R. NAATZ.

Cutter-Head for Frizzing-Machines.

No. 203,552. Patented May 14, 1878.

Fig. 1.

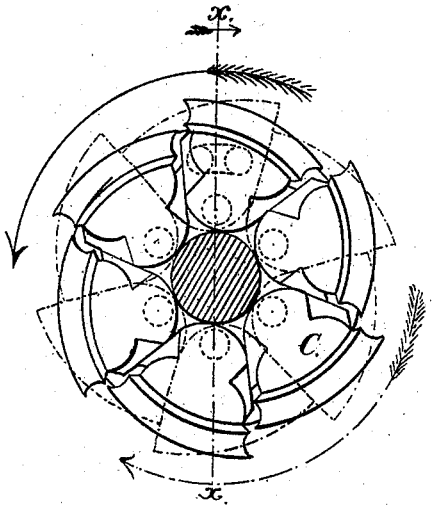


Fig. 2.

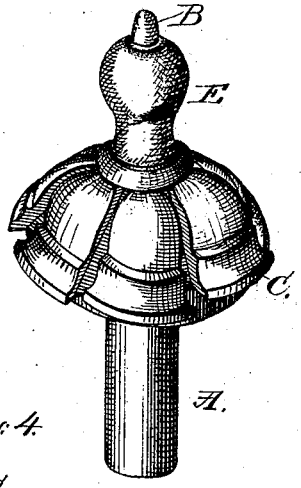


Fig. 4.

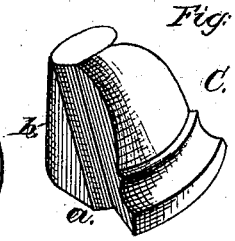


Fig. 5.

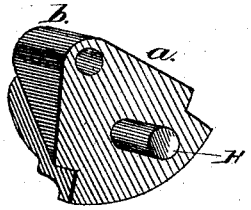
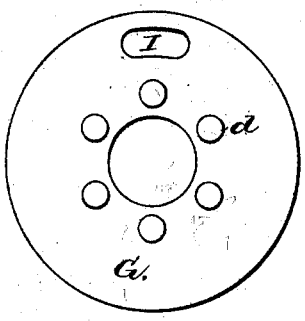


Fig. 3.

Fig. 6.



WITNESSES:

W. M. Evans.

F. B. Gropp

INVENTOR.

Rudolph Naatz

Per: Alf. Schiermeyer

ATTORNEY.

UNITED STATES PATENT OFFICE.

RUDOLPH NAATZ, OF BERLIN, PRUSSIA, GERMANY.

IMPROVEMENT IN CUTTER-HEADS FOR FRIZZING-MACHINES.

Specification forming part of Letters Patent No. **203,552**, dated May 14, 1878; application filed January 9, 1878.

To all whom it may concern:

Be it known that I, RUDOLPH NAATZ, of the city of Berlin, in the Kingdom of Prussia, German Empire, have invented a new and useful Improvement in Cutting and Planing Heads for Working Wood, Metal, &c., of which the following is a specification:

My invention relates to the class of frizzing-bits or rotary cutters for wood and metal working machines which are reversible, so as to present a cutting-edge in either direction; and the invention consists in the construction and arrangement of parts, which will be hereinafter more fully explained, and then specifically set forth in the claims.

In the accompanying drawing, forming part of this specification, Figure 1 is a transverse sectional view, representing the arrangement of the cutting-bits when operating in either direction. Fig. 2 is a perspective view of the complete cutter-head. Fig. 3 is a vertical sectional view of the latter. Figs. 4 and 5 are detached views of one of the cutters. Fig. 6 is a face view of a plate upon which the cutters are adjustable.

The letter A denotes the cutter-spindle of a planing, molding, or other wood-working machine. It is provided with a shank, B, for the bits C, and with an inside collar or shoulder, D, for supporting the bits. The shank B is screw-threaded, and receives a long nut, E, which serves to retain the bits or cutters in position. The bits or cutters are of a segmental shape, and have straight sides *a* and a convex or rounded back, *b*, as is shown more fully in Figs. 4 and 5. The external configuration of the bits is substantially the same as in the ordinary bits in common use. In the common form of cutter-head, in which the bits are reversible, it is necessary to leave a space between each pair of bits, so as to enable the same to be adjusted.

In the present instance I use a larger number of bits than usual heretofore in reversible cutters, and construct and arrange the bits in such a manner that they will mutually support each other, being always held in contact in the different positions in which they may be set. The proper oscillation of the bits in a circumferential direction is effected by means of the pivot-pins *d* on a supporting-plate, G, which pins enter holes *e* in the bits, and thus enable the latter to turn on said pins. One of the bits is provided with a pin, H, which enters a curved slot, I, in the supporting-plate G, and determines the movement of the bits in either direction. The convex or rounded backs of the cutters permit the rocking of the same on the shank of the cutter-spindle, so as to set either the right or left hand cutting-edge forward or backward. In case the right-hand cutting-edge of the bit is engaged in cutting the wood, the left-hand edge is thrown backward and inward, thus leaving a space for clearance in rear of the cutting-edge. By making the backs of my bits convex and arranging them upon a supporting-plate having pivot-pins and a regulating-slot, I can use an indefinite number of bits, always more than four, and produce a cutter-head which is far more effective than those hitherto known. The bits in my invention move together, because they are always in contact, and thus they can be more easily adjusted. The adjustment can take place when the retaining-nut or outside collar E is loosened, and the bits are tightened or held stationary when said nut is tightened up again.

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

1. In a cutter-head, the combination of the segmental cutters or bits, having straight sides and a rounded or convex back, with the cutter-spindle, bottom or inner supporting-collar, and outer or upper binding nut or collar, as and for the purpose herein set forth.

2. The combination of the supporting-plate G, having the pivot-pins *d* and arc-shaped or curved slot I, and the bits or cutters C, having rounded backs *b*, holes *e*, and pin H, with the cutter-spindle and binding-nut, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

RUDOLPH NAATZ.

Witnesses:

ANDREAS KUMT,

WILHELM HEMPERT.