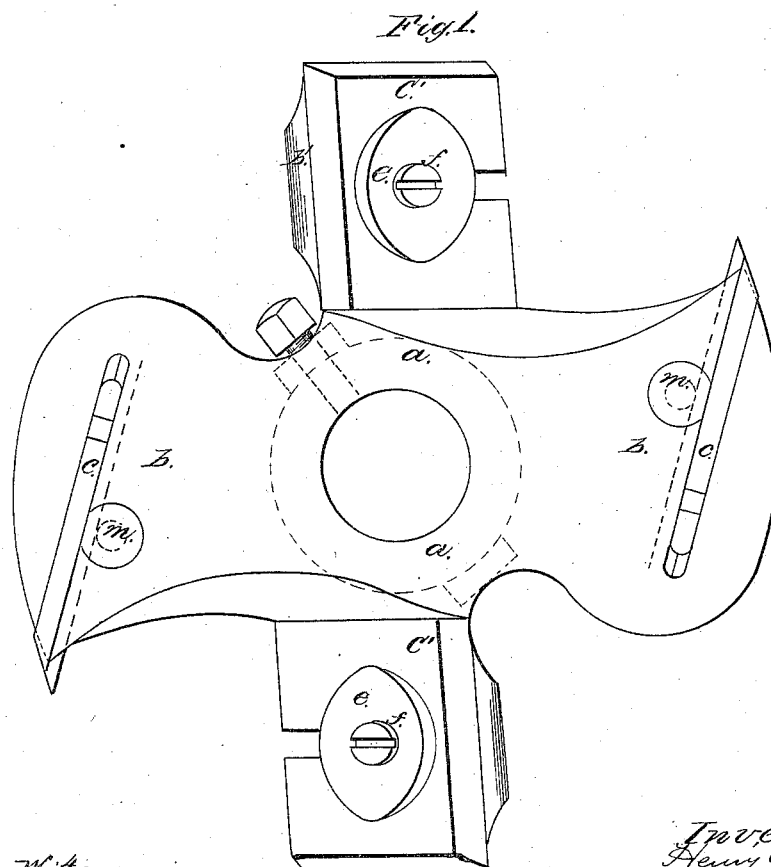
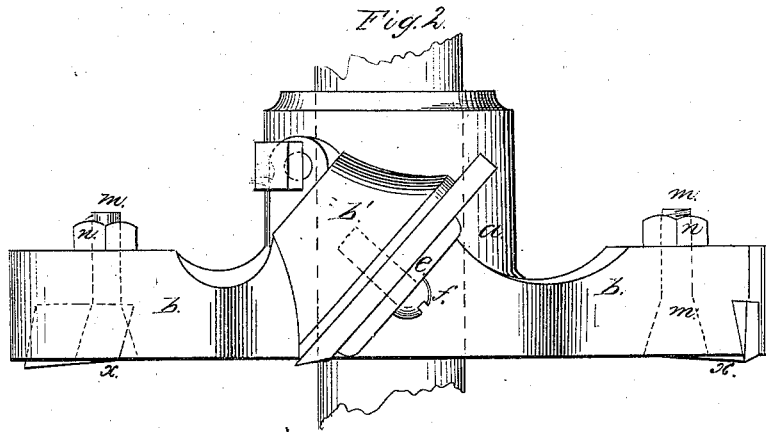


*Climer & McBeth*

*Cutter Head*

*N<sup>o</sup> 113,262.*

*Patented Apr. 4, 1871.*



*Witnesses:*  
*A. L. Peck*  
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*Inventor's:*  
*Henry Climer*  
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*by their attys.*  
*A. L. Peck*

# United States Patent Office.

HENRY CLIMER AND CHARLES E. McBETH, OF HAMILTON, OHIO.

Letters Patent No. 113,262, dated April 4, 1871.

## IMPROVEMENT IN CUTTER-HEADS FOR PLANING-MACHINES.

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

### *To all whom it may concern:*

Be it known that we, HENRY CLIMER and CHARLES E. McBETH, of Hamilton, in Butler county, Ohio, have invented certain new and useful Improvements in Panel-raising Heads for Planing-Machines; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

Figure 1 represents a side view of our cutter-head.

Figure 2 represents an edge view of same.

We denominate this new device a skeleton cutter-head, to distinguish it from that class of cutter-heads made of circular form, and which is provided with radial slots for the insertion of the bits, and to discharge the chips and shavings.

The slotted disk-formed cutter-head is objectionable on account of its size, which was a necessity to prevent breaking, as the slots extended from the periphery to near its center.

The disk or central portion of our cutter-head is enlarged, and may properly be called a hub, which is denoted by letter *a*.

The four radial arms *b b'* serve as seats for the bits *c c'*.

The narrow bits *c* are only equal in width to one-half of the thickness of the arms in which they are seated.

The grooves in which these bits *c* are placed are of less depth at the periphery of the arms *b* than at the interior portion.

The bottom of these grooves form an inclined plane in relation to the face of the cutter-head, and consequently the bits *c* will stand out laterally, (near the periphery of the arms,) beyond the face *A* of the cutter-head, as seen at *x*, fig. 2.

The object of this arrangement of the bits *c*, with their outer corners projecting beyond the face of the cutter-head, is to give "clearance" in working, which prevents friction.

The bits *c* are secured in their seats by means of the bolts *m*, seen in dotted lines in fig. 2, and the nuts *n* retain the bolts *m* in place.

The wide smoothing-bits *d* are secured upon the angular arms or seats *b'*, without a cap, by means of a screw and washer *e f*, and both of the bits are accessible to be sharpened without removing them from their seats.

The narrow and wide bits work in the same plane with the face of the cutter-head.

The narrow bit *c* removes the bulk of wood, while the broad smoothing-bit *d* finishes the work.

Heretofore the two bits (or pairs) have been placed upon the same side of a disk, and have been so arranged that their edges were inaccessible, without removing them, to be sharpened.

Both of the bits constituted but a single angular bit, as before used, and as the narrow portion, working against the grain of the wood, would wear out faster than the broad smoothing portion, there was a necessity of grinding down the edge of the smoothing-bit to correspond in length with the shortened narrow bit. Besides, the fact that both bits were made in one piece of metal, and located at the same point upon the cutter-head, greatly weakened the latter.

The form of our cutter-head enables the attendant to readily adjust the bits for all kinds of work for which they are designed.

The circular panel-raising heads would not admit of measurement between the bits, as may be done in the using of our improvement; but in the use of the others trials had to be made to ascertain the proper adjustment for tenons of different lengths.

It has been remarked that the slot in which the narrow bit *c* is inserted is increased in depth from the periphery (or point of the bit) to the rear or heel of the slot, and it is also formed at an angle to the face of the cutter-head, so as to give clearance, and also cause the bit to make a shearing cut.

By experiments and trials we have proved that this form of cutter-head is superior to others, because it is capable of resisting greater strain, is of smaller dimensions, is cheaply fitted up for use, it affords free discharge of chips, is accessible to measure and adjust the bits, and the bits may be sharpened without removing them from their seats.

Our improved cutter-head may be safely used, and may be relied upon for accuracy of operation.

Having fully described our improvement in cutter-heads for planing-machines,

What we claim, and desire to secure by Letters Patent, is—

The cutter-head provided with arms *b b'* and bits *c c'*, constructed and arranged in relation to each other in the manner substantially as and for the purpose described.

In testimony whereof we have hereunto set our hands this day of June, 1869.

HENRY CLIMER.

CHARLES E. McBETH.

Witnesses:

HENRY HOENF.

H. A. EDWARDS.