(No Model.)

# J. N. BRIGGS.

## CUTTER FOR ICE PLANERS.

No. 422,566. Patented Mar. 4, 1890.

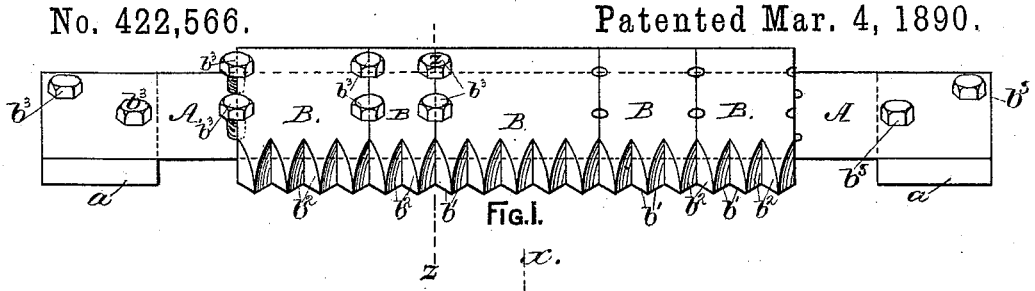

Fig. 1.

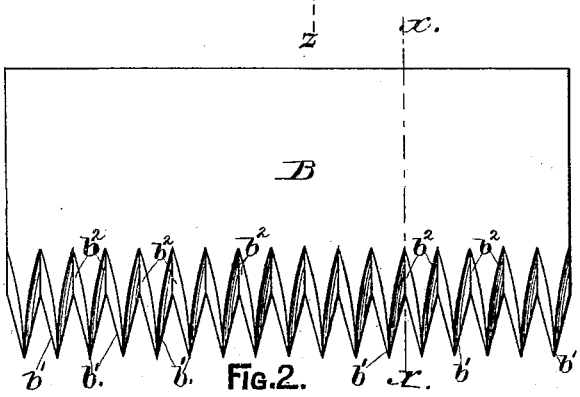

Fig. 2.

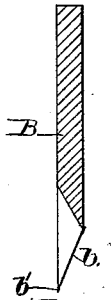

Fig. 3.

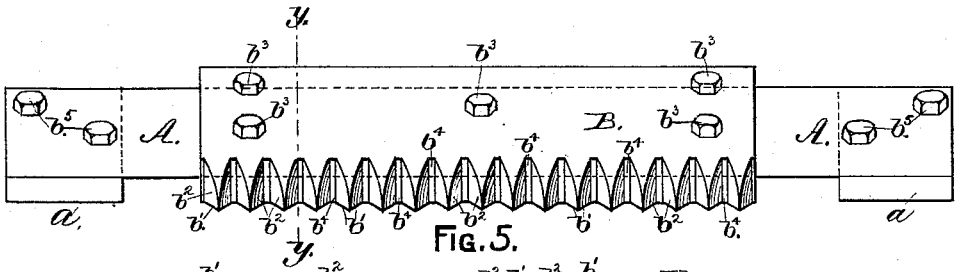

Fig. 5.

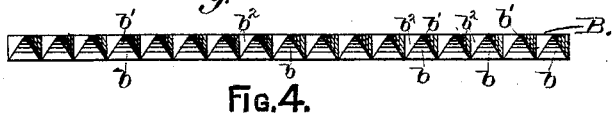

Fig. 4.

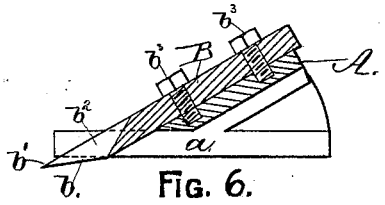

Fig. 6.

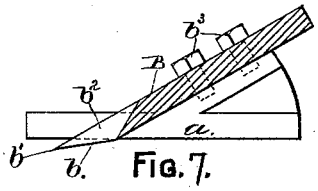

Fig. 7.

**Witnesses:**

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Attorneu.

# UNITED STATES PATENT OFFICE.

JOHN N. BRIGGS, OF COEYMANS, NEW YORK.

## CUTTER FOR ICE-PLANERS.

SPECIFICATION forming part of Letters Patent No. 422,566, dated March 4, 1890.

Application filed December 10, 1886. Serial No. 221,199. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN N. BRIGGS, of Coeymans, in the county of Albany and State of New York, have invented new and useful Improvements in Cutters for Ice-Planers, of which the following is a specification.

This invention relates to improvements on the cutter-teeth shown and claimed in Letters Patent No. 346,576, granted to me on the 3d day of August, 1886; and the object of this present invention is to provide cutters having teeth that are in substantially the same form as those shown in the said patent, but which, instead of being in single chisels which are separately removable from the cutter-head, are made in sections of two or more teeth, which may be secured to the cutter-head to form a cutter of the required width. This object I attain by means of the construction illustrated in the accompanying drawings, which are herein referred to and form part of this specification, and in which—

Figure 1 is a front elevation of a cutter-head with the cutters composed of sections shown in an inclined position; Fig. 2, a plan of a detached cutter-plate; Fig. 3, a transverse section of Fig. 2 at the line *x x;* Fig. 4, an edge view of the lower edge of Fig. 2; Fig. 5, a front elevation of a cutter-head provided with a modified form of my cutters, with the latter shown in an inclined position; Fig. 6, a transverse section of Fig. 1 at the lines *z z*, and Fig. 7 a transverse section of a cutter-head in which a continuous plate of cutters connects the two shoes.

As represented in the drawings, A is the cross-bar of the cutter-head, which cutter-head, as shown in Figs. 1, 5, and 6, consists of said cross-bar secured to the shoes *a*, that are adapted to rest upon the inclined string-pieces of an ice-elevator in such manner that said cutter-head will be immovably held from attaining a sidewise motion, and which maintain the cutters at the required angle in respect to the inclination of said elevator.

The cutter B, which is made of plate-steel or other suitable material, has a beveled face *b* formed at the lower part of its under side. The lower edge of said cutter is serrated to form the pointed teeth *b'*, and each of said teeth is beveled backward on its upper face to form a V-shaped depression $b^2$, whereby a sharp cutting-edge is produced at each edge of every tooth, so that a cross-section near the point of each tooth will present a triangular form, of which the beveled face *b* will form the base of the triangle. Said cutters may be secured by bolts $b^3$ to the cross-bar of the cutter-head A, and may be made either of a continuous plate of a length that is equal to the entire width of the cutter, as shown in Fig. 5, or it may be made in sections of two or more teeth, which are bolted to the cutter-head A, as shown in Fig. 1; but, when preferred, said cutter may be extended in length and bolted at each end directly to the shoes *a*, as shown in Fig. 6, and in the latter case the cross-bar A of the cutter-head may be dispensed with.

When the cutter is made with teeth having the form shown in Figs. 1, 2, 3, and 4, and is held in an inclined position, as shown in Figs. 6 and 7, cakes of ice forced under said cutter in a line parallel to the lower flange of the shoes *a* will have their upper surfaces planed, so as to leave a series of shallow V-shaped grooves or corrugations that will correspond to the outline of the cutting-edges of the teeth of said cutter, as shown in Fig. 1.

In the modification shown in Fig. 5 the pointed teeth *b'* are made in the form hereinbefore described; but a straight space or landing $b^4$ is formed between all the adjoining teeth, and when the cutter is in the form last described the cakes of ice operated upon will have their upper surfaces planed with shallow V-shaped grooves separated by level-faced surfaces conforming to the outline of the cutting-edge shown in Fig. 5.

I claim as my invention—

In an ice-planer, the combination of a cutter-head that is held in an immovable position in respect to any sidewise movement and a cutter consisting of a metallic plate which has the under side of its lower edge beveled upwardly, said lower edge being provided with a series of pointed teeth, each having its upper surface beveled toward the cen-

tral line of the tooth, whereby will be formed an angular groove between the adjoining teeth, a sharp cutting-edge at both sides of each tooth, and a sharp triangular point at the entering end of each tooth, said angular grooves being only carried partially across said plate, and said teeth being so arranged that their sharpened points will first enter the ice and operate in advance of the side cutting-edges, as herein specified.

JOHN N. BRIGGS.

Witnesses:
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S. B. BREWER.