No. 614,771. Patented Nov. 22, 1898.

S. J. SHIMER.

CUTTER HEAD.

(Application filed Aug. 19, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

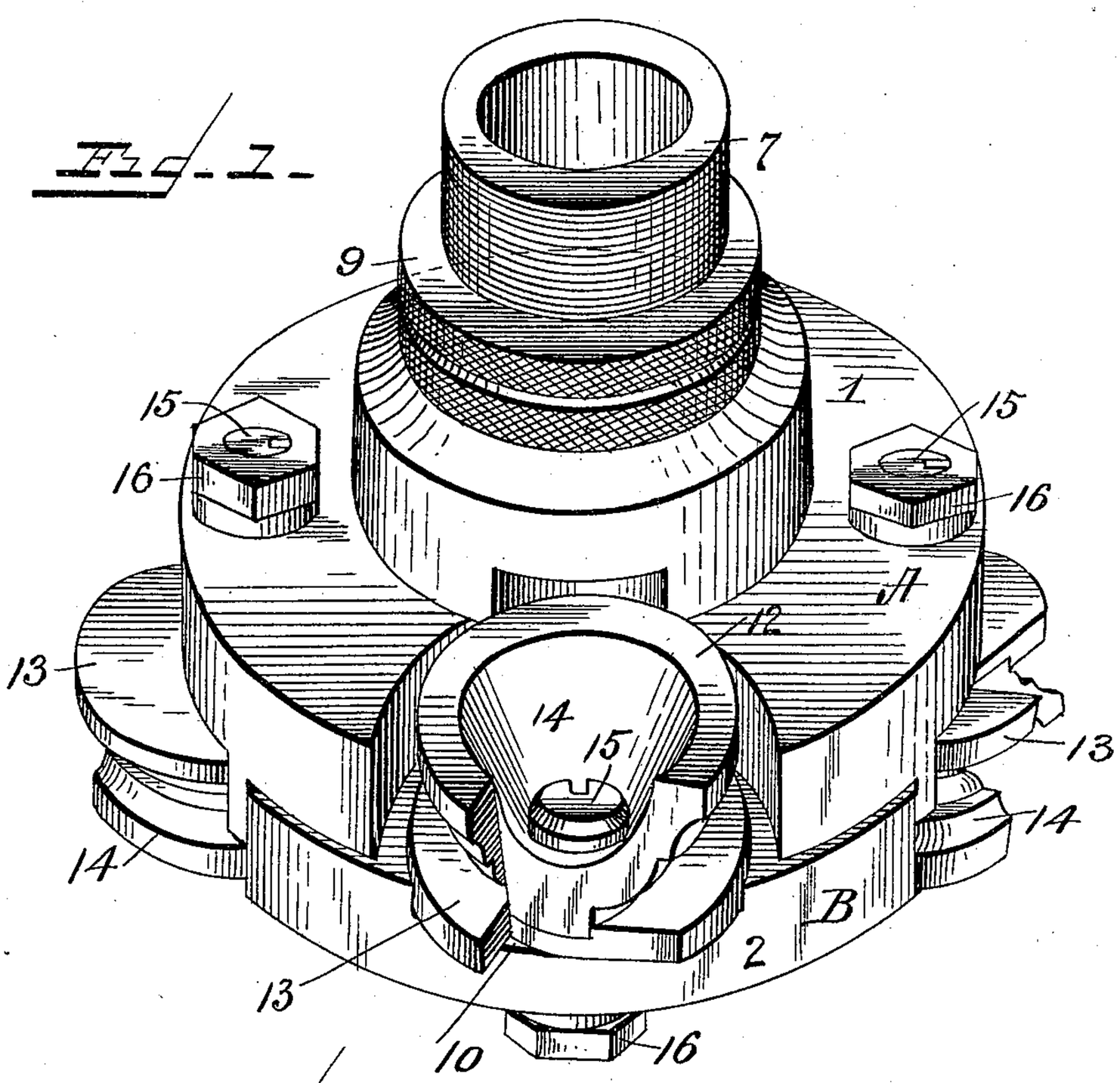
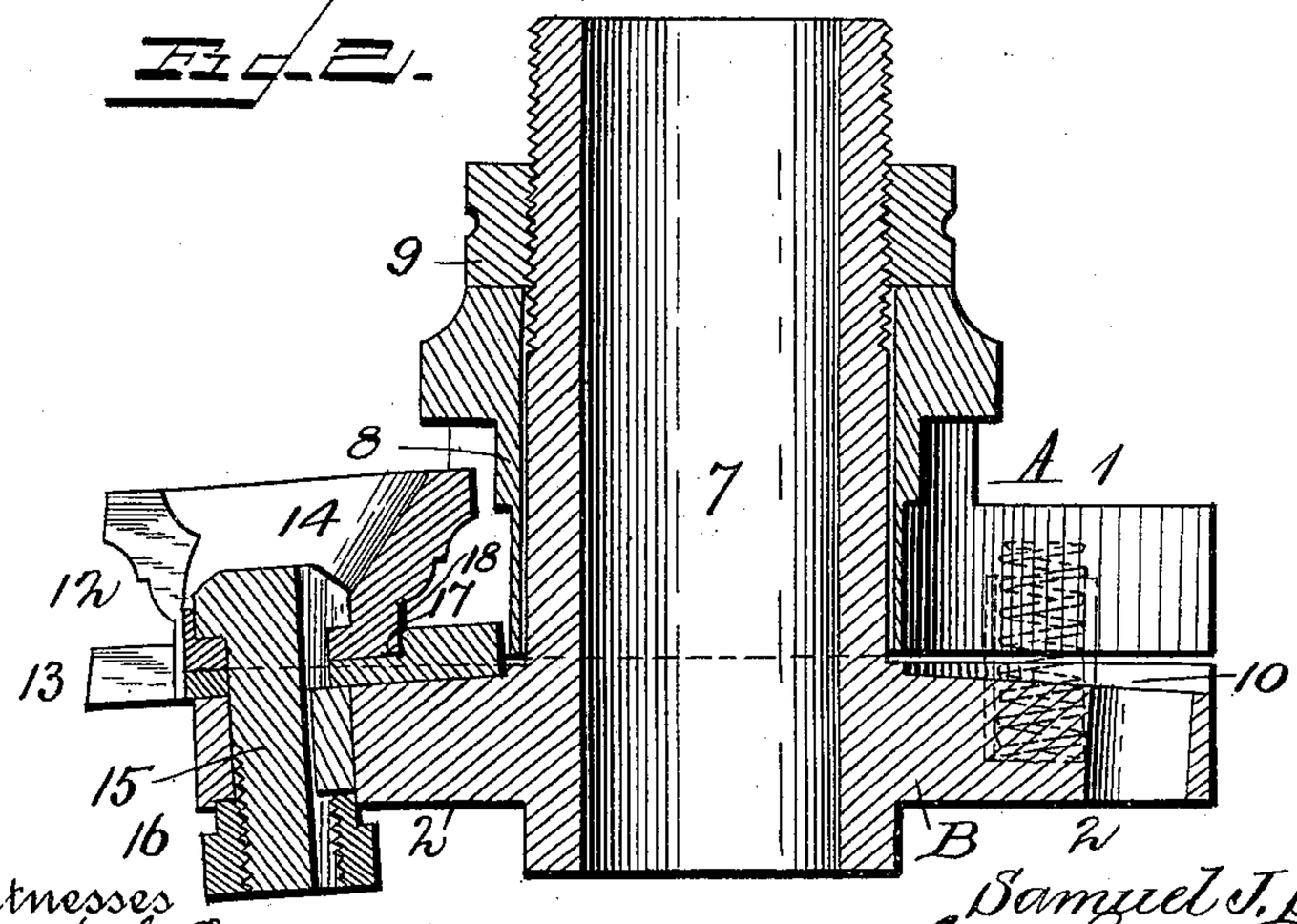


Fig. 2.



Witnesses
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Fig. 3.

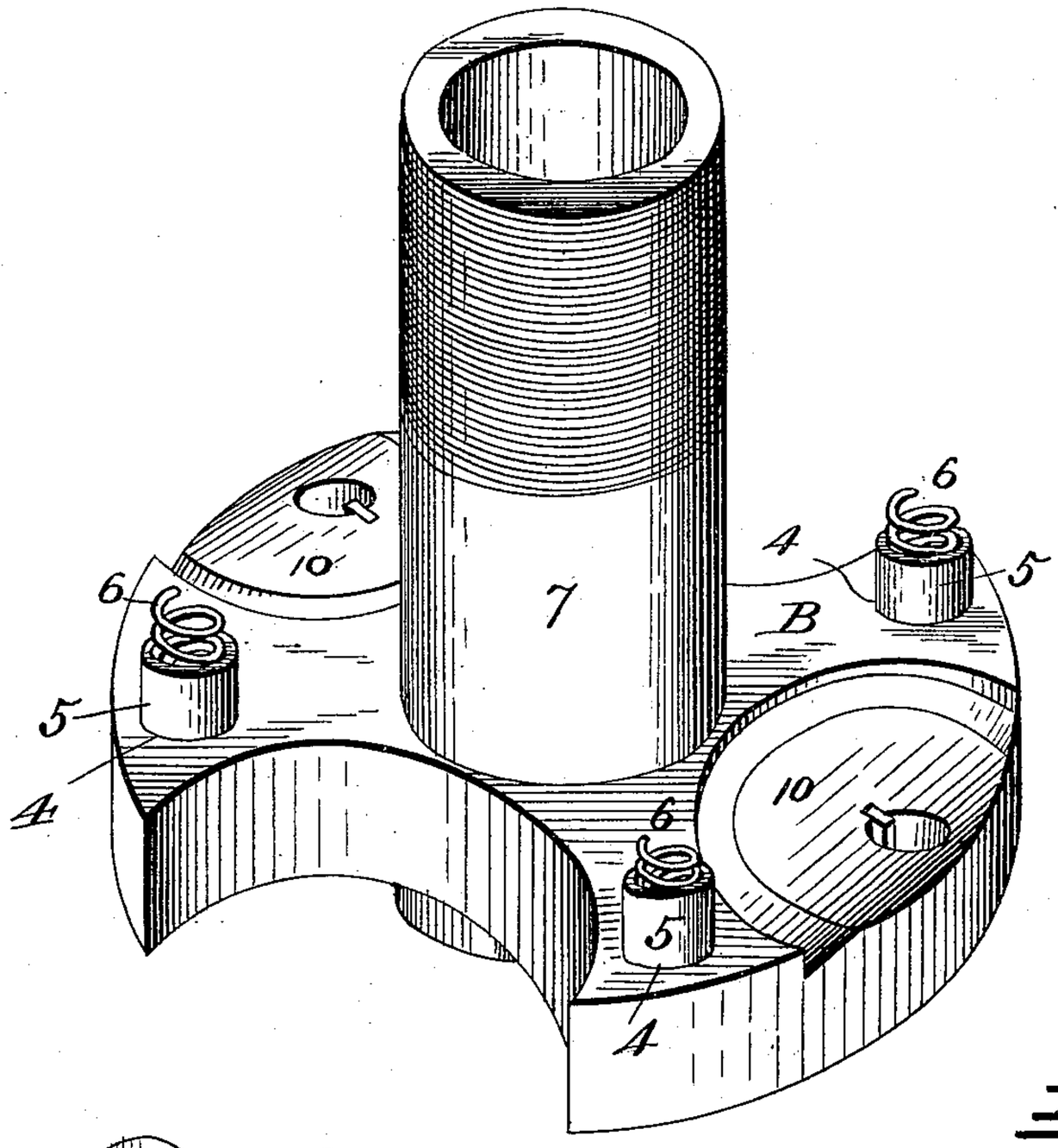


Fig. 5.

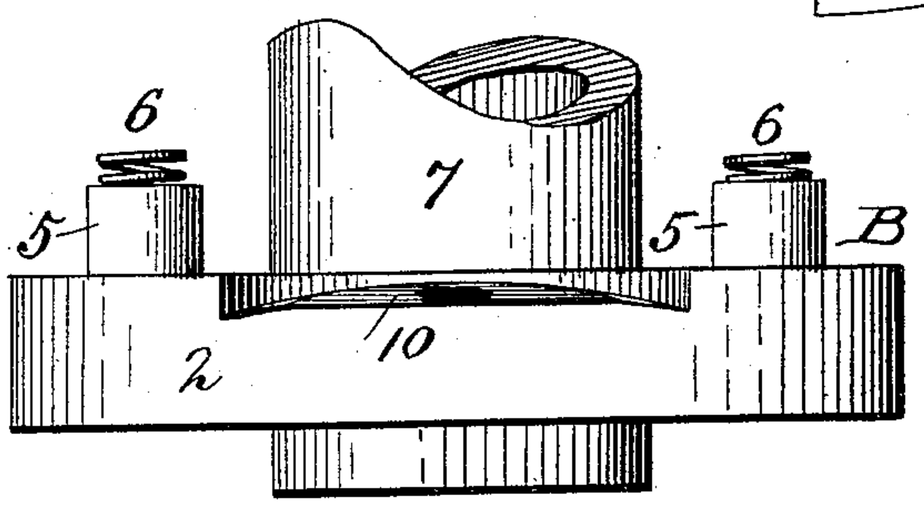
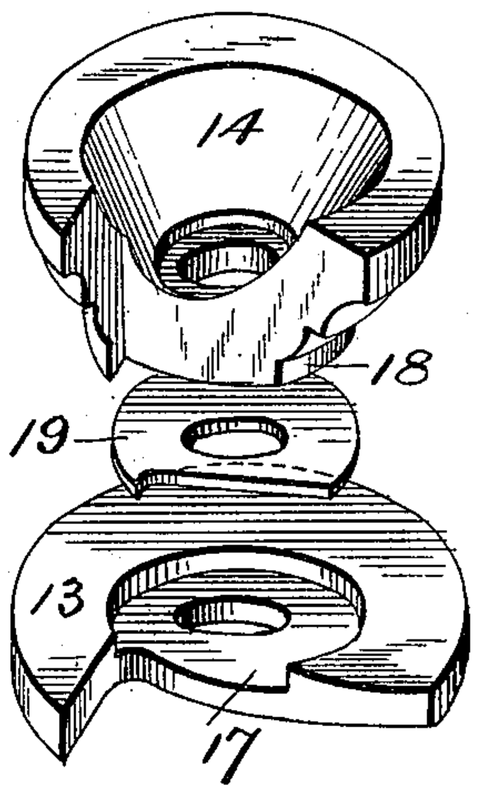


Fig. 4.



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UNITED STATES PATENT OFFICE.

SAMUEL J. SHIMER, OF MILTON, PENNSYLVANIA.

CUTTER-HEAD.

SPECIFICATION forming part of Letters Patent No. 614,771, dated November 22, 1898.

Application filed August 19, 1898. Serial No. 689,023. (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 Cutter-Heads, of which the following is a specification.

My invention relates to rotatable cutter-heads for woodworking-machines for making doors, bed-rails, sash, and other objects or articles, which heads are provided with circular bits, which work with side clearance in the cut made and which are alternately arranged on opposite sides of the flange or flanges of the head.

These cutter-heads as ordinarily constructed are provided with bit-seats, which incline either forwardly or rearwardly in their relative positions upon the plane of rotation to cause the bits secured thereto to incline toward or away from the center line of the cut to work the bits with the proper clearance for their sides back of their cutting edges. With the bit-seats so constructed the head can only rotate in one direction to perform its work—that is to say, the bits cannot be reversed and the head rotated in the opposite direction to cut a groove or molding.

The object of my invention is to provide an improved construction of cutter-head in which the bits can be reversed and the head rotated in the opposite direction and also to provide said head with a two-part bit secured to the head by a single holding-bolt about one common center on the same side of the head-flange, the division of the bit being on the dividing-line between the groove made in the work and the adjacent molded portion, thus making a saving in the cost of construction of the bit and in the material employed.

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

In the accompanying drawings, Figure 1 is a perspective view of what is known as an "expanding" cutter-head constructed in accordance with my invention. Fig. 2 is a central longitudinal section of the same. Fig. 3 is a detail perspective view showing the outwardly-inclined bit-seat, the cutter or bit being removed. Fig. 4 is a detail elevation. Fig. 5 is a perspective view showing the two-part bit.

In the said drawings the reference-letters A and B designate the upper and lower sections, respectively, of the cutter-head, provided with flanges 1 and 2. The said flanges are formed with circular recesses 4 in the inner sides or faces, in which fit sockets 5, and in these sockets are seated coiled springs 6. The numerals 7 and 8 designate, respectively, the hubs of said sections, and 9 the expanding ring.

The parts so far described may be of any ordinary or suitable construction and in themselves form no part of the present invention.

The numeral 10 designates the bit-seats formed in the outer faces or sides of the flanges and are alternately arranged with respect to each other. These seats slope or are inclined outwardly upon a radial line in contradistinction to seats which are inclined forwardly or rearwardly with respect to the plane of rotation of the head—that is to say, a line drawn through the axis of the head and centrally through the bit-seat will divide the latter into two corresponding parts, the point nearest the center of the head being farthest away from the dividing-line of the sections, while the point diametrically opposite thereto will be nearest to said dividing-line.

The numeral 12 designates the bit, consisting of two parts, the inner part 13 being designed to cut a groove and the outer part 14 being adapted to cut a molding adjacent to said groove so cut. These two parts are provided with bolt-holes for the passage of a holding-bolt 15, secured in place by a nut 16, and the inner part or section is formed in its outer face with a circular recess or socket 17, in which fits a boss 18, formed on the inner side of the outer part or section. These divided or two-part bits are preferred when a wider groove is to be cut, the degree of expansion of the head-sections causing the groove adjustment, the bits being carried thereby to any width of groove to which said sections are adjusted. Such adjustment of the said sections causes the relative positions of the mold cut in the strip or material being worked above and below the groove to be disturbed or varied to the extent of the full

space the groove is widened, and it will therefore be necessary to place a washer 19 in the socket or recess in the inner part or section of the bit of a thickness equal to the distance the flanges have been adjusted. When a plain-faced bit is used in connection with the grooving-bit, the washer need not be employed, because the face of the cutter being plain the work of joining up the edge will be done by that part of the edge which is in line with the cut.

By sloping or inclining the bit-seats outwardly, as described, the bits may be reversed and the head rotated in either direction and yet perform its work.

While I have shown the bit-seats formed in what are known as "expanding" cutter-heads, they may be formed in solid heads, if desired. The bits may also be formed in a single piece instead of in sections, as described.

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

1. As an improved article, a cutter-head formed with a series of alternately and oppositely arranged recessed bit-seats, alternately inclined radially in opposite directions, the construction being such that a line drawn radially through the centers thereof will divide the same into two portions symmetrically disposed to the plane of rotation, substantially as described.

2. The combination with a cutter-head having a flange formed with a series of alternately-arranged recessed bit-seats on opposite sides and said seats alternately inclined radially so that a line drawn through the center thereof radially will divide each seat into two portions symmetrically disposed to the plane of rotation, of the circular bits overlapping the center line of the cut and working in different planes beyond the limit of the flange, substantially as described.

3. In an expanding cutter-head for wood-working-machines, the combination of the movable sections each formed with a flange provided with outwardly sloping or inclined and alternately-arranged recessed bit-seats in the outer faces, the construction being such that a line drawn radially through the center of said seats will divide the same into two portions symmetrically disposed to the plane of rotation, substantially as described.

4. The combination with an expanding cutter-head provided with a flange formed with inclined bit-seats in the outer faces, of the circular bits made in two parts or sections formed respectively with a recess and a boss fitting therein and a single bolt holding said sections to the flanges, substantially as described.

5. In an expanding cutter-head for wood-working-machines, the combination with the movable sections each formed with a flange provided with radially sloping or inclined and alternately-arranged recessed bit-seats in the outer faces, and so constructed that a line drawn radially through the center of said seats will divide the same into two portions symmetrically disposed to the plane of rotation, of the two-part bits formed in their adjoining faces with a socket or recess and a boss, respectively, and a single bolt holding said bits to their seats, substantially as described.

6. As an improved article, a two-part circular bit for a rotary cutter-head comprising the grooving-section formed with a recess or socket and the molding-section having a boss fitting in said recess or socket and said sections adapted to be connected with a cutter-head by a single bolt in such manner that the cutting edges of said sections work in different planes, substantially as described.

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

SAMUEL J. SHIMER.

Witnesses:
JOHN A. BECK,
H. A. KERR.