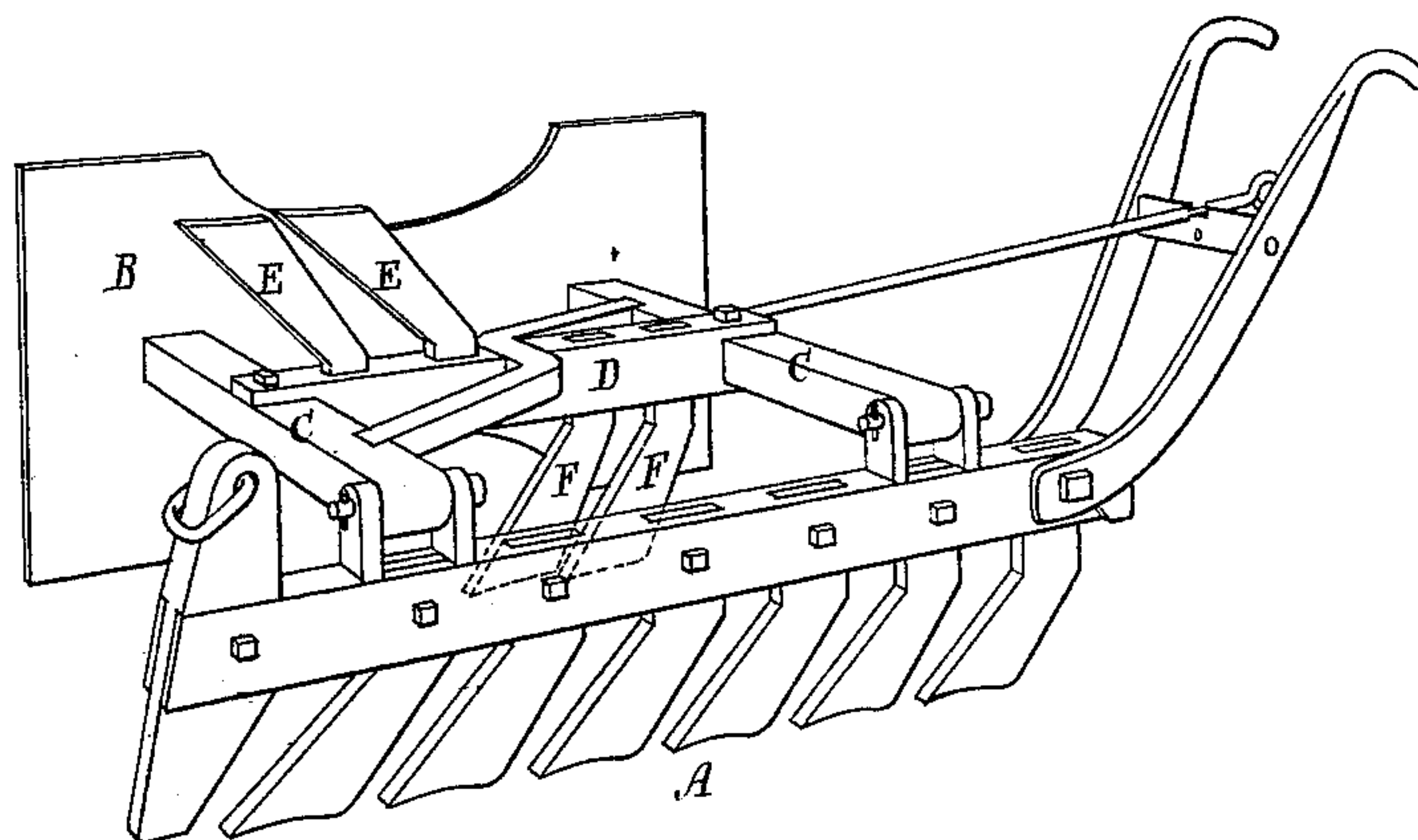


(Model.)

H. WARE.
Ice Grooving Plow.

No. 231,201.

Patented Aug. 17, 1880.



Witnesses
S. N. Piper
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UNITED STATES PATENT OFFICE.

HORACE WARE, OF MARBLEHEAD, ASSIGNOR TO HIMSELF AND THOMAS
G. WARDWELL, OF METHUEN, MASSACHUSETTS.

ICE-GROOVING PLOW.

SPECIFICATION forming part of Letters Patent No. 231,201, dated August 17, 1880.

Application filed March 8, 1880. (Model.)

To all whom it may concern:

Be it known that I, HORACE WARE, of Marblehead, in the county of Essex and State of Massachusetts, have invented a new and
5 useful Improvement in Ice-Grooving Plows; and I do hereby declare the same to be described in the following specification, and represented in the accompanying drawing, which is a perspective view of an ice-grooving plow
10 provided with my invention, in the carrying out of which I combine with a common ice-grooving plow and its reversible gage or guide an intermediate cutter-carrier affixed to the
15 arms of the guide and furnished with chisels or cutters extending in opposite directions from it, (the said carrier,) each set being for the purpose of marking or scoring the ice between the gage and main plow and parallel
20 to the path of movement of the gage while the plow may be in operation.

Generally speaking, such intermediate scoring of the ice is effected by a separate plow, and is accomplished for the purpose of marking the ice where it is to be split by wedges to
25 convert it into blocks or pieces of half the width it has preparatory to being stored in an ice-house.

In the drawing, A represents an ice-grooving plow of ordinary construction as provided
30 with a reversible guide or gage, B, which is connected to the plow by two arms, C C, that are hinged to the said plow in manner to enable

the gage or guide to be turned over and used on either side of the plow, as occasion may require. Extending between these arms, 35 and attached to them at their middles, is the auxiliary cutter carrier or bar D, provided with two sets of ice cutters or chisels, E E and F F, one of which sets projects upward from and the other downward from the carrier, in 40 manner as represented. Each set of such cutters or chisels is to score the ice or form in it a shallow groove while the plow may be making in it another or much deeper groove, the gage or guide being supposed to be extended 45 into a groove previously made in the ice, and serving with said gage to guide the plow in its proper direction to cause it to cut in a path parallel to the guide-groove.

From the above it will be seen that the auxiliary groove made in the ice by either set of 50 cutters E E or F F will be formed midway between the groove into which the guide B may extend and the groove made by the plow A.

I claim—

The combination of the ice-grooving plow A 55 and its reversible guide B, connected to it by arms C C, with the intermediate bar D and its cutters E F, all being substantially as and for the purpose or purposes specified.

HORACE WARE.

Witnesses:

R. H. EDDY,
W. W. LUNT.