J. B. Siegfried,

Crozing Staves.

No. 82,163. Patented Sep. 15, 1868.

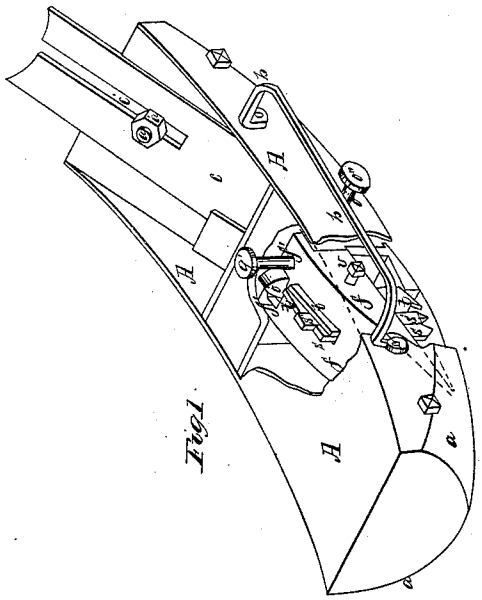

Fig 1.

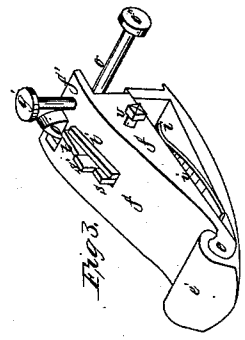

Fig 3.

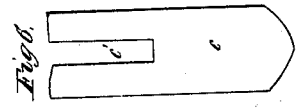

Fig 6.

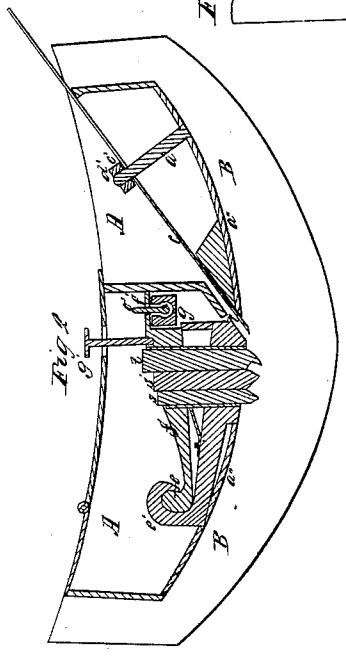

Fig 2.

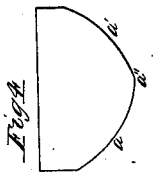

Fig 4.

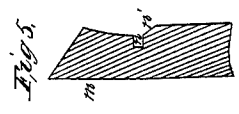

Fig 5.

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United States Patent Office.

JACOB B. SIEGFRIED, OF PITTSBURG, PENNSYLVANIA.

Letters Patent No. 82,163, *dated September* 15, 1868.

IMPROVEMENT IN HOWEL AND CROZE.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JACOB B. SIEGFRIED, of the city of Pittsburg, in the county of Allegheny, and State of Pennsylvania, have invented a new and useful Improvement in Howel and Croze; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification, in which—

Figure 1 is a perspective view of my improved howel and croze, with a part of the case broken away in order to show the cutters.

Figure 2 is a section formed by a plane passing longitudinallv through the howel and croze, in the plane of the cutters of the croze.

Figure 3 is a separate view, in perspective, of the crozing-cutters or chisels, and of the frame in which they are set.

Figure 4 gives, in plan view, the end of the case, showing the shape of the opposite working-faces.

Figure 5 shows, in section, the end of a barrel-stave as finished by my improved tool; and

Figure 6 is a face view of the cutting-end of the howelling-bit.

Like letters of reference indicate like parts in each.

Tools for howelling and crozing barrels have heretofore usually been made separate; that is to say, one tool being a howel and the croze another. The howel is usually curved longitudinally to the same radius as that of the end of the barrel, and in cross-section has a face of uniform curve. By this tool, the inner face of the barrel, in the line of the crozing to be done, is smoothed off, and a broad shallow groove is cut. By the use of a croze, a deep narrow groove is then cut in the bottom of this shallow groove, in which to place the circular edge of the barrel-head.

The nature of my invention consists—

First, in making a combined howel and croze, whereby, by the use of one tool, the work of both may be done with equal ease and greater rapidity.

Second, in making the face of the combined tool of surfaces so curved that if cut transversely by a plane, the lines of intersection of the plane with the working-face of the tool will consist of two or more curves of different radii, or of a common radius from different centres, such curves being united in the line of the cut of the crozing-chisels, by a line straight or nearly so, and equal in length to the breadth of the cut of the crozing-chisels.

Third, in making a howelling-bit with an edge to correspond to the curves of the working-face of the howel, as above described.

Fourth, in adjusting the cutters of the croze in a box or frame hinged in the case of the howelling-tool, in such way that the howel may be used with or without the croze; and

Fifth, in the construction and combination of the peculiar devices employed.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and manner of use.

A is the case, the lower faces of which, *a a′ a″*, make up the working-face of the howel. Longitudinally, the curvature of the working-face is the same as that of the inside of the barrel to be made; but instead of making such working-face of uniform curvature in cross-section, as has heretofore been generally done, I make it of two or more curves, *a a′*, either of different radii, as in fig. 4, or with the same radius from different centres, such centres being so chosen that radii leading from such centres to the opposite curves shall intersect each other. The former mode of construction I prefer. The object to be accomplished will presently be explained. These curved surfaces *a a′* are united by a surface, *a″*, curving longitudinally with the tool, but straight, or nearly so, in cross-section or end view, as shown in fig. 4. The breadth of the face *a″* is equal to the breadth of the cut of the crozing-chisels *s s′ t*.

Attached to the case A, on its upper side, is a guide-board, B, which, when the tool is in use, slides on the

ends of the barral-staves, and which also serves as one of the handles for operating the tool. To the lower side of the case A is attached a handle, *b*, for a like use.

In the rear part of the tool is the howelling-bit, *c*, its edge projecting through the working-face, just back of the middle of the tool. It is similar in construction to a plane-bit, except that it has a curved edge, or an edge made up of two or more curves. It is also slotted, as at *c'*, so that by a fixed post, *d*, and nut *d'*, it can be adjusted to greater or less depth of cut.

In the forward part of the case A is hung, by a ball-and-socket or hinge joint, *e e'*, a box or frame, *f*, through a mortise, in which are inserted the cutters *s s' t*. These cutters, when in use, project through the working-face, at or a little forward of the middle point thereof, a little forward of the centre of the edge of the bit *c*, and in the line of the joining of the curves *a a'* or in the face *a''*, such face being mortised for that purpose. These cutters are held in place by a set-screw, *u*, working against a plate, *t'*. By loosening this screw *u*, the cutters *s s' t* may be adjusted higher or lower, or be taken out to be sharpened or changed. The forward cutter, *s*, is bevelled and sharpened like a saw-tooth, to cut one side of the groove *n* in the barrel-stave *m*. The next cutter, *s'*, is bevelled and sharpened, to cut the other side, and the last cutter, *t*, has a square or oblique-pointed bit, which cleans out the bottom of the groove *n*. A spring, *i*, acts against the lower part of the frame *f*, and keeps the cutters *s s' t* inside the case A when it is not desired to use them.

Extending from one side to the other of the cace A is a hollow cross-bar, *g*. Through it extends a rod, *o*, and to it is attached a hook or catch, *o'*, the latter being so actuated by a spiral spring that when the frame *f* is pressed down by pressure applied on the head *g'*, the slotted lip *f'* will pass down over the catch *o'*, be caught and held by it. The cutters *s s' t* will then project slightly below the working-face *a''*, as in fig. 2, and the tool be ready for use.

By the use of a howel and croze thus made, the ends of the staves of a barrel can be easily and rapidly shaped, as shown in fig. 5, to receive the head. The bit *c*, it will be observed, has two cutting-edges, *x x'*, each one a curve, the curvature of the one, *x*, being such as is required for use with the curved face *a*, and that of the other, *x'*, corresponding in like manner to the curvature of the other face, *a'*. If desired, the point will be made square, to correspond to the shape of the face *a''*. The lower face, *a'*, it will also be observed, and also the lower edge, *x'*, are curves of the longer radii, so that the lower part, *n'*, of the howelling, fig. 5, below the groove *n*, is not so long as the upper part; hence less cutting has to be done, and at the same time a full shoulder is left in the chime of the stave above the groove *n*, to support the head of the barrel. Hence, with the least possible outlay of labor, I do all the howelling and crozing required, and do it rapidly and well, and with a single tool. The cutters *s s' t* of course cut the groove *n*, as already stated.

If the inner face of the staves of the barrel be rough or uneven, it is sometimes advisable to use the howelling-chisel *c* first, and the crozing-cutters afterward. In such case, by pressing on the head *o''*, attached to the rod *o*, I throw the hook *o'* back, so that the lip *f'* is released. The spring *i* then raises the frame *f*, and the bits of the cutters *s s' t* are raised up inside the case A. Then, by the howelling-bit *c*, the staves are smoothed off in the line of the groove *n*. The cutters *s s' t* are then again brought into use, as already described, and with the results stated.

As already mentioned, the working-faces *a a'*, instead of being curved to different radii, may have the same curvature, but in such case they should be so adjusted in the tool that the radii of the one should cross those of the other; but if so preferred, the curves may be irregular, their deflection from a circular form being toward each other, so as to lessen the amount of cutting to be done back from the groove *n*. The curves of the cutting-edges *x x'* of the bit *c* should in any such case be made to correspond.

The particular advantages I claim are, first, I make one tool adapted to do the work for which two tools have heretofore been required, saving cost in construction, and time and labor in operation; second, by making the working-faces as described, I lessen the amount of cutting to be done by the howelling-chisel; third, a more convenient mode of affixing and adjusting the crozing-cutters; and, fourth, making a tool which may be used for howelling alone, or for both howelling and crozing.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In the case of a howel, or of a howel and croze, the opposite working-faces *a a'*, made substantially as described, and either with or without the flat face *a''*, for the purposes set forth.

2. A howelling-bit, *c*, made with two or more curved edges, *x x'*, to correspond to the shape of the working-faces *a a'* of a howel-case, substantially as above described.

3. The construction of a combined howel and croze, the cutting-bits of the croze being placed at or a little forward of the centre of the working-face of the howel, and the howelling-bit just back of the centre, substantially as and for the purposes set forth.

4. The frame *f*, as a box or case for the crozing-chisels, hung in the combined tool by a ball-and-socket or hinge joint, or other equivalent device, and operated substantially as and for the purposes above set forth.

In testimony whereof, I, the said JACOB B. SIEGFRIED, have hereunto set my hand.

JACOB B. SIEGFRIED.

Witnesses:

ELL TORRANCE,

G. H. CHRISTY.