parallel to a fence to be painted, a carriage having rollers adapted to travel on said rail member, a first group of spray heads supported by said carriage at one side of the fence, a second group of spray heads supported by said carriage at the other side of the fence, said two groups of spray heads being aligned vertically and positioned to spray opposite sides of the fence over an area extending the full height of the fence, means for delivering a supply of paint and compressed air to said spray heads, and a pair of shields supported by said carriage between the respective groups of spray heads and the fence and on opposite sides of the fence for intercepting the sprayed paint passing therethrough, said shields having openings for the passage of the paint discharged by the spray heads adjacent thereto.

2. Apparatus for painting wire fences or the like comprising, in combination, an elongated guide rail, brackets adapted to be temporarily anchored to rigid portions of a fence to be painted and operative to support said rail above and substantially parallel to the fence, a carriage having rollers adapted to run on said rail, shield members of sheet material depending from said carriage so as to straddle the fence, each of said members having a vertically disposed main portion of a length corresponding substantially to the height of the fence to be painted and a downwardly and outwardly inclined upper portion effective to hold said main portion in predetermined spaced relation to the fence, a plurality of spray heads mounted on said members and positioned to direct a spray of paint inwardly toward the fence whereby to apply a substantially uniform coating of paint thereto as said carriage is moved along said rail.

3. In apparatus for painting wire fences, in combination, a shield member adapted to be supported at one side of a fence to be painted and in spaced relation thereto, a spray head, means for delivering a supply of paint and compressed air to said spray head, means supporting said head at one side of said shield for linear adjustment toward or from and transversely of the fence and for angular adjustment about two perpendicular axes, said supporting means including a pair of spaced guide members disposed perpendicular to said shield, a transverse member supported on said guide members for movement toward and from the fence, and a head carrying member mounted on said transverse member for movement transversely of the fence and for pivotal movement about the transverse member as an axis, said spray head being mounted on said supporting member for pivotal movement about the member as an axis.

4. Supporting means for a spray head comprising, in combination, a pair of guide members rigidly supported in spaced parallel relation, a transverse member supported by and guided for movement longitudinally of said guide members, and a head supporting member mounted on said transverse member for movement longitudinally thereof and for pivotal movement about the transverse member as an axis, said supporting

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member having means for supporting the head for pivotal movement about an axis substantially perpendicular to said transverse member.

5. In apparatus for painting wire fences, the combination with a carriage adapted to travel on a track disposed above and running longitudinally of the fence, shield members mounted on said carriage and depending therefrom on opposite sides of the fence, a plurality of spray heads supported on each of said shield members positioned to direct a spray of paint inwardly toward the fence, paint and air supply ducts having branches extending to each of said spray heads, and a control unit including a pair of manually operable valves for controlling the delivery of paint and air to said ducts, said unit being rigidly mounted on one of said shields to facilitate the pushing of the apparatus along the fence and simultaneously controlling the operation of said spray heads whereby to insure application of a substantially uniform coating of paint to the fence.

6. Apparatus for painting wire fences or the like comprising, in combination, an elongated guide rail, brackets adapted to be temporarily anchored to rigid portions of a fence to be painted and operative to support said rail above and substantially parallel to the fence, a carriage adapted to travel on said rail, shield members of sheet material supported in depending relation from said carriage on opposite sides of the fence each having a series of vertically spaced openings, groups of spray heads supported adjacent the outer faces of the respective shield members in position to direct sprays of paint inwardly through the openings in the respective shield members toward the fence to apply thereto a substantially uniform coating of paint as the carriage is moved along said rail, each of said shield members being operative to intercept the paint discharged by the spray heads adjacent the companion shield and passing through the fence.

7. Apparatus for painting wire fences or the like comprising, in combination, an elongated guide rail, brackets adapted to be temporarily anchored to rigid portions of a fence to be painted and operative to support said rail above and substantially parallel to the fence, a carriage adapted to travel on said rail, shield members of sheet material supported in depending relation from said carriage on opposite sides of the fence each having a series of vertically spaced openings, groups of spray heads supported ad-

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jacent the outer faces of the respective shield members in position to direct sprays of paint inwardly through the openings in the respective shield members and toward the fence, the openings in one of said shield members being offset laterally with respect to the openings in the other shield member to enable the members to intercept substantially all of the paint passing through the fence, and receptacles supported adjacent the lower ends of the shield members for collecting the intercepted paint.

8. Apparatus for painting wire fences or the like comprising, in combination, an elongated guide rail, brackets adapted to be temporarily anchored to rigid portions of a fence to be painted and operative to support said rail above and substantially parallel to the fence, a carriage adapted to travel on said rail, shield members of sheet material supported in depending relation from said carriage on opposite sides of the fence each having a series of vertically spaced openings, groups of spray heads supported adjacent the outer faces of the respective shield members in position to direct sprays of paint inwardly through the openings in the respective shield members and toward the fence, vertically extending conduits connecting the spray heads of each group, air and paint supply conduits connecting with said vertical conduits intermediate their ends, each of said shield members comprising an upper section rigidly secured to said carriage and a lower section detachable from said upper section, and couplings in said vertical conduits permitting removal of the lowermost spray unit of each group when the lower section of the associated shield is detached.

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