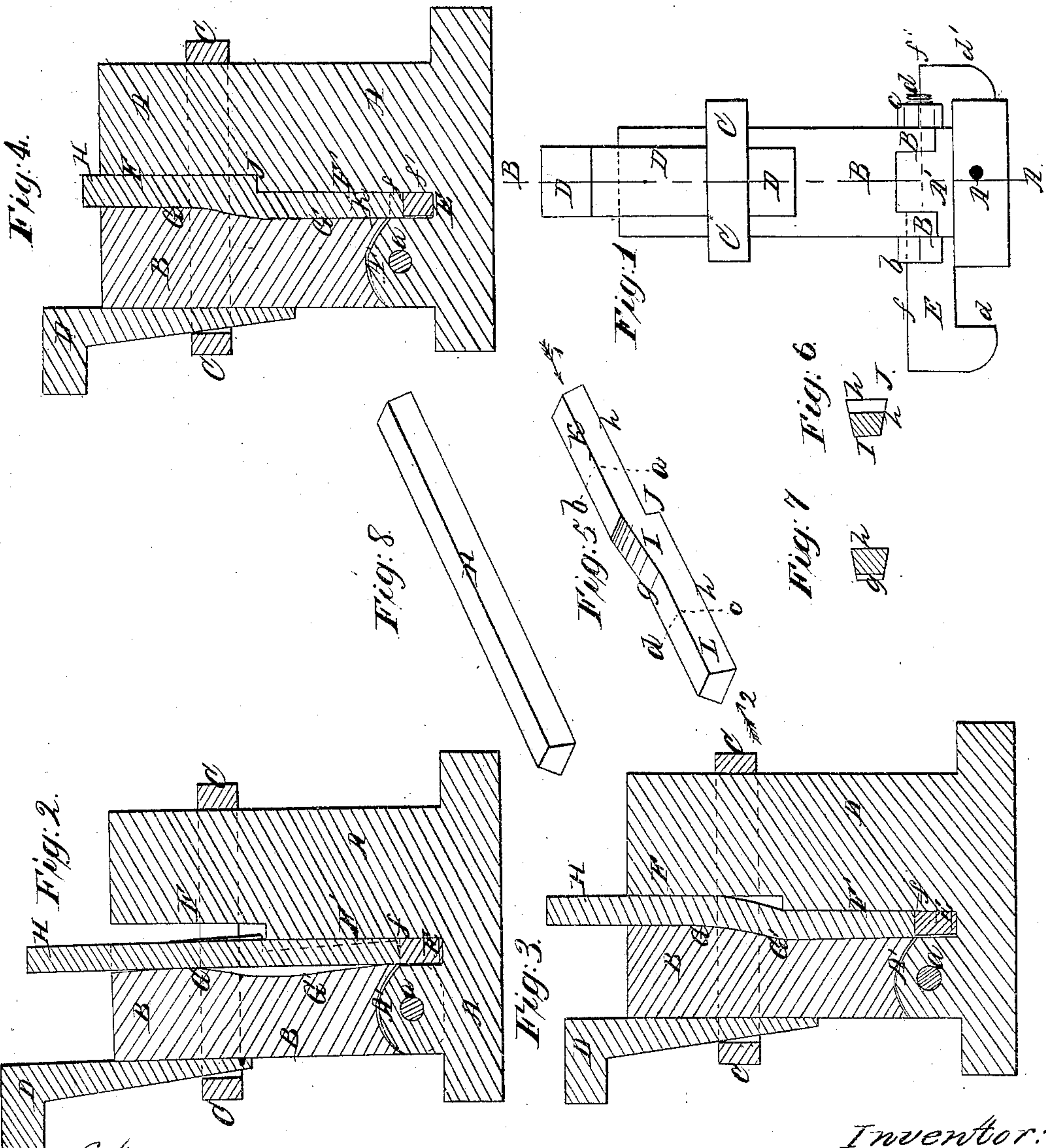


*M. L. Ballard,*

*Harvester Iron,*

*N<sup>o</sup> 31,218.*

*Patented Jan. 29, 1861.*



*Witnesses,  
A. W. D. W. W. W.  
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# UNITED STATES PATENT OFFICE.

M. L. BALLARD, OF CANTON, OHIO.

## MAKING FINGER-GUARDS FOR HARVESTERS.

Specification of Letters Patent No. 31,218, dated January 29, 1861.

*To all whom it may concern:*

Be it known that I, M. L. BALLARD, of Canton, Stark county, in the State of Ohio, have invented a certain new and useful  
5 Machine for Manufacturing Blanks for Wrought-Iron Guards or Fingers for Reaping and Mowing Machines, and which I denominate "M. L. Ballard's improved guard-staving machine;" and I do hereby  
10 declare that the following is a clear, full, and exact description of the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

15 Figure 1 represents a front view of the machine; Fig. 2, represents a section on line A B, Fig. 1, with the jaws A, B, open. Fig. 3 represents a section on line A B, Fig. 1, with the jaws A, B, closed upon the blank H; Fig. 4 represents a similar view after  
20 the blank H, has been forced down to form the shoulder J. Figs. 5, 6 and 7, are views of the perfected blank, and Fig. 8 represents a view of a piece or section of iron H, before  
25 it is operated upon, and out of which the blank I, is formed.

In the drawings A, represents one of the jaws, which in this instance is stationary—having a projection A', to which is hinged  
30 the movable jaw B, by means of bolt or journal *a*, which passes through projection A', and ears B', B', and where it is held by nut *c*, and head *b*. The stationary jaw A, has smooth surfaces F, and F'—the part  
35 F', projecting toward the jaw B, beyond the part F, as shown in the drawings.

The movable jaw B, is grooved out at G, G', so as to give the desired form to the bottom of the blank guard as shown at *g*,  
40 Fig. 5, while it has side lips which fit, when the jaws are closed, the smooth faces F, and F', of the jaw A, on each side of the blank guard.

The bottom rear corner of the jaw B, is cut out so as to permit of the insertion of  
45 the key E, which is provided with projections *d*, *d'*, on the lower side, and with surfaces *f*, and *f'*, on its upper side.

Near the top of the stationary jaw A, is fastened a clasp or ring piece C, which en-  
50 circles both jaws.

The operation is as follows: The section

of iron H, is properly heated near its middle, and then being dropped into the groove G, G', of the jaw B, slides down until it  
55 rests on the surface *f*, of the sliding key E, (the key E, having been first pushed forward so as to bring the surface *f*, under the end of the groove in jaw B,) as shown in section Fig. 2. The operator now drives the  
60 wedge D, down between the jaw B, and clasp C, whereby the jaws are made to close upon the iron H, and bending it into the form shown in section, Fig. 3. Key E, is now driven back, so as to bring the surface  
65 *f'*, under the groove, and consequently under the iron H. The operator now applies a hammer or sledge to the top of the section of iron H, whereby it is forced down in the groove in the jaw B, until its lower end  
70 rests on the surface *f'*, of the key E, as seen in section Fig. 4, thus forming a perfect shoulder J, on the blank guard, and that too, from a piece of iron rolled down to the  
75 proper size to form the shank of the guard.

In Fig. 5, I, represents the blank guard after it has been removed from the machine.

By the use of my machine, wrought iron guards can be manufactured with great rapidity and precision; since the iron can first  
80 be rolled down to the proper size to form the shank K, and then cut up into sections H, after which the shoulder J, and curved back *g*, are (by simply heating the middle of the piece and subjecting it to the action of my  
85 machine) formed as above set forth.

It will be observed that the shoulder is formed by "staving up" section H, near its middle, thus obviating all necessity of draw-  
90 ing down a large bar to form the shoulder J.

Fig. 6, represents a section of the blank guard on line *a b*, Fig. 5, looking in the direction of arrow 1—the guard being represented as turned up sidewise; while Fig.  
7, represents a similar view on line *c d*, Fig. 5, looking in the direction of arrow 2.

*h, h*, represents the plane surfaces formed by the jaw A. The point L, of the blank guard can now be drawn out and bent up  
100 over to form the lip of the guard in any known manner—a thin piece of steel being first welded on the surface *h*, of the point L, if preferred.

Having described my invention, what I

claim and desire to secure by Letters Patent, is:

1. The combination of jaw A, with its plane surfaces F, F', and jaw B, with its groove G, G', with clasp or ring C, and wedge D, or their equivalents for the purposes stated.

2. In combination with the jaws A, and

B, the sliding key E, as and for the purposes set forth.

In witness whereof I have hereunto signed my name.

M. L. BALLARD.

Witnesses:

A. G. ALLEN,

DANIEL GOTSHALL.