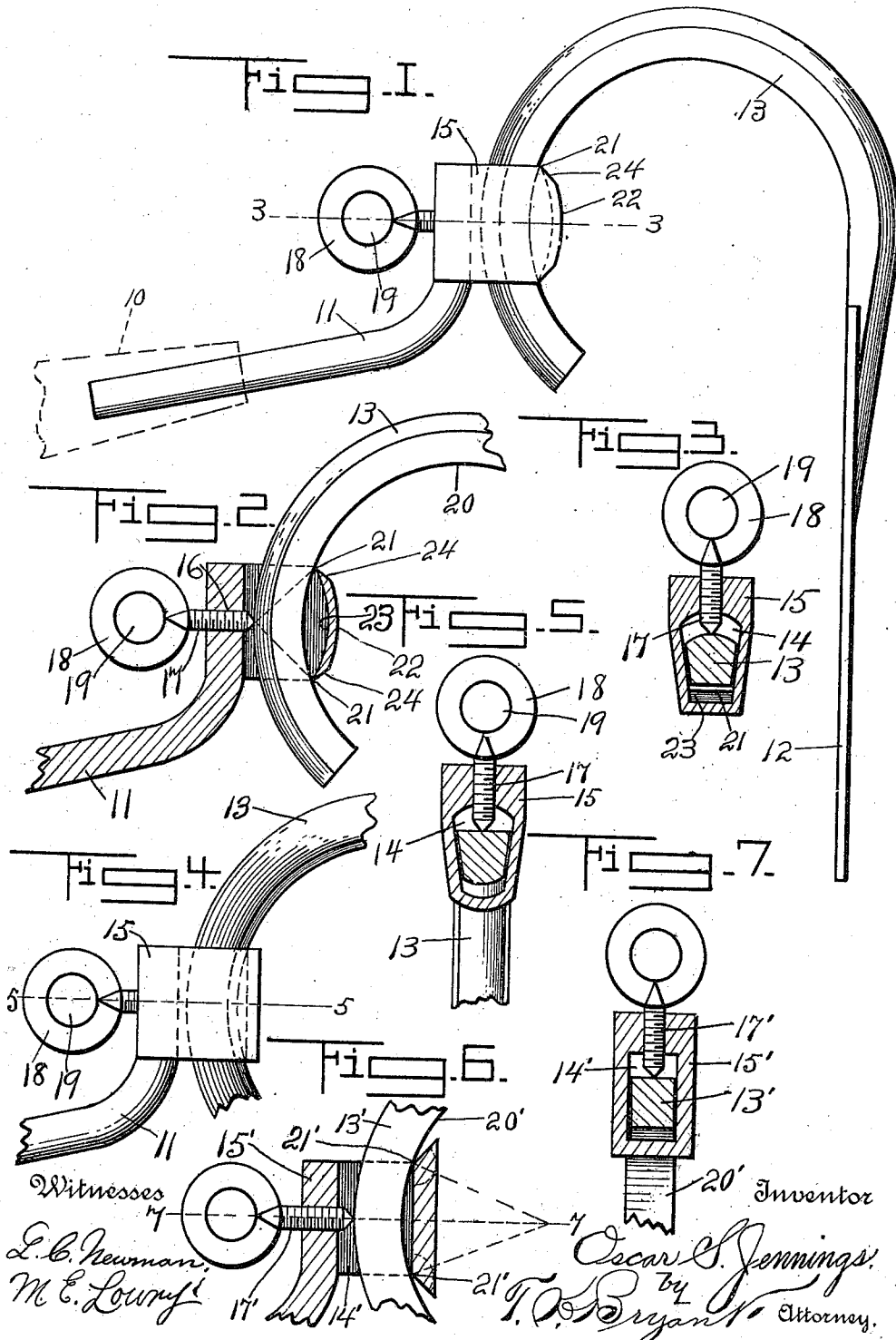


O. S. JENNINGS.
ADJUSTABLE HOE.
APPLICATION FILED SEPT. 12, 1910.

984,817.

Patented Feb. 21, 1911.

2 SHEETS-SHEET 1.



Witnesses
E. C. Newman,
M. E. Lowry

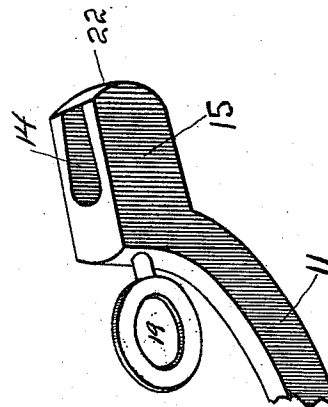
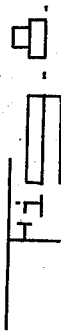
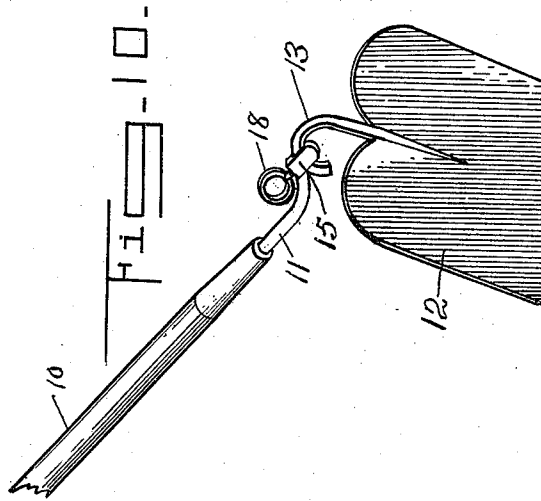
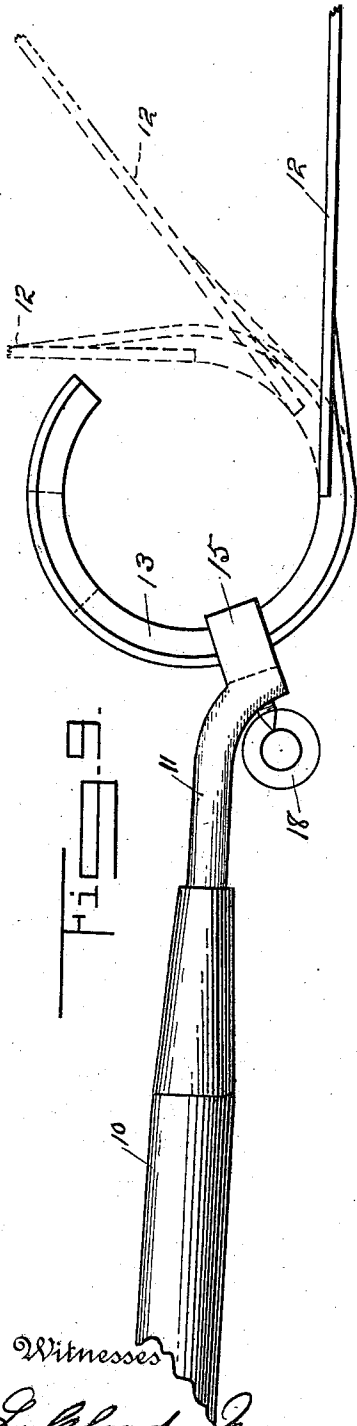
Inventor
Oscar S. Jennings,
by T. D. Bryant, Attorney.

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2 SHEETS-SHEET 2.



Witnesses
L. Cloud Newman.
Chas. P. Seibold

Inventor
Oscar S. Jennings.
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UNITED STATES PATENT OFFICE.

OSCAR S. JENNINGS, OF ITHACA, NEW YORK, ASSIGNOR OF ONE-HALF TO GEORGE W. MILLER, OF ITHACA, NEW YORK.

ADJUSTABLE HOE.

984,817.

Specification of Letters Patent.

Patented Feb. 21, 1911.

Application filed September 12, 1910. Serial No. 581,727.

To all whom it may concern:

Be it known that I, OSCAR S. JENNINGS, a citizen of the United States of America, residing at Ithaca, in the county of Tompkins and State of New York, have invented certain new and useful Improvements in Adjustable Hoes, of which the following is a specification.

This invention relates to improvements in adjustable hoes.

An object of the invention is to provide a handle and tang mechanism which will be applicable to many uses, but which is especially designed for use in connection with agricultural implements, such for instance as hoes and of such a construction that the operating member may be positioned at any desired angle or as a combined tool with respect to the holding or carrying handle.

A further object is a provision of a structure which will be easy and cheap to manufacture but at the same time is strong and efficient in its operations and whereby the blade, for instance, of the hoe may be accurately and firmly adjusted at any angle desired upon the handle thereof with the required strength and rigidity for the practical operation of the implement and having such an engagement of the parts that the same will be incapable of accidental separation or displacement.

To accomplish these objects therefore, my primary purpose and the gist of the invention consist in a combined wedging of the curved tang of an operating blade or member within a handle-iron and the gripping of said tang between three engaging points of contact. Said objects are also accomplished to a slightly less degree of perfection by employing the wedging engagement and the three point contact gripping clamp, each individually and separately; in the latter form one of said points or the apex is a movable conical one and the other two or base points are shaped in the form of knife edges.

I am aware that screws have already been employed to secure a blade tang against one or more flatly engaged surfaces, but my invention resides in the principles as above outlined and I make no claim to such existing structures nor broadly to an adjustable handle, but rather to my improved com-

bination of elements whereby the desired operation is more perfectly accomplished.

With these general objects in view and others that will appear as the nature of the invention is better understood, the same consists in the combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings and pointed out in the appended claims.

In the drawings forming a part of this application and in which like designating numerals refer to corresponding parts throughout the several views:—Figure 1 is a side elevation of a hoe provided with my invention, Fig. 2 is a longitudinal section through the handle iron illustrated in Fig. 1 and showing the three points of contact, Fig. 3 is a transverse sectional view taken upon line 3—3 of Fig. 1 and illustrates the coöperating wedge shapes of the tang and handle iron, Fig. 4 shows the device employing the wedging engagement solely, Fig. 5 is a transverse sectional view taken upon line 5—5 of Fig. 4, Fig. 6 is a longitudinal sectional view of the device solely employing the three point contact engagement, Fig. 7 is a transverse sectional view taken upon line 7—7 of Fig. 6, Fig. 8 is a perspective view of the handle iron detached, and, Fig. 9 is a side view of the device showing various adjustments of the blade. Fig. 10 is a perspective view of the device in the hoeing position.

Referring specifically to the drawings, the ordinary hoe handle 10 usually constructed of wood is illustrated in dotted lines as having a handle iron 11 of my special construction firmly seated in the lower end thereof, while the hoe blade 12 is provided integrally with the substantially circular tang 13 which is secured within the opening 14 of the head 15 of the said handle iron 11.

From Fig. 3 it will be noted that the tang 13 is substantially key-stone shaped in cross-section while the opening 14 is also of a similar shape, but of sufficient size to receive the tang and to permit manually sliding the same therethrough when positioned in the upper portion of said opening. Screw-threaded through an opening 16 in the top of the head 15 there is provided the set screw 17 having its pointed or conical lower end

adapted to bear upon the top or curved edge of the tang, said screw having the head 18 thereof provided with a perforation 19 by means of which the screw may be forced against the tang and a lever bar (not shown) employed through said perforation if desired.

While the operation of the screw is to wedge the opposite inclined sides of the tang against the opposite inner walls of the opening 14, such relative movement of the parts results in forcing the flat curved bottom face 20 of the tang in contact with the two opposite knife edges 21, which are formed upon the curved bottom 22 of the head 15 between the inner surface 23 of said bottom and opposite outer beveled faces 24 thereof, as best shown in Fig. 2. The wedging downwardly thereof of the tang within the opening by the influence of the screw braces the implement firmly and seats said tang upon these knife edges whereupon continued like pressure forces these knife edges 21 to bite into said lower face 20 of the tang. This construction, as will be apparent is one in which relative lateral movement between the handle and blade are absolutely impossible while a most firm lock between said members in adjusted positions is rendered possible.

Referring to the wedging engagement alone, this being shown in Figs. 4 and 5, wherein the forcing by the thumb screw of the wedge-shaped tang down into the wedge-shaped opening of shank holds the operating member entirely solid at any angle desired, the dispensing of the knife edges from the bottom of the head allows the formation of said bottom of regular outline or straight form with regular walls and a straight opening therebetween. Further in Figs. 6 and 7 the elimination of the wedging action and the sole use of the three point contact engagement is brought out. Therein the tang 13' being rectangular and fitting within the rectangular opening 14' of the head 15' the outer edges of the opening are sharpened as at 21'. The cross sectional dimension of said edges 21' as shown in Fig. 6 are formed with a radius of the arc of the inner face 20' of the tang 13' as the divider thereof into two equal angles. The forcing of said tang against these edges by the operation of the screw 17' is in a manner identical to that fully set forth in connection with Fig. 1.

Fig. 9 clearly discloses the adjustability of the blade upon the circular tang thereby rendering the device serviceable for different uses. One position of the blade as shown in full lines discloses the device with said blade positioned substantially in alinement with the handle in which form the hoe construction may be used as a shovel. The many adjustments of which the device is capable allows the positioning of the blade at any desired angle with respect to the handle as

shown in dotted lines in said figure and is serviceable in many cases such for instance, as when different angles are required in banking or hoeing or when the hoe is to be used by an extremely tall or short operator.

While the forms of my invention herein shown and described are what are believed to be the preferable embodiments thereof, it is nevertheless to be understood that changes may be made in form, proportion, size and minor points of detail without departing from the spirit and scope of the invention as set forth in the appended claims.

Having thus fully described my invention in the manner in which the same is designed for use, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A device of the class described comprising a handle, an iron member secured therein, a head provided upon said iron member, said head being provided with an opening therethrough, a bottom wall for said opening inclined in opposite directions, knife edges provided at the opposite ends of said opening upon said bottom wall at the terminations of the inclined portions thereof, a set screw threaded through the top wall of said head, a blade, a tang secured to said blade and adapted to be positioned within said opening and engaged by said knife edges.

2. A device of the class described comprising a handle, an iron member secured therein, a head provided upon said iron member, said head being provided with a key-stone shaped opening therethrough, a bottom wall for said opening inclined in opposite directions, knife edges provided at the opposite ends of said opening upon said bottom wall at the terminations of the inclined portions thereof, a set screw threaded through the top wall of said head, an implement blade, an integral tang projecting from one edge thereof, said tang being key-stone shaped in cross section and bent in circular form to inclose more than one-half of a circle, said tang being adjustably receivable within said opening.

3. A device of the class described comprising a handle, an iron member secured therein, a head provided upon said iron member, said head being provided with a key-stone shaped opening therethrough, a bottom wall for said opening inclined in opposite directions, knife edges provided at the opposite ends of said opening upon said bottom wall at the terminations of the inclined portions thereof, a set screw threaded through the top wall of said head, an implement blade, an integral tang projecting from one edge thereof, said tang being key-stone shaped in cross section and bent in circular form to inclose more than one-half of a circle, the opposite sides of said tang adapted to engage the inner walls of said opening

and the bottom of said tang engageable by said knife edges.

4. A head having a key-stone shaped opening therethrough, an implement blade, 5 an arc-shaped tang projecting from said blade and positioned in said opening, said tang being key-stone shaped in cross-section, two knife edges carried by said head, and means for adjustably engaging the tang in 10 said opening and with said edges.

5. A device of the class described comprising a handle iron, an implement blade, a substantially circular tang integrally projecting from one edge of said blade, said

tang being key-stone shaped in cross section, 15 said handle iron having an opening therethrough adapted to receive said tang, opposite knife edges provided upon said iron, means carried by said iron adapted to wedge said tang within the opening and engage 20 said knife edges into the body of said tang.

In testimony whereof I affix my signature in presence of two witnesses.

OSCAR S. JENNINGS.

Witnesses:

GEO. W. MILLER,

FRED. HAYES SMITH.