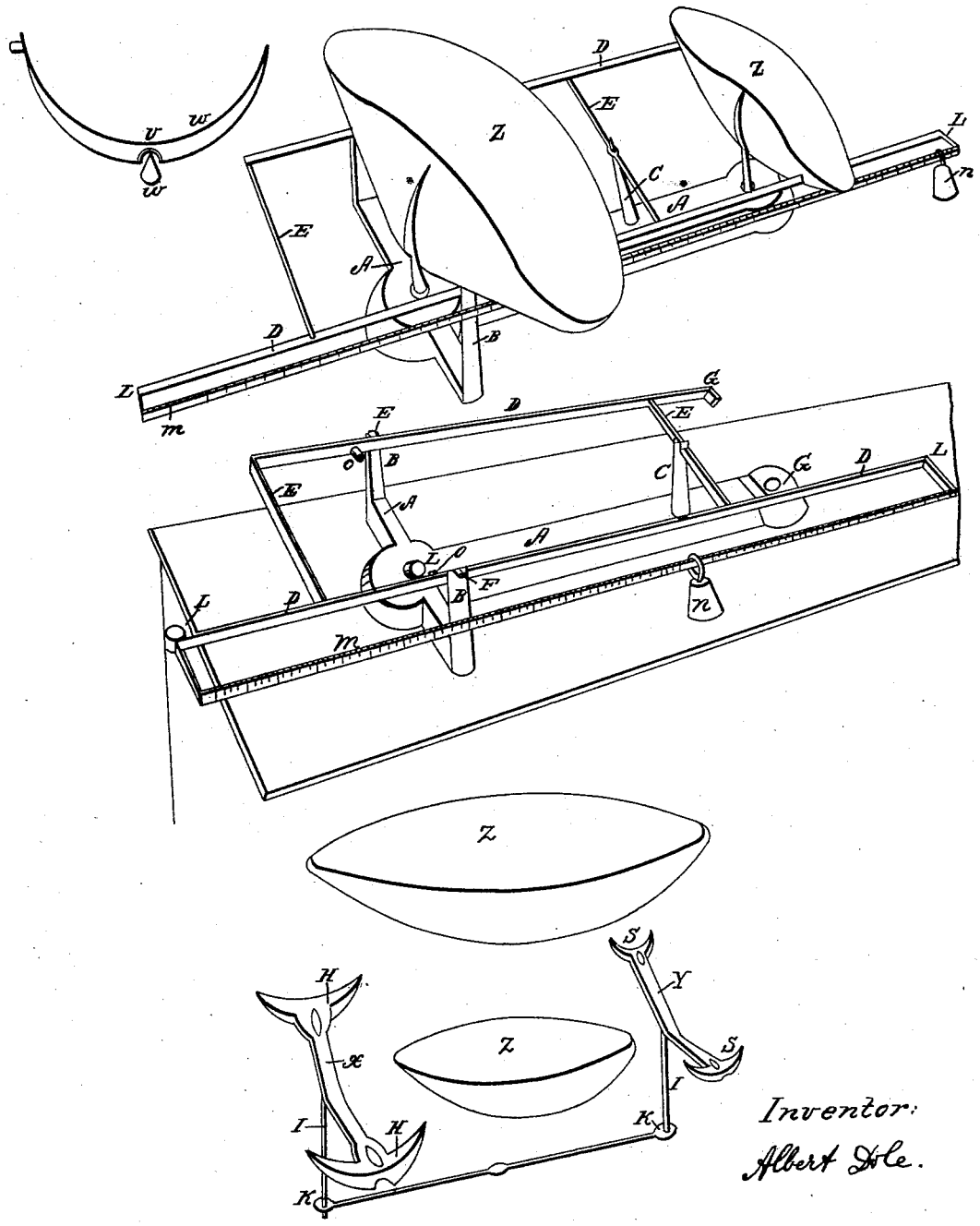
A. DOLE.

Balance Scales.

No. 2,397. Patented Dec. 23, 1841.



Inventor:
Albert Dole.

UNITED STATES PATENT OFFICE.

ALBERT DOLE, OF BANGOR, MAINE.

CONSTRUCTION OF PORTABLE BALANCES.

Specification of Letters Patent No. 2,397, dated December 23, 1841.

To all whom it may concern:

Be it known that I, ALBERT DOLE, of Bangor, in the county of Penobscot and State of Maine, have invented a new and Improved Mode of Constructing Portable Counterbalances; and I do hereby declare that following is a full and exact description.

The nature of my invention consists in making a cheap and convenient balance, easily removed, to be placed upon a counter or table, for weighing merchandise and other small parcels.

I construct a cast iron frame somewhat in the form of a cross having both ends of the long shank made round and a little larger than the body of the shank; near one end of this shank is a cross piece at right angles and extending a sufficient distance to receive the desired width of the frame for holding the hods in which to place articles to be weighed. This frame is hollow, with bevel edges or sides, and open at the bottom. It is made with sides sufficiently high to allow of the proper movement of the horizontal check rods within it. The general height being about three inches—the width about two inches for the shank and cross piece or arms; and of the circles, at the ends of the shank, at the arm end four or five inches diameter, and at the small end about four inches. This frame is marked A in accompanying Plates 1 and 2. I cast with the frame and on top of it three upright spindles, one at each of the extreme ends of the cross piece or arms of the frame. These two spindles are of the same length, about four inches high with crotched ends (B, Plates I and II) The other spindle rises at about two thirds the distance from the cross piece or arms to the end of the shank, and of the same height as the other spindles. The top part of this spindle is cast with a shoulder about an inch and a half from the top and, above this shoulder, near the top, is an iron pin—the space between the shoulder and the pin is for one of the cross bars of the scale frame to play in, and the shoulder designed to keep the scale frame from falling too low and the pin to prevent its rising two high (Plates I and II letter C) I make an iron bearing frame of two parallel cast iron rods, either square or round, (Plates I and II D) connected by two cast iron cross bars, either square or round (Plates I and II E) about eight inches long and at right angles. The parallel rods (D) are about three eighths of an inch thick and about three fourths of an inch deep and may be of an oval round or square form. They are of unequal length the longest being about two feet six inches, and the shortest about one foot ten inches, or the length and size may be increased or diminished to suit the size and capacity of the scale. There are projections on the outside of the bearing frame (see Plate II letter F with the line—leading from the projections to the letter F) about three fourths of an inch long, three eighths of an inch deep of a wedge shape the sharp edge downward, forming the fulcrums to the scale frame, and to bear in the crotched ends of the spindles, B. These fulcrums may be situated at the center or within a few inches of the center of the long paralleled rod (D). Near these fulcrums (F) and upon the inside of the parallel rods (D) and directly opposite each other are two projections (Plate II letter O) of the same shape of the projections for the fulcrums with the sharp edge upward on which to place the bearing cradle (H) of the large hod. And at the opposite end of the shortest parallel rod (D) is a projection, with one upon the long parallel rod directly opposite the projection at the end and on the inside of the parallel rod (D) and inside of the long rod. These projections are of the same shape of those to receive the bearing cradle H, with their sharp edges upward to receive the cradle Y. These projections for the cradle (H) are situated about one inch to the left of the fulcrums, and the projections for the cradle (Y) are situated about sixteen times as far to the right of the fulcrums as the projections for the cradle H are to the left, or these distances may be varied having the scale beam to match.

The cradles H and Y are cast with two semi-circular ends to each, (Plate I letter U) somewhat in the apparent shape of a new moon. Each of these ends has a groove (Plate I V) at the bottom and center part, to fit upon the edge of the projections, (O O and G, G) an end view of which, is given (Plate I letter W). These circular ends (U) are connected by a cast iron rod depressed at the center to an angle of about forty five degrees (Plate III letters H and Y). From the underside of the connecting rods H and Y, and connected therewith by

a firm rivet or screw, is a vertical iron rod (Plate III I) which passes down through circular holes in the top of the frame (A). The holes marked J Plate II, and these rods are connected within the hollow or chamber of the frame A by a pin connecting them with two horizontal rods, at the ends as seen Plate III letters K K, and the horizontal rods are connected at the center of the chamber to the frame A by a pin passing through the sides of the frame and the ends of the rods.

The steelyard beam is secured to the long rod of the bearing frame (D) by an iron bar about two inches long being secured to the ends of each, leaving a space for the hook of the pea to pass between the beam and the rod, (D) The scale beam is divided into parts according to the distance that the bearing projections are from the fulcrum, thus: if the bearing points O O, are situated one inch from the fulcrum of the scale, and the pea weigh two pounds, then to weigh two pounds in the large hod situated on the bearing projections O, O, the pea must move one inch to the right of the line of fulcrum where the pea balances the scale. And moving on to the right we obtain two pounds additional weight for every additional inch upon the beam. To weigh in the small hod, on the projections G G, when that is situated sixteen inches from the fulcrum on the opposite side from the large hod, then moving the pea one inch to the left of the fulcrum, where it balances the scale, we weigh with the two pound pea, two ounces in the small hod and so on in proportion. On this beam traverses a metal weight or pea (Plates I and II N). On the line of the fulcrum the beam is marked with a cipher at which point with the pea situated, the scale is at a balance.

I make two hods of tin or copper, in a tray shape with a circular bottom, (Z) to rest securely upon the ends of the cradle, but without being fastened, that they may be easily lifted off.

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

Combining a steelyard beam and parallel frame arranged and supported as set forth with the cradles H and Y constructed and operating as described, said cradles being provided with appropriate hods and the whole being arranged and acting in the manner specified so as to enable me by the use of a single pea to weigh pounds in the large hod and ounces in the small one.

ALBERT DOLE.

Witnesses:

BRADFORD HARLOW,

JOHN S. SAYWARD.