2 Sheets—Sheet 1.

E. SAMPSON.

Weighlock Scales.

No. 57,641. Patented Aug. 28, 1866.

Fig. 2.

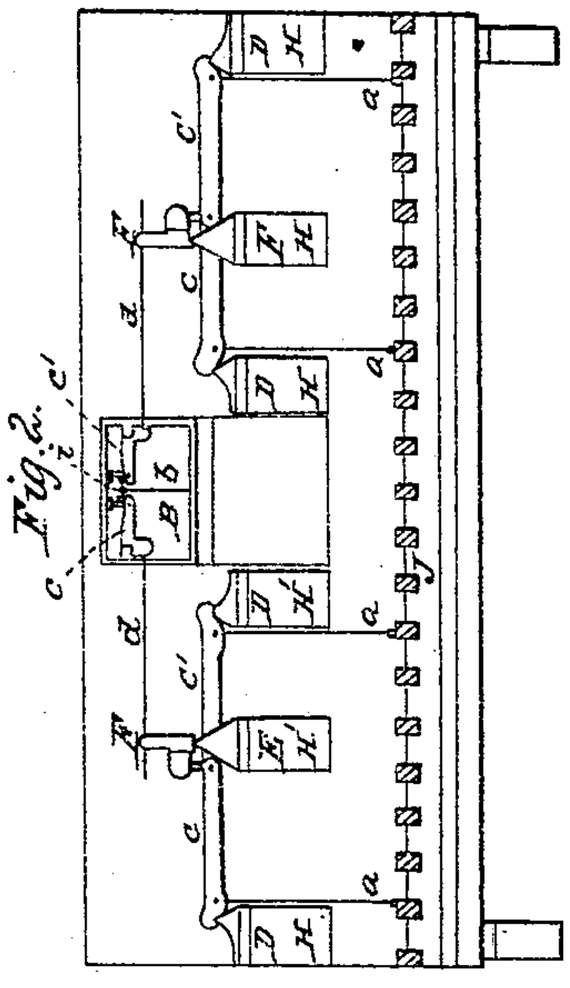


Fig. 4.

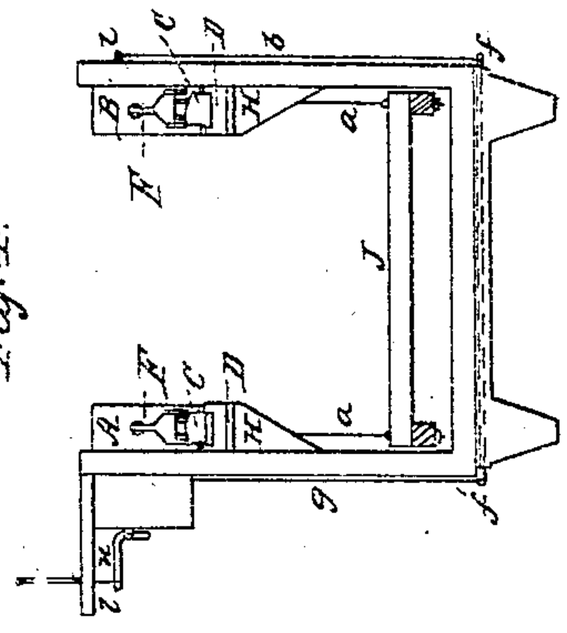


Fig. 1.

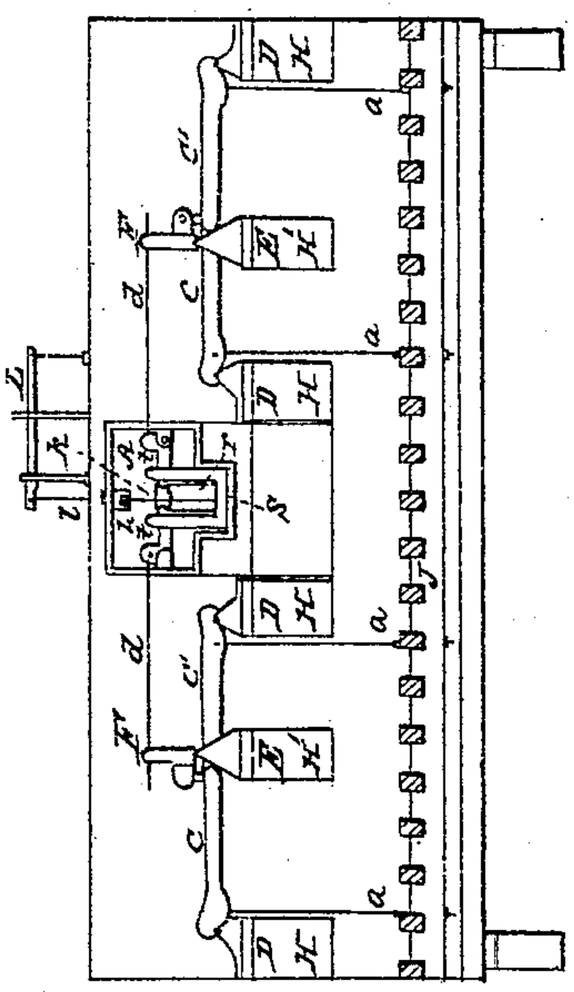
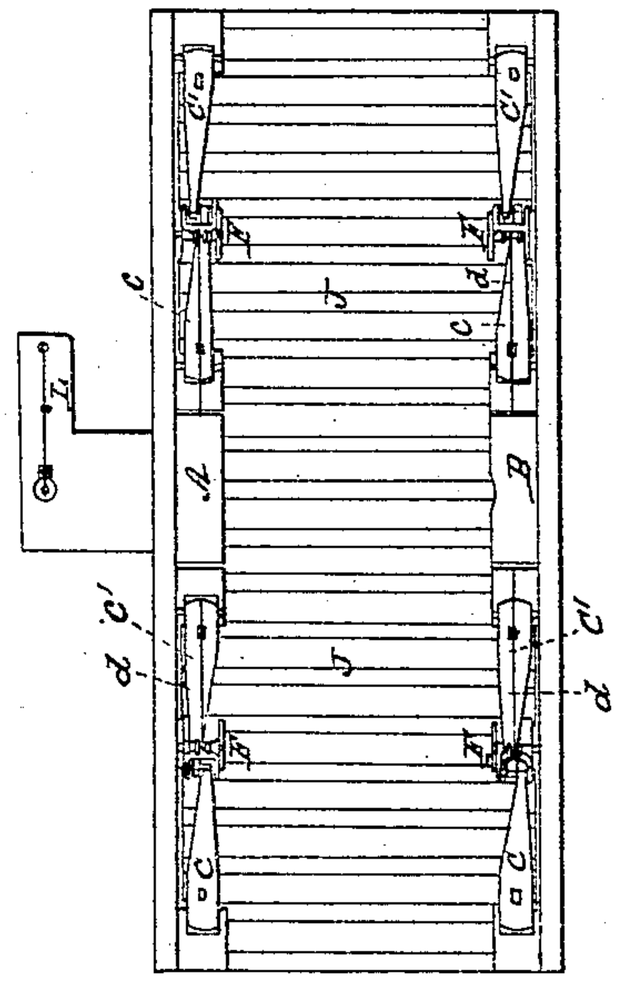


Fig. 3.



Witnesses:
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Inventor:
Ebenezer Sampson

2 Sheets—Sheet 2.

E. SAMPSON.

Weighlock Scales.

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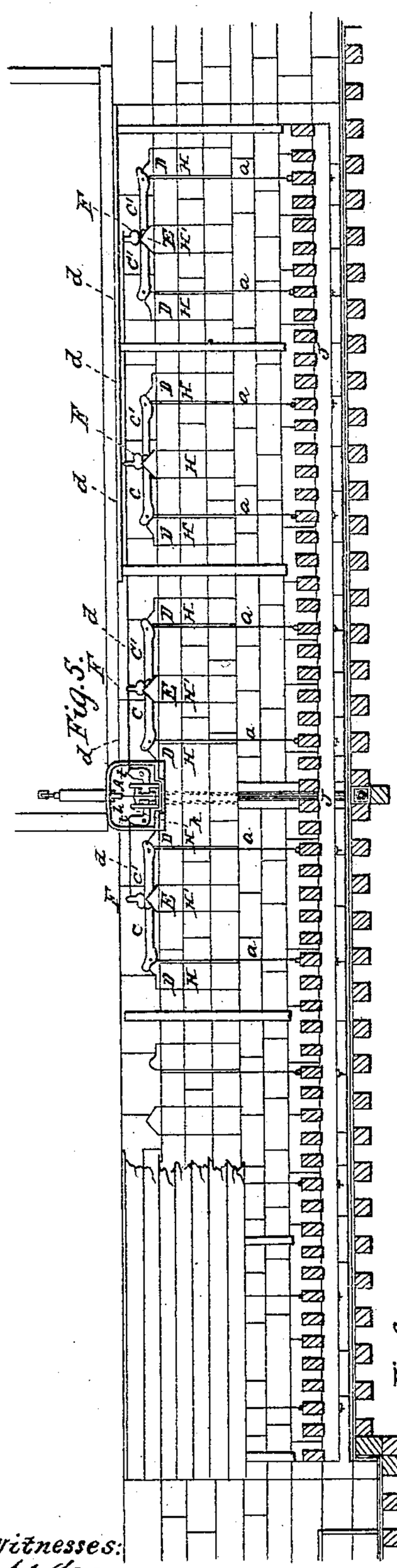

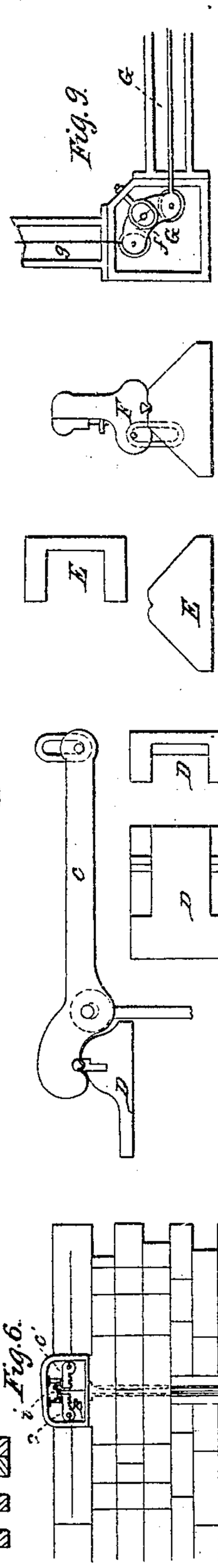

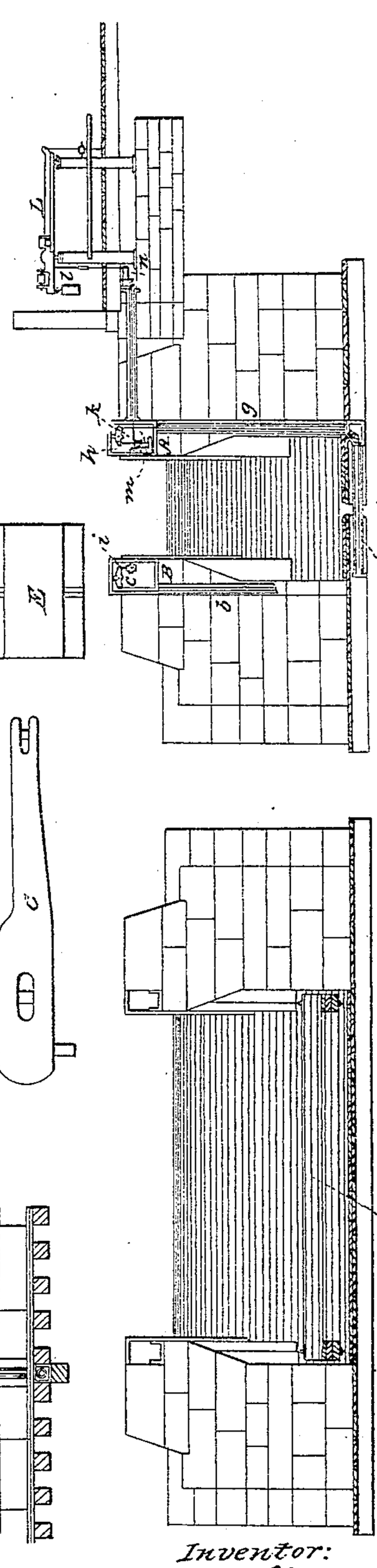

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UNITED STATES PATENT OFFICE.

ELNATHAN SAMPSON, OF LANSINGBURG, ASSIGNOR TO ALFRED CLARK HITCHCOCK, OF TROY, NEW YORK.

IMPROVEMENT IN WEIGH-LOCK SCALES.

Specification forming part of Letters Patent No. **57,641**, dated August 28, 1866.

To all whom it may concern:

Be it known that I, ELNATHAN SAMPSON, of Lansingburg, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Constructing Weigh-Lock Scales; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, and to the letters of reference marked thereon, making a part of this specification, in which—

On Sheet 1, Figure 1 is a side elevation of the scale-beam side of a center section of said weigh-lock scale, showing the arrangements and combination of the sustaining-levers and manner of connecting the cradle to said levers. Fig. 2 is an elevation of the opposite side of said lock, showing the arrangement and combination of levers on that side. Fig. 3 is a top view of the lock, and Fig. 4 is an end view of the same.

The figures on Sheet 2 of the annexed drawings show in detail the manner of constructing, inserting, and operating the said weigh-lock scale, and in which Fig. 5 shows a side elevation. Fig. 6 is an elevation of the opposite central parts of said weigh-lock. Fig. 7 is a vertical transverse sectional view taken through the center of said weigh-lock. Fig. 8 is an end view, and Fig. 9 is a detached view, of one of the transmitting-knees used in connection with suitable rods arranged under the floor of said lock-chamber, for the purpose of connecting the weighing devices arranged on the opposite sides of the lock-walls. The remaining figures on Sheet 2 show in detail the manner of constructing the sustaining-levers, and also of the parts operating in immediate connection with them.

The same letters have reference to like parts in each of the figures.

The nature of my invention consists in a combination of direct sustaining-levers with bell-crank levers, for the purpose of supporting a cradle receiving the vessels to be weighed and transmitting the weight through other levers to the scale-beam, said sustaining-levers being arranged in horizontal parallel positions to the side walls of the lock-chamber, substantially in manner as hereinafter fully described.

It also consists in a combination and arrangement of bell-crank levers with a transmitting-lever, substantially in manner and for the purpose as hereinafter fully described.

It also consists in the peculiar manner, substantially as hereinafter fully described, of connecting the devices constituting a weighing apparatus, and arranged on opposite sides of a weigh-lock chamber, thereby doing away with the necessity of any superstructure of frame-work or of buildings over and across the lock-chamber, thus securing an unobstructed passage for masted vessels and steamboats through said lock.

It also consists in a combination of certain bell-crank levers, arranged with reference to and connected with the weighing devices of both sides of the lock-chamber in manner substantially as hereinafter fully shown, for the purpose of transmitting the weight or load on the cradle of said weigh-lock to the scale-beam of the same.

It also consists in the general combinations and arrangements of the respective parts, substantially in manner as hereinafter described, the whole constituting an improved weigh-lock scale.

In order to enable others skilled in the art of constructing weighing apparatus to make and use my improved weigh-lock scale, I will now fully describe the same, which is as follows, viz:

A lock-chamber is first constructed, in manner substantially as shown in the annexed drawings on Sheet 2. Upon the steps H H, which project from the side walls of said lock-chamber are placed and secured the metal fulcrum-bearings D D, and upon the intermediate step, H′, is placed the fulcrum-bearing E.

C C′ are direct sustaining-levers, having their fulcrum points or edges constructed of hard metal in the usual knife-edged form. These levers are placed with their fulcrum-edges upon their respective bearings D D, and they are so arranged with reference to the side walls and suspended cradle of said lock-chamber as to be substantially in parallel positions to said walls and cradle, in manner as shown in Figs. 1 and 2 of the annexed drawings.

F is a bell-crank lever, duly adjusted with

its knife-edge bearing upon the fulcrum-bearing E, which bearing is formed with an open space between its sides, so as to allow the ends of said levers C C′ to pass under said bell-crank lever F, that they may be properly secured to the same by suitable links.

Suspended from said levers C C′ by the suspension-rods *a a* is the receiving-cradle J, which receives and sustains the vessels to be weighed.

The levers C C′, when arranged in manner and connected with the bell-crank lever F as above described, and attached to the cradle J by suspension-rods, constitute what I term a "set" of direct sustaining-levers when the same are employed in constructing weigh-lock scales. As many as may be necessary of said sets of levers are employed on each side of the lock-chamber, and they are arranged, respectively, in corresponding positions directly opposite each other. The number of said sets required in a weigh-lock scale will, of course, depend upon the length of the lock-chamber of the same. These respective sets of levers are so arranged on the side walls of the lock-chamber that the suspension-rods *a a* of the cradle J may be arranged substantially at equal distances from each other, in manner as seen in Fig. 5, Sheet 2, of annexed drawings.

This manner of arrangement, as above set forth, secures a better equalization of the direct sustaining-points along the cradle's length, thereby causing the stress or weight of vessels, when being weighed, to be more evenly distributed over said bearing-points, which prevents sudden strains and liability of derangement of the weighing apparatus.

The bell-crank levers F of the respective sets of said levers C C′ are connected together by means of connecting-rods *d d*, in manner as shown in Fig. 5; and the said sets of levers C C′, or the weighing apparatus arranged on the respective side walls of the lock-chamber, are connected together in manner substantially as follows: On the wall of said lock-chamber opposite to the scale-beam side is combined and arranged in a suitable frame, B, for supporting them, the bell-crank levers *c c′*, said levers being connected with levers F by means of rods *d d*, and arranged at right angles to said levers *c c′* is the lever *i*, attached to which is the connecting-rod *b*, which passes down through a chamber or tube formed in the side wall of the lock to the bottom thereof, and is there joined to a connecting-knee, *f*, in manner substantially as shown in Figs. 7 and 9 on Sheet 2 of annexed drawings, said knee *f* being connected with a corresponding knee, *f′*, arranged at the bottom of the opposite wall, by means of the connecting-rod G, which is arranged in a tube or box under the floor of the lock-chamber.

To the knee *f′* is joined a connecting-rod, *g*, which connects with the lever *h*, as seen in Fig. 7, Sheet 2, and said lever *h* is connected by a rod, *k*, to the connecting transmitting bell-crank lever *s*. Upon each side of said lever *s*, and arranged in combination with it, are the bell-crank levers *t t′*, which are respectively connected to said lever *s* by suitable rods or links *r r*, as seen in Fig. 1, Sheet 1, said levers *t t′* being also respectively connected with the bell-crank levers F F by means of rods *d d*. Said transmitting-lever *h*, connecting bell-crank lever *s*, and levers *t t′* are arranged and have their respective bearing-points in a suitable frame, A, in manner substantially as shown in Figs. 1, 5, and 7 in the annexed drawings.

To the upright arms of said connecting bell-crank lever *s* are attached rods *m m*, connecting, by means of suitable links, with the bell-crank lever *n*, which connects, by means of rod *l*, with the scale-beam L, the said scale-beam being constructed, arranged, and adjusted in a suitable manner by any of the known modes of construction and adjustment in public use that may be adapted to weigh-lock scales.

Having fully described my improved weigh-lock scale, what I claim as new therein, and desire to secure by Letters Patent, is—

1. The combination of the bell-crank lever F and the direct sustaining-levers C and C′, when said sustaining-levers are arranged in horizontal parallel positions to the side walls of the lock-chamber, substantially as described, and for the purposes as set forth.

2. Arranged in connection with the bell-crank levers F F, in manner as described, the combination of the bell-crank levers *c c′* and transmitting-lever *i*, substantially as and for the purpose herein set forth.

3. Connecting the devices arranged on opposite sides of the lock-chamber and constituting a weighing apparatus for weigh-lock scales by arranging the mechanical means employed for that purpose under the floor of the lock-chamber, in manner substantially as herein described, and for the objects as set forth.

4. Arranged and connected with the bell-crank levers F F, in manner as described, the combination of the bell-crank levers *t t′* with the bell-crank connecting-lever *s*, for the purpose of transmitting the weight of the vessel resting upon the cradle to the scale-beam, in manner substantially as herein described.

5. In combination with the bell-crank levers *c c′* and transmitting-lever *i*, the manner herein described of connecting the weighing apparatus of the opposite sides of the lock-chamber and the bell-crank levers *t t′* and *s*, all arranged with reference to each other substantially as herein set forth, the arrangement of the said direct sustaining-levers, for the purpose of a weigh-lock scale, in manner substantially as herein described.

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