(No Model.)

N. GOODIER.

AX.

No. 353,447. Patented Nov. 30, 1886.

Fig. 1.

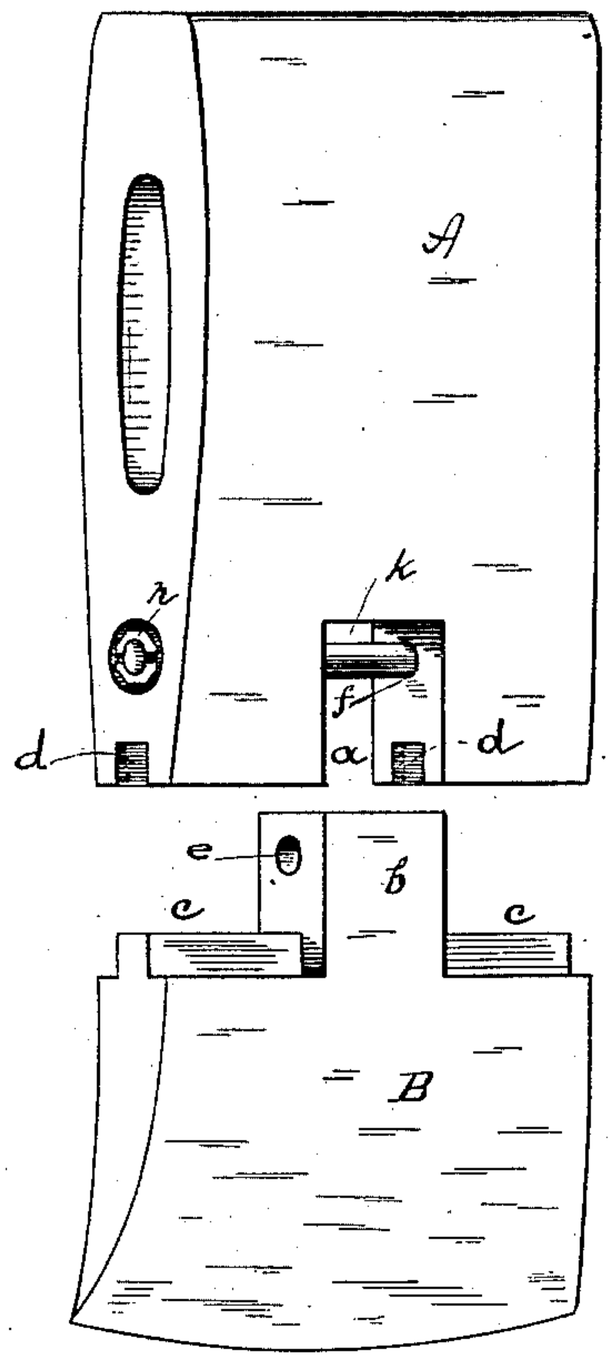
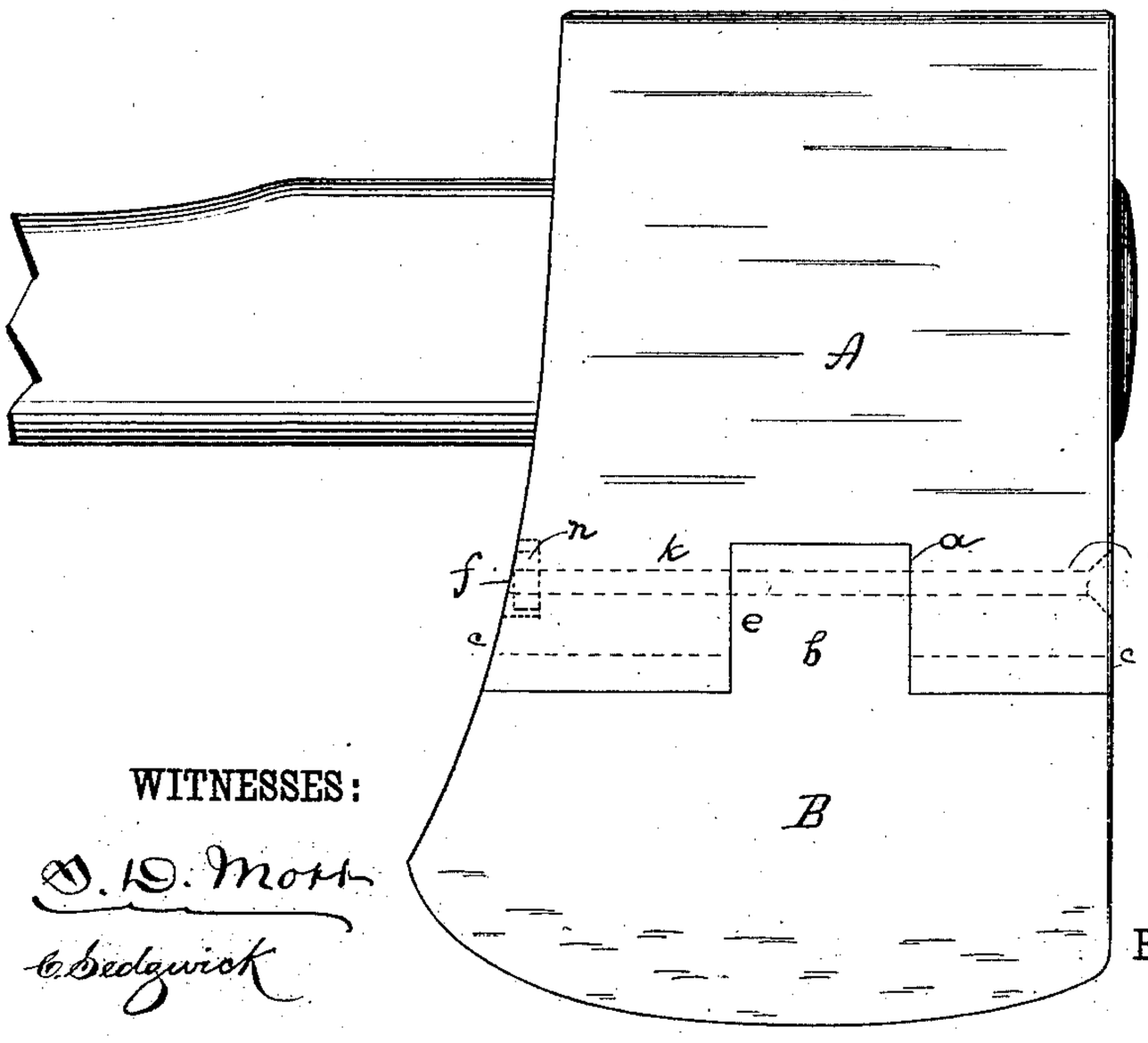


Fig. 2.



WITNESSES:

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NICHOLAS GOODIER, OF DARDANELLE, ARKANSAS.

AX.

SPECIFICATION forming part of Letters Patent No. 353,447, dated November 30, 1886.

Application filed May 22, 1886. Serial No. 202,080. (No model.)

To all whom it may concern:

Be it known that I, NICHOLAS GOODIER, of Dardanelle, in the county of Yell and State of Arkansas, have invented a new and useful Improvement in Axes, of which the following is a full, clear, and exact description.

This invention relates to the construction of that class of axes which are provided with detachable cutting blades or bits which can be renewed when worn or destroyed, thus saving the expense of a new ax, otherwise necessary; and the object of my invention is to so improve their construction that they can be more easily and cheaply manufactured and the bits more strongly united to and more quickly detached from the body of the ax.

The invention consists in providing the ax-body with a transverse groove and a deeper slot at right angles thereto, to receive a corresponding tongue and projection or tenon on the detachable bit, the parts being rigidly united by a bolt passing transversely through the body and extremity of the tenon.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both figures.

Figure 1 is a perspective view of my improved ax, the bit being detached. Fig. 2 is a side view, the bit being in place.

The body A of the ax is provided with the usual eye to receive the handle, and on its forward end with a transverse groove, *d*, and median deeper slot, *a*, at right angles thereto.

The detachable blade or bit B, which may be formed entirely of steel or tipped with the same, is formed with a transverse tongue, *c*, adapted to be received in the groove *d* of the body A, and a projection or tenon, *b*, rising midway from the tongue *c* and adapted to be received in the deep slot *a* of the body, flush with the surfaces of the same.

An aperture, *e*, is formed transversely through the outer end of the tenon *b*, through which and a corresponding aperture, *f*, formed in the body A, near the foot of the slot *a*, is passed a bolt, *k*, the body being countersunk to receive the head of the bolt *k* and the nut *n* screwed thereon. The nut *n* is preferably notched on opposite sides, so as to be capable of adjustment by a forked screw-driver.

With this construction the ax-blade, if worn out or irreparably injured, may be readily detached by removing the bolt *k* and a new blade substituted, thus forming a substantially new ax for the cost of the blade alone. In case of injury to the edge of the blade in a place where a grindstone is not easily accessible, the delay incident to grinding can be avoided by substituting a fresh blade, the sharpening of the injured blade being postponed for a more favorable opportunity.

The advantage of this construction over those heretofore employed consists in its great simplicity and consequent cheapness, resulting from the facility with which the squared tongue and groove and slot and tenon can be formed and a close-fitting joint secured, and in the easy detachability of the parts, a single bolt alone having to be removed to permit the withdrawal of the blade. A further and great advantage lies in the strength of the joint, greatly increased by the size and simplicity of its parts.

The tongue and groove *c d* serve to prevent the lateral displacement of the parts. The slot and tenon *a b* prevent transverse displacement, and the bending at the joint, to which the united blade is mostly liable, is amply provided against by the bolt *k*, resisting this tendency by the increased leverage resulting from its distance from the fulcrum, as it were—that is, the tongue and groove *c d* of the joint. Further, the bolt can be broken only by shearing, thus presenting ample strength without necessitating the weakening of the body or blade by too large a bolt-hole. By forming the bolt of steel ample strength is secured, though the body and main part of the blade be of iron, so that the strength of a steel ax-head is obtained for slightly more than the cost of an iron one.

If desired, the body A may be grooved at the foot of the slot *a* to receive a corresponding tongue on the projection B, this construction tending to aid the bolt *k* in its resistance to the bending at the joint.

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

As an improved article of manufacture, an ax-head consisting of a body portion pro-

vided with a transverse groove, *d*, and a central slot, *a*, at right angles to the groove, a detachable blade provided with a transverse tongue, *c*, and a central projection, *b*, fitting in the groove and slot, respectively, of the body, a bolt, *f*, passed through the body and central projection, *b*, on the blade at right angles to the slot *a* in the body, and the fastening-nut *n*, substantially as specified.

NICHOLAS GOODIER.

Witnesses:
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