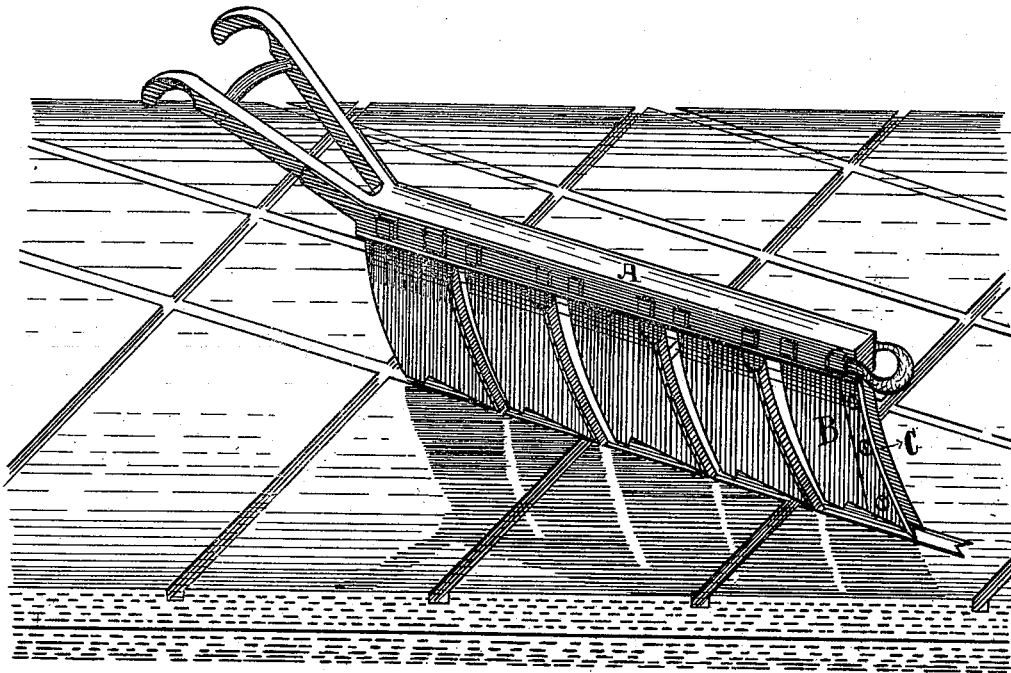


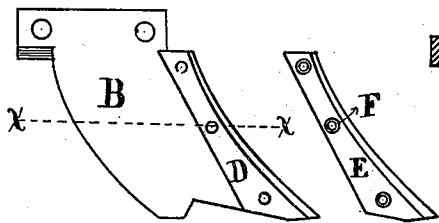
N. P. NELSON.  
 CLEARING-TEETH FOR ICE-PLOWS.

No. 193,828.

Patented Aug. 7, 1877.

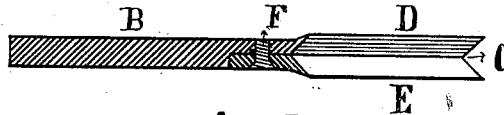


*Fig 1*



*Fig 2*

*Fig 3*



*Fig 4*

ATTEST,  
*W. C. Corlies*  
*E. S. Lloyd*

INVENTOR,  
**NELSON P. NELSON.**  
 By *Coburn T. Thacher*

ATTYS.

# UNITED STATES PATENT OFFICE.

NELS P. NELSON, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF HIS RIGHT TO ANSON S. PIPER, SETH PIPER, AND THOMAS PIPER, OF SAME PLACE.

## IMPROVEMENT IN CLEARING-TEETH FOR ICE-PLOWS.

Specification forming part of Letters Patent No. **193,828**, dated August 7, 1877; application filed January 22, 1877.

*To all whom it may concern:*

Be it known that I, NELS P. NELSON, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Clearing-Teeth for Ice-Plows, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a perspective view of an ice-plow with my clearing-tooth attached; Fig. 2, a detached view of my clearing-tooth with the removable side blade removed; Fig. 3, a side elevation of the removable side blade removed; and Fig. 4 is a sectional view of the clearing-tooth taken at the line *x x*, Fig. 2, showing the removable side blade attached to the clearing-tooth.

The object of my invention is to make a clearing-tooth for an ice-plow which will cut on the sides of the groove, and also present a concave front edge for carrying up the chips and ice, so that it is more readily removed from the groove than has heretofore been done by the use of a flat or oval-faced clearing-tooth.

I also facilitate the manufacture and the keeping the cutting-edges of the clearing-tooth in order by making one of the side blades of the clearing-tooth removable, as hereinafter fully specified.

My invention consists in making the front edge of the clearing-tooth concave and with side cutting-blades; also in making one of the side cutting-blades removable.

The clearing-tooth of an ice-plow is for the purpose of clearing the groove cut in the ice of the chips made by the cutting-teeth, and also of the snow and ice that is liable to gather and form in the groove before the operation of plowing is completed.

In the drawing, A represents an ice-plow with four ordinary cutting-teeth, and B my improved clearing-tooth. C is the concave front edge of the tooth. This front edge of

the tooth is provided with two side blades, D and E. The side blade D is made a part of the clearing-tooth B, but the side blade E is made removable, as clearly shown in the drawings, and is secured to the clearing-tooth B by means of screws F.

So far as the facility of removing the chips from the groove in the ice is concerned, the concave or grooved front of the clearing-tooth will do its work equally well whether the side blade E is removable or not; nor does the removability of this side blade E effect the result of cutting the sides of the groove in the ice, so as to make the cutting-teeth work freely in the groove. The side blade E is made removable for convenience and cheapness in manufacture, and also for the convenience of repairing and sharpening.

My clearing-tooth is superior in this, that it cuts, loosens, and raises snow and ice that may be broken in the groove without binding or clogging in the groove. It also decreases the draft of the plow to cut the sides of the groove slightly, as above described, so that it is slightly wider than the thickness of the plow.

Having fully described the construction and operation of my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an ice-plow, the forward or clearing tooth B, constructed with its front edge concave or grooved to its extreme point, whereby the channel is cleared by raising the ice therefrom, substantially as described.

2. The clearing-tooth B, constructed from two blades, D and E, having their front edges beveled to form a groove when arranged side by side, and the blade E being made removable, substantially as and for the purpose set forth.

NELS P. NELSON.

Witnesses:

L. A. BUNTING,  
E. S. LLOYD.