

B. BULL.

Balance Scales.

No. 133.

Patented March 3, 1837.

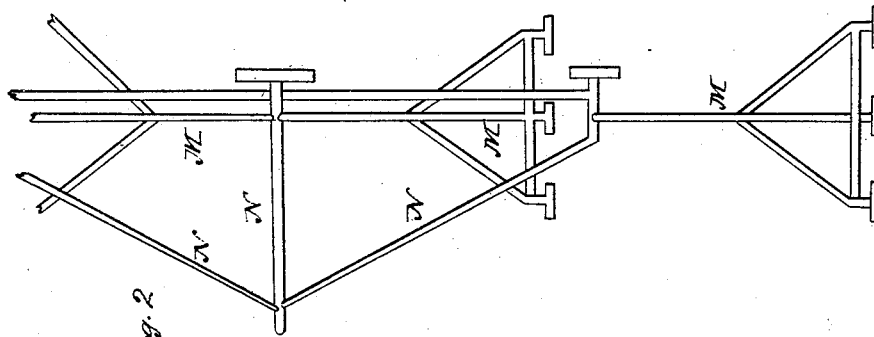


Fig. 2

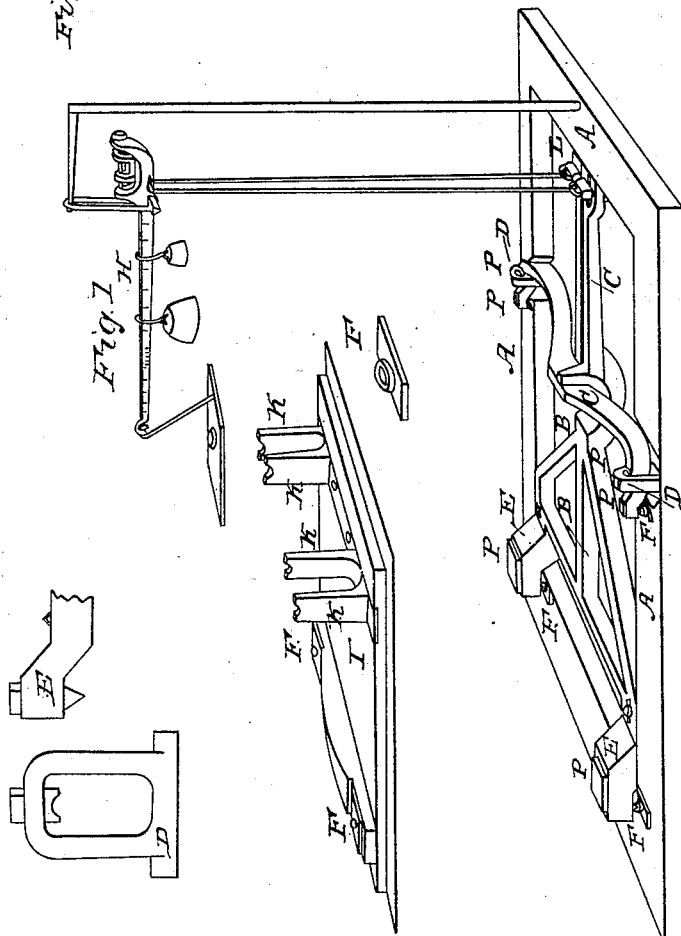


Fig. 1

Witnesses
Richd Harris
Ewen G. Warren

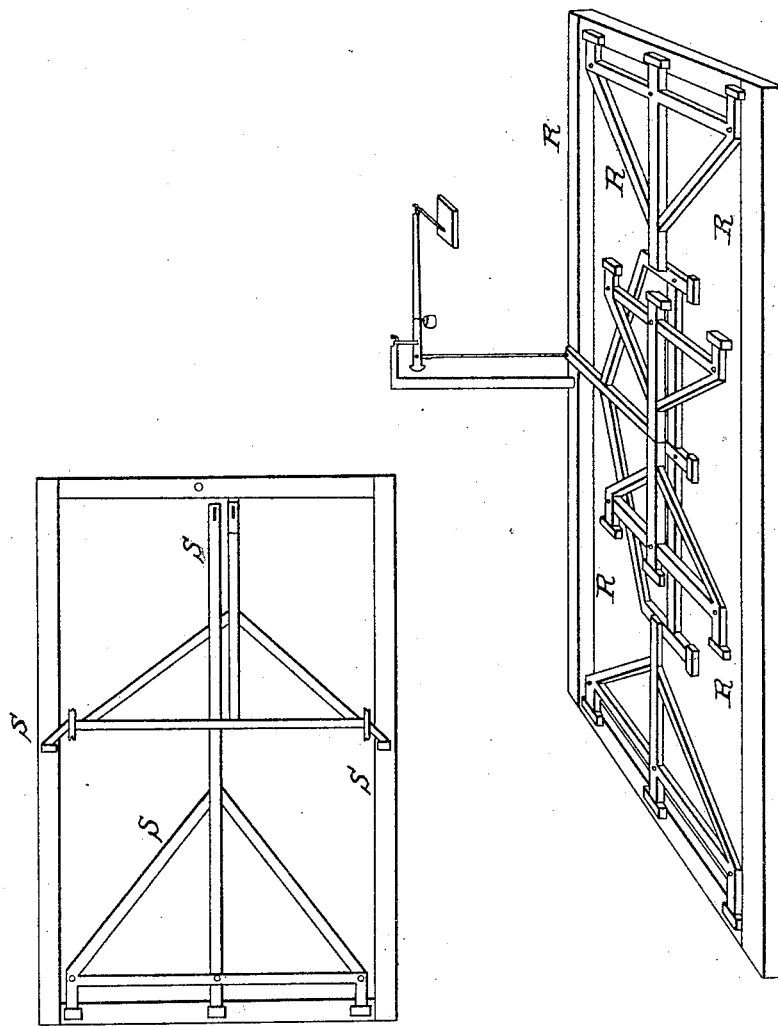
Inventor
Bing Bull

B. BULL.

Balance Scales.

No. 133.

Patented March 3, 1837.



Witnesses
Rich Harris
Aver G. Warren

Inventor
Bing Bull

UNITED STATES PATENT OFFICE.

BENJAMIN BULL, OF NEW YORK, N. Y.

PLATFORM-BALANCE FOR WEIGHING.

Specification of Letters Patent No. 133, dated March 3, 1837.

To all whom it may concern:

Be it known that I, BENJ. BULL, of the city, county, and State of New York, have invented a new and useful Improvement in Weighing-Machines, and that the following is a full and exact description.

The weighing machine is generally placed upon or attached to a square frame, A A in the drawings annexed, (see No. 1) made of materials sufficiently strong to support it in a firm position. The two levers, which generally constitute the machine are always of the same proportion.

B, B represents the long lever with its points or edges, either of which are used in the construction of this scale C, C. The short lever of the same proportion as the long one. D D the stirrups which when swung prevent the friction that might occur between the points and sockets in consequence of the unequal oscillation of the different levers B and C. E, E, the ends of the levers with the points or edges attached. F, F, the plates with their sockets or grooves in which rest the points or edges of the levers B, and C. G, G, the ends which convey the action to the steelyard. H, the lever or steelyard with weights *r* poise I, the under side of the platform or cover. K, K, the studs resting upon the stirrups. L, L, the eyes or slots with slides which receive the rods G, G. P, P, the fender block to rest the platform on when not in use. R, R, &c., view of the double machine (see No. 2, drawing). S, S, &c., plan of the single machine (draft No. 2).

To construct and put this scale together, place two plates at F F on the frame A A in such a position that the points or edges at E, E, in the lever B, B, will rest on sockets or grooves keeping the lever square with the frame. Then place two other plates upon the frame as at F, F, in such a position that the points or edges E, E, in the lever C, C, will rest in their sockets or grooves keeping the eyes or slides L, L, even and square across the frame A, A. Attach the two rods G, G, connected with the lever or steelyard H resting or swung up. Place two stirrups on the main points of either of the levers B, or C, although stirrups may be placed upon both of the levers, in this case it will require all studs under the platform to rest upon the stirrups. Either or both of these levers may be swung at the extreme ends at E, with stirrups resting upon points or

edges or in the sockets or grooves, F, F, on the frame A, A, to avoid the studs on the platform. Upon the under side of the platform, place two plates at F, F, in such a position that the sockets or grooves of the plates will rest on the main point or edges of the lever B or C, then place the studs R, R, &c., in such a position that when they touch the stirrups which are swung on the lever they will keep the stirrups perpendicular. Place your platform on then give your levers sufficient motion and place the fender blocks P, P, &c., on the frame A, A, underneath the platform to support it clear of the levers B and C while it is being loaded that the jarring or shaking will not injure the points or edges on the scale. The stirrups D, D, may be omitted altogether and the scale will do well without them but it is far more complete with them there being much less friction.

It is often required to make an oblong scale, then in such case place one or more points between the points on the levers B, C keeping them in a straight line across the levers. Proceed with the construction as before. To adopt this scale for weighing canal boats rail road cars, &c., one or more pairs of levers similar to B and C are made. Place them opposite the others so that the ends of all nearly meet in the center. Place a single transverse lever N, square over the center and the ends of the levers, see drawings Fig. 2nd. Attach or rest as before all the levers to a frame or block placed in a proper position with plates resting thereon according to the number of bearings on the several levers. Connect the ends of the levers B and C, to the transverse lever with stirrups or spindles, keeping the points or edges square across the transverse lever N. In this case the levers B and C will be formed and moving at their center ends, one over the other so as not to interfere. In this case it may be proper to place stirrups on all the levers but one if the bed or cover be the whole length of the scale. Proceed as before to put on the platform or cover. In this last construction see draughts you may place two, four or more levers M, similar to the lever B, of one construction and dimension over the center of the frame, or on blocks placed in a proper position. Make a transmitting lever N, with its arm or branches to correspond with the ends of the several levers M. Place it on the frame or

blocks connect the ends of the several levers M, to the transmitting lever N, and its branches by stirrups, hooks eyes or spindles as most convenient. Each side of the center 5 of the lever N place a bed or platform with plates upon the under side as described before and it is complete. If required to make the cover or bed the whole length of the scale then place stirrups on all of the levers M, 10 one side of the center of the transverse lever N, and it is complete as the oscillation of all the levers on either side is the same.

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

15 1. The combined arrangement of the long and short levers B, B, and C, C, as acting in unison in lifting the platform in the same direction and in arches inclined in the same direction.

2. In application in combination with the 20 above of the loop or stirrup D in supporting two or more of the bearings of the platform, thereby preventing the friction of dead or fixed bearings.

3. I also claim the combined arrangement 25 and connection of two or more of the above described scales with the long levers B, C, united centrally—or on the arms of the transverse lever N, and connected with the transverse levers as shown at M, M, the 30 whole to be united in one machine for the purpose of weighing heavy bodies.

BENJAMIN BULL.

Signed in presence of—

EDWARD M. DODGE,
WM. M. HENDRICK.