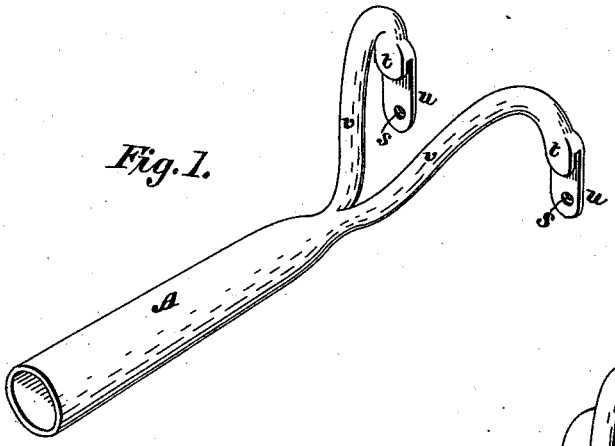
(No Model.)

A. C. TONNER.

HOE.

No. 343,551. Patented June 8, 1886.

Fig. 1.



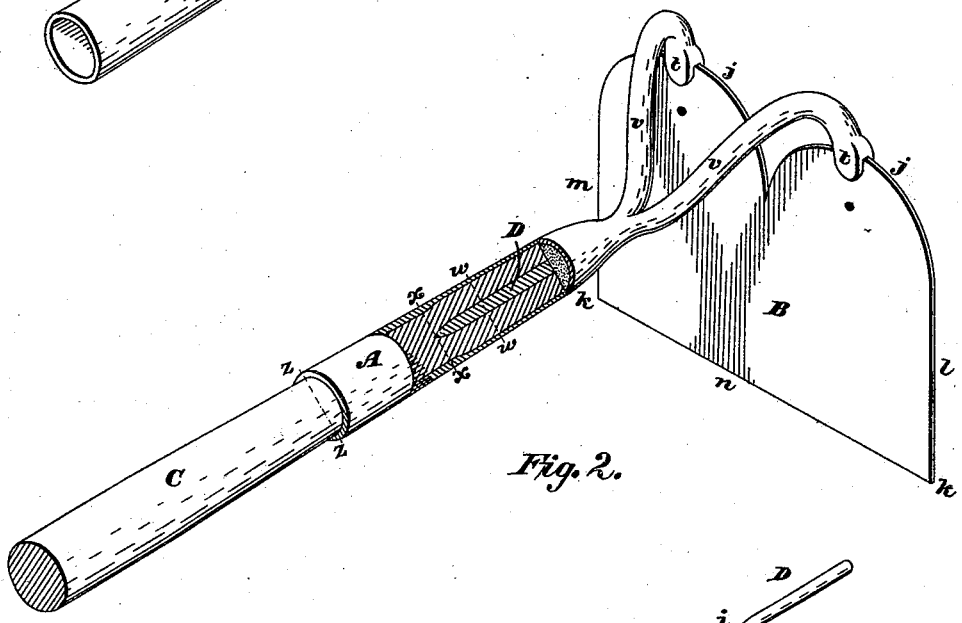


Fig. 2.

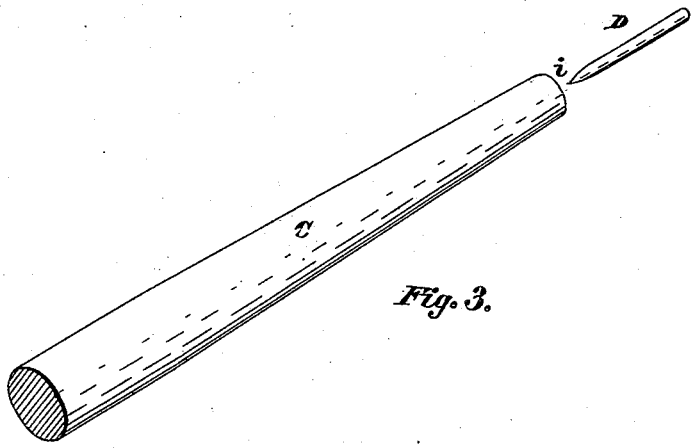


Fig. 3.

WITNESSES

Harry Grease.

Chas. F. Mills

A. Clark Tonner, INVENTOR

By W. K. Miller Attorney

UNITED STATES PATENT OFFICE.

A. CLARKE TONNER, OF CANTON, OHIO, ASSIGNOR TO THE CANTON HOE AND TOOL COMPANY, OF SAME PLACE.

HOE.

SPECIFICATION forming part of Letters Patent No. 343,551, dated June 8, 1886.

Application filed December 26, 1885. Serial No. 186,728. (No model.)

To all whom it may concern:

Be it known that I, A. CLARKE TONNER, a citizen of the United States, and a resident of Canton, county of Stark, State of Ohio, have invented a new and useful Improvement in Hoes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention relates to an improvement in hoes designed for general use; and it consists of the hereinafter-described parts and combination of parts, as described, and pointed out in the claim.

Similar letters of reference indicate corresponding parts in the drawings hereto attached.

Figure 1 is a view of the handle-socket disconnected, showing the formation and adaptation, as hereinafter described. Fig. 2 is an isometrical view showing the handle C, socket A, and hoe-blade B, with middle section of shank cut away, showing sectional view of the manner of securing the handle in the socket. Fig. 3 is a view of the end of the handle C and wedge D, hereinafter described.

Letter A is an annular conical handle-socket that may be made of malleable iron, or other suitable metal, and is of peculiar form, and is described as follows: The annular bore of the socket A tapers from the point of entrance at *z* to *x*, preferably including about two-thirds of the entire length of the annular bore, purposely contracting the bore to a less diameter on a line from *x* to *x* than from *z* to *z*. From the point indicated by the dotted line extending from *x* to *x* the inside wall of the bore diverges, enlarging the bore, so that its diameter at a point indicated by the dotted line from *w* to *w* will be larger than the diameter from *x* to *x*. From the point *w* to the bottom of the bore the wall-lines may be parallel or they may converge. The closed end of the socket terminates in a shank that is bifurcated. The free ends of the prongs *v v* are provided with lips—a long lip, *u*, and a short lip, *t*. The long lip may have a perforation, *s*, or a rivet may be cast integral with the lip. The prongs are bent up and the ends arched over, and are adapted for engagement with the hoe-blade B, the blade being placed between the lips *u* and *t*, and a rivet passed through the perforation *s*, and the blade securely attached to the prongs, as shown in Fig. 2. The hoe-blade B is made of a plane flat metal plate having a lower or cutting edge, *n*, that is straight in a horizontal plane, terminating in vertical ends *m* and *l*, forming rectangular corners *k k*. The upper edge of the plate is formed in transverse curves *j j*, to the summit of which is attached the prongs of the handle-socket A, as hereinbefore stated. The prongs *v v* are so formed in their alignment as to direct a line drawn central to the handle-socket to a point about or a little above the center of the plate, (by this arrangement the hoe may be more perfectly balanced and adapted to the intended use,) and in their radiation form a truss by which the blade is seized and held rigidly and securely.

Letter C, Fig. 2, represents a wooden handle turned in a conical form, as shown in Fig. 3, and adapted to the bore of the handle-socket A.

The manner of applying the handle to the socket is as follows: Start the wedge D into the end of the handle at *i*, place the wedge and handle into the socket A, the outer or butt-end of the wedge resting against the bottom of the socket. By driving or otherwise forcing the handle into the socket the wedge will penetrate the handle and spread it out against the wall of the socket, so as to secure the end of the handle firmly in the socket, requiring no further means of fastening, thus forming an article of manufacture of great simplicity and utility and at a reduced initial cost.

I am aware that a hoe has been made heretofore having a bifurcated shank secured to a transversely-curved blade, and also to a segmental blade; but my invention differs materially therefrom in construction. I use an annular conical socket, as described, having radial prongs adapted for and secured to a flat blade. I do not, therefore, broadly claim a bifurcated shank; but,

Having thus fully described the nature and object of my invention, what I claim as new, and desire to secure by Letters Patent, is—

As a new article of manufacture, a hoe consisting of a socket, the latter being restricted

in diameter at points between its extremities, the curved arms formed integral with the closed end of said socket, the blade having a curved top, the handle, and the pin or wedge for locking the handle in the socket, all of the above parts combined substantially as described.

In testimony whereof I have hereunto set my hand this 22d day of December, A. D. 1885.

A. CLARKE TONNER.

Witnesses:
W. K. MILLER,
CHAS. R. MILLER.