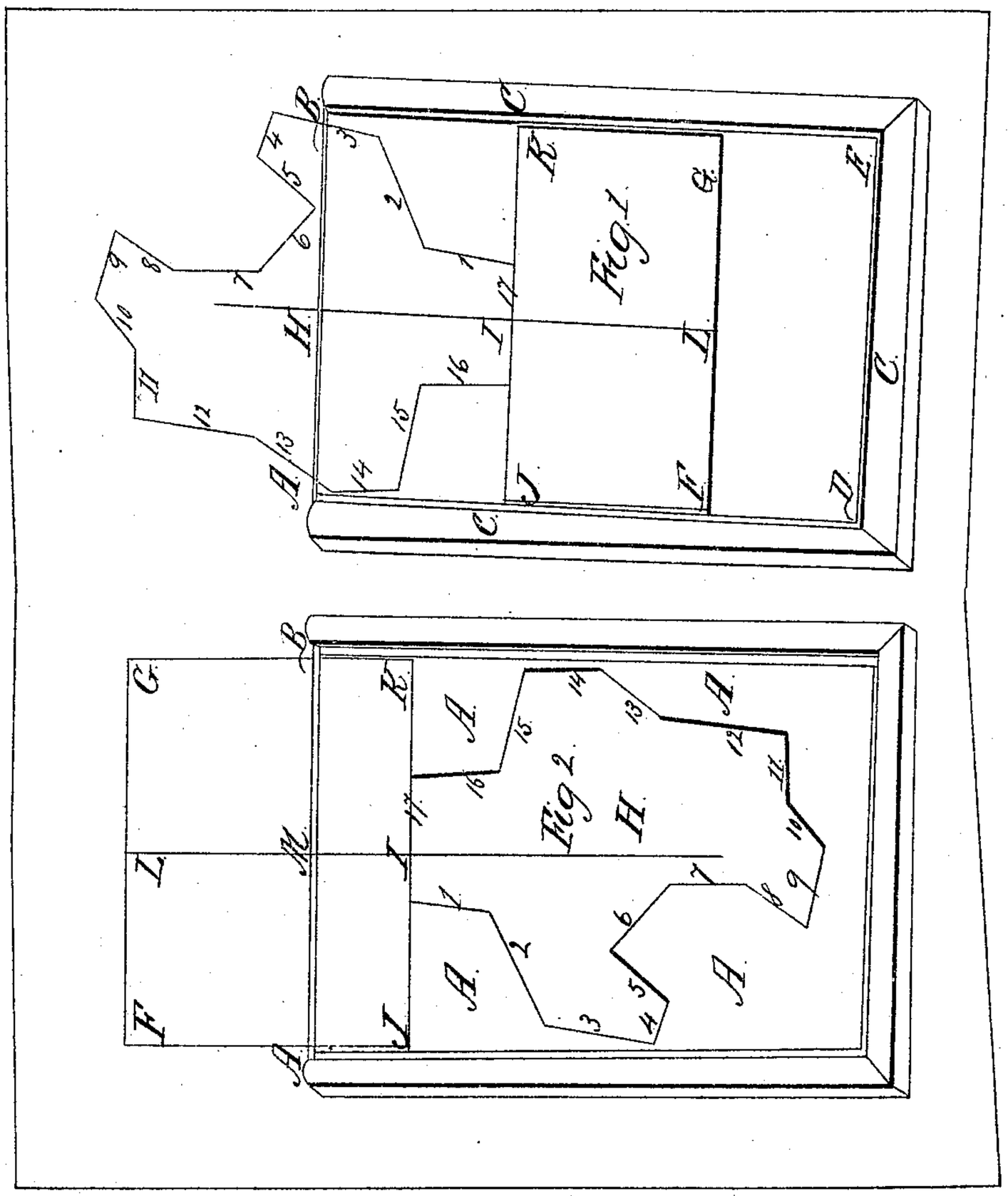
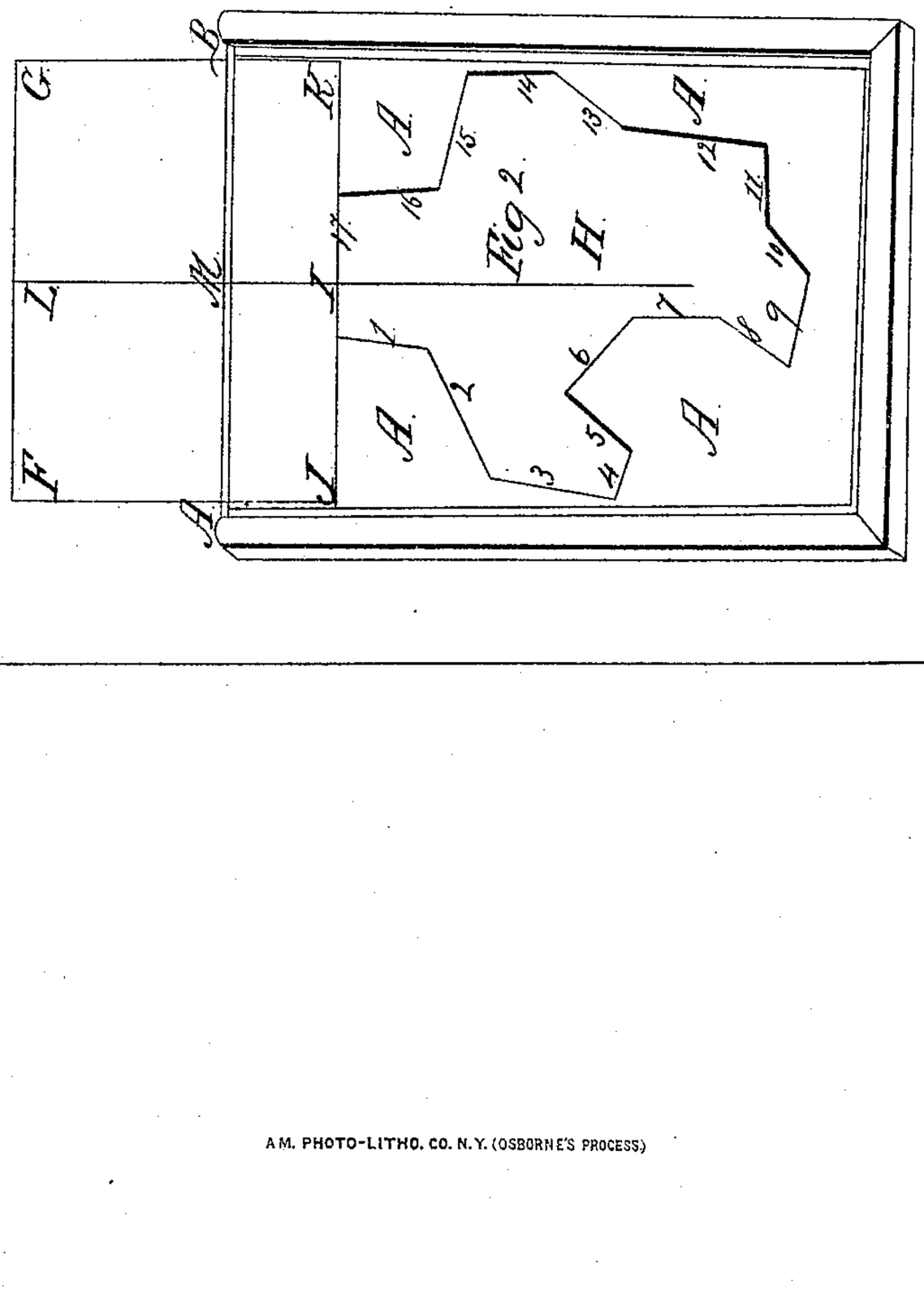
T. Wood,

Drawing Mans,

No. 1,256. Patented July 22, 1839





UNITED STATES PATENT OFFICE.

THOS. WOOD, OF SMITHFIELD, OHIO.

MODE OF FINDING THE AREA OF IRREGULAR FIGURES.

Specification of Letters Patent No. 1,256, dated July 22, 1839.

To all whom it may concern:

Be it known that I, THOMAS WOOD, of Smithfield, in the county of Jefferson and State of Ohio, have invented a new and useful Mode and Apparatus for Obtaining the Square or Rectangle of any Figure, Whether Bounded by Right Lines, a Circle, or Ellipsis; and I do hereby declare that the following is a full and exact description.

The nature of my invention consists in cutting paper to a corresponding form and dimensions with an accurate plot of the superfices to be measured and introducing it into a stratum of mercury held between glass plates:

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

I take two glass plates with plain ground surfaces and place between three of their margins card paper or any material that will keep their inner surfaces parallel and at a small distance apart, leaving the fourth side AB, (Figure 1.) open. Then fasten them together with a frame C, C, C, of wood or metal and partly fill the rectangular space ABDE with pure mercury DEFG. I then cut a piece of paper to the size and shape of any plot, as the piece HI, bounded by the sides 1, 2, 3, 4, 5, &c., leaving one of its sides 17 attached to a rectangular piece FGJK which should be as wide as the rectangular space ABDE between the glasses. I then draw the line HIL through the paper so as to bisect the rectangular piece JKFG parallel with its two sides JF and KG. Then, while the apparatus containing the mercury is held horizontal I slide the rectangular end of the paper into it until it makes the outer edge of the mercury FG straight and mark its distance HL on the line HIL from the outer or open edge AB of the glasses. I then withdraw the paper, turn it around, and introduce the irregular pieces HI foremost (Fig. 2) sliding it gently until the displaced mercury surrounds it filling up all the irregular space A, A, A, A, and comes in contact with the side JK of the rectangular piece JFGK. Then the distance on the line HL of the outer edge JK of the mercury from the open edge AB of the apparatus subtracted from the distance HL (Fig. 1) will leave a distance equal to one side of a rectangle equal to the area of the plot introduced, which distance, multiplied by the width of the mercury on the line JK will give the area required, or HL×AB (Fig. 1)—MJ×AB (Fig. 2)=plot 1, 2, 3, 4, 5, &c., or the rectangle ABFG (Fig. 1) minus rectangle ABJK (Fig. 2) equals the area 1, 2, 3, 4, 5, &c.

What I claim as my invention and desire to secure by Letters Patent, is—

The application of the principle that "solids introduced into fluids displace a quantity equal to their bulk" to the mensuration of superfices by means of mercury and glass plates as herein described.

THOS. WOOD.

Witnesses:
C. R. BOYER,
J. HEINZELMAN.