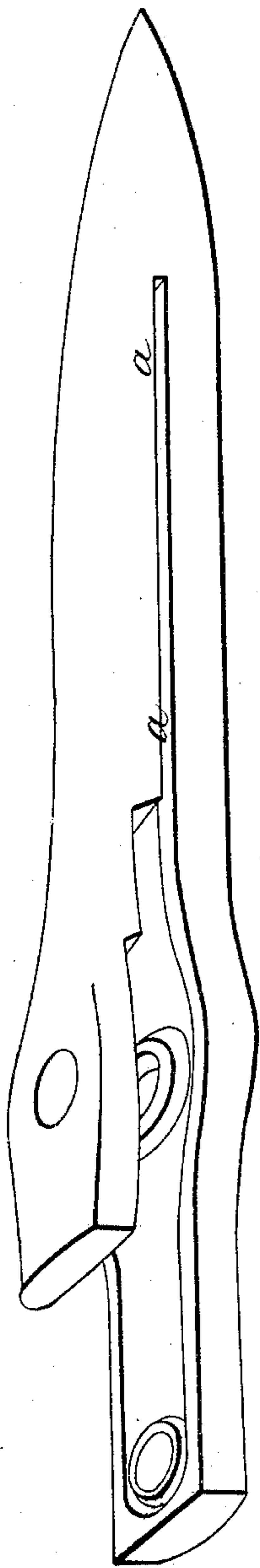


*M. G. Hubbard.*

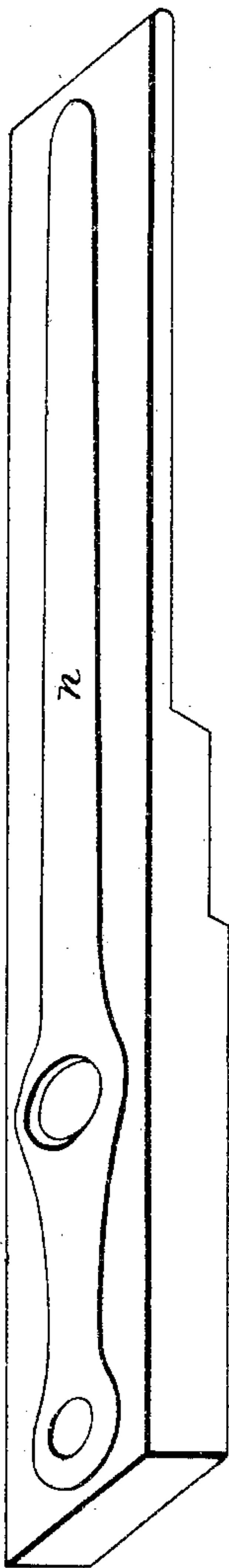
*Casting Harvester Teeth.*

*N<sup>o</sup> 16,183.*

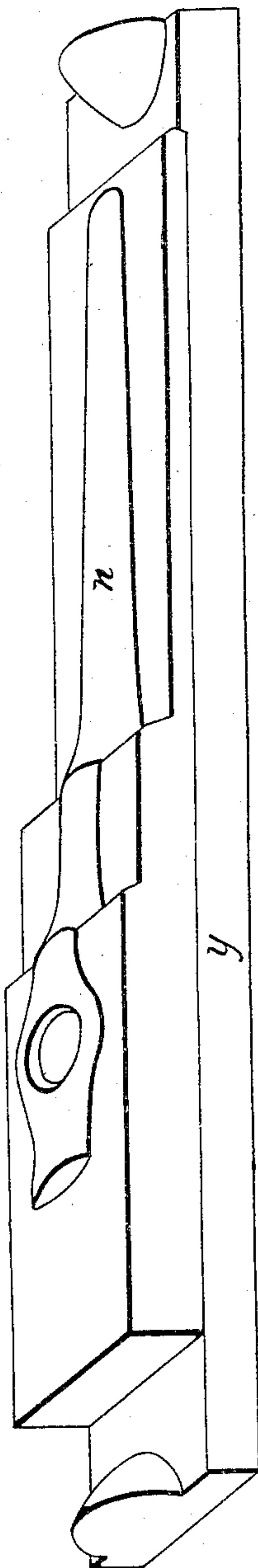
*Patented Dec. 9, 1856.*



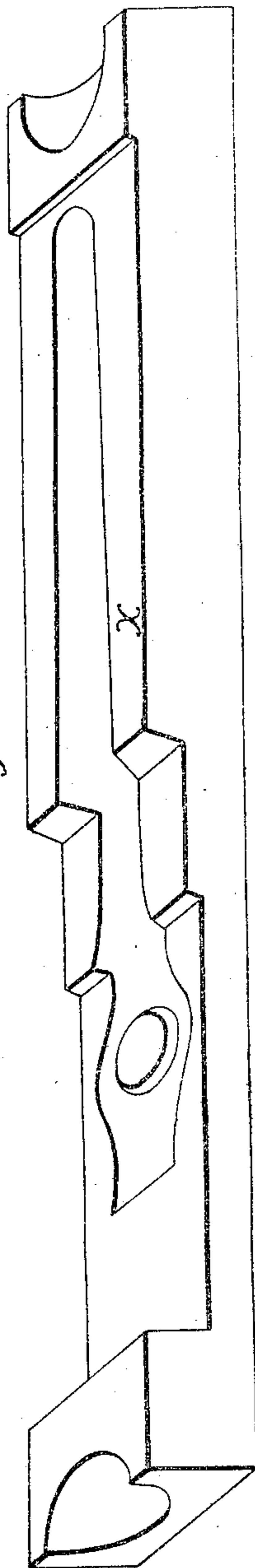
*Fig. 1*



*Fig. 3.*



*Fig. 2.*



*Fig. 4.*

# UNITED STATES PATENT OFFICE.

M. G. HUBBARD, OF PENN YAN, NEW YORK.

## TOOTH FOR REAPING-MACHINES.

Specification of Letters Patent No. 16,183, dated December 9, 1856.

*To all whom it may concern:*

Be it known that I, M. G. HUBBARD, of Penn Yan, in the county of Yates and State of New York, have invented certain new  
5 and useful Improvements in the Manufacture of Teeth for Mowing and Reaping Machines; and I herein describe and ascertain the same, referring to the accompanying drawings, in which—

10 Figure 1, is the tooth perfected. Fig. 2, is the upper side and Fig. 3, the under side of the core used in casting said teeth all in isometrical projection; Fig. 4 upper half of mold removed, or core box.

15 My devices are for the purpose of making a cheap and perfect tooth in which I insure great truth and a perfect figure at small cost. Ordinary cast iron teeth are found to require much finishing and are liable to break-  
20 age, and a wrought iron tooth is too expensive if properly made; besides it is found almost impossible to make either of them with perfect accuracy. My method of making the teeth is by casting in malleable iron  
25 and thus having all the advantages of a wrought iron tooth with a more perfect form than has ever been obtained by casting heretofore. For this purpose it is necessary to make a core true and accurate with  
30 sufficient substance to be protected from warping and to dry the same in exact form—

and further it is necessary to have the throat of the tooth at *a a* true and to make the casting as thin as practicable in order to make it thoroughly malleable. All these require- 35  
ments I accomplish by forming a rib *n* on the upper and under side, or one of them, by forming the core in a metal core box shown in Figs. 3 and 4. When the core is  
40 formed I remove the portion *x* of the core box, and set the core in the oven resting on the half *y*, of the core box which is a counterpart of that side of the core, in this way I insure the perfect accuracy of the core  
45 when dry and am enabled to make the teeth light and strong so as to be readily annealed in the process of making them malleable. The  
50 teeth require no finishing and are ready to be at once fitted to the finger bar where they are sure to come in line without adjustment.

Having thus fully described my mowing and reaping machine tooth what I claim therein as new is—

Forming a cast iron tooth substantially as herein described by constructing the core 55  
thereof in the manner set forth and for the purposes specified.

M. G. HUBBARD.

Witnesses:

D. W. BERTEMIN,  
W. JONES.