

W. G. ZIMMERMAN.
CUTTER HEAD FOR EDGERS.
APPLICATION FILED DEC. 12, 1910.

996,034.

Patented June 20, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

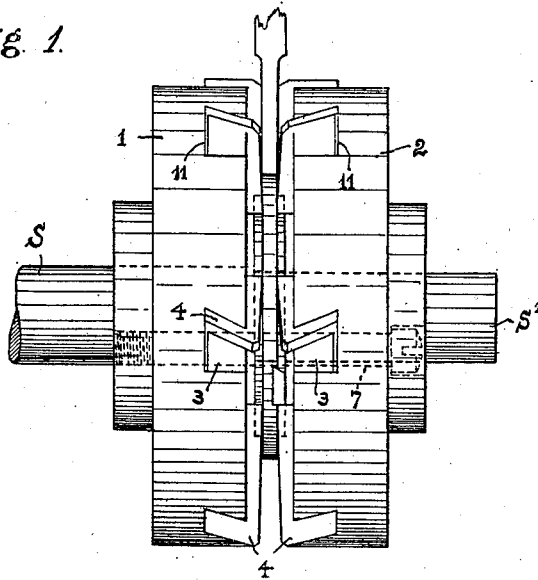
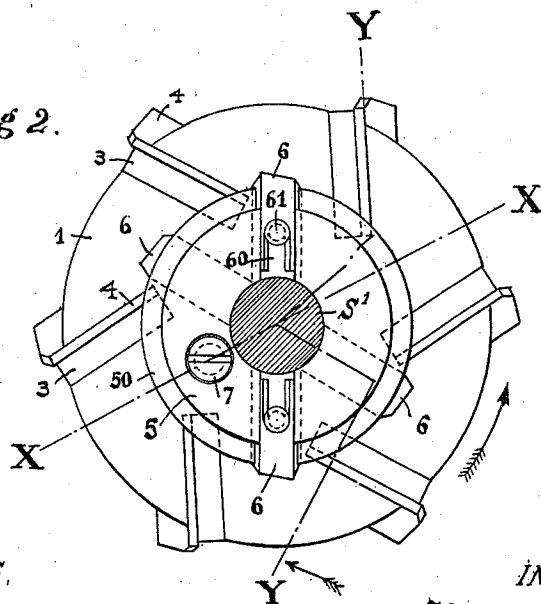


Fig. 2.



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2 SHEETS—SHEET 2.

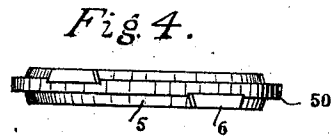
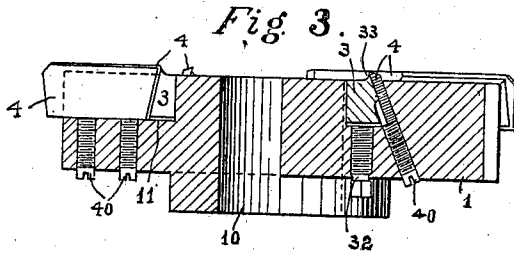


Fig. 6.

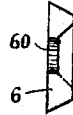


Fig. 7.

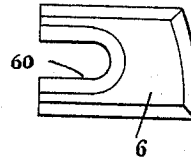


Fig. 5.

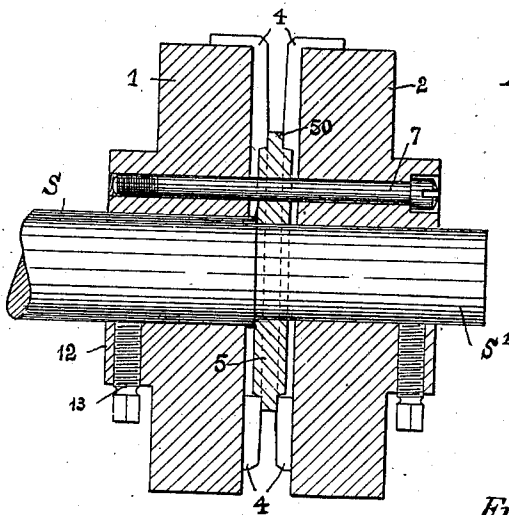


Fig. 9.

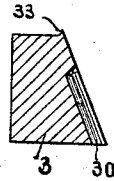


Fig. 8.

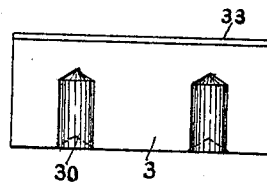


Fig. 10.

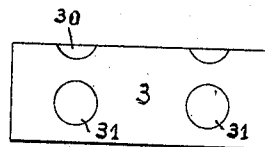


Fig. 12.

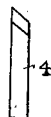
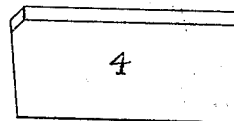


Fig. 11.



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UNITED STATES PATENT OFFICE.

WILLIAM G. ZIMMERMAN, OF EVERETT, WASHINGTON.

CUTTER-HEAD FOR EDGERS.

996,034.

Specification of Letters Patent. Patented June 20, 1911.

Original application filed July 5, 1910, Serial No. 570,508. Divided and this application filed December 12, 1910. Serial No. 596,810.

To all whom it may concern:

Be it known that I, WILLIAM G. ZIMMERMAN, a citizen of the United States, residing at Everett, in the county of Snohomish, State of Washington, have invented a new and useful Improvement in Cutter-Heads for Edgers, of which the following is a specification.

My invention relates to an improvement in cutter heads for edgers and like tools, and comprises the novel parts and combinations of parts which will be hereinafter described and particularly pointed out in the claims.

This application covers matter which was included in an application for patent for edgers filed by me July 5, 1910, Serial Number 570,508 and divided therefrom under a requirement of the Patent Office.

The object of my invention is to provide a cutter head and cutting blades which shall be more efficient in doing certain classes of work and which shall be simple and certain in adjustment and reliable in operation.

In the drawings I have shown my invention in the form which is now preferred by me.

Figure 1 is a side view of my cutter head in the compound form which is adapted to making paneled edges upon boards. Fig. 2 is a face view of the same with one of the disks removed. Fig. 3 is a section taken upon the irregular line Y, Y, of Fig. 2. Fig. 4 is an edge view of the small central disk which is interposed between the larger disks. Fig. 5 is a section taken upon the line X, X, of Fig. 2. Figs. 6 and 7 are, respectively, end and side views of the cutter blades carried by the central disk shown in Fig. 4. Figs. 8, 9, and 10 are, respectively, cross section, side and bottom views of the wedge block used to secure the cutting blades in place. Figs. 11 and 12 are side and end views of a cutting blade as used in the larger or main disks.

The compound form of cutter head shown is a preferred form as the work for which it is especially adapted is an important branch of work and the simple form may be had by removal of a part of the head as shown.

The two disks 1 and 2 are alike in their construction, except that one is right handed and the other left handed. A description of one will therefore answer as a description of the other in all essential

ways. For some kinds of work one disk, such as 1 or 2, may be used alone. In one face of the disk are formed a series of bit-seating recesses, 11, extending in a direction which is preferably intermediate a radius and a tangent, the advantage of this particular direction lying in the securing of a draw cut with the cutting blades. Ordinarily these bit-seating recesses extend from the periphery of the disk inward. In number these may vary with the desires and conditions of each case. I have shown six in each disk, making an angle of approximately 45° with a radius at that point. These proportions are, however, only given as a good example of proportions preferred for a particular work. The bit-seating recesses are of a dove-tailed or wedge shaped cross section, with their greater width at their inner ends, as is clearly shown by the section in Fig. 3. In each of these recesses is placed a cutting blade or bit, 4, and a wedge block 3, the two being of a size to closely fill the recess. The bit is made from a piece of plate steel and of a width such that its cutting edge will project from the face of the disk. It may also project its end beyond the periphery of the disk, if desired, as is shown in the drawings. In the body of the disk, back of and in line with the position of the cutter bits 4, are adjusting screws 40, threaded in the disk and bearing against the back edge of the bits, whereby they may be accurately and conveniently adjusted to the exact projection wanted, and whereby, also, they may be firmly held against any tendency developed by use to force them back from the position in which they may have been set when adjusted. In bits of this character, consisting of a small plate held in a head, there is a strong tendency for the bit to be forced back into its seat by the continual impact with the work. I prefer to use two of these adjusting and holding screws for each bit, as thereby they may be more accurately adjusted, each end being adjustable differently from the other. The cutting bit is preferably placed against the inclined surface of the recess, and the wedge block is of such size as to complete the filling of the recess, the fit being only sufficiently loose to permit ready insertion and adjustment of the parts. Back of and in line with the wedge blocks are clamping screws 32, screwed into the body of the disk

and bearing against the back surface of the wedge block. I have shown two such screws for each block, and the block is provided with recesses 31 in its back surface 5 designed for the reception of the ends of these screws. This locks the blocks against the possibility of their being worked out of the recesses endwise by the effect of the centrifugal force generated when in use. 10 I also provide that edge of the blocks which lie next the cutter blades with recesses 30 designed for the accommodation of the screws by which the blades or bits are adjusted. The outer surface of the wedge 15 blocks, upon their edges next the bit 4, are provided with an inclined rib 33, which serves as a chip-break.

The above parts form a complete single-disk cutter head, adapted for some kinds of 20 work. For such work as panel raising or where it is desired to dress off both sides of a board at one time, a second disk 2, having similar recesses, cutting bits and clamping blocks would be used. In such case I place 25 a small disk 5 between the two disks 1 and 2. This disk 5 may be provided with cutting blades 6, which are herein shown as seated in dovetailed grooves and provided with slots 60 and clamping screws 61. These cut- 30 ters may be made of such outline as to shape the end surfaces of the lumber, or be used, as would be sufficient in panel raising, to round slightly the corners to facilitate insertion in the grooves which are to receive 35 them.

While the disk 5 may be used as a cutter head, one of its principal functions is to act as a spacer for the two disks 1 and 2, and to insure their accurate placing upon the shaft. 40 The disk 5 has a central peripheral flange 50 projecting beyond the main body of the disk. The diameter of this flange 50 and the position of the inner ends of the cutters or bits 4 carried by the disks 1 and 2, are 45 such that the flange 50 overlaps the inner ends of the bits, thus serving as a spacer to determine the separation of the cutters, irrespective of the exact placing of the disks. For instance, the amount of projection of 50 the cutting blades or bits 4 might vary in the two disks, but this would not affect the spacing of the cutters, as they bear directly upon the spacing flange of the intermediate disk 5. This feature also makes the proper 55 placing of the cutter heads upon the shaft an easy matter. One of the disks, as the disk 2, has its shaft opening smaller than that in the other disk, and the shaft is made of different sizes to correspond to this. This 60 leaves a shoulder in the shaft against which the intermediate disk 5 is firmly placed. The two disks 1 and 2 are then moved toward the central disk 5 until their cutting bits 4 are in contact with the flange 50, when 65 they are securely clamped in position. If

the shaft has been properly located and held in place there is then no doubt but that the cutter head is properly located upon the shaft and the disks 1 and 2 properly spaced.

I have shown the disks 1 and 2 as held 70 upon the shaft by set screws 13 passing through hubs 12, and all the disks are held against shifting upon each other by a bolt or pin 7. Any other means for doing the same thing may be adopted. 75

By using an intermediate or spacing disk which has its location accurately fixed by seating against a shoulder upon the shaft, the parts of the cutter head may be assembled in exactly proper position by simply 80 seeing that the disk 5 is in close contact with the shoulder on the shaft.

What I claim as my invention is:

1. A cutter head for edgers, comprising a disk having bit-seat recesses in one side face, 85 of a wedge shaped cross section with their greater width inward, a bit-plate and a wedge block, in and filling each recess, and independent setting and adjusting means for bits and wedge blocks, accessible for adjust- 90 ment from the opposite side face of the disk.

2. A cutter head comprising a disk having bit-seat recesses in one side face of a wedge shaped cross section with their 95 greater width inward, bits and wedge blocks filling said recesses, and setting up screws extending from the opposite or back surfaces of the disk and bearing against the inner surfaces of the wedge blocks. 100

3. A cutter head for edgers comprising a disk having bit-seating recesses in one side face extending from the periphery inward at an angle to the radii, said recesses being 105 of a wedge shaped cross section with their greater width inward, a bit and wedge, in and filling each recess, and independent screw adjustments for bits and wedges accessible from the back side of the disk.

4. A cutter head for edgers comprising a 110 disk having bit-seating recesses in one side face, of a wedge shaped cross section largest inwardly, a bit plate and a wedge block fitting and filling each of said recesses, the wedge block being rotatively in advance of 115 the bit and having a chip breaking incline next the bit, and setting up screws extending from the back side of the disk and engaging the inner surfaces of both bits and wedge blocks. 120

5. In an edger, the combination with two cutter heads having side-face-opening recesses adapted to receive cutting bits, bits and means for securing them in said recesses to project beyond the side face of the cutter 125 head, and a disk or plate adapted to be secured between said cutter heads and having a part adapted to engage the cutting edges of said bits to thereby serve as a spacer for the cutting members of the two heads. 130

6. In an edger, the combination with two cutter heads, adapted to be mounted upon the same axis and in opposed position, bits carried by said heads and projecting from the opposed side faces, and a disk or plate between said heads and having a part adapted to be engaged by the bits of both heads to serve as a spacer for the cutting members of said heads.
- 10 7. In an edger, the combination with a shaft having a shoulder thereon, two cutter heads having side-face-projecting bits, one of said heads fitting upon the larger part of said shaft and the other upon its smaller part, and a disk or plate adapted to fit upon the smaller part of said shaft and against its shoulder, said disk having a part adapted to be engaged by the bits of both cutter heads and to thereby serve as a spacer for said heads and to also properly locate them in the edger.

WILLIAM G. ZIMMERMAN.

Witnesses:

PERCY GARDINER,
SCHUYLER DURYEE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
