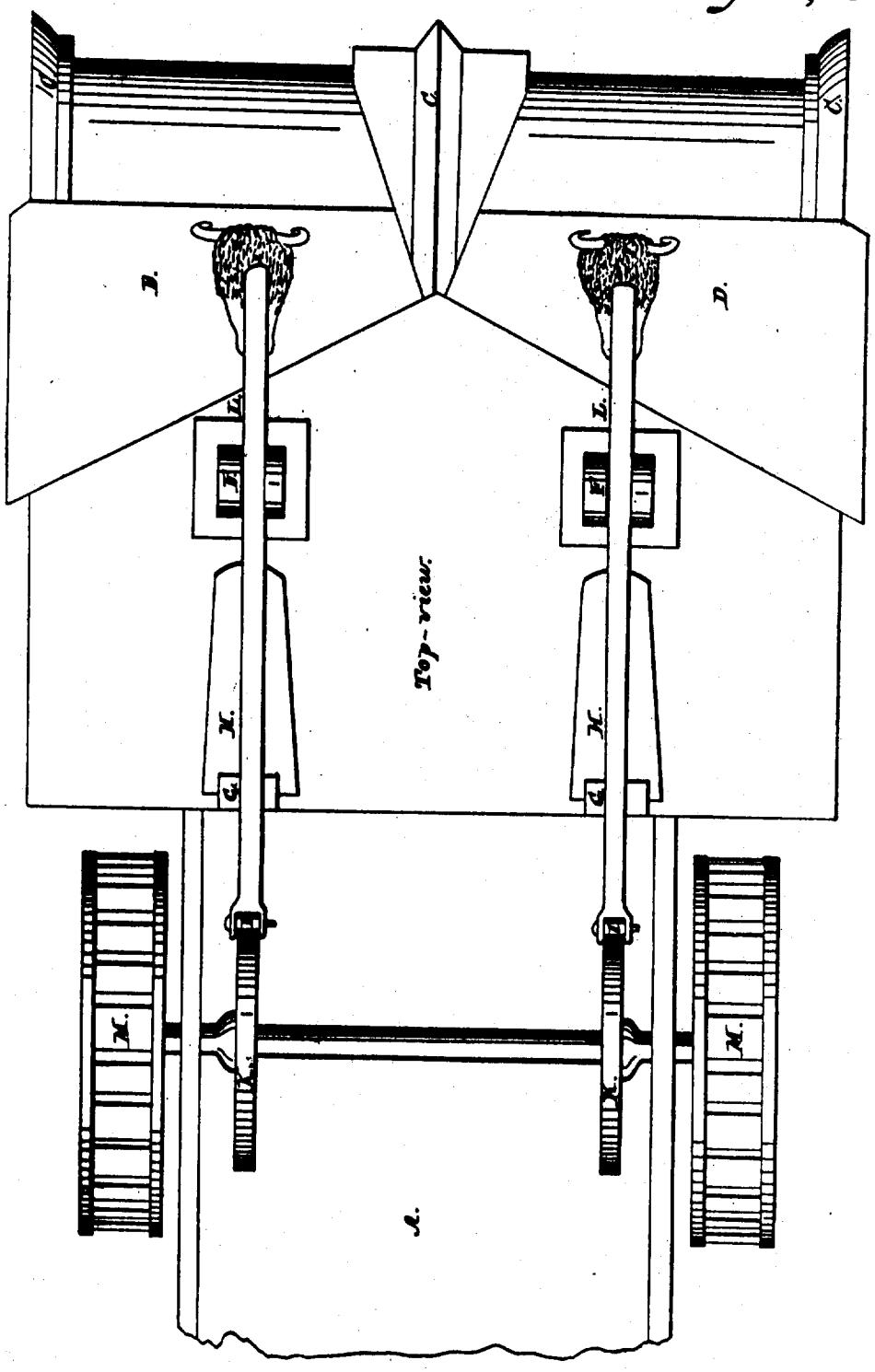
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Sheet 1. 2 Sheets.

M. Freytag.

Ice Breaker.

Patented July 2, 1836.



N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

o Printed Specification Available

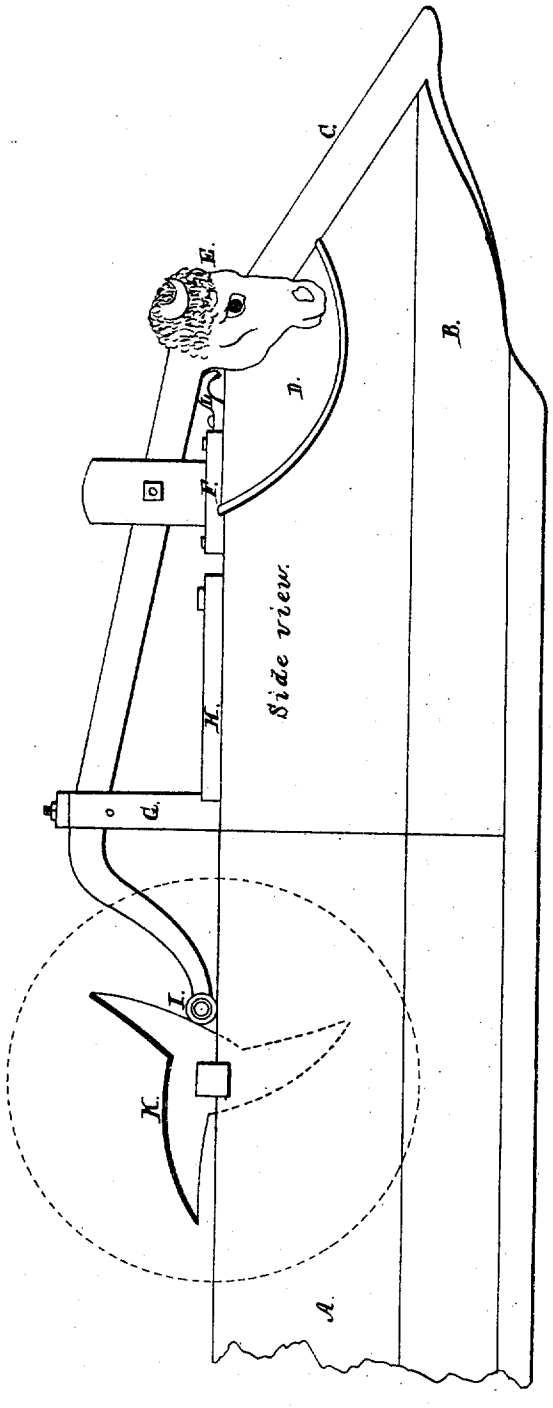
Sheet 2. 2 Sheets.

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N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

July 2. 1836

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Michael Shaytag

9869X

Letters Patent

The Schedule referred to in these Letters Patent and making part of the same containing a description in the words of the said Michael Shaytag himself of the "Improvement in the Ice Breaker"

Be it known that I Michael Shaytag of Moyamensing in the County of Philadelphia and State of Pennsylvania have invented a new and useful improvement being a machine for breaking harbours and other inland navigable waters called "Shaytag's Ice Breaker" which is described as follows reference being had to the annexed drawings of the same making part of this specification. The machine consists of a boat A. of a size and strength sufficient to contain and support the machinery required for propelling it and operating the hammers or ice breakers hereafter described and sustaining the shock necessarily produced in passing through thick ice. It is sharp at the bow like a common river boat plane B. B. is shaped with sides having two rises or more with easy ogees or curves C. well fastened on the upper side and upon which the ice slides as the boat advances. At the upper part of these inclined planes and supported by the same on each side there is a communication apron D. upon which the large pieces of ice are to be broken. These aprons also incline to the right and left and are curved like a spirally shaped ring for throwing the ice out of the way on each side. Two hammers E. something like a pile hammer each weighing from one to five tons or more if required are provided for breaking the ice upon the aprons. The centre of these hammers moves on centres F. placed near the bow of the boat. The long arm of each lever moves between guides G. set in a slide H. for throwing the hammers in and out of gear. At the long end of each lever is a friction bearing roller I. The hammers are raised by cams K. on the shaft of the propelling wheel which come in contact with the friction bearing rollers. The shaft has one or more cranks connected to the steam Engine or Engines in the usual manner and by which the machine is operated. The wheels of the boat are to be made very strong. Observation. The Engine or Engines being put in motion the boat is propelled forward, &c.

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Light

Hooage of the undine of the keel of the best light under deck and by the
square of the main or if without deck to the under side of the plank at the
ends of the undine from the outside of the bar by the fashion piece
to the upper side of the counter. The length of the keel by the rule shall be
the length from the fore part of the main stem to the after part of the
sternpost above the rabbet. The breadth shall be taken from the in-
side of the outer planks at the broadest part of the ship. The depth
shall be taken from the middle of the keel to the under side of the deck
at the midship beam. The tonnage shall be found by multiplying the
length by the breadth and the product by the depth and dividing the
product by 94. The quotient shall be the tonnage. Provided that
in the case of open vessels the tonnage shall be found by multiplying the
length by the breadth and the product by half the depth and dividing
the product by 94. The quotient shall be the tonnage.

Richard Shipley Esq

Mr. Ellis

Chas Hallowes

(Patent 2 July 1830)

Lord

Admty

Bradbury

[illegible] 75 [illegible]

2 July 1830