J. S. Graham,

Cutter Head.

No. 64,308. Patented Apr. 30, 1867.

Fig. 1

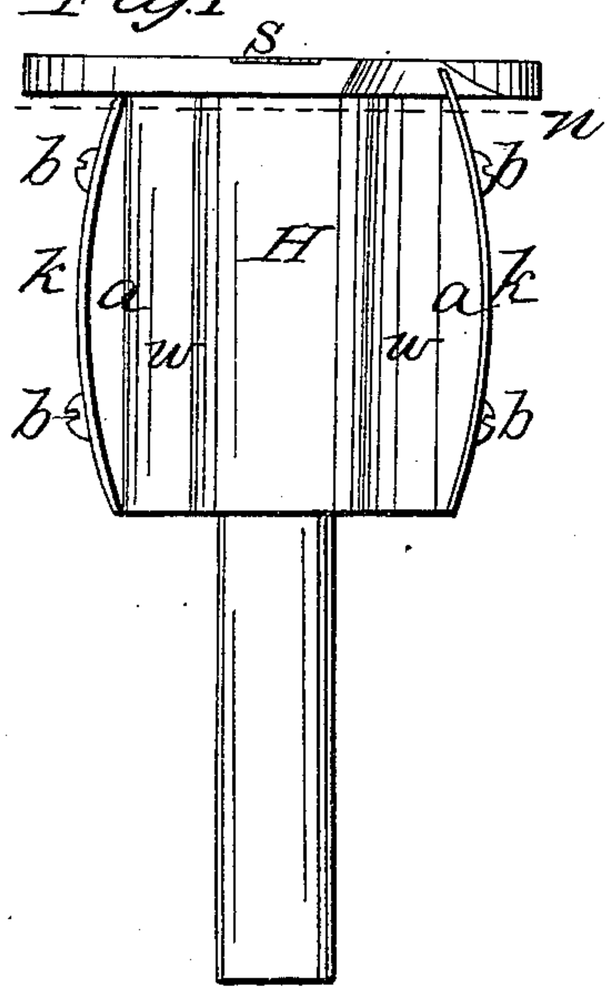


Fig. 2

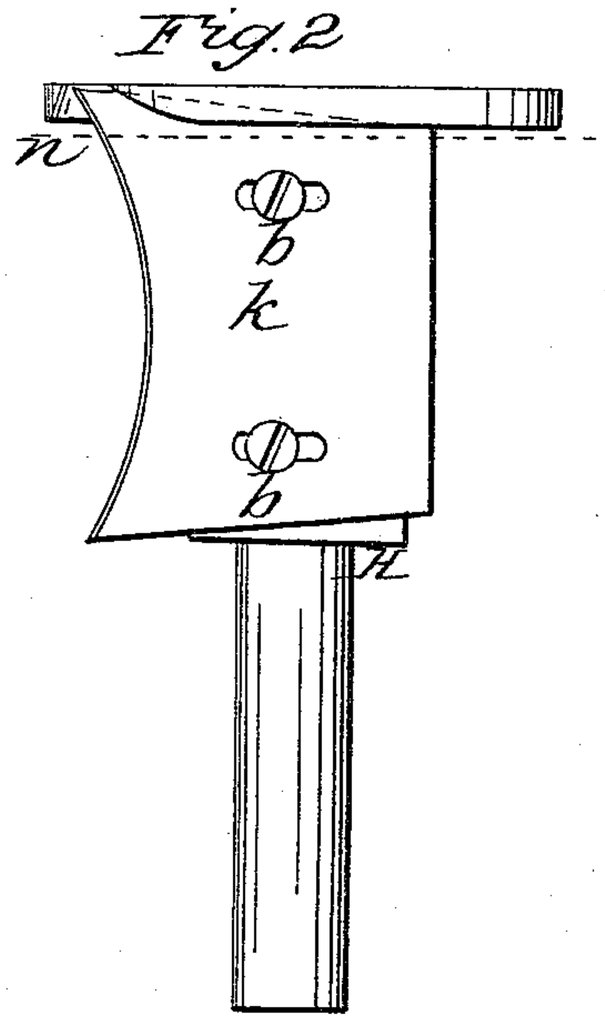
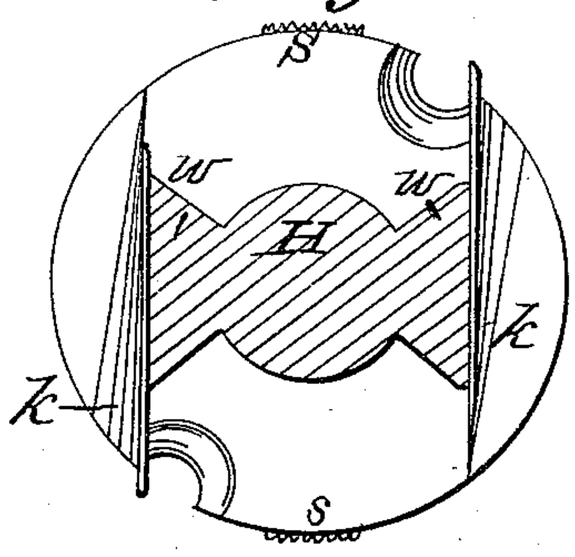


Fig. 3



Witnesses:

Wm. C. Longsborough

P. J. Turner

Inventor:

James S. Graham

United States Patent Office.

JAMES S. GRAHAM, OF ROCHESTER, NEW YORK, ASSIGNOR TO HIMSELF AND C. R. TOMPKINS, OF THE SAME PLACE.

Letters Patent No. 64,308, *dated April* 30, 1867.

IMPROVEMENT IN TENONING CUTTER-HEADS.

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, JAMES S. GRAHAM, of Rochester, in the county of Monroe, and State of New York, have invented certain new and useful improvements in the construction of the "Cutter-Heads for Tenoning Machines;" and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a top view of the head H, showing the curved shape of the bed to which the knives *k* are bolted.

Figure 2 is a similar view of the head, but turned so as to show the back of one knife and its curved edge.

Figure 3 is a transverse section of the same, taken in the plane of the red line *n* in figs. 1 and 2.

Like letters indicate like parts.

The ordinary cutter-heads of tenoning machines, in order to effect a shearing stroke or cut, have the knives attached to an oblique bed, or on an angle to the axis of the head, and consequently when a tenon of four inches or more in length is to be cut, there must be two or more knives attached to the same side of the cutter-head.

The object of this invention is to accomplish the same result with a knife reaching the whole length of the tenon; and it consists in providing a circular bed for the knives of the cutter-heads of this class of machines, and making the knives with curved edges, whereby a shearing cut is effected, and one knife is made to cut the whole length of the tenon.

To enable others to make and use my invention, I will describe its construction and operation.

I construct the head, H, in the usual skeleton form, but I curve the knife-bed or seat, *a*, on the wings *w*, longitudinally, about as shown in fig. 1. I then curve the knives *k* to nearly fit this curve, leaving them a trifle straighter than the curve of the bed. The knives are then firmly secured to the head by the screw-bolt *b*. The curve of the edge of the bits or knives is nearly formed in the rough before being attached to the head. The head is then put in the lathe and the edge of the knives turned off so as to constitute a perfectly cylindrical cutter, every point on the edge being equidistant from the centre of the head, after which the desired bevel is ground on. By means of this curve in the cutting edge of the knives *k*, a shearing stroke or cut is produced upon the stick which is being tenoned. A similar effect might be produced by making straight bevels from the centre of the beds *a* each way toward the ends of the head. This would require the edge of the knives to be straight from the centre angle to the ends. It will be seen, also, that the bed *a* for the knives may, whether curved or V-shaped, be reversed and made higher at the ends, which would make the leading point in the cutting edge of the knives in the centre. I use the ordinary spurs, *s*, either with a serrated edge or a fleam point, as may be desired.

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

The arrangement of the knives or cutters *k*, constructed substantially as shown and described, upon the longitudinally-curved bed *a* of the head H of tenoning machines, for the purposes herein set forth.

JAMES S. GRAHAM.

Witnesses:

WM. S. LOUGHBOROUGH,

P. T. TURNER.