

W. O. VIVARTTAS.  
CUTTER HEAD FOR WOODWORKING MACHINERY.  
APPLICATION FILED MAR. 12, 1909.

978,414.

Patented Dec. 13, 1910.

2 SHEETS—SHEET 1.

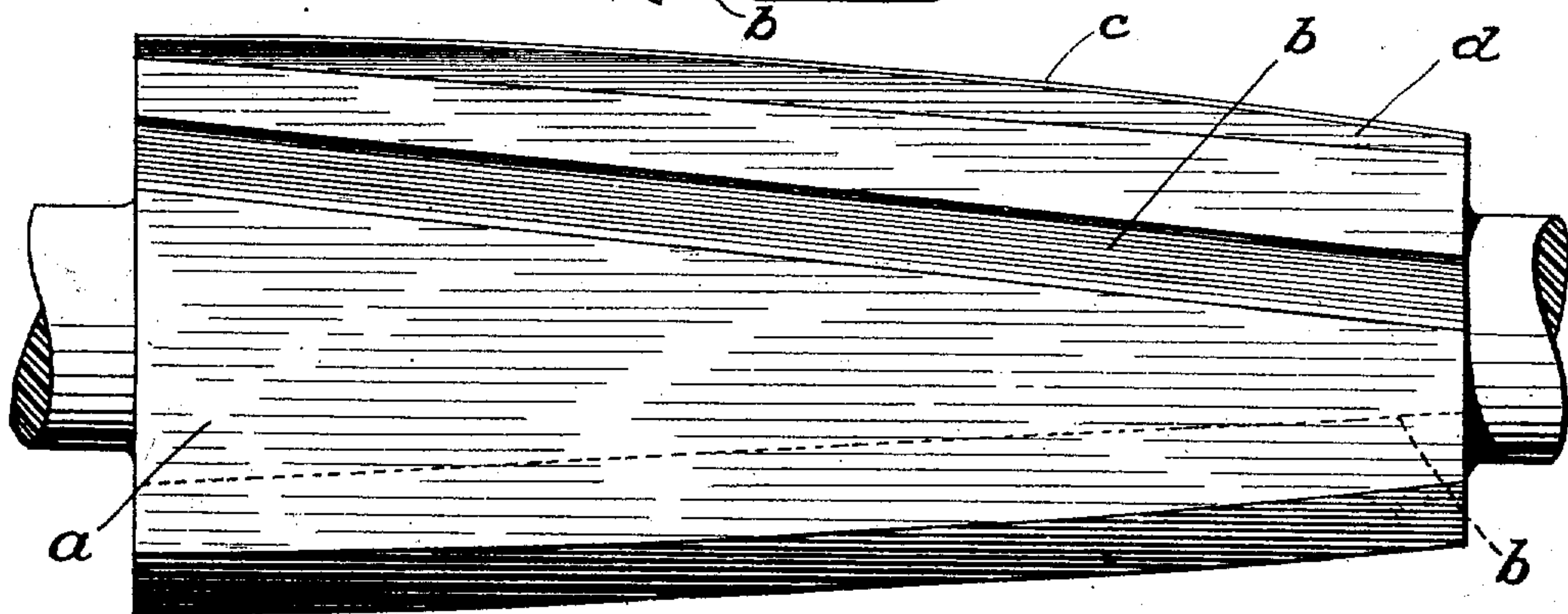
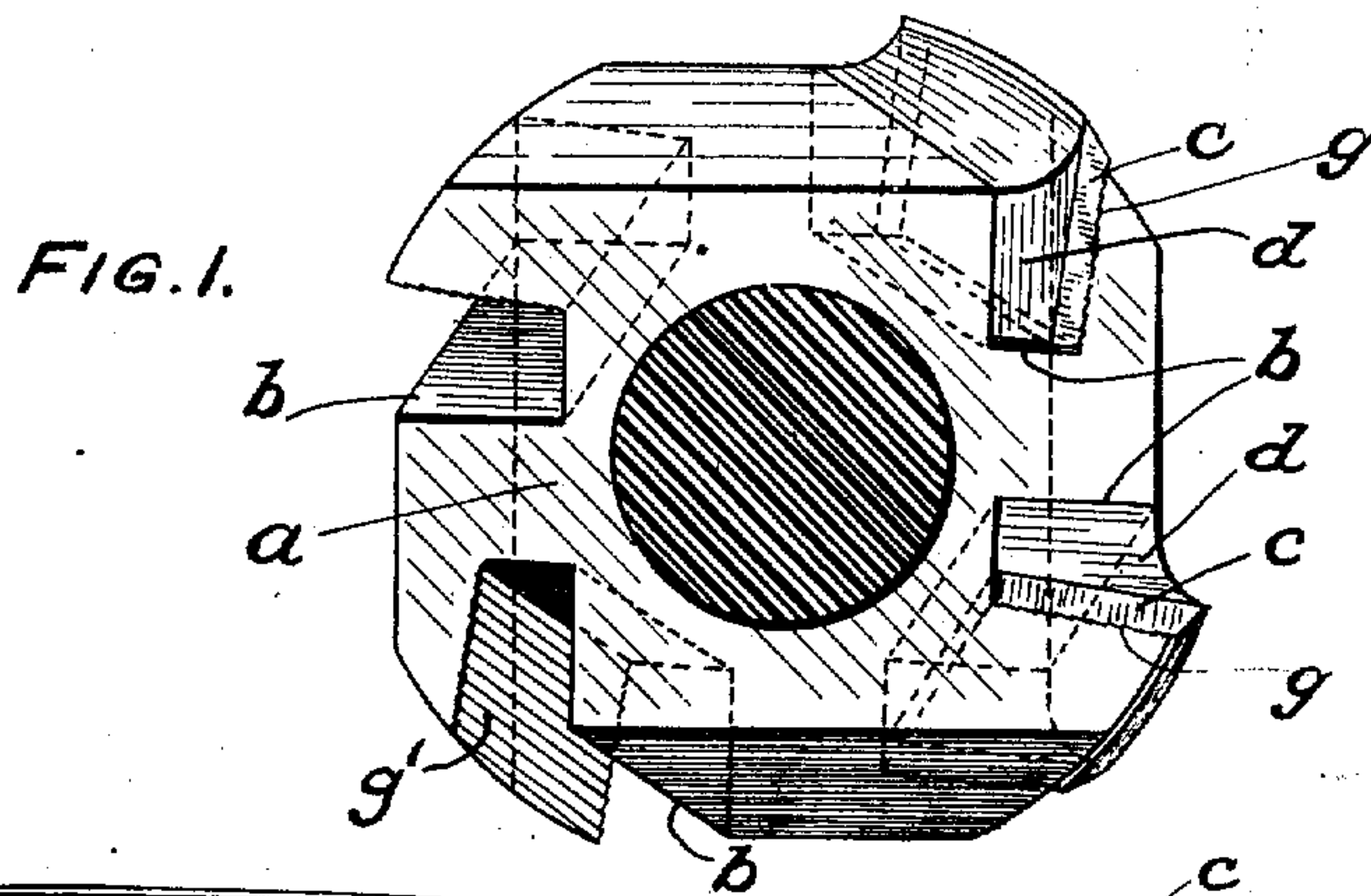


FIG. 2.

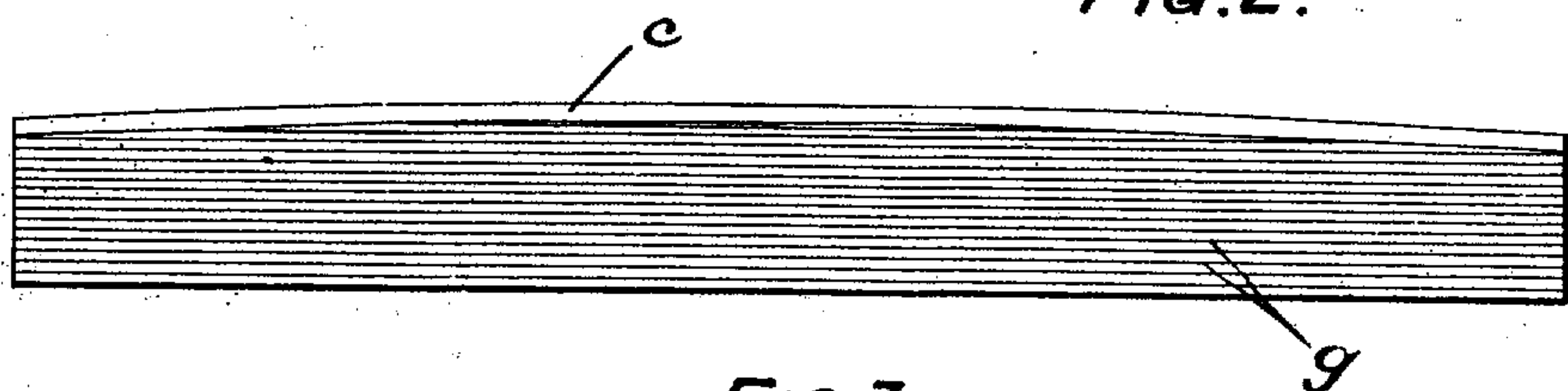
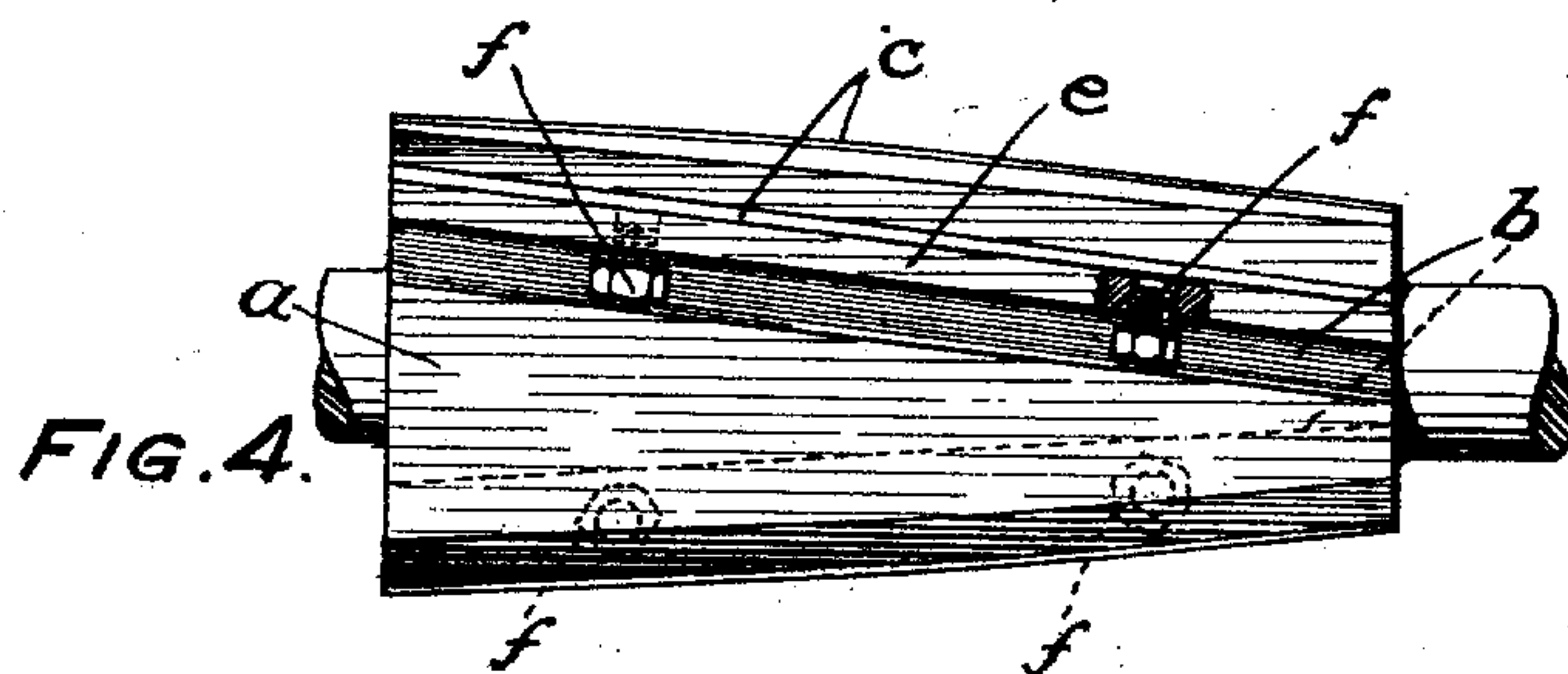


FIG. 3.



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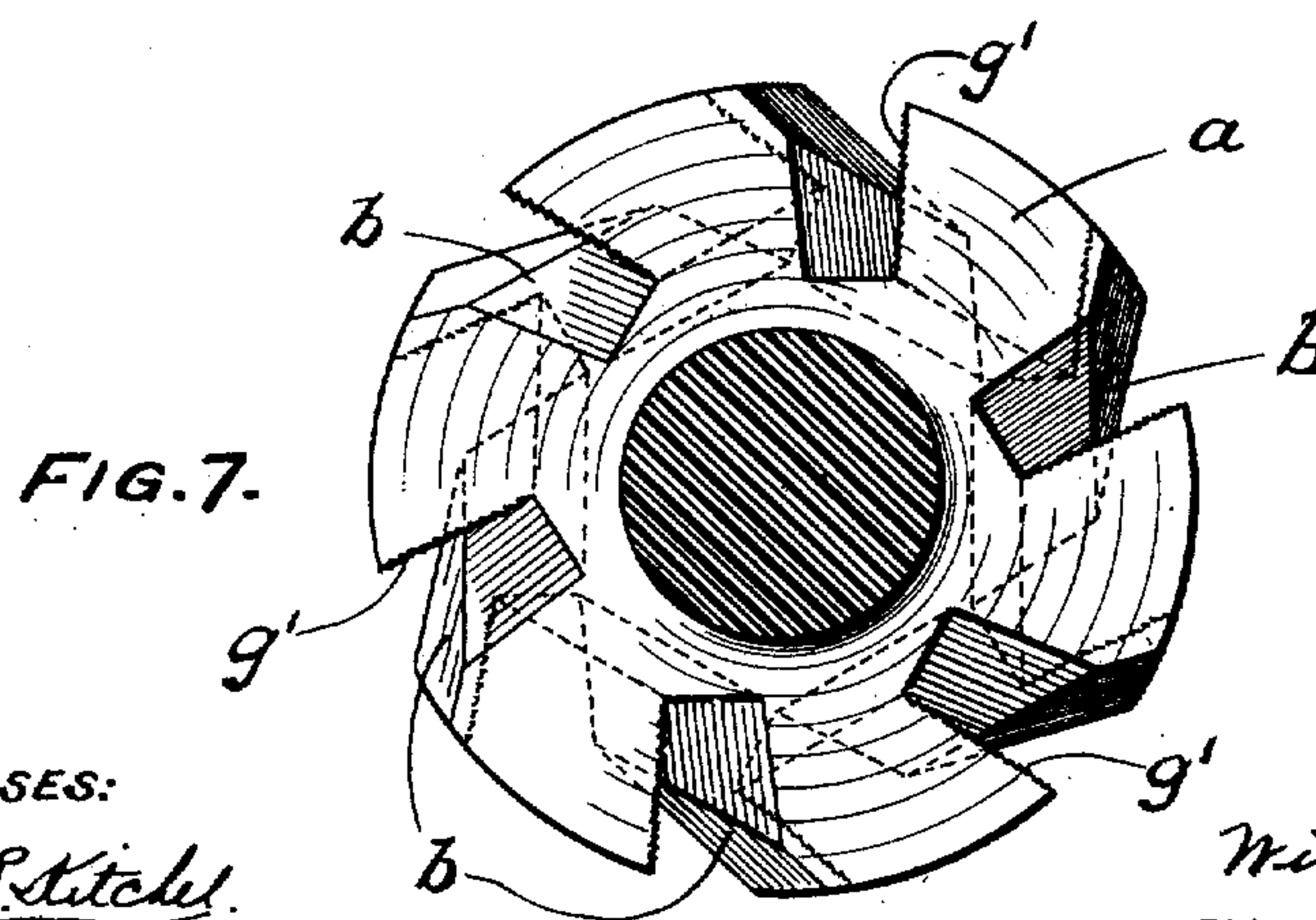
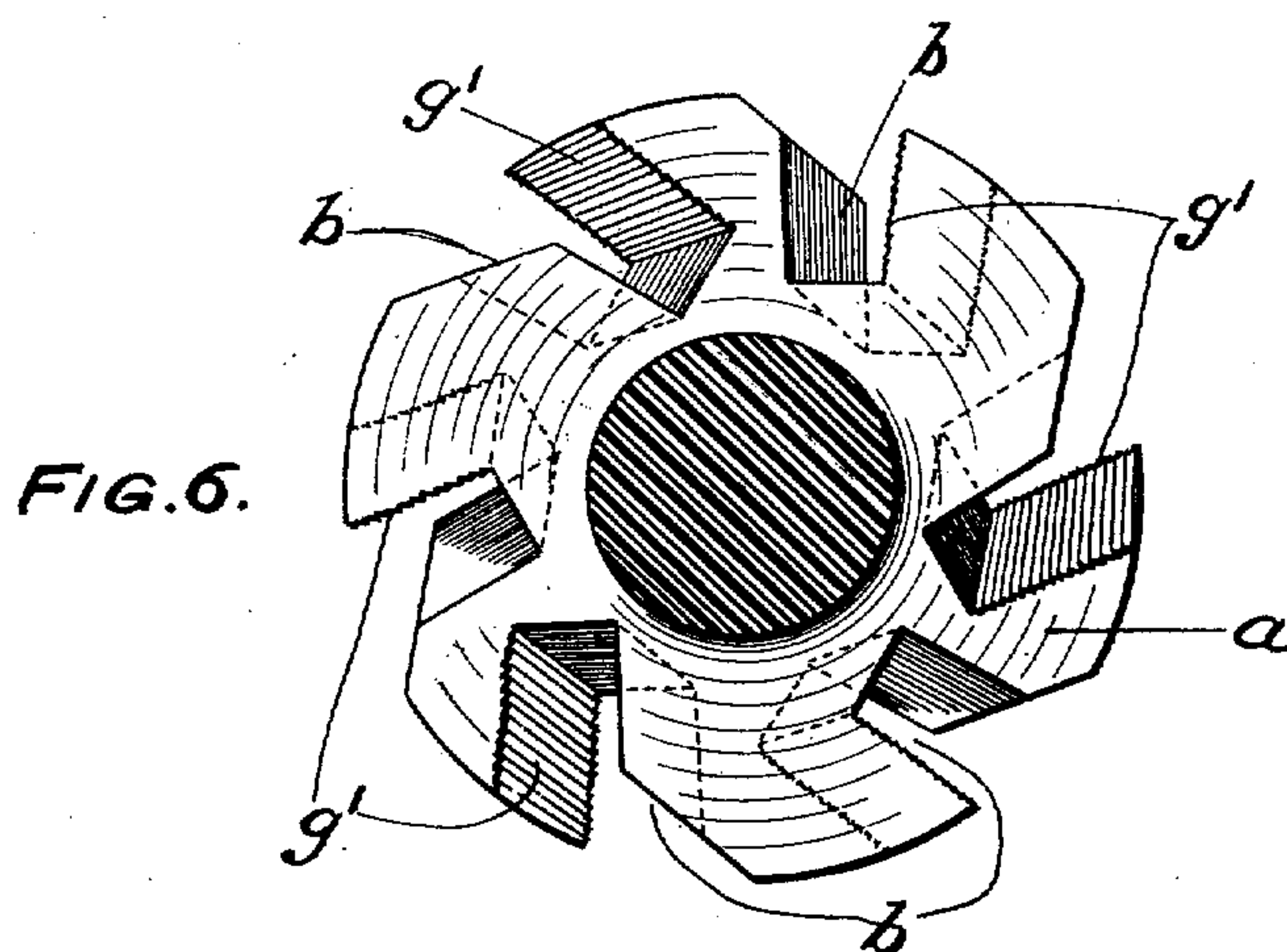
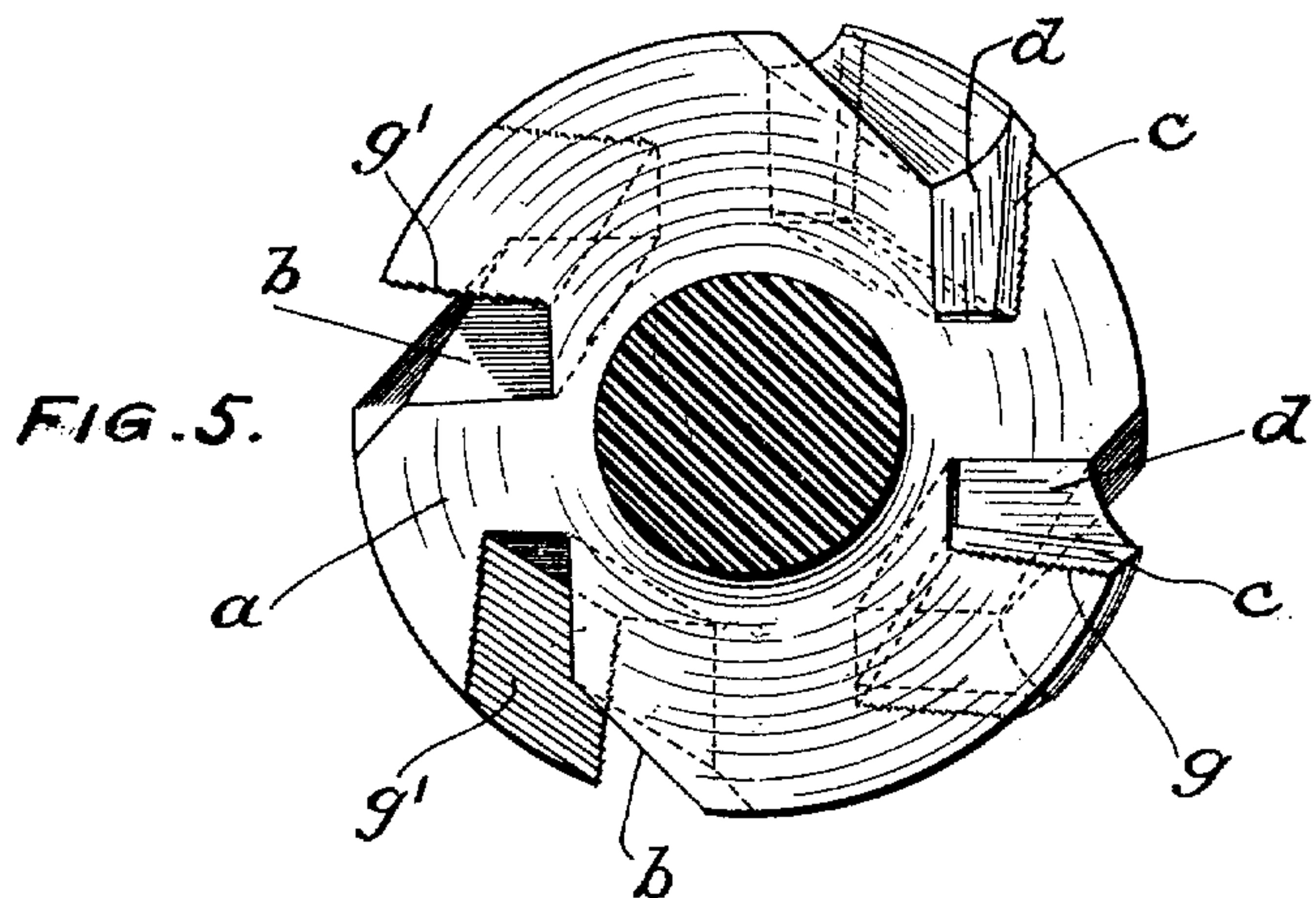
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# UNITED STATES PATENT OFFICE.

WILLIAM O. VIVARTTAS, OF CANTON, OHIO.

CUTTER-HEAD FOR WOODWORKING MACHINERY.

978,414.

Specification of Letters Patent.

Patented Dec. 13, 1910.

Application filed March 12, 1909. Serial No. 482,878.

*To all whom it may concern:*

Be it known that I, WILLIAM O. VIVARTTAS, a citizen of the United States, residing at Canton, county of Stark, and State of Ohio, have invented a new and useful Improvement in Cutter-Heads for Woodworking Machinery, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

The object of my invention is to provide a cutter-head carrying thereon a number of blades or knives adapted in the rotation of the block to produce a shear cut upon the work traveling past it, to so construct the cutter-head that perfectly flat blades or knives may be employed, and to provide a simple and effective means for adjusting the knives to vary the distance of their cutting edges from the axis.

In the drawings: Figure 1 is an end view of the cutter-head; Fig. 2 is a side elevation of the same; Fig. 3 is a side elevation of the knife or blade; Fig. 4 is a side elevation of another embodiment of my invention; Figs. 5, 6 and 7 are end views of still other embodiments.

*a* represents the cutter-head having formed therein four longitudinal grooves *b, b, b, b*, each of which, in its longitudinal extension, intersects a plane described on the axis of the block and respectively converges toward, and diverges from, the two adjacent grooves. It will also be noted that no two of said grooves are parallel and that the base lines of any two adjacent grooves converge toward planes described on the axis of the head-block between the same. By this arrangement, in the rotation of the cutter-head, one end of the mouth of each groove is in advance of its other end, while the end of the mouth of the next adjacent groove corresponding to the last-named end of the first groove is in advance of its other end; so that when the knives *c, c*, etc., are inserted in their respective grooves, they will each produce a shear cut on the work, one knife commencing to cut at its left hand end, the next knife at its right hand end, and so on alternately. It will also be observed that as the distance of each point of each knife edge from a plane described on the axis progressively increases from one end to the other, the angle of the knife to the work, as it revolves in contact with the work, progressively decreases, so as to produce ini-

tially a relatively scraping action merging into a final planing action. It will also be observed that the depth dimension of each groove at different cross-sections lies in the planes of different chords of the head and that each groove lies entirely at one side of radii perpendicular to said chords.

The provision of longitudinal grooves in the cutter-head enables knives to be carried by the cutter-head in a very simple and effective manner by inserting devices in the grooves alongside the knives and confining the knives between said devices and one wall of the groove. In Figs. 1 and 2, there is shown a simple wedge-shaped key or filling piece *d*, which, after the insertion of the knife, is inserted into the groove alongside the knife and driven toward the base of the groove until the knife is securely locked in position.

In Fig. 4 a modification is shown, in which a gib *e*, partly fitting the space between the knife and one wall of the groove, is substituted for the key, and screws *f*, projecting from the gib toward the said wall, are tightened against the wall, thereby confining the knife by direct lateral pressure. The base of each groove and the base of each knife is formed preferably perfectly straight, so that, by reason of their described angular extension relatively to the axis of the head-block, while the opposite ends of the same are at equal distances from the axis, the distance of the same from the axis progressively increases from the center of the same toward the opposite ends of the same. The cutting edge of the knife, which is perfectly rigid, is ground so as to present a cutting edge convexly curved in the direction of its length so that every point thereof is equidistant from the axis of the head-block. This provides a knife of great strength and a cutting edge which is perfectly adapted for accurate work. The walls of the groove are also preferably perfectly straight and the knife is perfectly flat. The flatness of the knives is a feature permitted by the construction of cutter-head hereinbefore described and is a feature of considerable importance as it dispenses with the necessity of springing the knives down over a convexed surface, which is highly objectionable.

The shape of the cutter-head may be varied. In the embodiment of my invention shown in Figs. 1, 2 and 4, I take a cylin-



drical block and cut therefrom four solid sectors, forming a block whose sides are of trapezoidal shape in which the wide end edge of each side or face and the narrow end edge of each adjacent side or face are at the same end of the block. The original block is preferably not cut to a depth that eliminates completely the original curved surface, but only sufficiently to provide a bevel at the adjacent side edges of adjacent faces. Disregarding such bevels, the opposite end faces of the block present perfect oblongs whose longer dimensions are at right angles one to the other, while a section through the center of the block would present a perfect square.

Having so formed the block, the grooves are forced in the four trapezoidal sides, each groove being relatively close to the side edge and preferably alining substantially with the boundary line of the bevel, which brings the groove closer to the plane of the nearest adjacent side face at the wide end of the side in which it is formed than at the narrower end thereof. Or the grooves may be first formed and the sides afterward planed off to form the trapezoidal faces. This trapezoidal shape of the sides of the cutter-head is not, however, an essential, or even an important, feature of the invention. For example, in Fig. 5 I have shown a cylindrical shaped cutter-head which differs from that shown in Figs. 1, 2 and 4, in that the block is not planed off to form sides of trapezoidal shape but is left perfectly round. This form presents certain advantages over the trapezoidal shape. It is somewhat cheaper to make, and there being a solid cylinder to back up the knives, it will run with perhaps greater steadiness. The circular shape is also adhered to in the cutter-head shown in Fig. 6, in which it will be noticed that the number of knife-receiving grooves are increased to six. It is not necessary, although it is preferable, that the knife-receiving grooves should incline in alternately opposite directions, as they all may incline in the same direction; that is, all the grooves may converge with respect to each other from one end of the cutter-head to the other, as shown in Fig. 6.

In order to afford a means of adjusting the knife, the face of the knife opposite that carrying the cutting edge and that abuts against the wall of the groove is formed with longitudinally extending notches or serrations *g* (see Figs. 1 and 3), which fit into similar notches or serrations in said wall of the groove. When the knife is worn and re-sharpened, thus decreasing its width, the base of the knife may be set out a distance of one notch and held in that position. This engagement between the knife and the abutting wall of the groove not only affords a means of adjusting the knife, but also enables the key to more securely hold the knife in its pocket, and further enables all the knives to be readily adjusted so that their several cutting edges are equidistant from the axis of the head block.

Having now fully described my invention, what I claim and desire to protect by Letters Patent is:—

1. A cutter head comprising a head block having therein longitudinal grooves each of which has a plane side wall whose depth dimensions at different cross-sections lie in the planes of different chords of the head, is located entirely at one side of radii perpendicular to said chords, intersects in its length dimension a plane described on the axis of the head, and converges toward an adjacent groove, and knives inserted in said grooves.

2. A cutter head comprising a head block having therein longitudinal grooves, and knives inserted in said grooves, each of which knives has a plane side whose depth dimensions at different cross-sections lie in the planes of different chords of the head, is located entirely at one side of radii perpendicular to said chords, intersects in its length dimension a plane described on the axis of the head and converges toward an adjacent knife.

In testimony of which invention, I have hereunto set my hand, at Canton, Ohio, on this 8th day of March, 1909.

WILLIAM O. VIVARTTAS.

Witnesses:

H. B. WETTER,

FLOSSIE E. WEIDLER.