R. W. E. HAYES.

SPRAY ROD.

APPLICATION FILED MAR. 5, 1915.

1,167,297.

Patented Jan. 4, 1916.

Fig. 1.

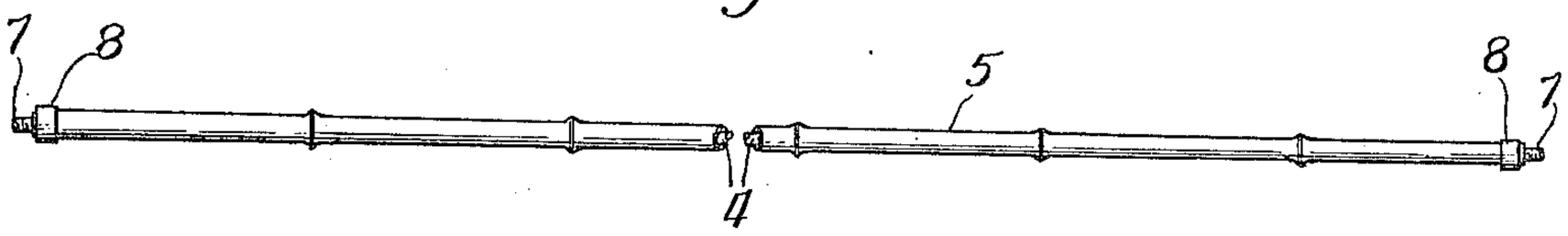


Fig. 2.

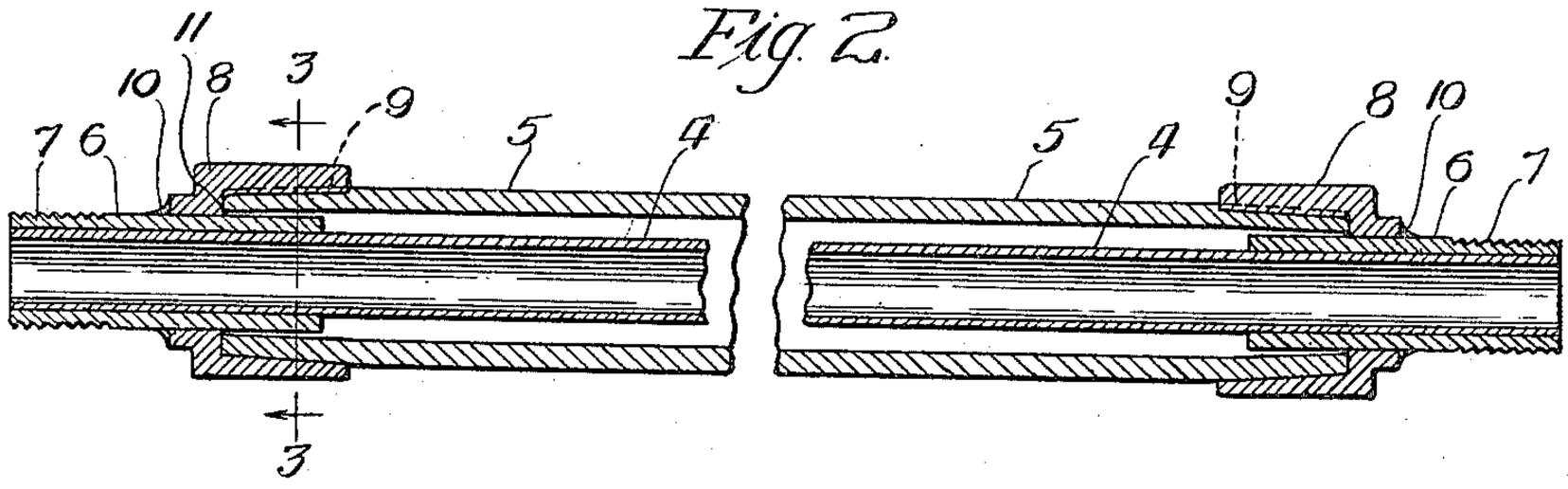
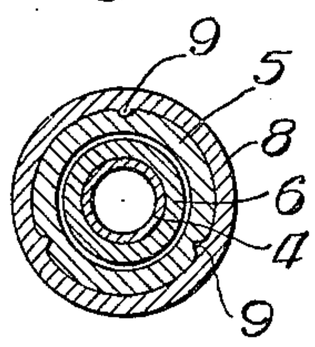


Fig. 3.



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UNITED STATES PATENT OFFICE.

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SPRAY-ROD.

1,167,297. Specification of Letters Patent. Patented Jan. 4, 1916.

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To all whom it may concern:

Be it known that I, RALPH W. E. HAYES, a citizen of the United States, residing at Galva, in the county of Henry and State of Illinois, have invented certain new and useful Improvements in Spray-Rods, of which the following is a specification.

The present invention relates to a rod used in conjunction with spraying apparatuses for trees, etc., and the invention is directed more particularly toward the formation and means of securing the tip portions onto said rod.

The objects of the invention are to provide a construction of tip which can be readily and easily attached, irrespective of slight variations in the length of the major parts of the rod.

A further object of the invention is to provide a tip which is strong and durable.

A further object of the invention is to provide a tip which is cheap and simple of construction and easy of installation.

The invention further consists in the features of construction and combinations of parts hereinafter described and claimed.

In the drawings: Figure 1 is an elevation of a spray rod equipped with the tip of the present invention; Fig. 2 is a longitudinal section through the tips of such spray rod; and Fig. 3 is a section on line 3—3 of Fig. 2 looking in the direction of the arrows.

In the art to which the present invention relates, a long pole or rod is provided which is of rigid formation and which at one end is attached to a hose or other conduit leading from the pumping apparatus, and at its opposite end is provided with a spray nozzle. The length of these rods is usually somewhere around ten feet and such length is necessitated in order that the various parts of the tree or other growth being sprayed may be reached.

Owing to the length of the rod and the construction, difficulty has been experienced in producing a construction which is not so weakened at its tip end as to be easily broken, and it is the primary object of the present invention to so construct and arrange the portions forming the tips of the rod as to render them strong and rigid and eliminate the objectionable feature of breakage of the tips which has heretofore been present in such devices.

Referring to the drawings, the rod consists of an inner conduit member of metal tubular formation which must necessarily be of a light weight construction in order to make the rod sufficiently light to permit of easy handling and such conduit member is usually formed of a comparatively thin gage metal. Surrounding this tubular member 4 and constituting the outer casing 5 of the rod, is a tubular member which is usually made of bamboo, owing to the fact that this substance is cheap and strong, and comes in the requisite length for use in this particular field. Means must be provided at each end of the inner tubular member 4 for the reception of suitable couplings, one of which receives the connections from the spray pump and the other receives the nozzle.

Owing to the relatively thin gage of metal used in constructing the conduit member 4, it is impractical to thread this member at its extremities for the purpose of receiving attachments heretofore referred to. Consequently at each end of this conduit member, I affix a short piece of tubing 6. These are fixedly attached to the outer surface of the conduit member and are preferably sweated in place. Owing to the short lengths of these members 6 they can be made of a substantial thicker gage of metal than the tubular member 4, and hence can be threaded without an undue weakening of the same. Each of these members is threaded as at 7, the threaded surface of one member receiving a connection from a hose or other member extending from the spray pump, and the threaded surface of the other member receiving a spray nozzle. By such means the problem of providing threaded surfaces at the ends of the rod to receive the various attachments is solved without any weakening of the parts to such an extent as to render a breakage liable.

The conduit member 4 is cut to a given length and the bamboo rod or outer casing member which surrounds this conduit member is also cut to a given length, but in cutting either of these members variations are liable to occur. Means must be provided for holding the outer casing in place with respect to the conduit member; that is for locking the casing and conduit together in a manner so that they constitute a single unit, and to accomplish this I utilize

offset collars 8, one of which is provided for each end of the rod. These collars slip over the tubular members 6 and in the construction shown are provided with interior ribs 9.

By the offset formation of the collar a shoulder 11 is formed. The conduit member 4 is first cut after which the short tubular members 6 are fixed in place on the ends of said conduit member. The outer casing 5 is then slipped into position over the conduit member 4, and the collars 8 are driven down upon the tubular members 6 until the shoulders 11 engage with the ends of the outer casing, as shown, and the collars are driven sufficiently hard, so that they slightly spring the outer casing at its ends making a firm joint therebetween. The ribs 9 will bite into the body of the bamboo and prevent any turning thereof. When the collars have been properly abutted against the ends of the bamboo they are fixed in place by suitable means, as for instance solder 10.

From the foregoing it will be seen that even if the length of the conduit member or other casing varies somewhat the collars 8 can be adjusted so as to accommodate themselves to such varying lengths. It will moreover be seen from the foregoing that in constructing and arranging the tip of the present invention no part of the spray rod is weakened, and that the full benefit of the strength of the various materials is present at the tip ends, thus eliminating the danger of breakage at the tip, which has heretofore been present in constructions now used and of which I am aware, the only thinning of material indulged in being in the forming of the threads 7 on the ends of the tubular members 6, and since these tubular members are of a relatively substantial gage of metal such thinning will not practically or materially affect the strength thereof.

I claim:

1. In a device of the class described, the combination of a central conduit member of relatively thin metal, a peripherally threaded tubular member rigidly fixed to each end of the conduit member, an outer casing member, an offset collar associated with each tubular member and arranged to initially slide over the tubular member, the offset portion of each of said collars abutting against one end of the outer casing member, and means for positively and fixedly securing each collar to the periphery of the tubular member with which it is associated, whereby the parts are joined into a rigid non-yielding structure having no relative movement between the parts thereof, substantially as described.

2. In a device of the class described, the combination of a central conduit member of relatively thin metal, a peripherally threaded tubular member rigidly fixed to each end of the conduit member, an outer casing member, an offset collar associated with each tubular member and arranged to initially slide over the tubular member, the offset portion of each of said collars abutting against one end of the outer casing member, means for positively and fixedly securing each collar to the periphery of the tubular member with which it is associated, whereby the parts are joined into a rigid non-yielding structure having no relative movement between the parts thereof, and an inwardly extending protuberance from the inner wall of the collar, adapted to abut into the casing member, substantially as described.

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