

No. 630,040.

Patented Aug. 1, 1899.

W. L. FIELD.  
CUTTER HEAD.

(Application filed Feb. 21, 1899.)

(No Model.)

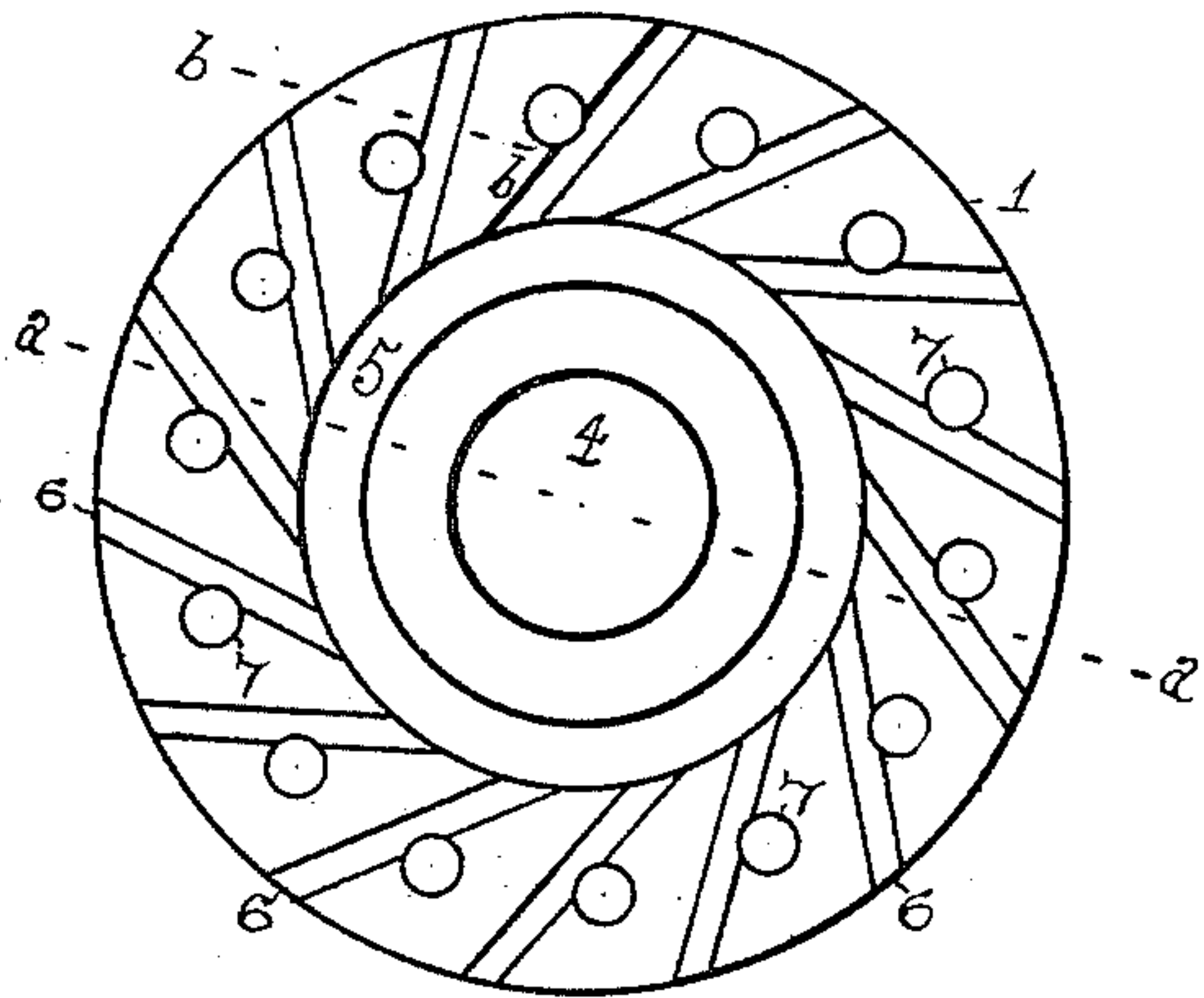


Fig. 1.

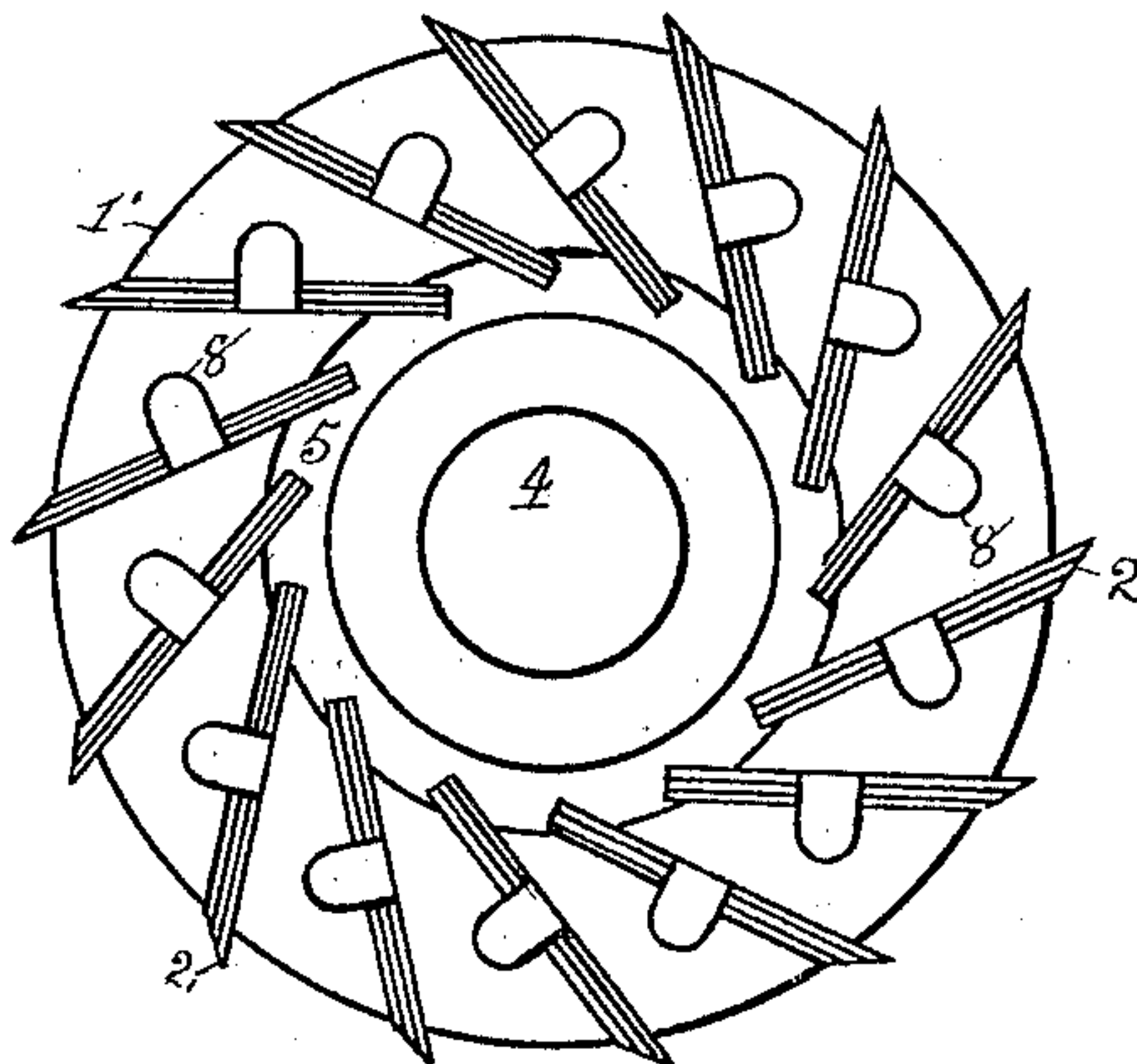


Fig. 2.

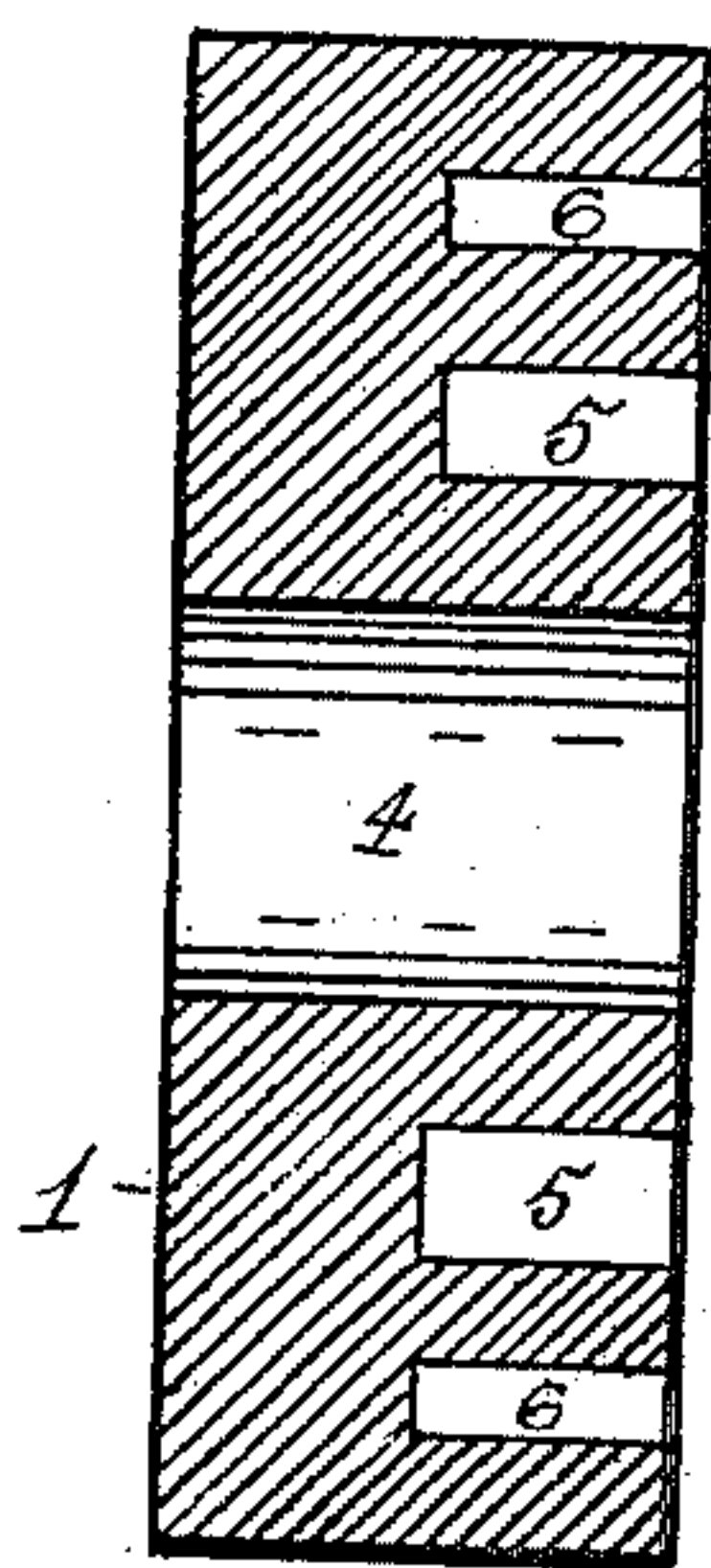


Fig. 3.

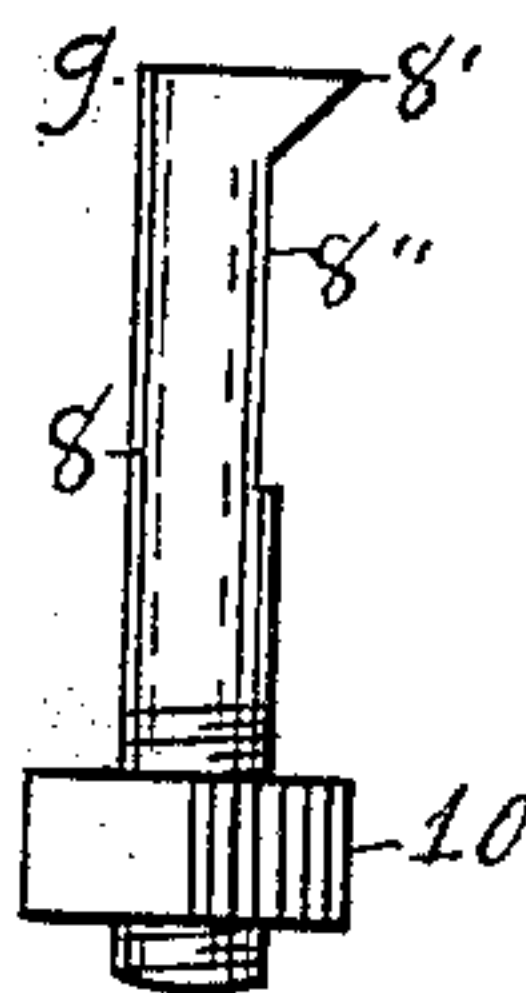


Fig. 4.

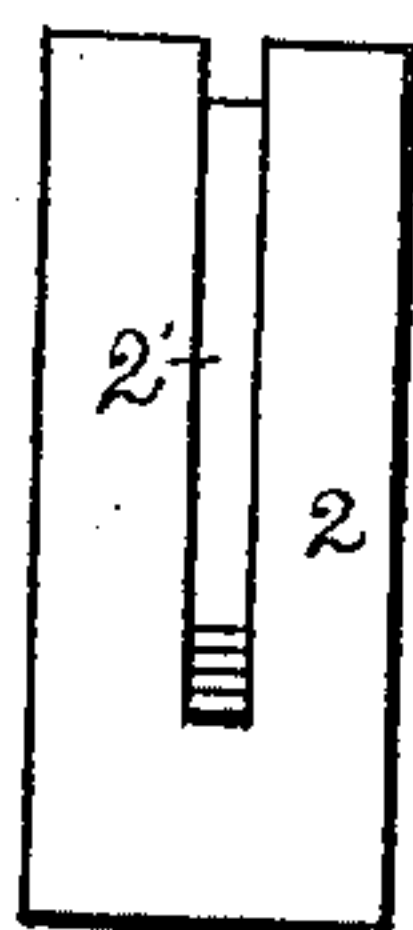


Fig. 5.

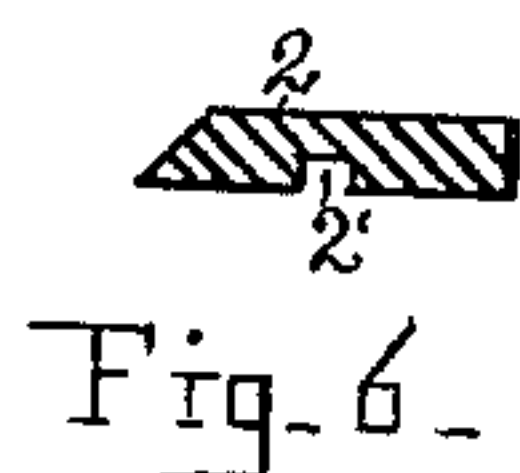


Fig. 6.

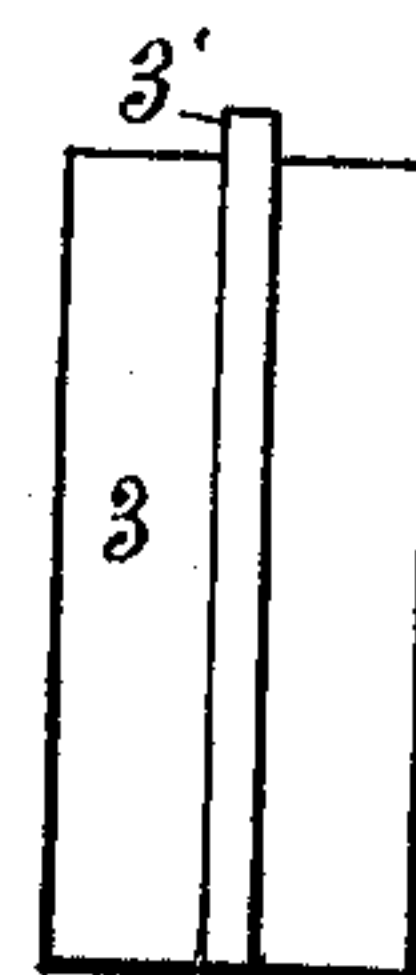


Fig. 7.



Fig. 8.

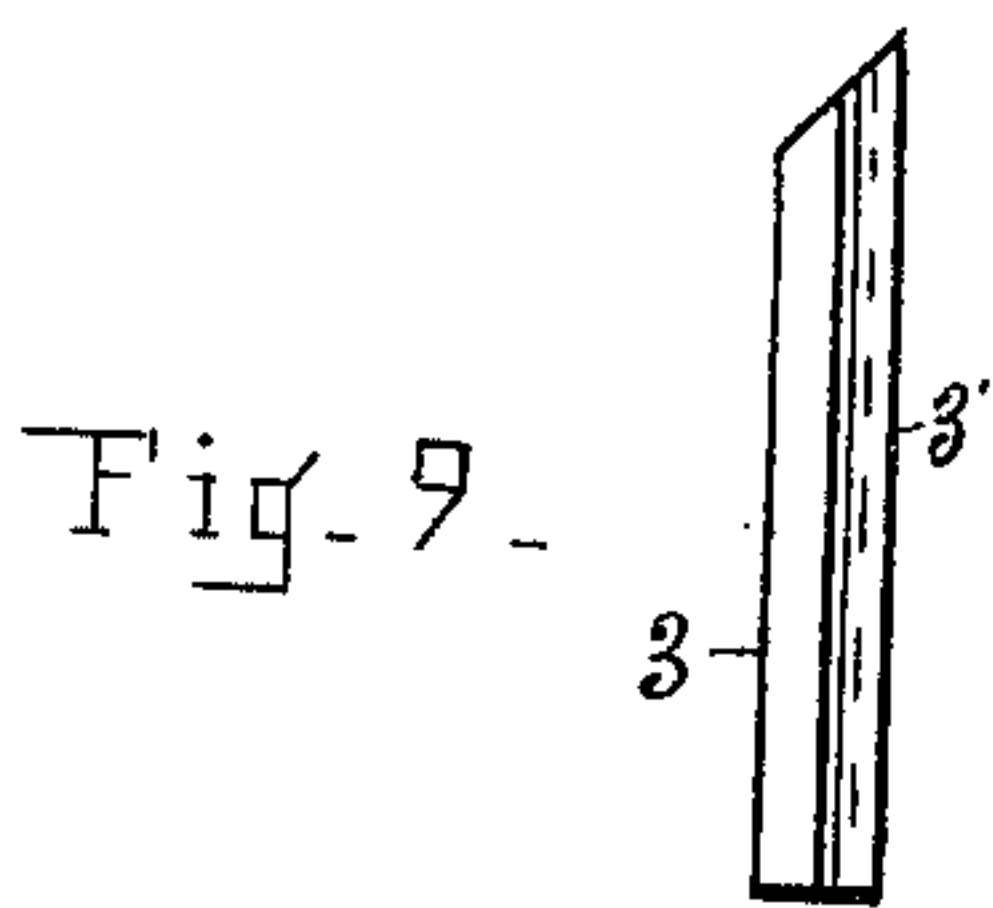


Fig. 9.

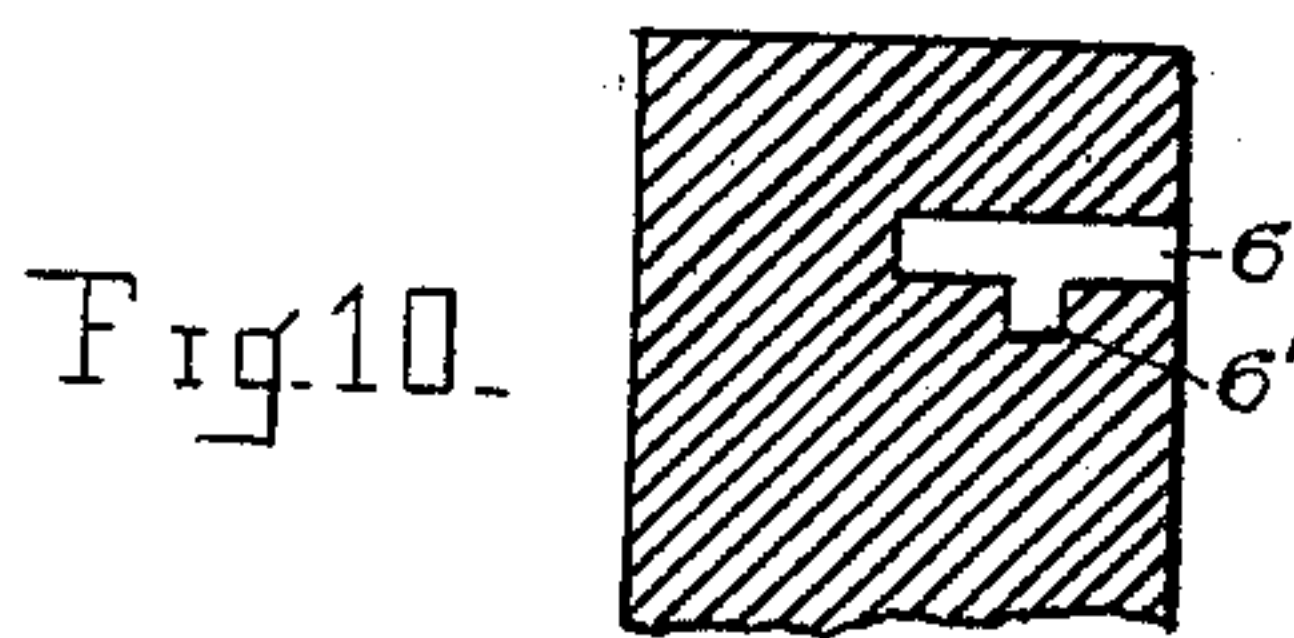


Fig. 10.

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Inventor -  
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By his Att'y. C. M. Albee



# UNITED STATES PATENT OFFICE.

WALLACE L. FIELD, OF ESCANABA, MICHIGAN, ASSIGNOR OF ONE-HALF TO  
CHARLES A. LAWTON, OF DE PERE, WISCONSIN.

## CUTTER-HEAD.

SPECIFICATION forming part of Letters Patent No. 630,040, dated August 1, 1899.

Application filed February 21, 1899. Serial No. 706,331. (No model.)

*To all whom it may concern:*

Be it known that I, WALLACE L. FIELD, a citizen of the United States, residing at Escanaba, in the county of Delta and State of Michigan, have invented a new and useful Cutter-Head, of which the following is a specification.

My invention relates to a cutter-head for use in various woodworking industries, such as in matching-machines for the making of flooring and other matched material and molding-machines for making moldings and other articles which are used in house, car, cabinet, and other finishing work; and it consists of a cutter-head for mounting upon a shaft for a rapid revolution in journal-boxes, the cutter-head having a plurality of knives, each one being located in its individual slot and each one being held by means of a bolt especially adapted for the purpose, said devices being shown in the accompanying drawings, in which—

Figure 1 is a plan of the end of the cutter-head, one of a pair of matcher-heads. Fig. 2 is a plan of its companion matcher-head, having its knives secured therein. Fig. 3 is a section across the cutter-head upon the line *aa* of Fig. 1. Fig. 4 is an elevation of a bolt that is used in securing the knives to the cutter-heads. Fig. 5 is a plan of the tongue-forming knife. Fig. 6 is a cross-section of said knife. Fig. 7 is a plan of the groove-forming knife. Fig. 8 is a cross-section of said knife. Fig. 9 is an edge view of a groove-forming knife. Fig. 10 is a section of the cutter-head across one of the groove-forming-knife slots *bb* of Fig. 1. Figs. 4 to 9, inclusive, are upon an enlarged scale.

Similar numerals indicate like parts in the several views.

1 1' indicate right and left hand cutter-heads, respectively; 2, tongue-forming knife; 3, groove-forming knife; 4, central hole for receiving shaft; 5, concentric groove in cutter-heads; 6, knife-receiving slot; 6', supplemental groove in knife-slot; 7, bolt-holes in cutter-heads; 8, a bolt therefor; 8', the bolt-head; 8'', a flattened portion of the stem of the bolt; 9, the half of the bolt-head which is a continuation in form and size of the stem of the bolt; 10, the nut.

The cutter-heads can be made from a circular piece of metal of the desired diameter and of a thickness adapted for its use. A central hole 4 is bored, through which a shaft can be inserted, and upon which the cutter-head can be revolved in suitable bearings. If for use as matcher-heads, two heads are preferable, in which knives are inserted for the revolution of the heads in opposite directions, the heads being called "right" or "left" heads, according to the direction they are intended to run. For many purposes but one head is required, and it may be either a right or left one.

In the formation of the cutter-head a circular groove 5 is formed, of a depth equal to the width of the knives to be used in the end of the head. A circle should then be marked upon the head, outside of said groove, of a diameter suitable for the location of the knife-holding bolts. This circle is then to be divided into as many equal parts as there are to be knives in the head—in the present case fourteen. Holes 7, of the proper size for receiving easily the bolts 8, are then bored at each of the fourteen points. A straight slot 6 is then cut, one for each bolt, leading from the groove 5 to the circumference of the head, its width and depth being suited for the easy entrance of its knife, its rear wall running across its adjoining bolt-hole and its front wall being distant from the nearest edge of said bolt-hole less than the thickness of the knife it is to receive. Into the knife-slots for receiving grooving-knives, as shown in Figs. 7 and 8, a supplemental groove 6' is cut for receiving the groove-forming rib upon the face of said knife. Each knife for these heads has its outer edge beveled off, as shown in Figs. 2, 6, and 8, their entire length. A bolt 8 is formed for holding the knives in place, it having a flat head 8' projecting from one side of it, the other side or half of the bolt being continued to the end of the head of the same size as the stem of the bolt, so that the entire bolt-head can be drawn in flush with the face of the cutter-head into its bolt-hole, the head being beveled upon its under side from its chisel-pointed end back to the body of the bolt, the bevel corresponding with the bevel upon the edge of its knife, from which



point the body of the bolt is flattened for a distance equal to the width of the back of the knife, which is not beveled off. This flattened part is to be of a depth for permitting the knife to enter its slot from the circumference of the head between its front wall and said bolt, whereby upon the screwing up of its nut the bolt-head engaging the beveled edge of the knife will draw the knife both toward the bottom and front wall of its slot. With the bolt well fitted to its hole not only will the body of the metal between the knife-slots assist in holding the knives against their cutting action back pressure, but the bolts also will assist.

With knives held in place in the cutter-heads with a bolt, as hereshown, a large number of knives in proportion to the diameter of the head can be inserted and the cutting action of more knives obtained in any definite length of time with the same rate of speed than with the usual method of inserting and holding its knives, and, furthermore, the surface of the wood which is acted upon will be left much smoother than with the same rate of speed and a much less number of knives.

I do not confine my invention to the form of cutter-heads herein shown; but they may be of any form on their circumference which the work to be done demands for its execution.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A cutter-head of a circular form adapted to be mounted upon a shaft for revolution therewith, having upon one end thereof a concentric groove and a plurality of knife-holding slots leading therefrom to the circumference of said head, each slot being adapted to receive a cutting-knife and the front wall of each of said slots being tangents of the same circle, a knife for each of said slots fitted for easy entrance thereto, its outer end being suitably shaped for operating upon the material to be cut and extending beyond the periphery of said head and having its outer edge beveled off upon its back side its entire length, bolt-holes in said head of a uniform diame-

ter their entire length, each one being located at a distance from the front wall of its adjoining knife-slot less than the thickness of the knife to be used therein, a bolt and nut for each bolt-hole, each bolt being of a substantially uniform size from its threaded end to its head end and continuing said size upon one half its diameter to the end of said head, its remaining half having a flat chisel-pointed head projecting therefrom which is beveled upon its under side to correspond with the bevel upon the side edge of the knife it is to hold, the body of said bolt being flattened from the bevel of its head a distance corresponding with the unbeveled part of the back of said knife, said bolt being adapted to enter one of said holes and to receive and hold a knife between said flattened part and the front wall of its adjoining knife-slot and under its head by the screwing up of its nut, substantially as described.

2. In a cutter-head having a plurality of slots arranged, each for holding an outer beveled edged cutting-knife, each of said slots having a bolt-hole lying partly within the path of said slot and passing through said cutter-head, in combination with a bolt therefor of a suitable diameter for entering said hole, the bolt being of a substantially uniform size from its threaded end to its head and continuing said size upon one half the diameter of said bolt to the end of said head, its remaining half having a flat chisel-pointed head projecting therefrom which is beveled upon its under side to correspond with the bevel upon the side edge of the knife it is to hold, the stem of said bolt being flattened from the bevel of its head a distance corresponding with the unbeveled part of the back of said knife, said bolt being adapted to enter one of said holes and to receive and hold a knife between said flattened part and the front wall of its adjoining knife-slot and under its head by the screwing up of its nut, substantially as described.

WALLACE L. FIELD.

Witnesses:

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WILLIAM CROSSMAN.