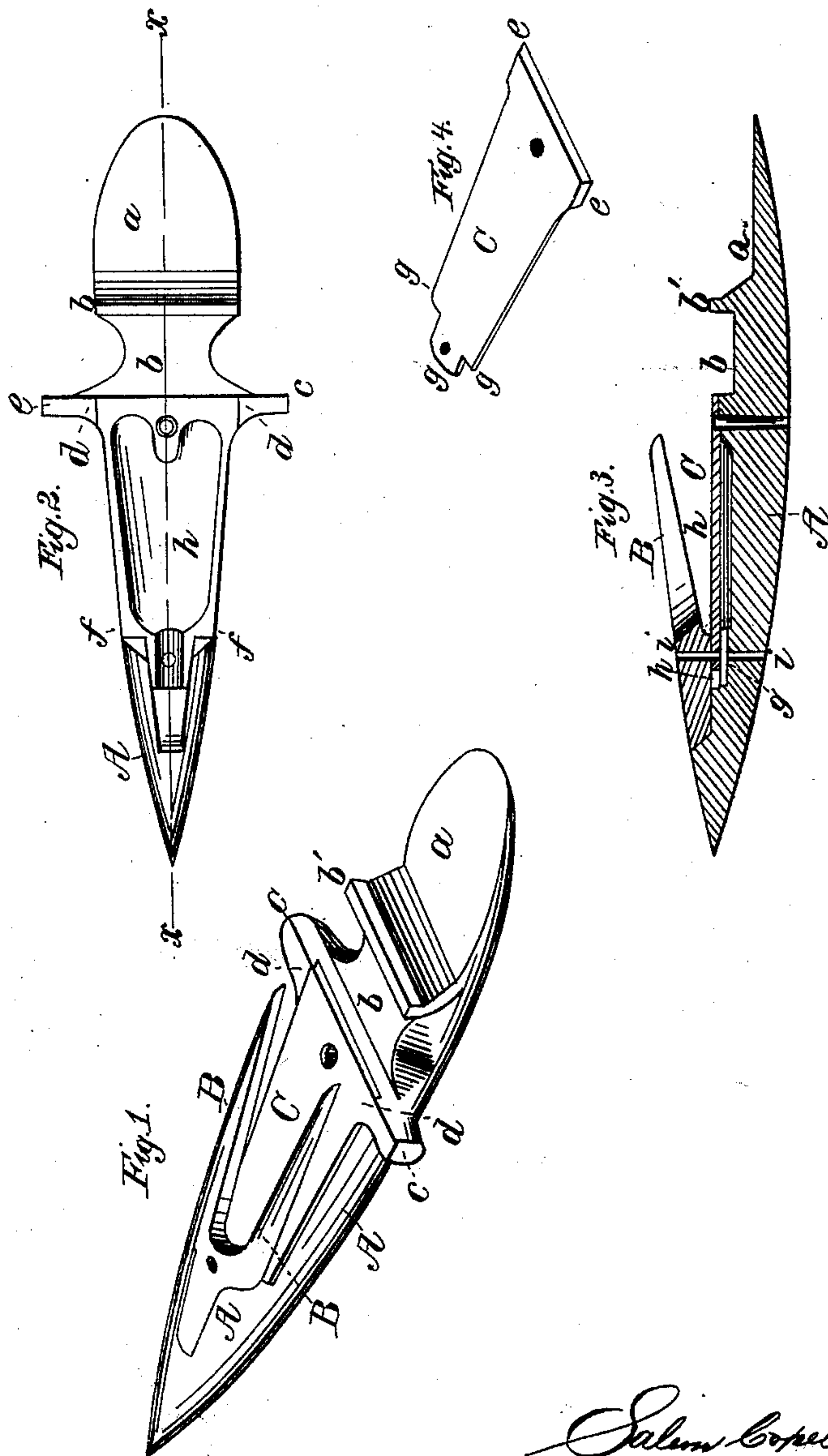


S. COPELAND.
Harvester Cutter.

No. 31,440.

Patented Feb. 19, 1861.



Witnesses *Wm. H. Andrus*
A. C. T. Combs

Salem Copeland
By his Attorney
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UNITED STATES PATENT OFFICE.

SALEM COPELAND, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN GUARDS OR FINGERS FOR REAPING AND MOWING MACHINES.

Specification forming part of Letters Patent No. 31,410, dated February 19, 1861.

To all whom it may concern:

Be it known that I, SALEM COPELAND, of the city and county of Worcester, in the State of Massachusetts, have invented a certain new and useful Improvement in Guards or Fingers for Reaping and Mowing Machines; and I do hereby declare that the following is a clear, full, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents a perspective view of the guard. Fig. 2 represents a plan or top view of the bottom part of the guard with the parts B C, Fig. 1, removed. Fig. 3 represents a section of Fig. 1 on line *xx*, Fig. 2; and Fig. 4 represents a perspective view of the steel face or plate C.

For many reasons cast-iron guards or fingers for mowing and reaping machines are preferable to wrought-iron ones, and they are usually made of malleable iron. The great objection to the common malleable-iron guards is the want of a good cutting-edge against which the cutters can work. To obviate this difficulty various attempts have been made to combine a steel face or cutter-plate with the body of a cast or malleable iron guard. Some of these attempts have been attended with considerable success, but none with which I am acquainted have so far succeeded as to produce a guard to which many objections were not made by the farmer. The guard patented by Hotchkiss and Adriance, June 21, 1859, has been found objectionable, since the steel plate cannot be removed and replaced readily; nor can it even be changed without danger of destroying the rear corners of the guard. Their guard is also liable to the objection that if the guard happens to get bent then the plate works loose, since the front of the plate is left without any support. Still, again, in the mode of fastening the rear of their face or plate of steel-hammering is necessary, whereby indentations are liable to be made in the plates and guard, and the even surface of the guards, so important to the successful operation of the cutters, in a measure destroyed.

To obviate the above objections I have found it necessary to adopt an entirely different mode of combining the plate of steel with the body of the guard or finger.

In the drawings, A represents the main body of the guard, which is to be formed of cast or

malleable iron or other suitable cast metal. The part *a* fits under the finger-beam, and is to be fastened thereto in any convenient manner. The cutter-bar is to work in the groove or recess *b* in front of the projection *b'*, while the cutters are to work over the steel plate or face C, which is first made in the form shown in Fig. 4, and then dropped down upon the upper part of A, so that its rear or widest end will fall in front of the projection *b'*, while its narrow or front end will project in under the forked part B. When in this position the plate will lie between the projections *c c*, with its upper surface even or on a plane with the upper surfaces of *cc*. The plate C is now pushed forward until it assumes the position shown in Figs. 1 and 3, where its rear end is held firmly from going in farther, and also from rising up, in consequence of the rear wedge-projections, *e e*, wedging in between the dovetailed and wedged like inner upper corners or edges, *d d*, of the projections *c c*. This will be readily understood when it is remembered that the parts *ee* of the plate C are widest at the bottom, and also taper inward toward the point of the plate, thus forming a double wedge, as it were, to fit into a corresponding recess between the corners *d d* of the projections *c c*. The shoulders *g g* of the plate C rest against shoulders *f f* on the part A, while the point *g'* enters the open space *h*, which in this instance extends back under the plate C for the purpose of making the guard light. As the front of the plate is supported by the shoulders *f f*, it is not liable to be affected by the bending or springing of the point of the guard, as it would if it were supported by its point *g'* abutting against a shoulder.

The forked part B can be cast with the part A; or it can be cast separate, as shown in the drawings, and united by a screw or rivet; and I have found it quite convenient to pass the rivet through the plate C as well as through the parts B and A, as indicated at *i*, Fig. 3.

If preferred, the rear of the plate C can be fastened to the part A by a rivet, although it is not absolutely necessary, in order to hold the plate.

It will be seen from the foregoing description that the face or plate of steel can be quickly removed and reattached without injury to either part of the guard, while the construction is such that the parts can all be made sepa-

rately and then put together, so that the cutters will have an even and perfect steel plate to work over. The sides of the steel plate C are beveled off on the under side, so that a sharp edge is always presented to the action of the cutters as they reciprocate to cut the stalks of grain or grass. In consequence of the parts *e e* being curved off on their front edges, in connection with a similar curvature on the front edges of the projections *c c*, the cutting apparatus is not liable to become clogged by stalks of grass or grain working back under the cutter-bar, since the curved beveled edges of *e e* are almost sure to sever all stalks, however fine, if they are not cut by the forward part of the cutters.

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

1. Sliding the steel plate or face of a cast or malleable iron guard under dovetailed projections on the body of the guard, substantially as and for the purposes set forth.

2. The combination of the curved and beveled projections *e e* on the steel plate with the curved projections *c c* on the body of the guard, substantially as and for the purposes stated.

3. The combination of the steel plate or face C with the cast or malleable part A, the parts being constructed and combined as and for the purposes set forth.

In witness whereof I have hereunto subscribed my name.

SALEM COPELAND.

In presence of—

E. B. STODDARD,

W. T. DAVIS.