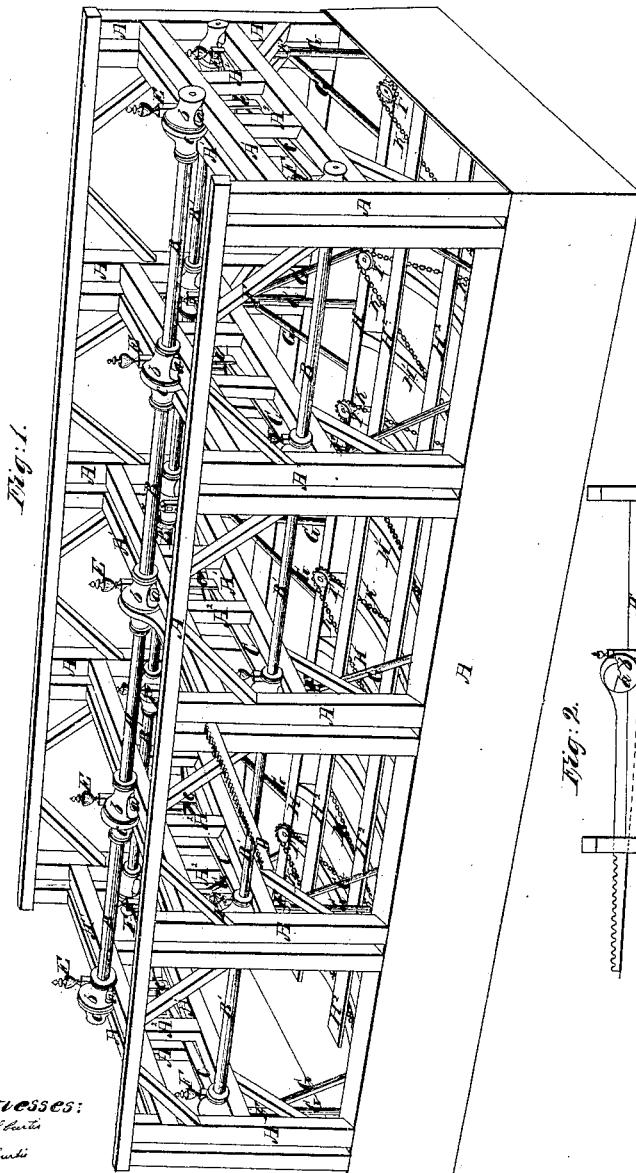


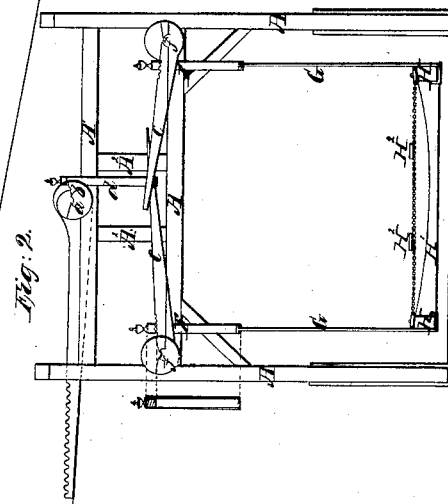
J. Brainard,
Weighing-Locks for Canal Boats.

N^o 1,249.

Patented July 17, 1839.



Witnesses:
John C. Smith
Wm. C. Smith



Inventor:
Josiah Brainard

UNITED STATES PATENT OFFICE.

JEREMIAH BRAINERD, OF ROME, NEW YORK.

WEIGH-LOCK FOR BOATS.

Specification of Letters Patent No. 1,249, dated July 17, 1839.

To all whom it may concern:

Be it known that I, JEREMIAH BRAINERD, of Rome, in the county of Oneida and State of New York, have invented an Improvement in the Manner of Constructing Weigh-Locks, for Weighing Canal Boats and other Heavy Bodies; and I do hereby declare that the following is a full and exact description thereof.

The nature of my invention consists in the so constructing the apparatus constituting my weigh lock for canals, as that the boat to be weighed shall be suspended upon a cradle in such manner as that by the action of a self-adapting chain, it shall be sustained in every part in a degree proportioned to the weight with which it presses, and thus be protected from injury; while by the aid of levers, and one or more lines of shafts, the weight of the boat, and its load, is correctly indicated.

Figure 1, in the accompanying drawing, is a perspective view of the machine, and Fig. 2, a cross section of it.

A A is the frame within which the boat to be weighed is to pass. This frame must, of course, be proportioned in size to the tonnage of the canal. When intended for a boat eighty feet in length, I construct it in the following manner, as shown in the drawing. I erect five pairs of posts on each side, connecting each of them by two beams A' A' with the post on its opposite side, and again connecting these beams by short posts A² A². I do not, however, restrict myself to this mode of framing, but give it only as what I deem a good, practical mode of procedure. These beams and posts are suitably braced, so as to give stability to the whole structure.

It will be deemed preferable, in many cases, to support the beams and their appurtenances in the mason work of the lock instead of by means of posts of wood.

H H' H² represent the cradle upon which the boat is to be sustained; it has two side timbers H H, about equal in length to that of the frame, and these are connected together by twelve or any other preferred number of stout cross timbers H' H'; these cross timbers are hollowed out on their upper sides, to accommodate them to the sway of the chains upon which the boat is to rest. Upon each of the longitudinal timbers H H I place six strong iron sheaves or pulleys I I, which turn horizontally upon stout cen-

ter pins, the pulleys on one side standing opposite to the middle of the space between the pulleys on the opposite side. I then pass a strong chain around these pulleys, crossing it from side to side, beginning at one end of the cradle, and crossing to the next nearest, opposite pulley, until said chain arrives at the opposite end. At these two ends, the chain is made fast to the sides of the cradle. There will generally be sway enough in such a chain for the attainment of the object which it is intended to effect, but it may be made more, or less, taut according to circumstances. Upon this chain, I place two flexible timbers H² H², extending from end to end of the cradle. These may be about equally distant from each other and from the sides of the cradle; they should be attached to the chain at their two ends, so as to preserve them nearly in their relative positions.

When the boat is made to rest upon the cradle, it will bear immediately upon the flexible timbers H² H², and the chain, being movable around the pulleys, will adapt itself to the form and the pressure of the boat, in all its parts, and thus prevent any undue and injurious strain. The cradle is suspended from the weighing apparatus, in a manner to be now described.

B B B is a line of iron shafts, coupled together so as to move around in conjunction with each other.

a a a are stands or supports which may be of cast-iron, and are affixed to the upper beams, near their centers; upon their upper sides, which should be slightly hollowed for that purpose, rest knife edge bearings, of cast-steel, which are firmly affixed in the hubs b b of the line shaft B. The middle, or enlarged parts, c, of these hubs are cut away on one side, as shown at c', Fig. 3, to form short levers to receive the knife edge bearings of stirrups E E, which pass over them. The lower ends of these stirrups receive the inner ends of the long levers C C, which levers, at their outer ends, near their fulcra, have the cradle H H suspended immediately from them.

F F are stirrups, the upper ends of which pass over these levers; and to their lower ends the rods G G are attached, which pass down to, and support, the cradle. The stirrups F F have knife edge bearings on the levers C C. There are cast iron, or steel stands f f fastened on the beams A', to re-

ceive the knife edge bearings of the fulcra of the levers C C; the inner ends of two of these levers, it will be seen, stand side by side, and pass into each of the stirrups E E.
5 B' B' are line shafts, shown as extending from one to the other of the fulcra ends of the levers C C, and these, although not absolutely necessary, serve the purpose of promoting a steady action of the machine. The
10 use of the notches on the short levers on the upper shaft, which receive the stirrups, and also of those on the long levers of the lower shafts, is to allow of the adjusting the bearings of the stirrup thereon, so as to
15 adapt the instrument to the weighing of light and heavy loads, on the well-known principle of the steelyard. From the center, or any other convenient part of the upper

shaft, extends a lever or steelyard arm D, by which the weight is to be indicated. 20

The manner of using this weigh lock does not require any particular description, as it does not differ in this particular from some other weigh locks previously in use.

What I claim as my invention, and desire 25 to secure by Letters Patent, in the above described weigh lock, is—

The manner of constructing the cradle so as to adapt itself to the pressure of its load, by the passing of a chain around pulleys on 30 its sides, constructed, and operating, as set forth.

JEREMIAH BRAINERD.

Witnesses:

THOS. F. JONES,
LINTON THORN.