

(No Model.)

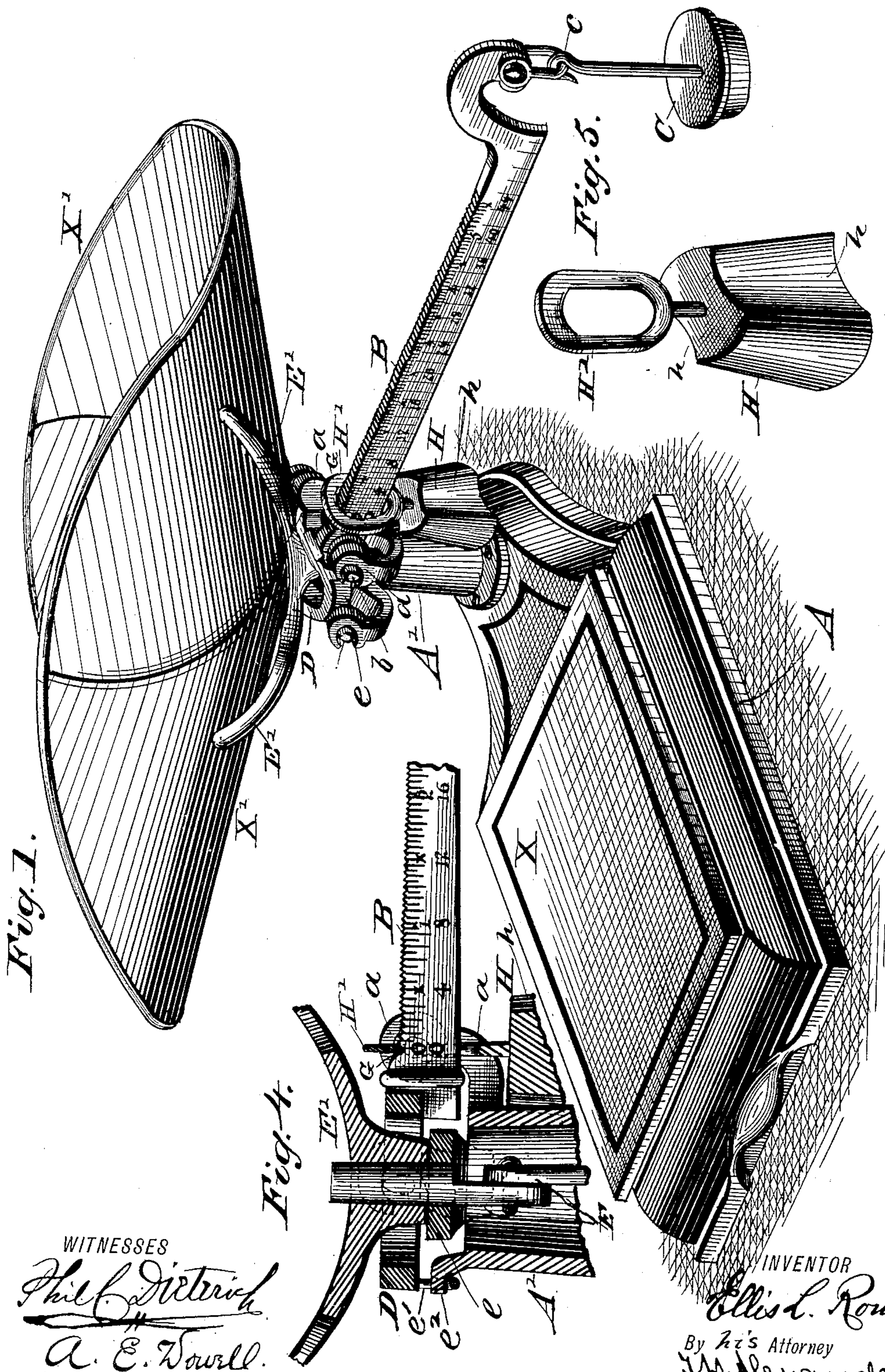
2 Sheets—Sheet 1.

E. L. ROWE.

PROPORTIONAL WEIGHING SCALE.

No. 334,288.

Patented Jan. 12, 1886.



WITNESSES

*Phil. C. Dietrich*  
*A. E. Dowell.*

INVENTOR

*Ellis L. Rowe.*  
By *W. Alexander* Attorney



(No Model.)

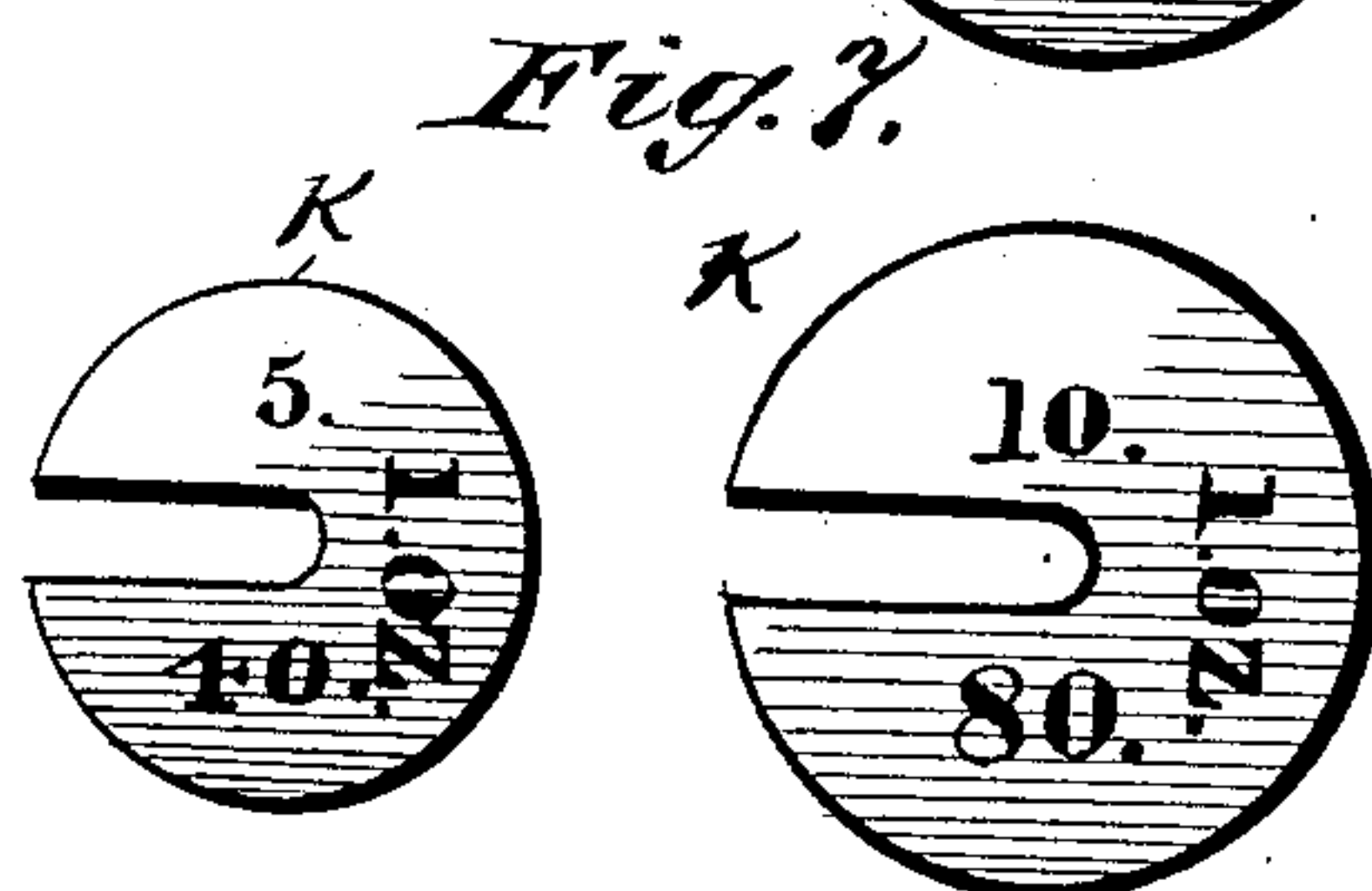
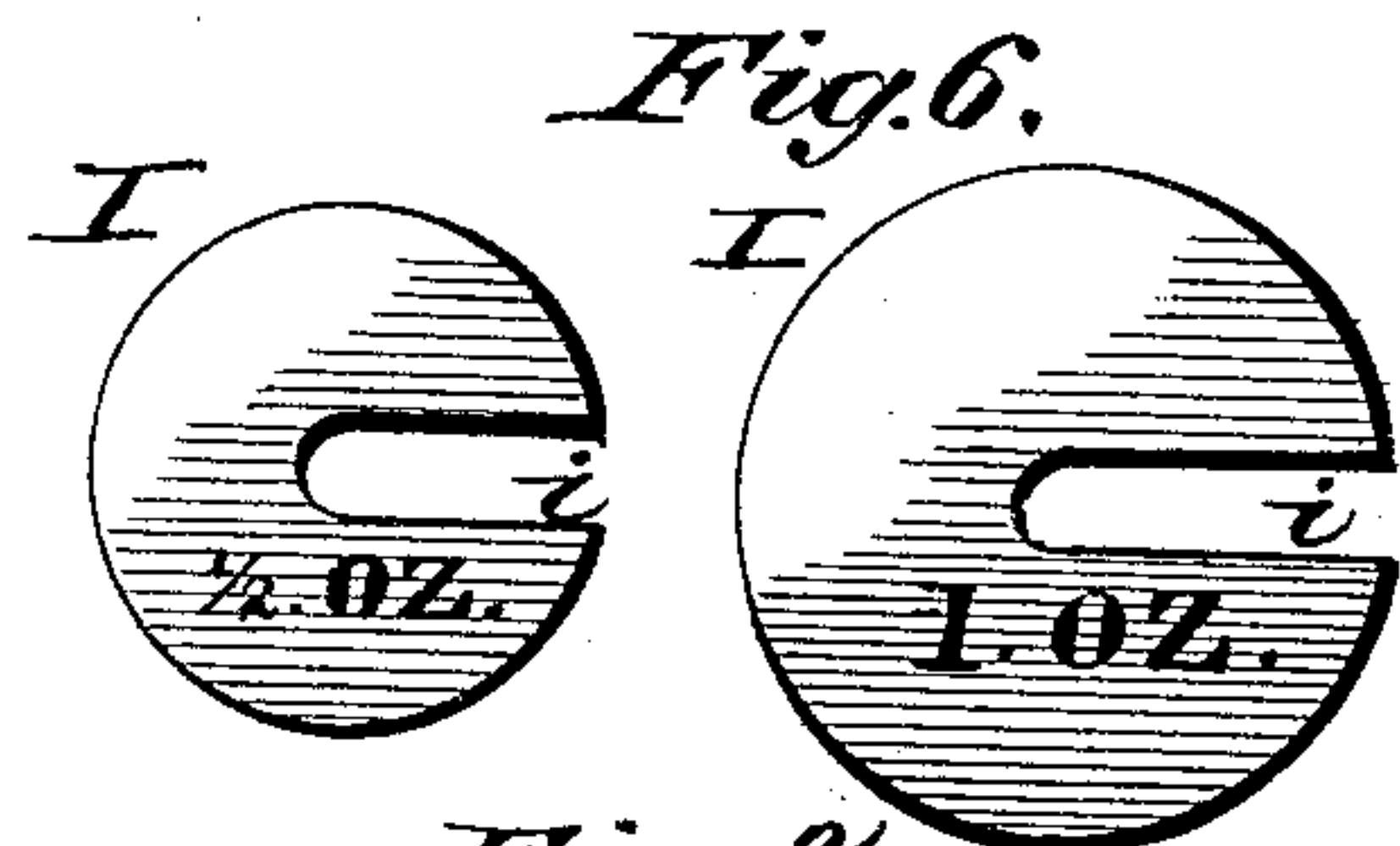
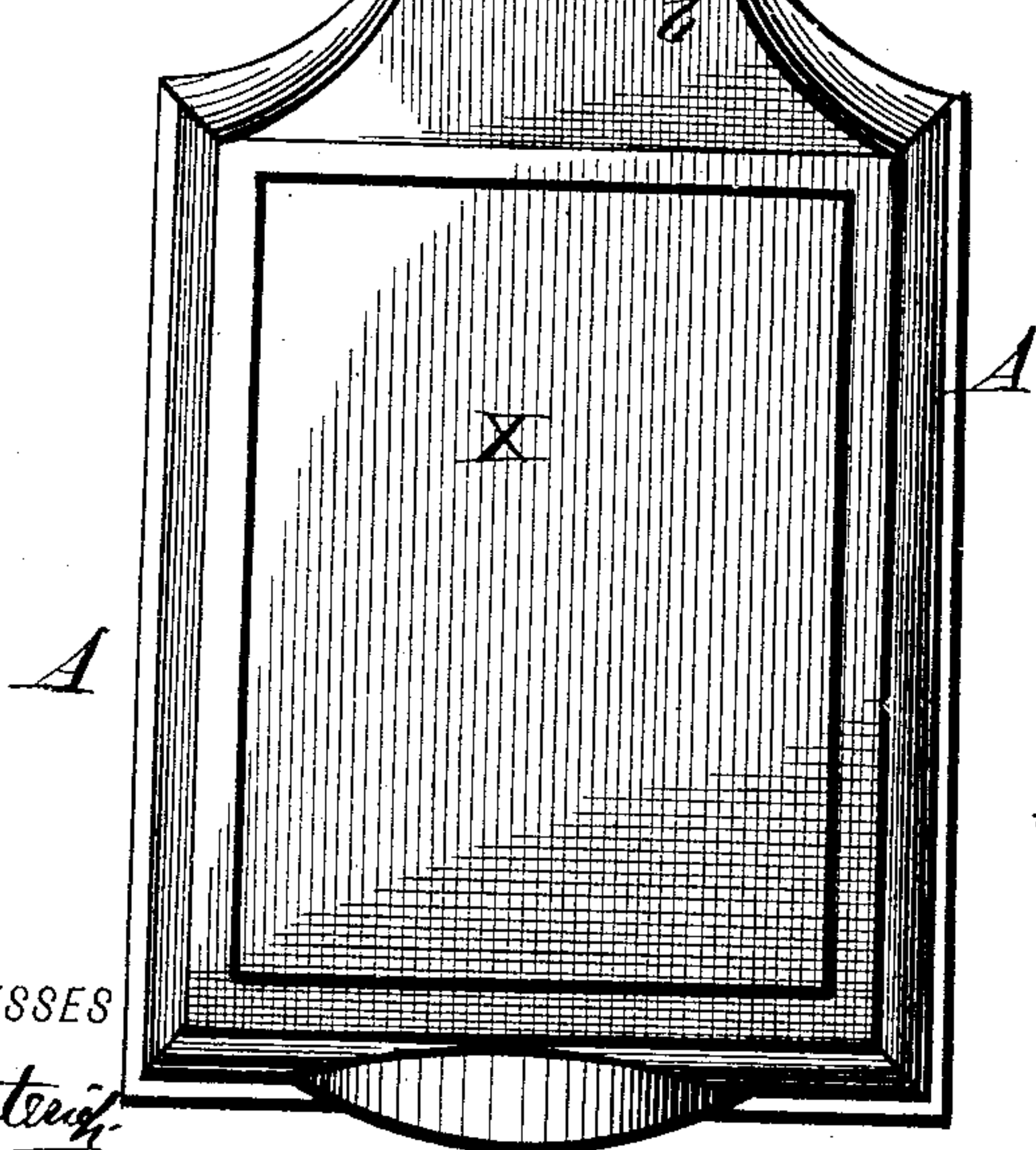
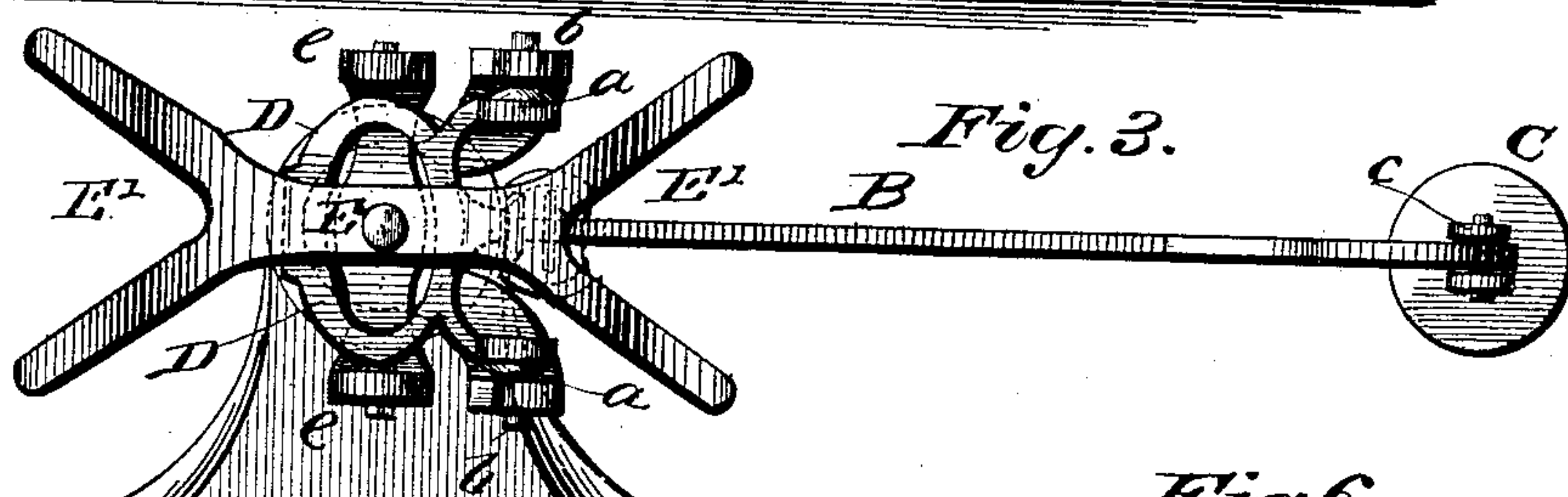
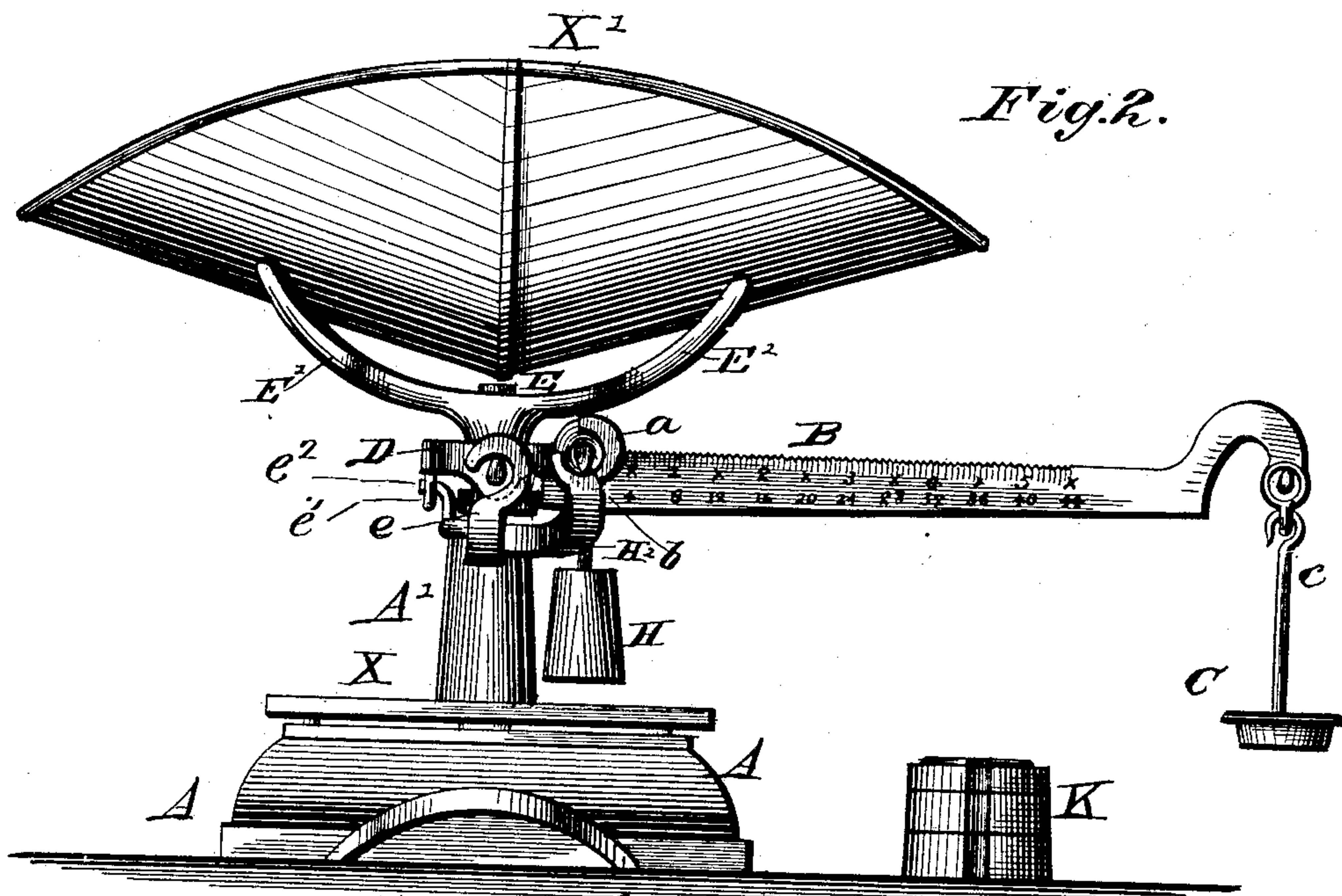
E. L. ROWE.

2 Sheets—Sheet 2.

PROPORTIONAL WEIGHING SCALE.

No. 334,288.

Patented Jan. 12, 1886.



WITNESSES

*Phil. G. Givens*  
*A. E. Towell*

INVENTOR

*Ellis L. Rowe*  
By *W. S. Alexander* Attorney



# UNITED STATES PATENT OFFICE.

ELLIS L. ROWE, OF LANSINGBURG, NEW YORK, ASSIGNOR TO THE RENSS-  
LAER MANUFACTURING COMPANY, OF SAME PLACE.

## PROPORTIONAL WEIGHING SCALE.

SPECIFICATION forming part of Letters Patent No. 334,238, dated January 12, 1886.

Application filed September 3, 1885. Serial No. 176,046. (No model.)

*To all whom it may concern:*

Be it known that I, ELLIS L. ROWE, of Lansingburg, in the State of New York, have invented certain new and useful Improve-  
5 ments in Scales; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of  
10 this specification, in which—

Figure 1 is an isometric perspective view of the scale complete. Fig. 2 is an end view of the same, showing the invention laterally. Fig. 3 is a plan view with the scoop removed.  
15 Fig. 4 is a sectional detail. Fig. 5 is a view of the poise detached. Figs. 6 and 7 are details of the weights.

This invention relates to improvements in proportional scales or balances, by means of  
20 which quantities of different material may be weighed successively, so as to hold desired and predetermined ratios to each other, and without removing any one of the materials from the scoop or platform of the balance; and it  
25 consists in the construction and novel arrangement of parts hereinafter described, and pointed out in the appended claims.

Referring to the accompanying drawings by letter, A designates the bed or base of a bal-  
30 ance, from one end of which rises the hollow standard A', having on one side lateral arms provided with bearing-notches *a a*, to receive the fulcrums *b b* of the scale-beam B, which is  
35 notched and graduated in the usual manner, and has on its curved free end the usual counterpoise-plate, C, secured thereto by the hanging link *c* and device, as shown.

D is the yoke, made on the scale-beam to the inward side of the fulcrums *b*, and standing  
40 immediately above the open end of the standard A'.

E is the vertical rod, which passes through the yoke and standard, and is suitably connected to the platform X, mounted in the usual  
15 manner on the base A. The top of the rod E is formed into or has secured to it a four-armed spider or rest, E', which supports the scale-scoop X', as shown.

*e e* are arms standing outward at the front  
50 and rear sides of the rod E. These arms pass under the yoke D and then bend upward, and have formed on their ends the bearings for the

pins or arms standing from the yoke. Thus the rod E and yoke travel together. The weighted counterpoise is prevented from de-  
55 pressing the scale-beam too far by means of a staple, *e'*, depending from the rear of the yoke, through which staple passes a horizontal arm, *e''*, projecting from the standard.

Thus far all the parts are of usual construc-  
60 tion. The first or naught notch, G of the scale-beam is made vertically above the fulcrums *b*, so that when the poise H is hung thereto its weight will be in the vertical line of the bear-  
65 ings *a*, and cannot, whatever its weight, tend to turn the balance. The said poise is hung by a link-hook, H', from its central upper surface, and has preferably its opposite sides flattened or concaved laterally, as at *h*, so that  
70 it can lie close to the standard A' when in the naught-notch. The poise is made to register pounds and fractions of pounds along the scale-beam in the usual manner, and in connection  
75 with it there is a set of supplementary weights, I I, marked with ounce numbers and fractions of an ounce, but the actual weights of which are  
80 sixteenths of the actual weight of the poise or fractions of such sixteenths. Thus the weight marked "one-half ounce" will weigh the one-thirty-secondth of the weight of the poise.  
85 The weights I are provided with radial slots *i*, in the usual manner, so that they can, when necessary, be set upon the poise, the link H<sup>2</sup> passing into the slots.

K are slotted weights marked with pound  
85 numbers above those on the scale-beam, and adapted to be placed in the usual manner on the counterpoise-plate. In connection with each of the weights K there are a set of slotted  
90 supplementary weights, *k k*, Fig. 7, the weights of which are sixteenths of those of K, and fractions of such sixteenths, as in the case of the poise. As the scale-beam is balanced upon its  
95 fulcrums and the naught-notch is vertically over the latter, it is evident that the poise might vary indefinitely in weight without depressing the scale-beam. Consequently any or all of the  
100 supplementary weights I may be placed upon the poise without affecting the scale-beam, their action being in a vertical line with the fulcrums. As the poise indicates the weight in number of pounds and fractions of pounds of the material in the scoop or on the plat-  
form corresponding to any notch in which it



may be placed, it follows that any one of the weights I, when placed on the poise while in the notch, will indicate in ounces and fractions of an ounce the additional weight, which bears the same ratio to the first weight that the weight I does to the poise. This could not be the case if the naught-notch were not vertically above the fulcrums of the scale-beam, and if the scale-beam were not balanced on its fulcrums; hence the mode of using the scale is as follows: Being desirous of mixing the materials in a certain ratio—for instance, an ounce of the first to a pound of the second—the second material is put into the scoop or on the platform and weighted by the poise on the scale-beam in the usual manner. Suppose that it weighs twenty pounds and the poise is in the twenty-pound notch of the scale-beam, the weight I, marked “1 ounce,” is then put on the poise and enough of the first material added to again balance the scale-beam. It is evident that, as the poise indicates pounds and the weight indicates ounces, just twenty ounces of the first material has been added, or one ounce of the first material to every pound of the second material. If a third material has to be added—say, in the ratio of two ounces to the pound of the second material—the two-ounce weight I is placed above the one ounce weight and the beam again balanced by the third material.

The above is sufficient to thoroughly explain the action of the invention. When a tray or vessel other than the scoop is used, this vessel must be first balanced by an equivalent weight on the counterpoise-plate, or the scale may have what is called a “double” or “tare” beam secured to the scale-beam in the usual manner, and a tare-weight to travel thereon and balance in the usual manner the vessel each time before weighing. For all quantities greater than the poise will indicate and corresponding to the slotted weights K, the latter, in connection with their supplementary weights, *k*, are used in a similar manner. For quantities between two weights, K, the smaller is used in conjunction with the poise.

The invention may be used for all rapid proportional weighing, but is more especially adapted to weigh salt and butter or paints to be mixed together.

Having described my invention, I claim—

1. In a proportional balance, the combination of the graduated scale-beam having its naught-notch vertically above its fulcrum and its inward end connected to the balance-platform, the poise arranged to indicate pounds and parts thereof on the scale-beam, and the poise-weights arranged to be placed upon the poise and to indicate such additional proportional weight as the actual weight of the said poise-weights is proportionate to the actual weight of the poise, substantially as specified.

2. In a proportional balance, the combination of the graduated scale-beam having the negative point of its scale vertically above its fulcrum on the standard of the balance provided at its free end with a suitable swinging counterpoise-plate, and having its inward end connected with the balance-platform and supporting the scale-scoop, the poise arranged to indicate pounds or fractions of pounds on the scale-beam, and the weights I, adapted to be placed on the poise and arranged to indicate such additional proportional weight as the actual weight of the poise-weights is proportionate to the actual weight of the poise, substantially as specified.

3. In a proportional balance, the combination, with the scale-beam fulcrumed and balanced upon the standard of the scale-frames, the platform connected to the inward end of the scale-beam, and counterpoise-plate swung on the outward end of the same, of the slotted weights K, adapted to rest upon the counterpoise-plate and the sets of weights *k*, supplementary to the same, substantially as specified.

4. In a proportional balance, the combination, with the base A, standard A', graduated scale-beam B, platform X, connected by the rod E to the scale-beam in the usual manner, and counterpoise-plate C, of the counterpoise-weights K, the weights *k*, supplementary to the counterpoise-weights, the poise-weight H, and the weights I, supplementary thereto, all substantially as and for the purpose specified.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

ELLIS L. ROWE.

Witnesses:

HENRY PERKINS,  
MILFORD L. FANCHER.