

No. 630,749.

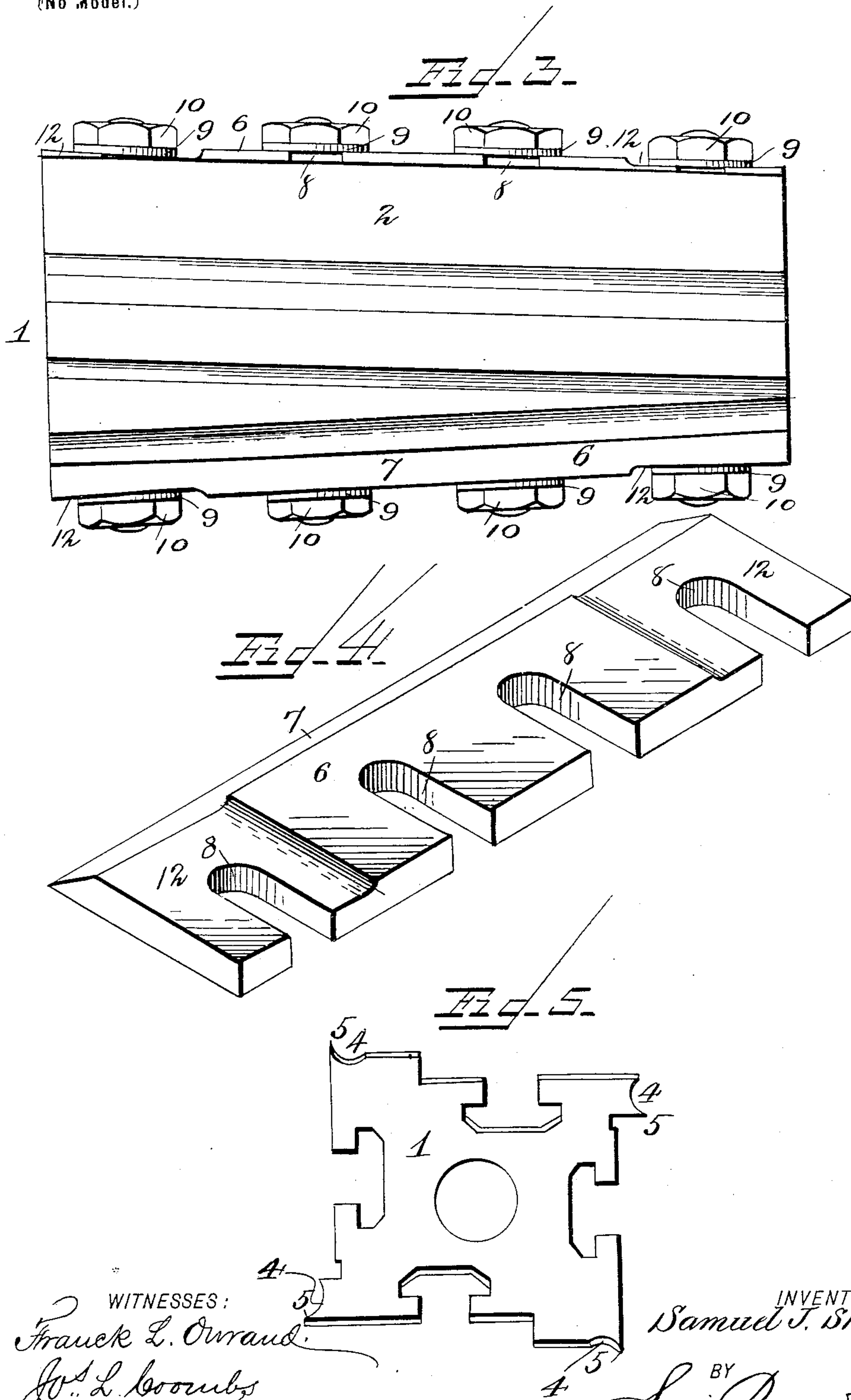
Patented Aug. 8, 1899.

S. J. SHIMER.
TRAPEZOIDAL CUTTER HEAD.

(Application filed May 10, 1899.)

2 Sheets—Sheet 2.

(No Model.)



WITNESSES:
Frauck L. Ormand.
W. L. Coombs

INVENTOR:
Samuel J. Shimer
BY
Sam Ragner & Co.
ATTORNEYS.

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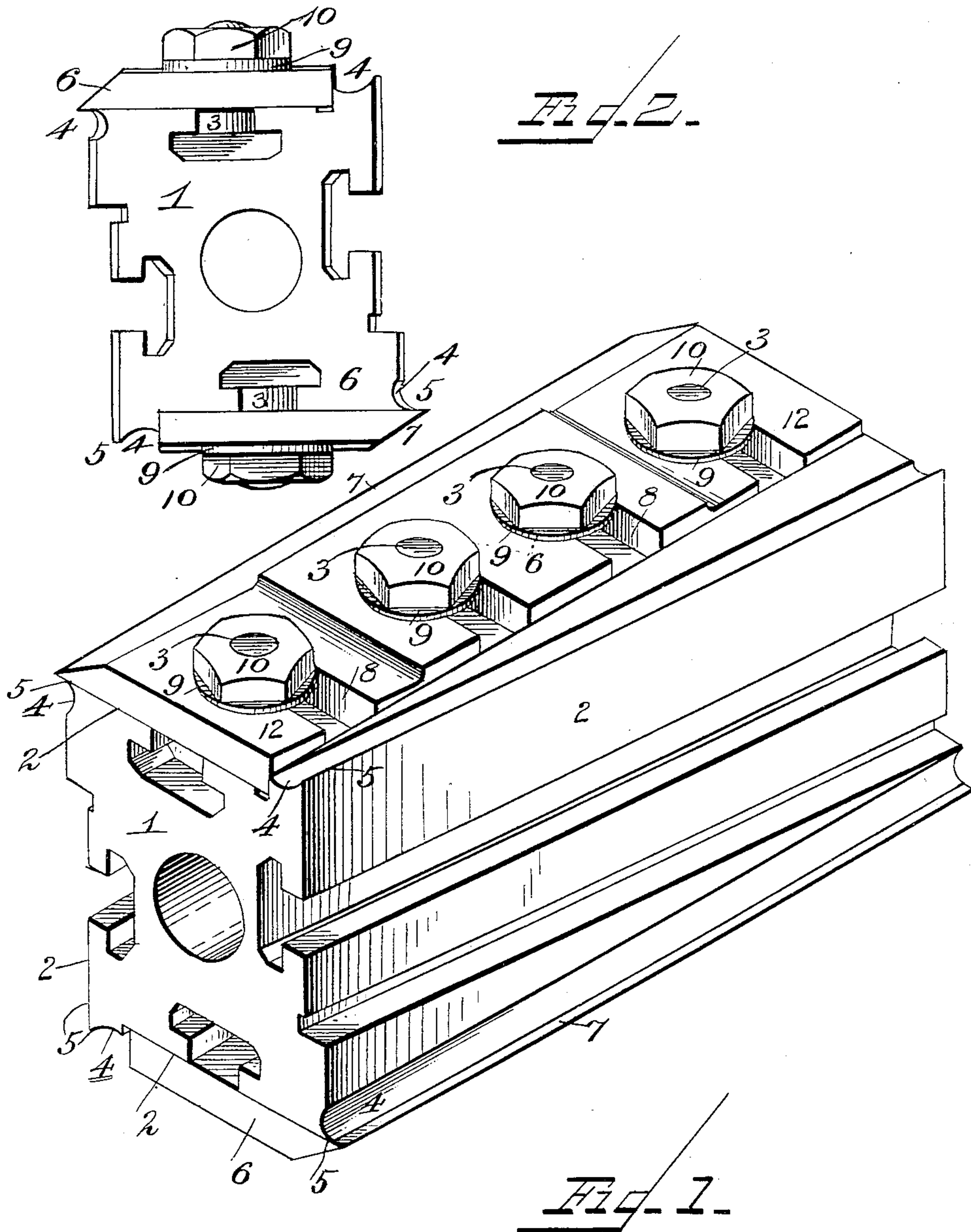
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WITNESSES:
Frauck L. Ourand,
Jo. L. Coombs

INVENTOR:
Samuel J. Shimer
BY
Sam. Pappas & Co.,
ATTORNEYS.

UNITED STATES PATENT OFFICE.

SAMUEL J. SHIMER, OF MILTON, PENNSYLVANIA.

TRAPEZOIDAL CUTTER-HEAD.

SPECIFICATION forming part of Letters Patent No. 630,749, dated August 8, 1899.

Application filed May 10, 1899. Serial No. 716,309. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL J. SHIMER, a citizen of the United States, residing at Milton, in the county of Northumberland and State of Pennsylvania, have invented new and useful Improvements in Trapezoidal Cutter-Heads, of which the following is a specification.

My invention relates to trapezoidal cutter-heads for wood-planing machines and to the knives used in connection therewith. These heads are formed with four convex sides or faces alternately inclined longitudinally in opposite directions, forming seats for the cutters, whose cutting edges are diagonal to the axial line of the head, whereby a shearing cut is made upon the board being cut. The cutters employed consist of flat knives having straight cutting edges, which knives are sprung down upon and bolted to the said convex sides or seats, so as to give the requisite convexity to said edges, whereby all points thereof will lie within the cylinder of rotation of the head.

The object of the invention is to provide an improved construction of such heads in which chip-breaks are formed with curved recesses, forming sharp edges, so as to admit of the said cutters or knives being pressed down upon the very edge of the chip-breaks with the requisite pressure, making a close joint and preventing fine dust and shavings from being embedded between the cutters and chip-breaks.

It is also an object to provide an improved construction of cutter or knife for use with said head, whereby a tight joint will be made between the same and the said concave seat or side throughout the entire length.

The invention consists of the novel construction and combination of parts hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a trapezoidal cutter-head constructed in accordance with my invention. Fig. 2 is an end view of the same. Fig. 3 is a side elevation. Fig. 4 is a perspective view of one of the cutters or knives. Fig. 5 is an end view of the head.

In the said drawings the reference-numeral 1 designates the cutter-head, formed with four convex sides 2, alternately inclined longitudinally in opposite directions and formed with

longitudinal T-grooves extending from end to end for receiving the bolts 3, which hold the cutters or knives in place.

The numeral 4 designates the chip-breaks formed by undercutting the head sides in a curved line, whereby a sharp edge 5 is provided. This will allow the cutters or knives to be pressed down upon the sharp edge with the requisite pressure, thus insuring a tight and close joint.

When cutters or knives are employed in this class of heads which are of an equal thickness throughout their entire length, the clamping pressure upon the chip-break will be ineffectual, as the end bolts control the curvature between their centers only, the tendency of the ends of the cutters or knives outside the centers of said end bolts being to spring away from the chip-break, so that the joint between the same will not be so close and tight as to insure the best results when in use. This is caused by the greater convexity of the sides of the head near the ends, whereby the pressure of the nuts of the end bolts is not exerted squarely upon the cutters or knives, but is confined to the inner sides of the nuts. To remedy this defect and provide a cutter or knife which can be clamped uniformly to the head, so as to form a close and tight joint throughout the entire length, I construct the cutter or knife as follows.

The numeral 6 designates the cutter or knife, consisting of a flat rectangular blade or piece of steel having the front edge beveled, forming a straight cutting edge 7. In the rear side the said cutter or knife is formed with transverse slots 8 for the passage of the screw-bolts 3. The heads of these bolts rest in the groove in the head 1, while the shanks project through the said slots and are provided with washers 9 and nuts 10. The ends of said cutter or knife at the upper surface are cut away on an inclined line, forming an inwardly-inclined plane 12—that is to say, the outer ends of said inclined planes are thicker than the inner ends or where they join the body of the knife or cutter. The end slots for the bolts are formed in these cut-away portions. The inclination of these cut-away ends is so proportioned with respect to the convexity of the sides of the head that when the cutter or knife is sprung down upon

and bolted to said sides the said inclined planes will be in substantial parallelism with the axial line of the head, thus allowing the nuts to press squarely upon the cutter or
5 knife, whereby the full clamping pressure will be exerted uniformly thereupon and the ends of the cutters or knives be forced tightly upon the heads, making a close joint.

Having thus fully described my invention,
10 what I claim is—

1. As an improved article, a cutter or knife for a trapezoidal cutter-head, consisting of a flat rectangular blade beveled at the front sides forming straight cutting edges and at
15 the rear side with bolt-slots, and the ends of said cutter or knife where the end slots are situated being cut away on their outer surfaces forming inwardly-inclined planes, substantially as and for the purpose specified.

20 2. The combination with a trapezoidal cutter-head having four convex sides alternately inclined longitudinally in opposite directions and formed with longitudinal grooves to receive holding-bolts, of the rectangular cut-
25 ters or knives beveled at the front ends forming straight cutting edges and at the rear

formed with transverse slots, and the ends of said cutters or knives at the outer surfaces cut away forming inwardly-inclined planes where the end slots are located, and the bolts
30 and nuts, substantially as described.

3. The combination with a trapezoidal cutter-head having four convex sides alternately inclined longitudinally in opposite directions and formed with chip-breaks having curved
35 longitudinal recesses and sharp edges, and said heads formed with longitudinal grooves, of the cutters or knives sprung down and bolted to said convex sides consisting of the rectangular blades formed with straight cut-
40 ting edges and with bolt-slots in the rear sides and the ends of said cutters or knives cut away at their outer surfaces forming inwardly-inclined planes, the bolts and the
45 holding-nuts, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

SAMUEL J. SHIMER.

Witnesses:

W. H. BECK,
C. F. BALLIET.