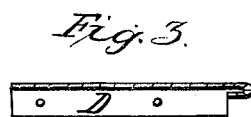
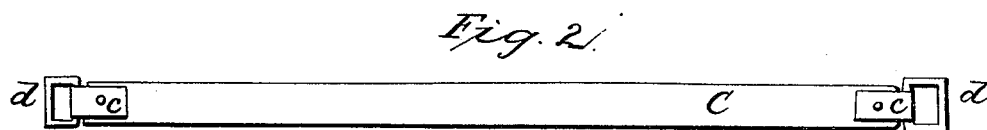
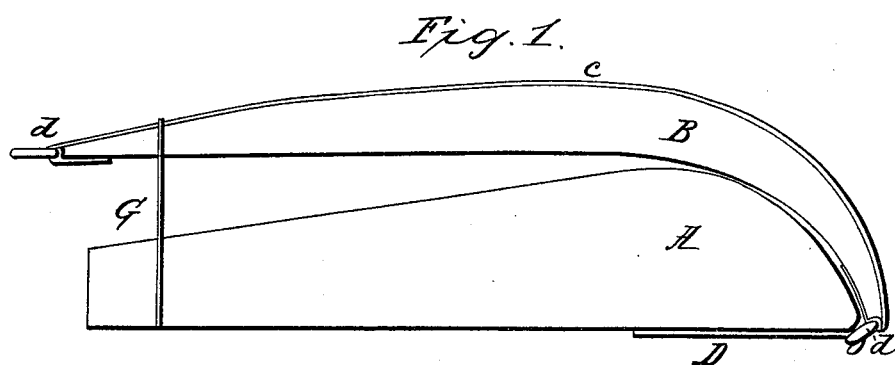


*A. Gardner,*  
*Bending Wood.*  
*N<sup>o</sup> 6,934. Patented Dec. 11, 1849.*



# UNITED STATES PATENT OFFICE.

ABEL GARDNER, OF BUFFALO, NEW YORK.

## APPARATUS FOR BENDING HAMES.

Specification of Letters Patent No. 6,934, dated December 11, 1849.

*To all whom it may concern:*

Be it known that I, ABEL GARDNER, of the city of Buffalo, county of Erie, and State of New York, have invented a new and improved mode or method of bending the hame wood and the iron appertaining thereto which I denominate Gardner's Hame-Bending Device; and I do hereby declare the following to be a full and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is the side view of the bending block with the hame, and iron attached, strained upon it. Fig. 2 is a side view of the hame. Fig. 3 perspective view of the hook detached; Fig. 4 a transverse section of the hame, and iron showing the constructed form of the hame. The parts comprise A the bending-block, B the hame-wood (bent), C the iron, D the hook, *d, d*, links and G the cord or ligature.

The bending-block A is made of hard wood (or metal) of the form shown in Fig. 1. One edge is straight and the other (against which the hame is bent) is suitably curved at the end and continued afterward in a straight direction lessening gradually in width toward the other end. The thickness of the bending block should exceed the sectional width of the hame in the largest part. The hook D is made of metal of sufficient strength and is attached opposite to the curved end of the block on the straight edge by screws or rivets and so placed that the link *d* will pass over it, making fast to the hook D during the bending of the hame (as seen in Fig. 1).

The hame wood B I make by planing or shaving the wood to the size required allowing but little fullness for shrinking and finishing. The iron C is then bent at the points where they are to pass over and hold the ends of the hame wood, the links *d d* inserted, and if necessary I put a rivet through the wood and iron near each end of the hame-wood. I then immerse in hot water (or soften by any suitable process) for 15 or 20 minutes, as the nature of the wood may require, so far along the hame as I wish to bend to the curve of the bending-block; couple the iron C by means of the link *d* to the hook D of the bending block which I have fastened in a vise (or which

may be fastened otherwise), strain the hame-wood and iron C, thus hooked to the bending block, to the form of said block and fasten it by a cord or ligature to retain the hame in its curved position. I then remove the block and hame thus attached to a kiln or to the fire or any suitable place, to dry, move them about as may be convenient, always letting the hame remain strained upon the block till it has become hardened and will retain its curved shape. After the hame has become sufficiently hardened to admit, the ligature is removed the iron C or link attached is unhooked or removed, from the hook D, and the hame is then finished as the workman may desire.

The advantages resulting from my invention are: 1st, an almost certainty of losing no hame wood which is sound, by breaking or fracture—for the effect of the attachment of the iron C with the hook D is such, as to fully preserve the continuity of the wood while bending; 2nd, it is much more convenient than the common mode—for the block is easily fastened in the vice and the hame-wood, being worked down to nearly its proper size is bent by the application of much less power, than by the common way, of bending a stick much larger than the size of the hame, when worked down, and fitting the wood to the pattern after being bent; 3, it increases the facility of drying or hardening the wood after it is bent—there being less wood to dry than by the common mode of manufacture and the hame can be more easily placed in position to dry or harden to the curve of the block; 4, my invention fits more completely the hame iron, it being true upon the wood while straight and then by attaching the iron to the hook D and bending the same in a curved form the iron becomes the outside of the curve and as the curve is increased the iron draws tighter, and being fastened at both ends the wood must settle close to it; 5th, in the common mode, after the wood is bent it is then worked down to a pattern and this has to be varied according to the size of the collar to which it must be applied. By my device the hame is fitted to a large or small collar by lessening its curve and this is done by merely shortening or lengthening the endless ligament or string G (as seen in the drawings); 6th, it requires but little time or labor to fit the hame iron while the wood is

straight and it is easily bent to the wood,  
and both are done by the same process at the  
same time.

What I claim as my invention and wish  
5 to secure by Letters Patent is—

The process of bending hames, by means  
of the combination of the hook piece D and

the iron strap C, made fast at the ends in  
the manner and for the purpose herein fully  
set forth.

ABEL GARDNER.

Witnesses:

V. M. RICE,

WM. R. CLEVELAND.