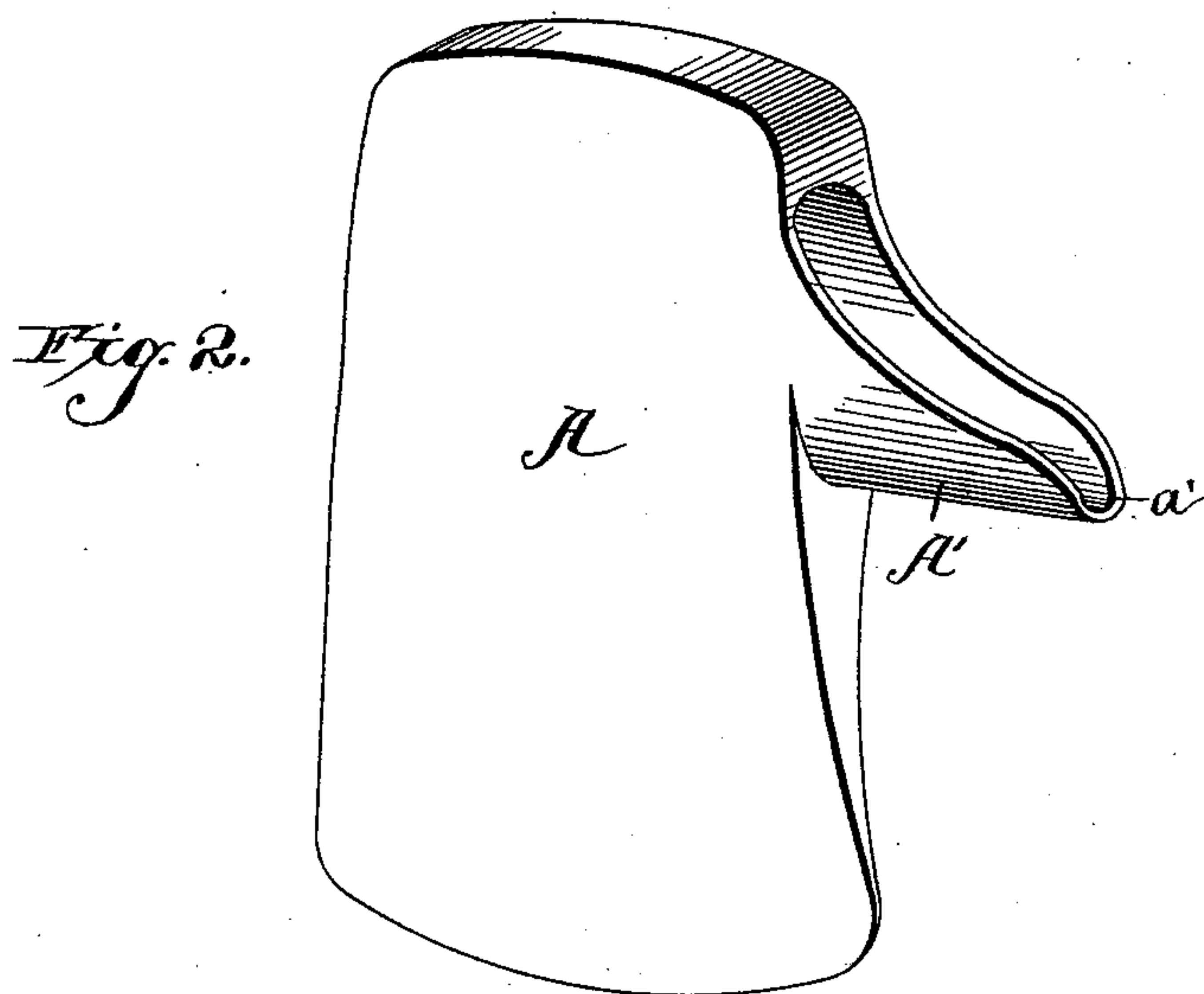
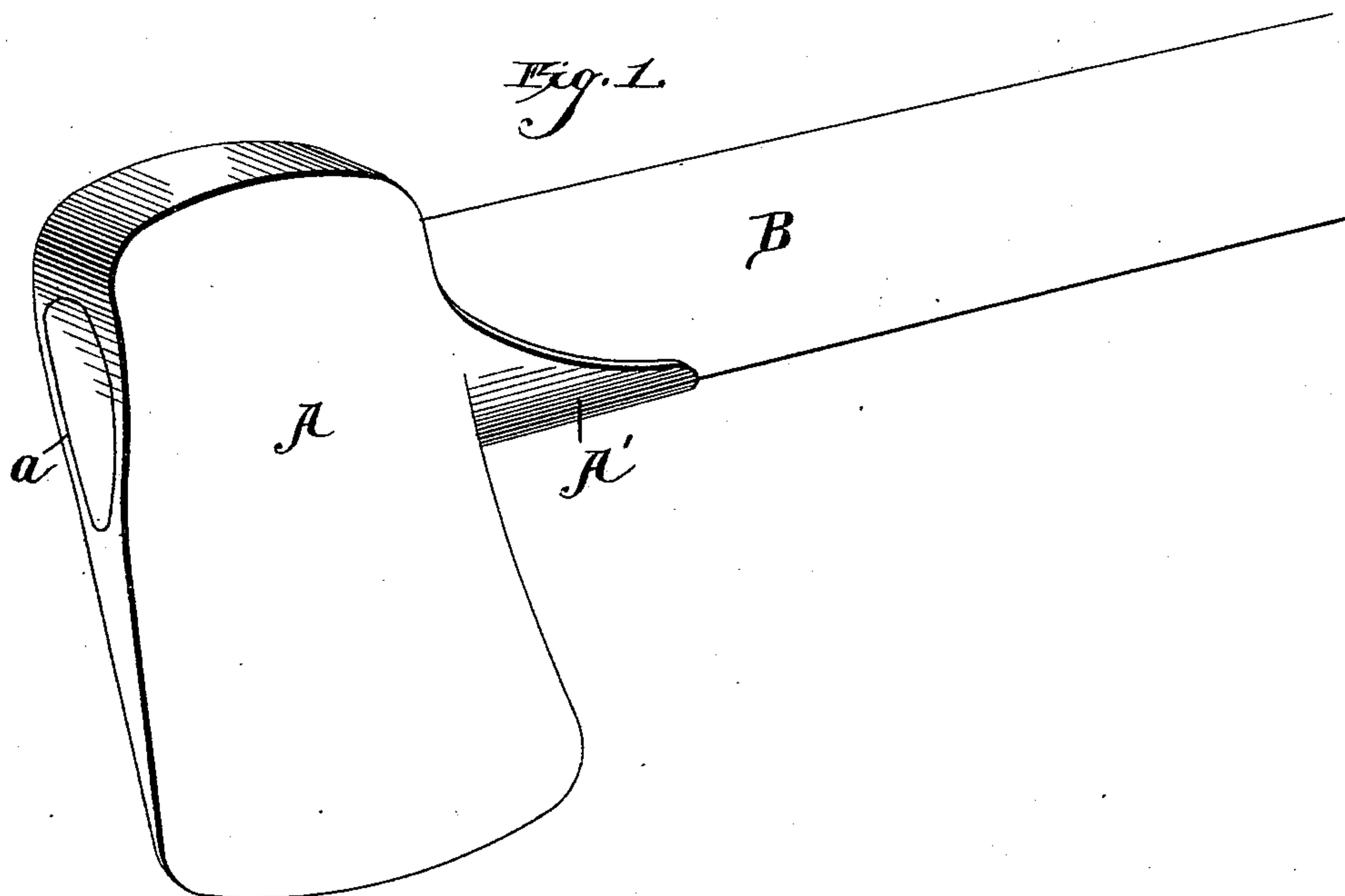


(No Model.)

O. L. DE FOREST.
AX.

No. 438,990.

Patented Oct. 21, 1890.



Witnesses

Henry J. Dieterich
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UNITED STATES PATENT OFFICE.

O. LANSING DE FOREST, OF JANESVILLE, WISCONSIN.

AX.

SPECIFICATION forming part of Letters Patent No. 438,990, dated October 21, 1890.

Application filed March 23, 1889. Serial No. 304,393. (No model.)

To all whom it may concern:

Be it known that I, O. LANSING DE FOREST, a citizen of the United States, residing at Janesville, in the county of Rock and State of Wisconsin, have invented a new and useful Improvement in Axes, of which the following is a specification.

The invention relates to improvements in axes.

The object of the present invention is to protect the helve from bruises and strengthen the same below the opening in the head of the ax, and thereby obviate the frequent replacement of ax-helves and the expense and trouble connected therewith.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claim.

In the drawings, Figure 1 is a perspective view of an ax and helve constructed in accordance with this invention. Fig. 2 is a perspective view of the ax-head.

Referring to the drawings, A designates an ax-head constructed in the ordinary manner and provided with a shield A', which protects the helve B from bruises and strengthens the same and avoids the trouble and expense attendant upon the frequent replacement of ax-helves.

The shield A', forming the helve-protector, is constructed integral with the ax and is an extension of the inner edge of the ax-head around the opening *a*. This shield is curved in cross-section around the lower portion of said opening *a*, and has its greatest length at the lower side of the helve, and its upper edges gradually slope from the inner end *a'* of the shield A toward the rear edge of the ax, thereby forming a curved casing extending around the front and partially around the sides of the helve B. This casing or shield A protects the helve B at a point where the latter is most liable to break, since if the head A misses the object or glances therefrom, the helve B generally contacts therewith at a point a little distance in rear of said head A. It also frequently occurs in the use of an ax in splitting wood that the head is struck deep into the wood at a point remote from the operator, and the result is that a portion of the

helve is seated in the crack or split thus formed. If the sides of the helve adjacent the head were left exposed, continued wear thereon by the rough and splintered sides of the crack in this event would wear away such helve to an extent which would eventually weaken it so that it would break off there. The shield A' not only protects the lower edge of the helve, but its sides as well, and by the rounded shape of such shield the latter will enter the crack made by the wedge-shaped head A almost as readily as the head itself, especially when the head and shield are integral. If these parts were not integral, repeated blows upon the shield would loosen it, and the frequent pinching within the split crack to which it is subjected would tend in time to compress its sides, so that it would more closely embrace the helve, yet fit loosely in the head and finally drop therefrom. The making of these parts integral also permits the head and shield to be twisted as one piece within the crack to split the block. This could not be done if the outer sides of the shield were not flush with those of the head, because the former in that case would not be in contact with the sides of the crack. The space between the lateral sides of the hole *a* and the faces of the head opposite it is therefore completely occupied by the metal of the shield, whereby the latter is made sufficiently strong to resist the lateral strain brought to bear upon it and the vertical blows given it, and the fact that the outer faces of the shield are flush with those of the head adds to the efficiency of the device in the manner set forth.

By constructing the shield A' integral with the ax A it will, when it receives a blow, distribute the force throughout the head, and the result will be the same as if the ax had not missed or glanced, and injury to the helve will thereby be prevented.

From the foregoing it will be readily seen that the shield will protect the helve at its most vulnerable point, and prevent the annoyance and expense incident to frequent replacement of the helve.

Having described the invention, I claim—

As a new article of manufacture, a wedge-shaped ax-head A, having a transverse opening *a*, and provided with an integral shield

A', projecting from the inner edge of the head
and continuing the sides and bottom of said
opening, the lower outer face of said shield
being rounded and its outer sides flush with
5 the side faces of said head, substantially as
and for the purpose described.

In testimony that I claim the foregoing as

my own I have hereto affixed my signature in
presence of two witnesses.

O. LANSING DE FOREST.

Witnesses:

WILLIAM GARDINER,
SILAS HAYNER.