

(No Model.)

2 Sheets—Sheet 1.

H. HAMMOND.  
AX BLANK.

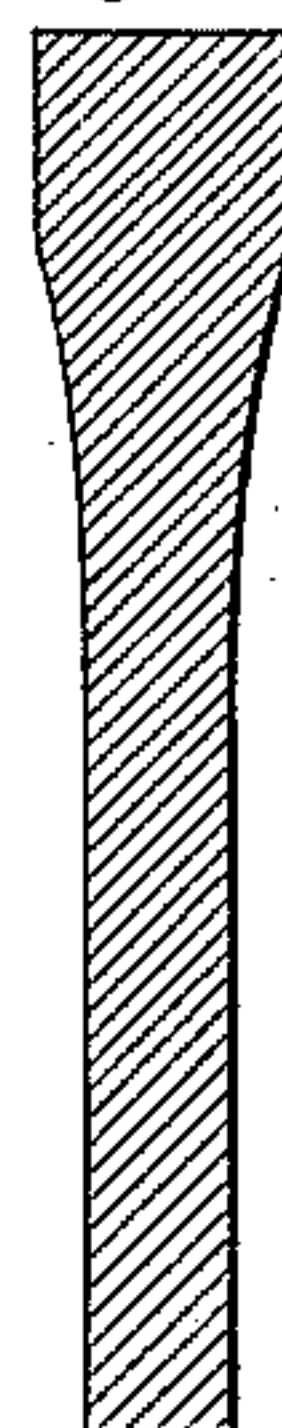
No. 334,948.

Patented Jan. 26, 1886.

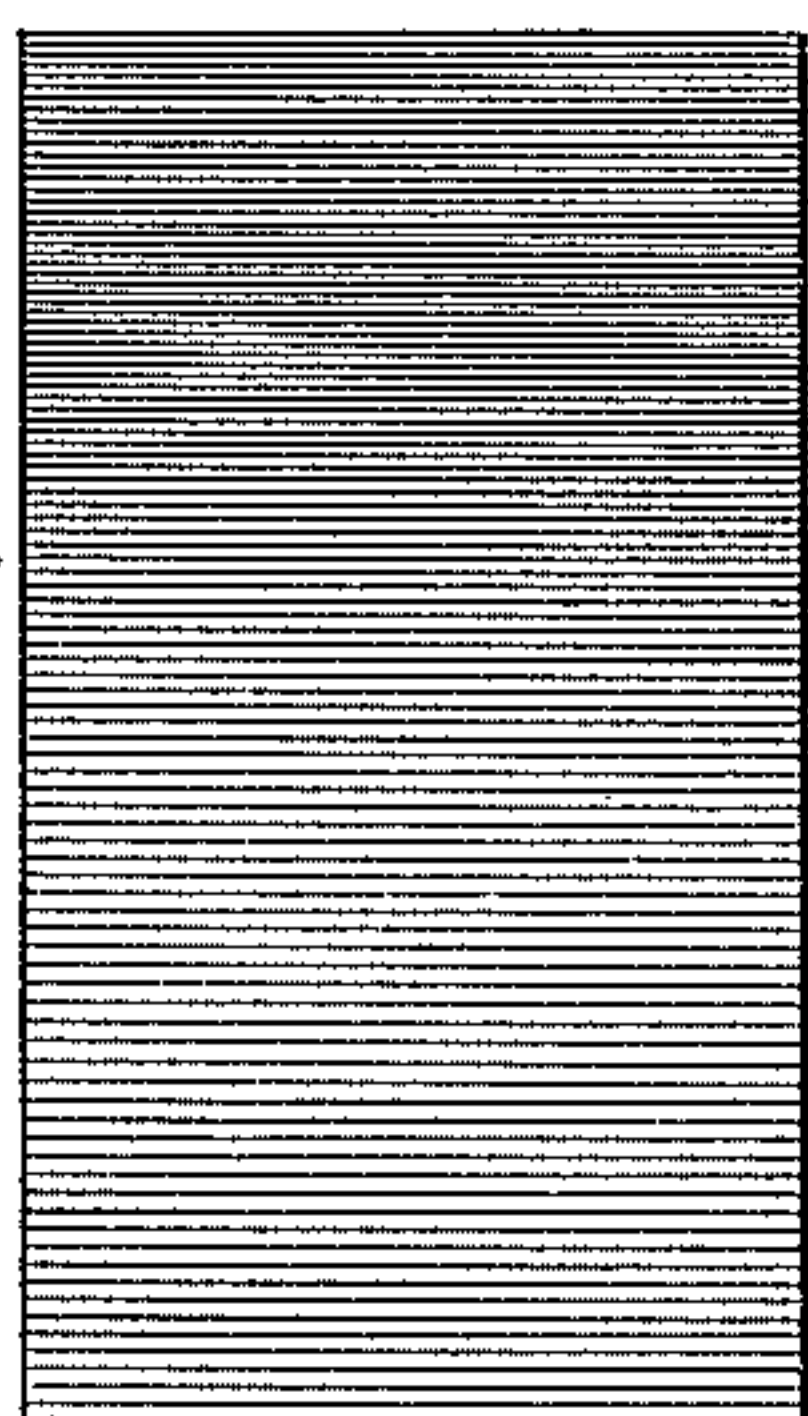
*Fig. 1*



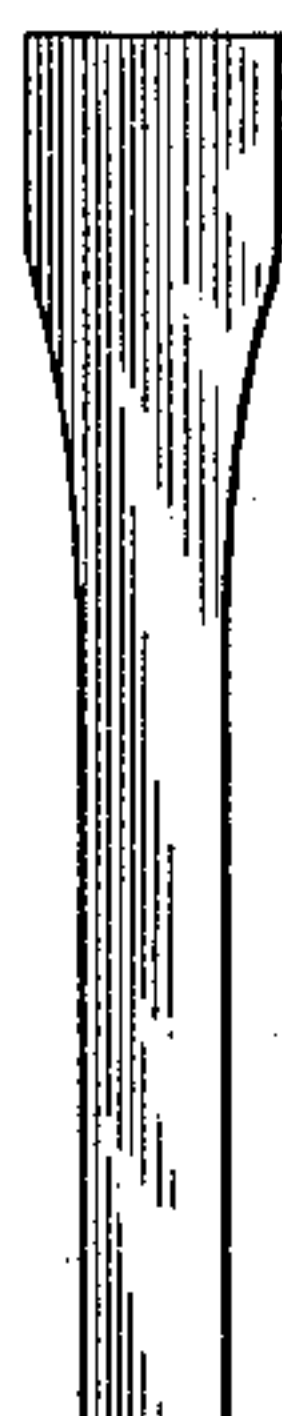
*Fig. 2*



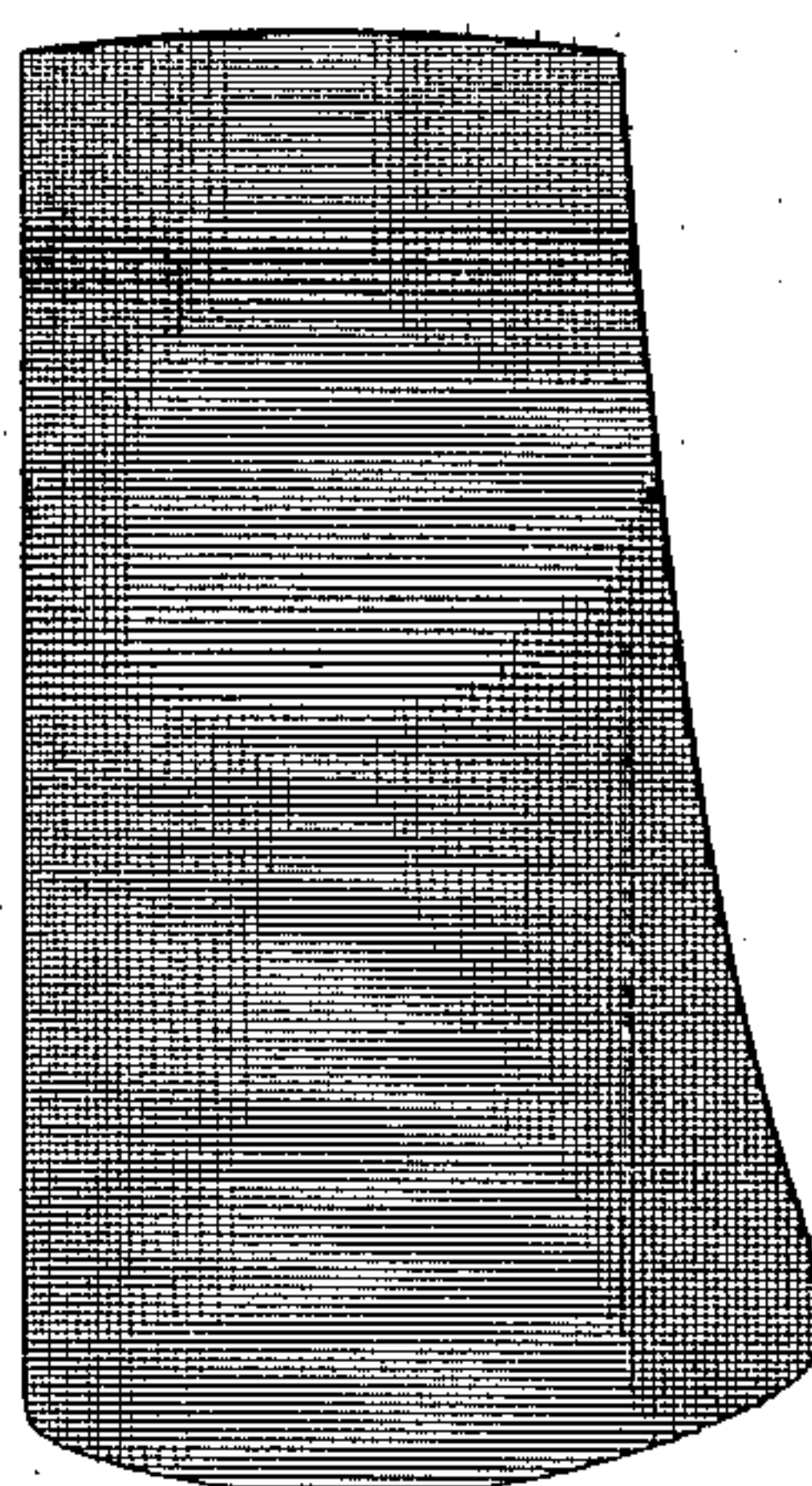
*Fig. 3*



*Fig. 4*



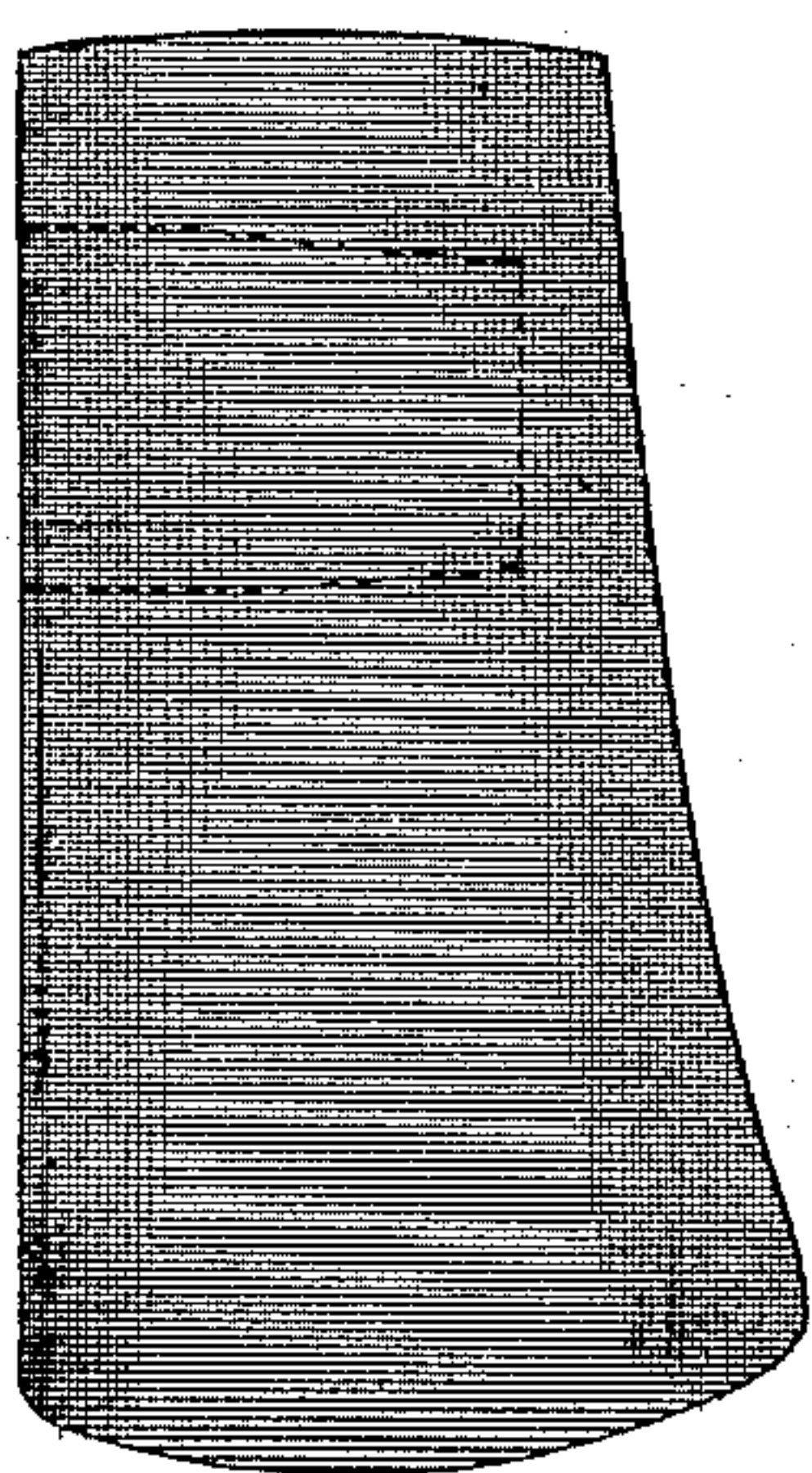
*Fig. 5*



*Fig. 6*



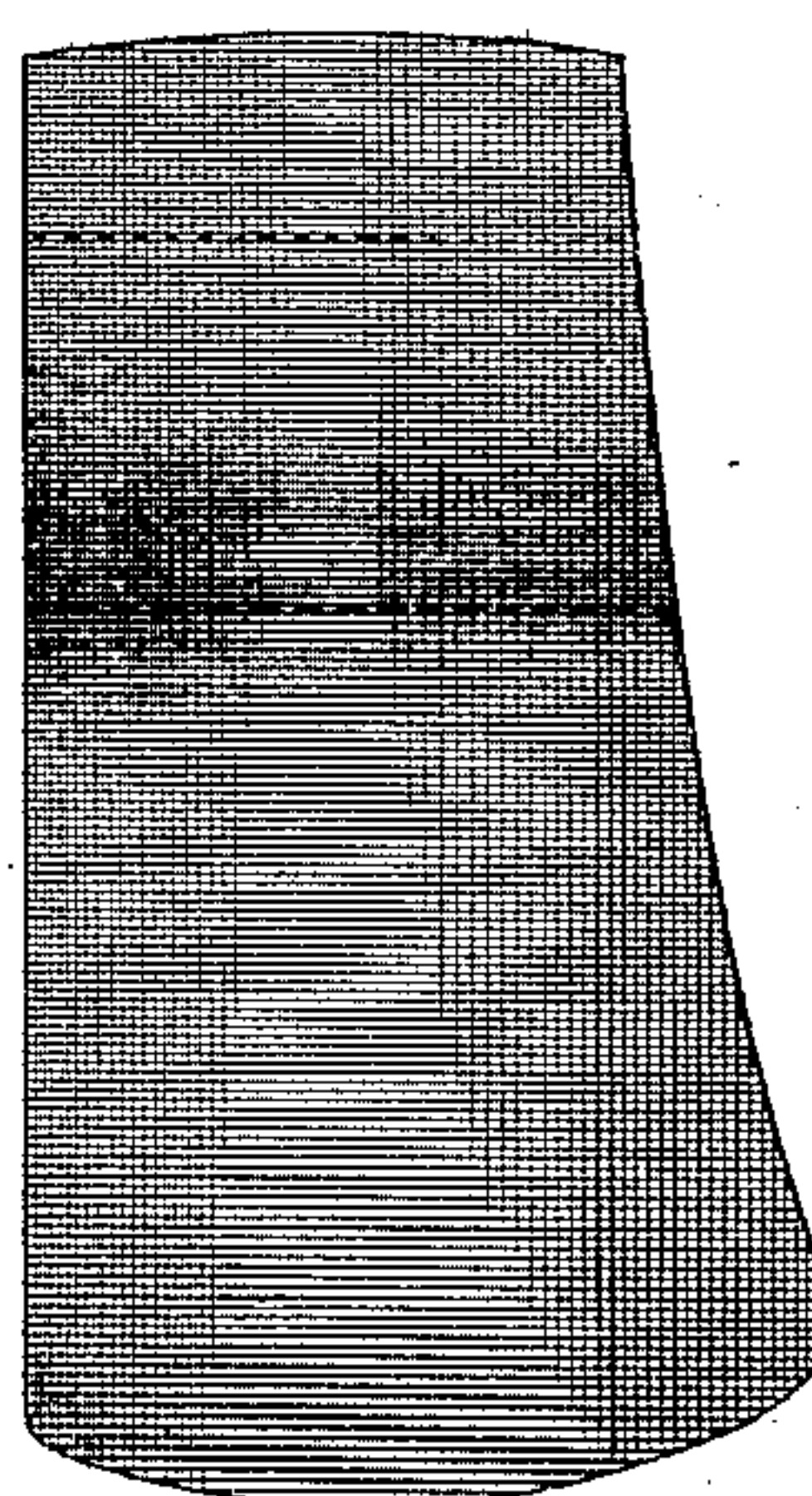
*Fig. 7*



*Fig. 8*



*Fig. 9*



*Fig. 10*



*Witnesses:*

Frank E. Hyde.  
Jm. W. Alden & Co.

*Inventor:*

Henry Hammond  
by Albert H. Walker, Att'y



(No Model.)

2 Sheets—Sheet 2.

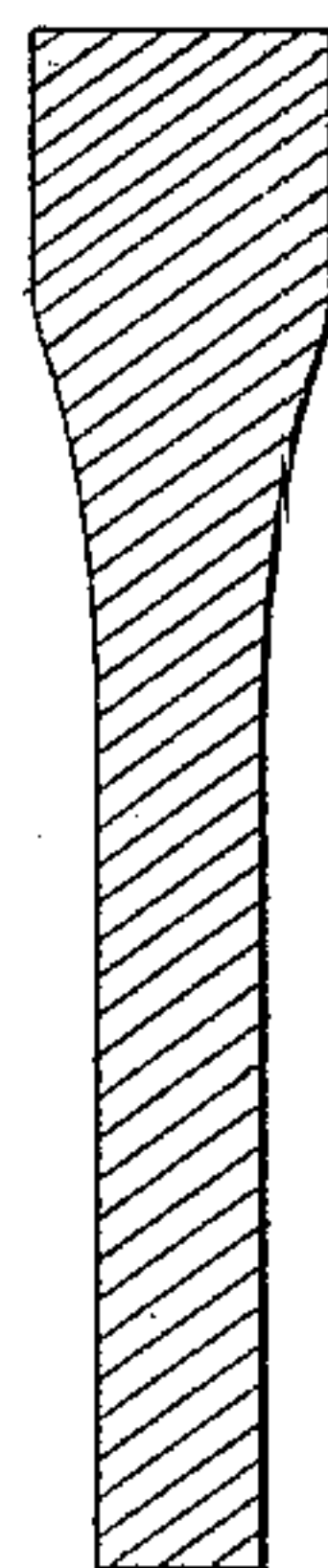
H. HAMMOND.  
AX BLANK.

No. 334,948.

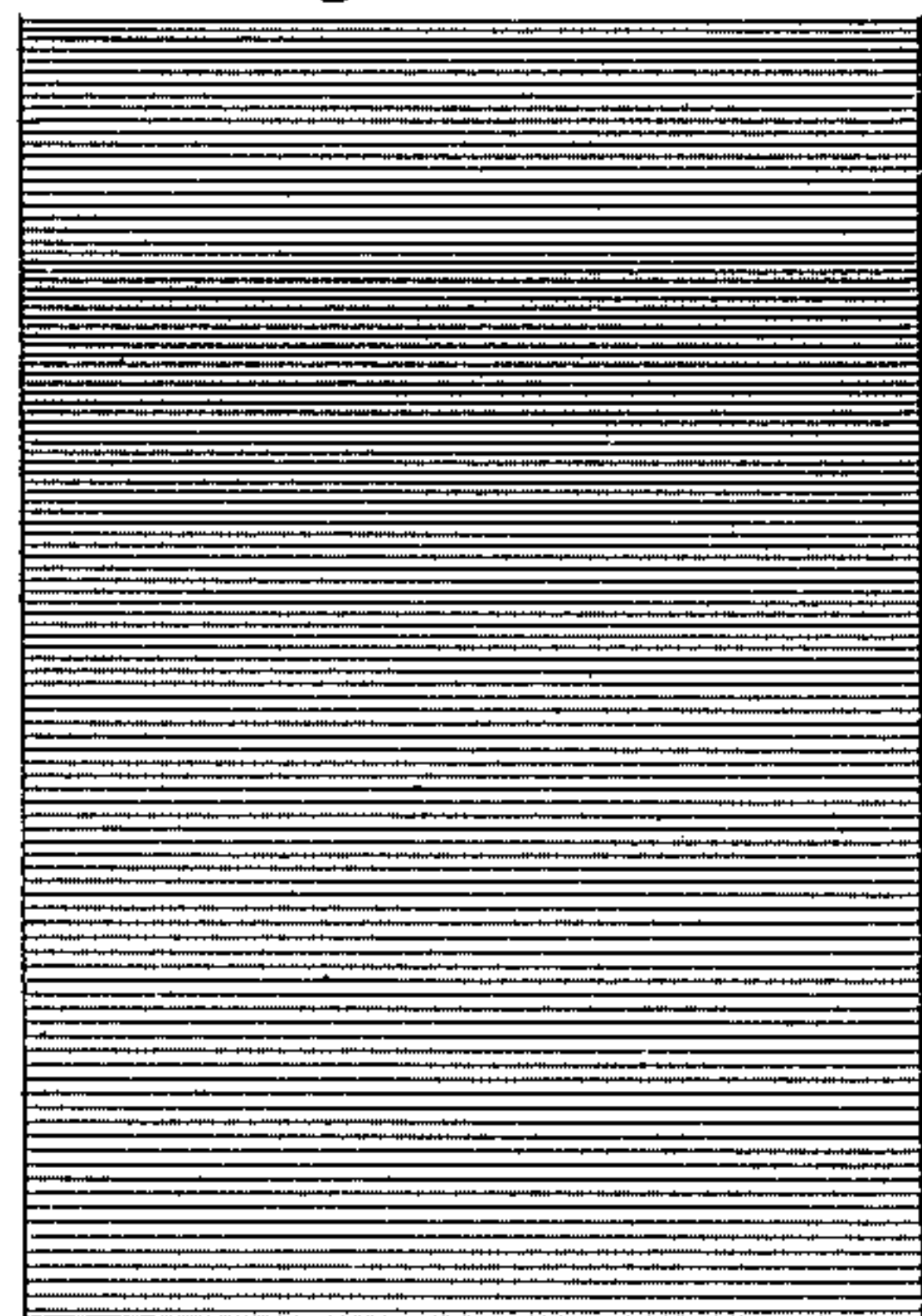
Patented Jan. 26, 1886.

*Fig. 11*

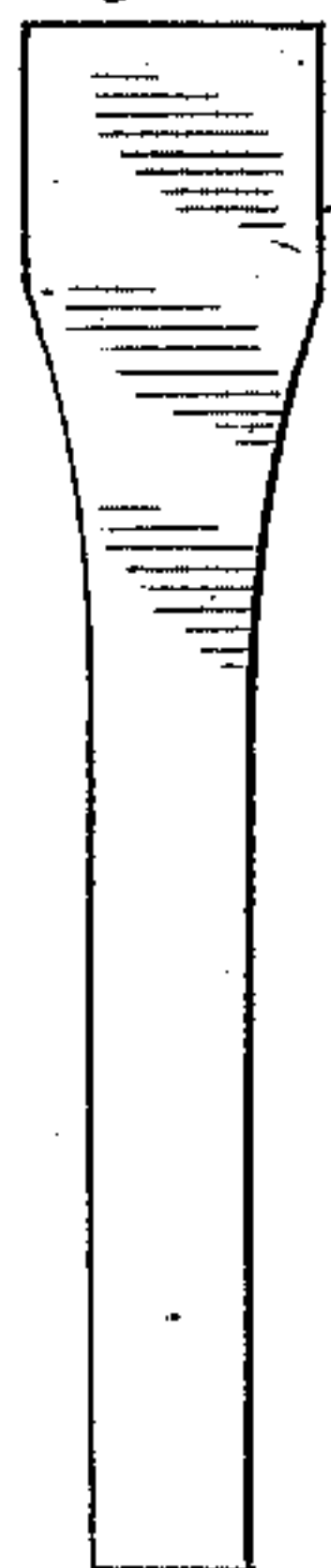
*Fig. 12*



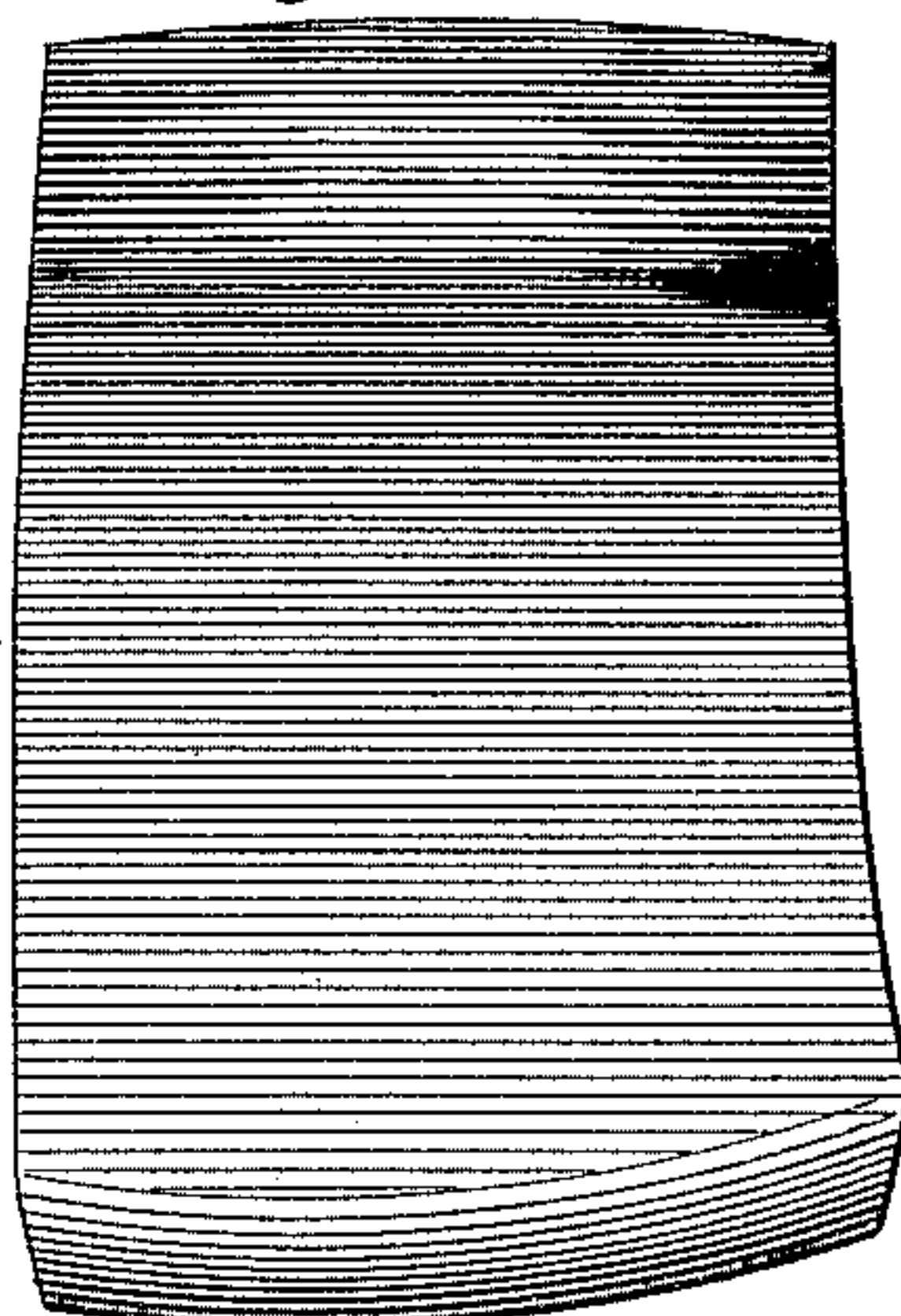
*Fig. 13*



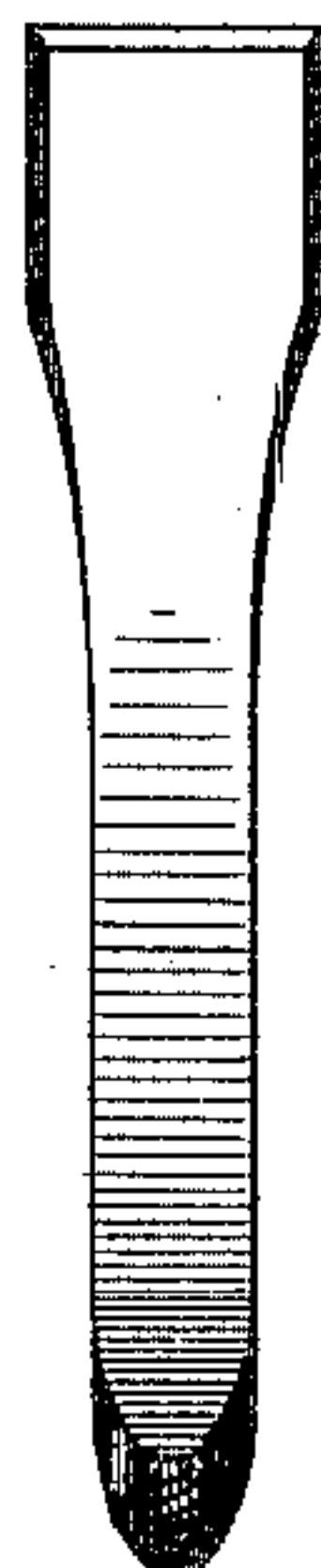
*Fig. 14*



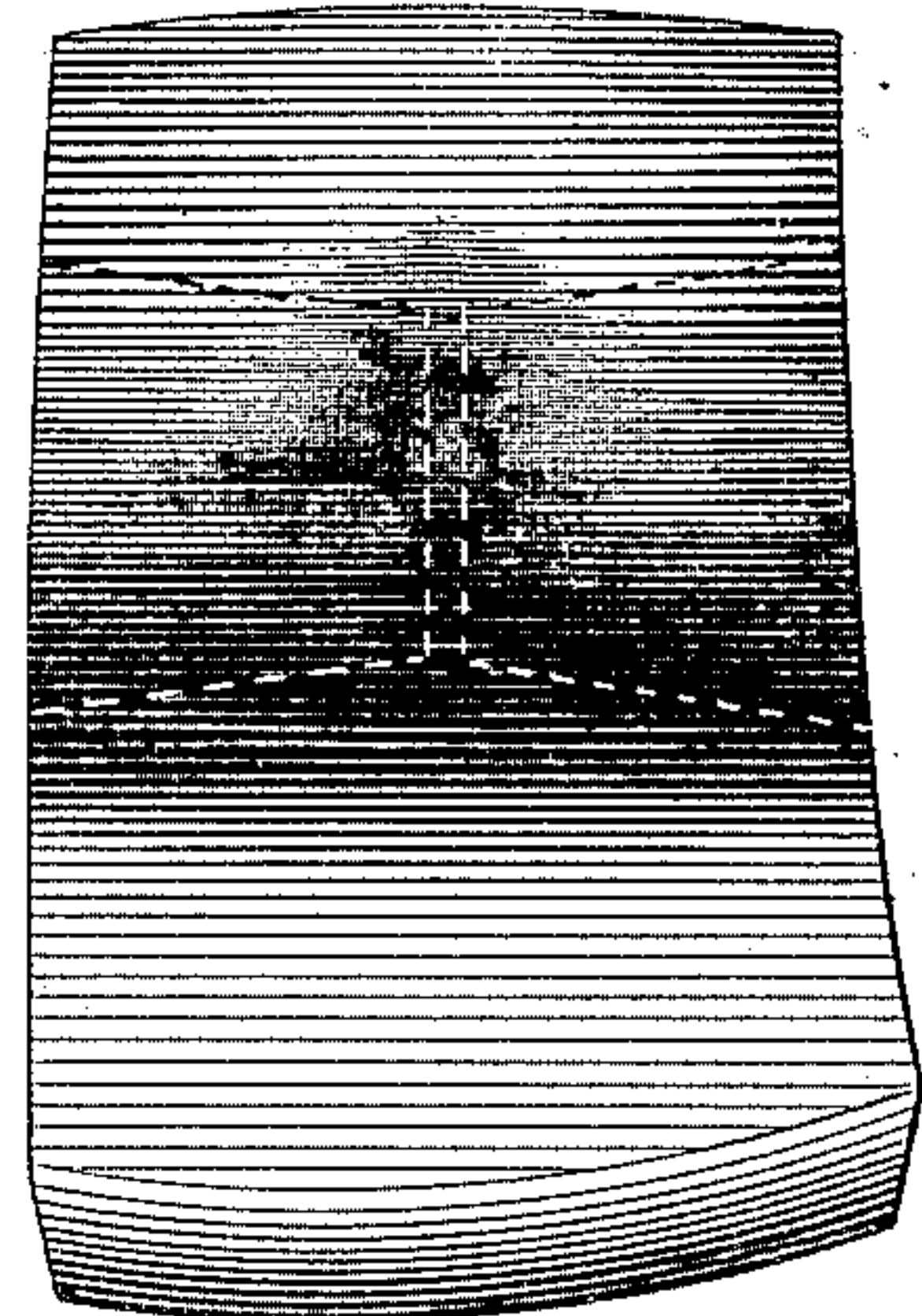
*Fig. 15*



*Fig. 16*



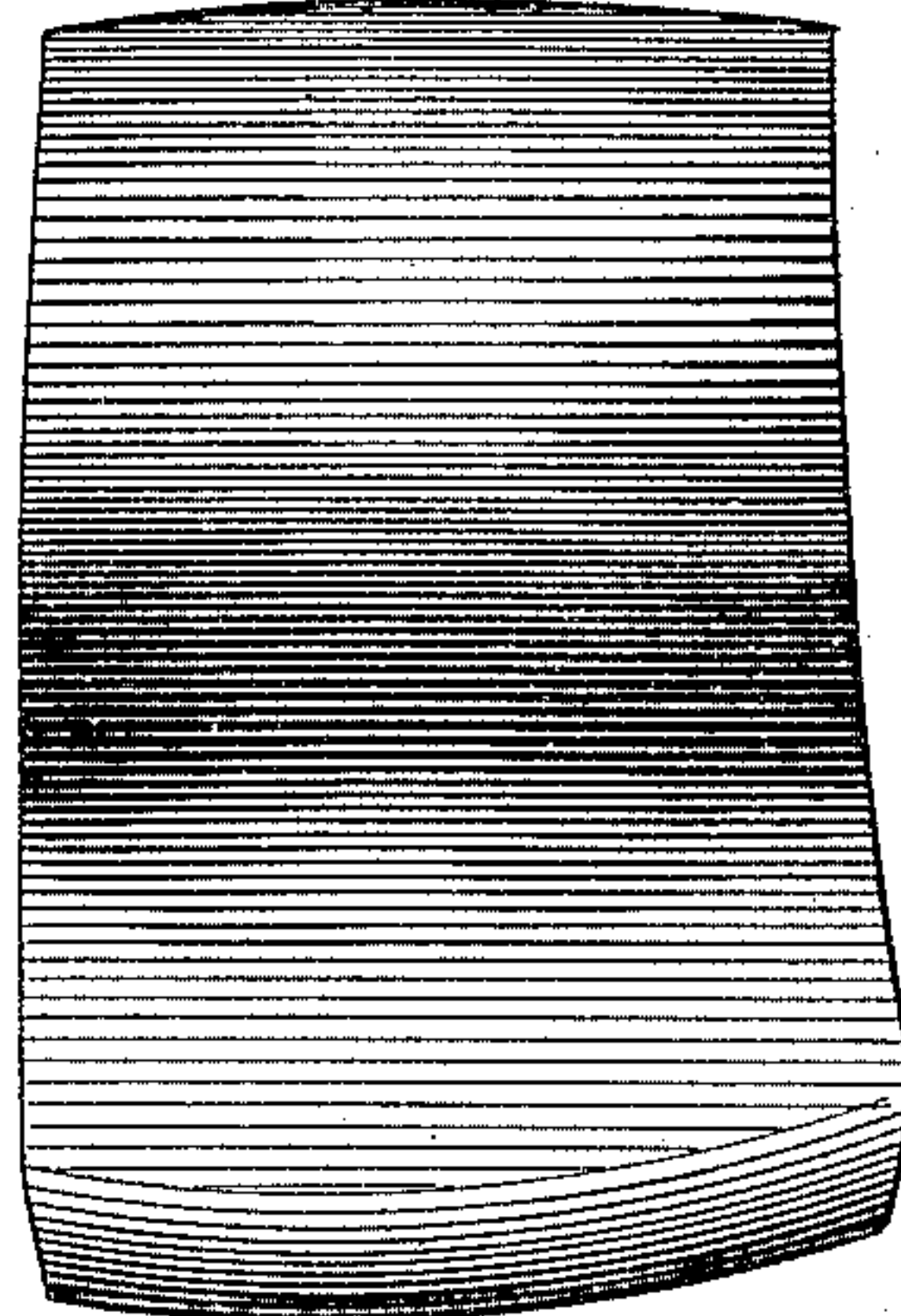
*Fig. 17*



*Fig. 18*



*Fig. 19*



*Fig. 20*



Witnesses:

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Inventor:

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Attorney



# UNITED STATES PATENT OFFICE.

HENRY HAMMOND, OF NEW HAVEN, CONNECTICUT.

## AX-BLANK.

SPECIFICATION forming part of Letters Patent No. 334,948, dated January 26, 1886.

Application filed October 26, 1885. Serial No. 180,887. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY HAMMOND, of New Haven, Connecticut, have invented a new and useful Improvement in the Manufacture of Axes, of which the following description and claim constitute the specification, and which is illustrated by the accompanying two sheets of drawings.

This invention is a new and peculiarly formed ax-blank used in making axes according to the process hereinafter described.

Sheet 1 of the drawings represents the process when executed in the manufacture of a steel ax. Sheet 2, drawn on a larger scale than the other sheet, illustrates the process when performed in the manufacture of an ax-poll of iron or other metal, which ax-poll may be furnished with an ax-bit, and thus be made into an ax in any proper manner.

Figures 1 and 2 are a side view and cross-section, respectively, of a bar of steel made, preferably, by rolling and having a uniform cross-section throughout its length. Figs. 3 and 4 represent an ax-blank made by cutting off the bar of Figs. 1 and 2 on the left-hand dotted line of Fig. 1. Figs. 5 and 6 illustrate the blank of Figs. 3 and 4 after its lower portion has been drawn down into the form of the blade of an ax and its upper part has been slightly changed in contour to make it correspond with the ordinary form of the head of an ax. Figs. 7 and 8 show the blank of Figs. 5 and 6 after a chisel has been forced into one of its edges, and a tapering recess has been thus formed therein in the place where the eye is to be located and extending nearly through the blank from edge to edge. Figs. 9 and 10 depict the blank of Figs. 7 and 8 after a chisel has been forced into the other edge thereof and through it into the tapering recess in the opposite edge, and thus through the entire blank from edge to edge, and after the eye of the ax has been completed and the cheeks of the ax expanded to the ultimate position and contour desired. Figs. 11 and 12 are a side view and cross-section, respectively, of a bar of iron or other metal manufactured preferably by rolling, and having a uniform cross-section throughout its length, and which bar, for axes of the same size, will be narrower than that of Figs. 1 and 2. Figs. 13 and 14 represent an ax-poll blank made by cutting off the bar of Figs. 11 and 12

on the left-hand dotted line of Fig. 11. Figs. 15 and 16 illustrate the blank of Figs. 13 and 14 after its upper part has been slightly altered in contour to make it correspond with the common form of the head of an ax, and its lower portion has been curved and thinned, as represented in those figures. Figs. 17 and 18 show the blank of Figs. 15 and 16 after a chisel has been forced into both of its edges and a tapering recess been thus formed in each in the place where the eye is to be located. Figs. 19 and 20 depict the blank of Figs. 17 and 18 after a chisel has been forced into one of those recesses and through the metal that separates it from the other, and then through that other, and thus through the entire blank from edge to edge, and after the eye of the ax-poll has been completed and its cheeks expanded to the ultimate position and contour desired.

To manufacture axes according to my new process, steel bars may be rolled or otherwise made into the form shown in Figs. 1 and 2, and may be cut up into blanks of uniform length somewhat shorter than the width of the ax to be made. Then such a blank may be forged into the form of Figs. 5 and 6, and then the eye is made with one or more chisels or punches having inclined sides, which, as they penetrate the metal, force the sides of the blank apart at the eye portion to the ultimate thickness desired for the ax at that place; or bars of iron or other metal may be rolled or otherwise made into the form shown in Figs. 11 and 12, and may be cut up into blanks and made into ax-polls in substantially the same way that the blanks of Figs. 3 and 4 are made into axes. Then those ax-polls may be made into axes by the application of ax-bits thereto in any proper manner.

The blank of Figs. 5 and 6 or that of Figs. 15 and 16 may be produced otherwise than as stated above, and the eye of the ax or the ax-poll may be made before the described forming of the lower portions of those blanks, respectively.

I recommend that the eye be formed without expelling any metal from the blank; but the penetrating instrument may have a blunt edge, which will expel a small amount of metal while it also makes room for itself by forcing the metal sidewise, and thus expanding the cheeks, as described. I also recommend that

one or more tapering recesses be first formed and afterward enlarged into the eye, but the eye may be made without any preliminary punching. So, also, I recommend that the 5 indicated cutting and forging be done with dies and chisels operated by machinery; but the whole may be done with hand-tools.

I claim as my invention—

10 A blank for an ax, ax-poll, hatchet, or other analogous article the head of which is substantially identical in thickness with the head of the article to be made, and the eye portion

of which is as thick as any other portion, except the head, and as thick as the aggregate of the two cheeks of the article to be made, all 15 substantially as described in the foregoing specification, and as illustrated in Figs. 3 and 4, 5 and 6, or Figs. 13 and 14, 15 and 16, of the accompanying drawings.

HENRY HAMMOND.

Witnesses:

ALBERT H. WALKER,  
FRANK E. HYDE.