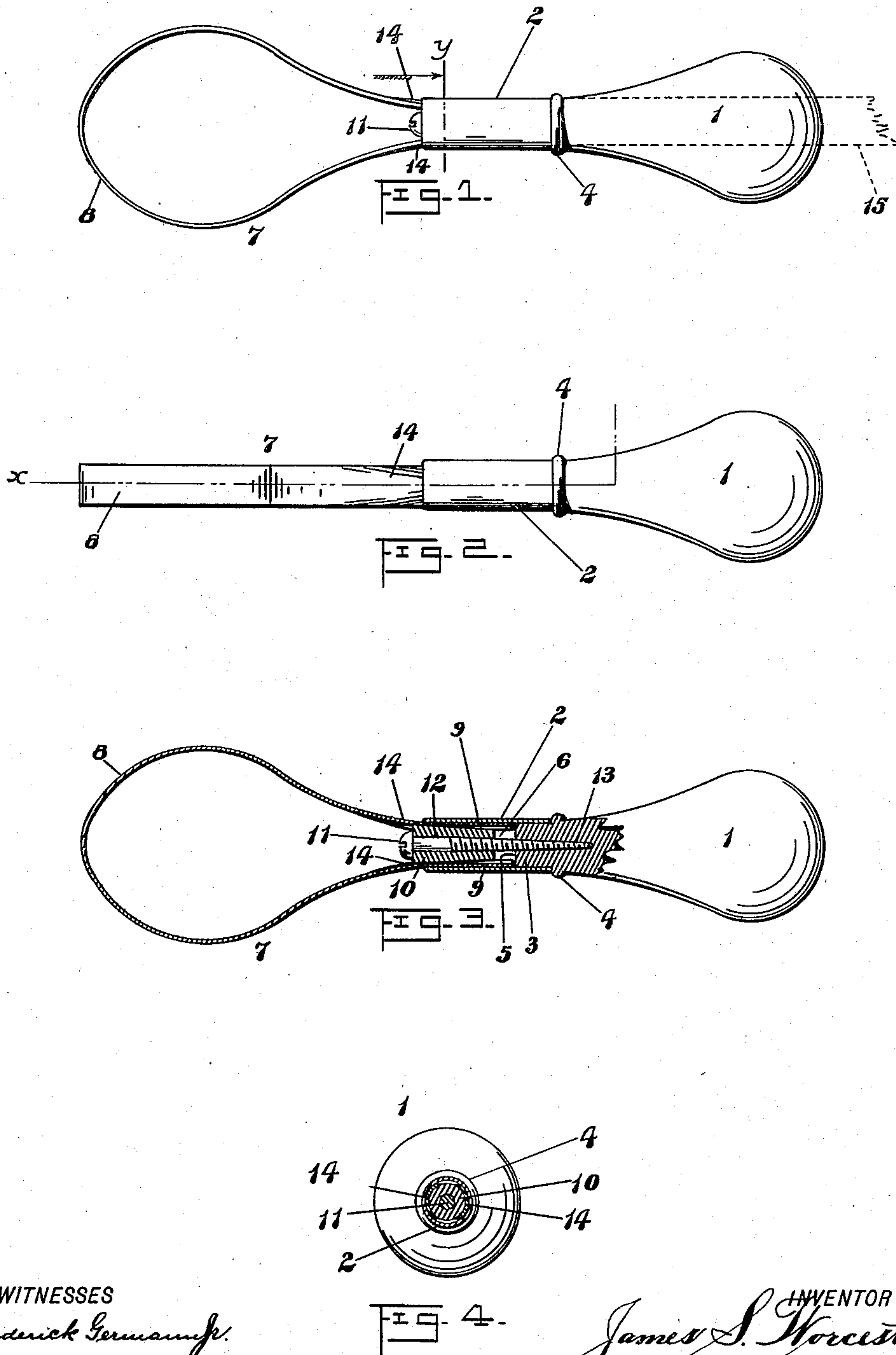


J. S. WORCESTER.  
GARDEN HOE AND WEEDER.  
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924,124.

Patented June 8, 1909.



WITNESSES  
Frederick Germann.  
John W. Kamper.

INVENTOR  
James S. Worcester,  
BY  
Russell M. Everett,  
ATTORNEY.



# UNITED STATES PATENT OFFICE.

JAMES S. WORCESTER, OF NEWARK, NEW JERSEY.

## GARDEN HOE AND WEEDER.

No. 924,124.

Specification of Letters Patent.

Patented June 8, 1909.

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*To all whom it may concern:*

Be it known that I, JAMES S. WORCESTER, a citizen of the United States, and a resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Garden Hoes and Weeder, of which the following is a specification.

This invention relates to that class of implements known as hand weeders or hoes, and which are adapted for use in gardens to remove weeds from the surface thereof or to loosen the soil.

The objects of the invention are to provide in such a tool a flexible and resilient blade which shall always remain sharp; to provide improved means for firmly and yet removably securing the blade in the handle; to provide a simple and inexpensive construction which is strong and durable, and to obtain other advantages and results as may be brought out in the following description.

Referring to the accompanying drawings, in which like numerals of reference indicate the same parts in the several figures, Figure 1 is a side view of my improved weeder; Fig. 2 is an edge view of the same; Fig. 3 is a longitudinal sectional view taken on line *x*, Fig. 2, illustrating the manner of securing the blade in the handle, and Fig. 4 is a cross-section taken on line *y*, Fig. 1, looking in the direction indicated by the arrow.

In said drawings, 1 indicates the handle of my improved implement, which may be made of wood or any other suitable material, and of any desired length and shape best adapted to fit the grasp of the operator. A ferrule 2 is driven onto the reduced end 3 of the handle up to the shoulder or beading 4, and extends for a considerable distance outward beyond the extremity 5 of said reduced end of the handle to provide an annular chamber 6 in which the blade 7 is mounted. Said blade is simply a single integral piece or flat ribbon of thin spring steel such as is commonly used in clocks and the like, and the flexible loop 8 formed thereby constitutes the cutting part of the tool.

In forming the loop 8, the end portions 9, 9 of the steel ribbon are brought sidewise together and are inserted into the chamber 6 in the ferrule of the handle. A tapered annular plug or wedge 10 is then introduced between the said inclosed ends 9, 9, and forced into the ferrule by means of a screw 11 pass-

ing through the central perforation 12 and screwing into the handle as at 13. Said annular plug forces the ends of the blade hard against the interior walls of the chamber formed by the ferrule 2, thus securing the blade to the handle in a vise-like grip, and such grip is made tighter because the flat ends of the spring are pressed between the curved surfaces of the plug and ferrule, springing them more or less into a correspondingly curved shape in cross-section. This furthermore strengthens the blade ends next the handle, as at 14, 14, since they take a transversely curved shape for quite a distance outside the handle, as shown in Fig. 4 most plainly.

This weeder may be used in various ways, as is common in the art, and the resilient loop 8 will readily adapt itself to various shapes in passing between stones or the like while clearing weeds from around plants, without displacing an unnecessary amount of ground. As the loop is made of thin spring steel with parallel side surfaces, the blade cannot become blunt or dull, and will in fact sharpen itself by use. A new blade may be quickly inserted into the handle by any person of ordinary skill, as heretofore described, and if it should become inadvertently loosened, a turn of the screw will force the plug farther into the ferrule and again secure the blade firmly into the handle.

While my improved tool may be used in gardens as a weeder with a short handle, I may also make the tool with a long straight handle, as shown in dotted lines at 15 in Fig. 1, and use the same as a hoe to stir and loosen the earth to a considerable depth. The loop or blade being very thin and made of hardened or tempered steel cuts deeply through the earth in such use and loosens it thoroughly.

Having thus described the invention, what I claim as new is:

1. The herein described hoe and weeder, comprising in combination a handle, a blade consisting of a normally straight resilient flexible steel strip of uniform thickness from edge to edge having its ends brought sidewise adjacent to each other with their extremities directed the same way, the said strip thus forming a resilient curvilinear loop free to change its shape as pressure is brought upon it in use and the strip lying at



all points around said loop perpendicular to the plane of the loop, and means securing said blade to said handle.

2. The hereindescribed garden hoe, comprising in combination a handle having at its end a longitudinal socket, a blade consisting of a metal strip having its ends brought sidewise together and inserted in said socket, and an adjustable wedge between  
10 said ends.

3. The hereindescribed garden hoe, comprising in combination a handle having at its end a longitudinal socket with curved walls, a blade having flat ends inserted in  
15 said socket, and a wedge in said socket having transversely curved outer surfaces adapted to engage the said flat ends of the

blade in opposition to the said curved walls of the socket.

4. The hereindescribed garden hoe, comprising in combination a handle having at its end a round socket, a blade consisting of a flat steel strip having its ends brought sidewise together and inserted in said socket, a round plug in said socket between said  
20 ends of the blade, and means forcing said  
25 plug into said socket, whereby the blade ends are transversely curved in and adjacent to the handle.

JAMES S. WORCESTER.

In the presence of—

ETHEL B. REED,

RUSSELL M. EVERETT.