

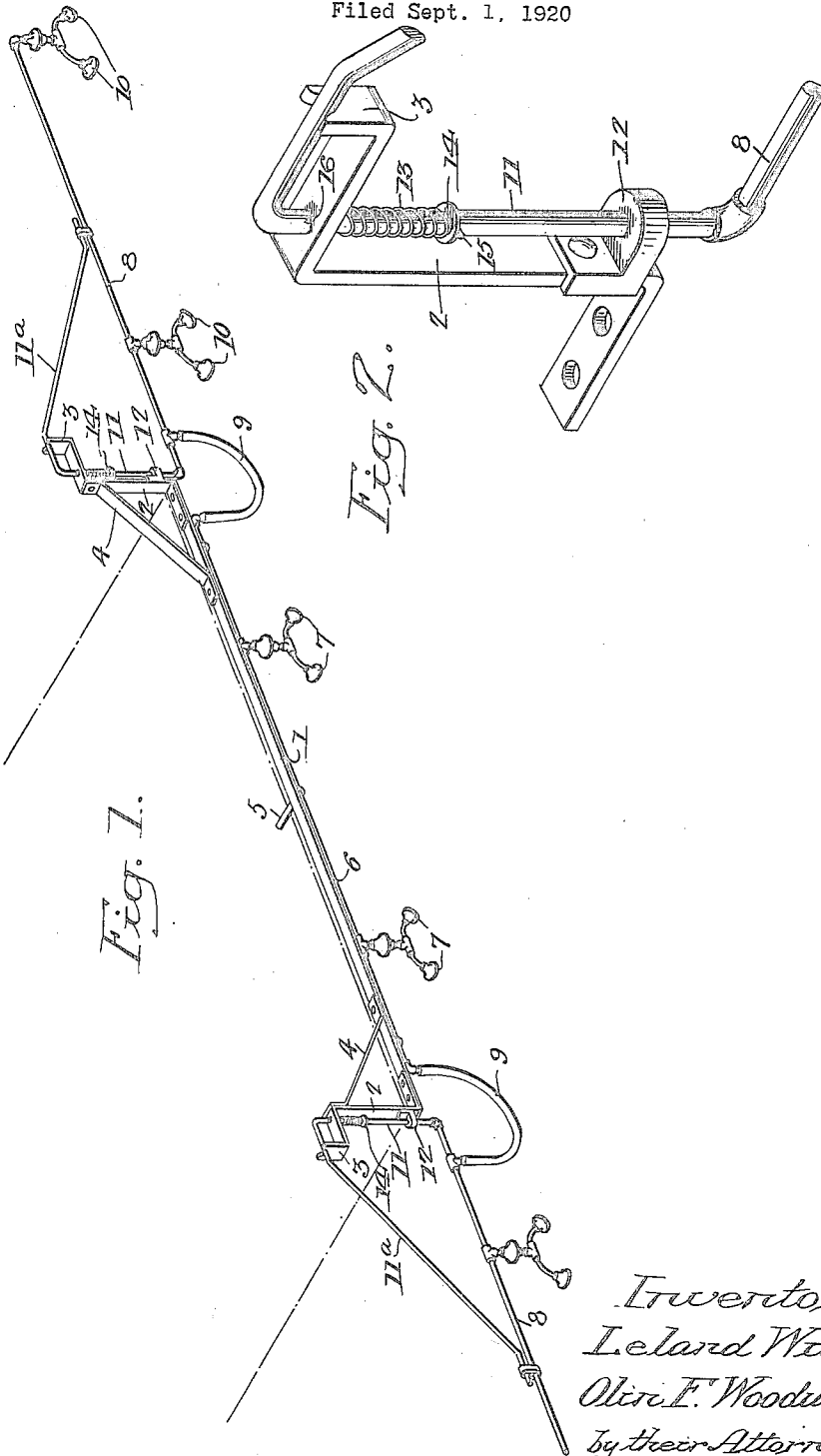
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SPRAY BAR

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Inventors,
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UNITED STATES PATENT OFFICE.

LELAND WILLIS AND OLIN F. WOODWORTH, OF GRENLOCH, NEW JERSEY, ASSIGNORS
TO BATEMAN AND COMPANIES INCORPORATED, OF WILMINGTON, DELAWARE, A
CORPORATION OF DELAWARE.

SPRAY BAR.

Application filed September 1, 1920. Serial No. 407,520.

To all whom it may concern:

Be it known that we, LELAND WILLIS and OLIN F. WOODWORTH, citizens of the United States, residing in Grenloch, Camden County, New Jersey, have invented Spray Bars, of which the following is a specification.

This invention relates to apparatus for delivering liquid in a finely divided form to vegetation for the purpose of destroying objectionable or injurious insects, fungus growths, etc., and more especially has to do with a novel form of spray bar or nozzle-supporting structure through which liquid is delivered under pressure from a source thereof.

One object of our invention is to provide a spray bar or liquid delivery pipe for a spraying machine whose construction shall be such as to permit either or both of its extremities to yield laterally without injury in case they should engage some fixed structure while the machine was being moved, and our invention especially contemplates a novel form of yieldable connection or joint especially adapted for use between the sections of such a pipe or conduit as above indicated.

Another object of our invention is to provide a sectional spray bar or delivery pipe with novel means whereby its parts, while normally maintained in definite relative positions, may be free to yield in a horizontal plane in the event of their striking an obstruction, the arrangement being relatively simple, substantial and inexpensive, as well as not likely to get out of order.

These objects and other advantageous ends we attain as hereinafter set forth, reference being had to the accompanying drawings, in which,

Fig. 1 is a perspective view of a spray bar constructed in accordance with our invention; and

Fig. 2 is a perspective view illustrating the detail construction of the connection or joint between one of the end sections and the body of a spray bar.

In the above drawings, 1 represents a relatively stiff light beam or body portion made

in the present instance of a length of angle iron which at its ends has upwardly extending arms 2 whose extremities are turned at right angles and thereafter upwardly extended. These extremities 3 each has its upper edge or topmost portion notched or formed with a sloping side recess as shown and the arms themselves are braced to the main body or beam structure 1 by inclined struts 4.

As will be understood by those skilled in the art, the body 1 of the spray bar is mounted on a wheel supported platform or frame carrying a reservoir for fluid, together with a pump for forcibly delivering said fluid and these elements are connected through a pipe 5 with a pipe 6 extending parallel with and fixed to the body bar 1. At suitable intervals this pipe 6 has connected to it spray nozzles 7 and in order that the finely divided liquid may be delivered as far as practical at the sides of the machine on which the apparatus is supported, we provide extension pipes 8 extending in the same general line as the pipe 6 beyond the ends of the same. These extensions are connected to said pipe 6 through flexible conduits 9 and have connected to them spray nozzles 10 for the distribution of the liquid.

In order to support these extensions 8 and at the same time to permit them to yield horizontally in case they strike fixed objects while the machine is being moved forwardly, we connect to each extension at that end thereof adjacent the main beam or body 1, an upwardly extending pivotal rod 11, vertically slidable and rotatable in bearings provided by a lug 12 and by the horizontal portion of the upper end of the adjacent arm 2. The upper end of this pivot rod after passage through its upper bearing, is bent at right angles so as to be capable of lying within the notched end of the portion 3 and is thereafter extended downwardly at an angle to the extension 8 to which it is clamped or otherwise firmly fixed, preferably at or adjacent its middle portion so as to serve as a support therefor.

In order to assist in normally holding

the extension pipes 8 with their rigidly connected pivot rods 11 in the position shown in Fig. 1, we mount a spring 13 on each of said pivot rods between the horizontal portion of the arm 2 and a washer or collar 14 which abuts on a pin 15 mounted in said rod, the arrangement being such that said spring tends to oppose movement of the upper end of the pivot rod out of its notch or recess in the part 3. Under normal conditions each of the extensions 8 is maintained in line with the main portion of the delivery pipe 6 by means of the coaction of the upper end of the pivot rod 11 and the notched upper edge of the supporting arm 3,—the liquid flowing to the various spray nozzles through the pipes 5 and 6, the flexible connections 9 and the extensions 8.

If while the machine carrying our apparatus is moving forward, either of the extensions 8 should strike a fixed object such as a tree or post, it is free to swing on its portion 11 as a pivot, since the spring 13 will yield as said portion rises, to permit of its right angled top part moving up and out of the notched end 3 of the supporting arm 2, after which the extension pipe with the pivot rod will rotate in the bearings provided by the arm 2. A second pin 16 in the upper end of the rod 11 prevents it moving downward beyond a fixed distance after it has been forced out of the notch in the upper end of the part 3, so that the extension 8 is free to swing through an angle of at least 90° from its normal position without injury. After being so moved it may obviously be returned to its normal extended position by being manually swung into line with the main pipe 6 and its portion 11^a again placed in the notched end of the arm 3 where it is retained by the action of the spring 13 as well as by gravity.

By the construction described we are thus enabled to prevent damage to the spray bar and that by a construction which while being simple and easily operated, is inexpensive and of such a nature as not to require attention under conditions of operation. In addition to being yieldable when brought into engagement with a fixed structure, each of the extensions 8 may be manually moved from its position in a line with the beam 1 to a position substantially at right angles thereto when the machine is not in use and it is desirable that it shall extend laterally for a minimum distance.

We claim:

1. The combination in a spray bar of a supporting member; an arm mounted on one end of said supporting member and projecting at a right angle therefrom; a main supply pipe carried by the supporting member; an extension pipe movably mounted on said arm; and a conduit flexibly connecting said main pipe and extension pipe.

2. The combination in a spray bar of a supporting member; an upwardly extending arm at each end of said member; a main supply pipe carried by the supporting member; an extension pipe pivoted on each of said arms; and conduits flexibly connecting said main pipe and the extension pipe.

3. The combination in a spray bar of a supporting member including upwardly extended arms, each having a recess therein; a main supply pipe carried by the supporting member; extension pipes having portions pivotally supported by said arms and normally mounted in the recesses thereof so as to be retained thereby in relatively fixed positions; and conduits flexibly connecting said main pipe and the extension pipes.

4. The combination in a spray bar of a supporting member including upwardly extended arms, each having a recess therein; a main supply pipe carried by the supporting member; extension pipes having portions pivotally supported by said arms and normally mounted in the recesses thereof so as to be retained thereby in relatively fixed positions; conduits flexibly connecting said main pipe with the extension pipes; and springs normally holding the extension pipes in place.

5. The combination in a spray bar of a supporting member including an upwardly extending arm notched at its top; a main pipe carried by said member; an extension pipe having a substantially vertical portion pivotally carried by the arm of the supporting member so as to be free to rotate and also move vertically therein, said extension pipe including a member removably supported in the notch of said arm; and means for flexibly connecting the main pipe with the extension pipe.

6. The combination in a spray bar of a supporting member including an upwardly extending arm; a main pipe carried by said member; an extension pipe having a substantially vertical portion pivotally carried by the arm of said bar so as to be free to rotate and also move vertically therein, said extension including a member removably engaged by the supporting member so as to be normally held from horizontal movement; means for flexibly connecting the main pipe with the extension pipe; with a spring operative to normally oppose vertical movement of the pivotal portion of said extension.

7. The combination in a spray bar of a supporting frame; a rearwardly swinging pipe normally projecting laterally from the frame; with a member releasably holding said pipe in its projected position, and formed to free the same when the pressure on the pipe exceeds a predetermined amount.

8. The combination in a spray bar of a supporting frame including a holding mem-

ber; with an arm normally held by said member so as to project laterally from the frame but free to disengage said member when the rearward pressure upon said arm exceeds a predetermined amount.

5 9. The combination in a spray bar of a supporting frame; a rearwardly swinging

pipe normally projecting laterally from the frame; with an open holding member detachably retaining said pipe in its projected position until a predetermined rearward pressure is exerted upon the latter. 10

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