2 Sheets—Sheet 1.

T. B. FERGUSON.

Fish-Hatching Apparatus.

No. 199,527. Patented Jan. 22, 1878.

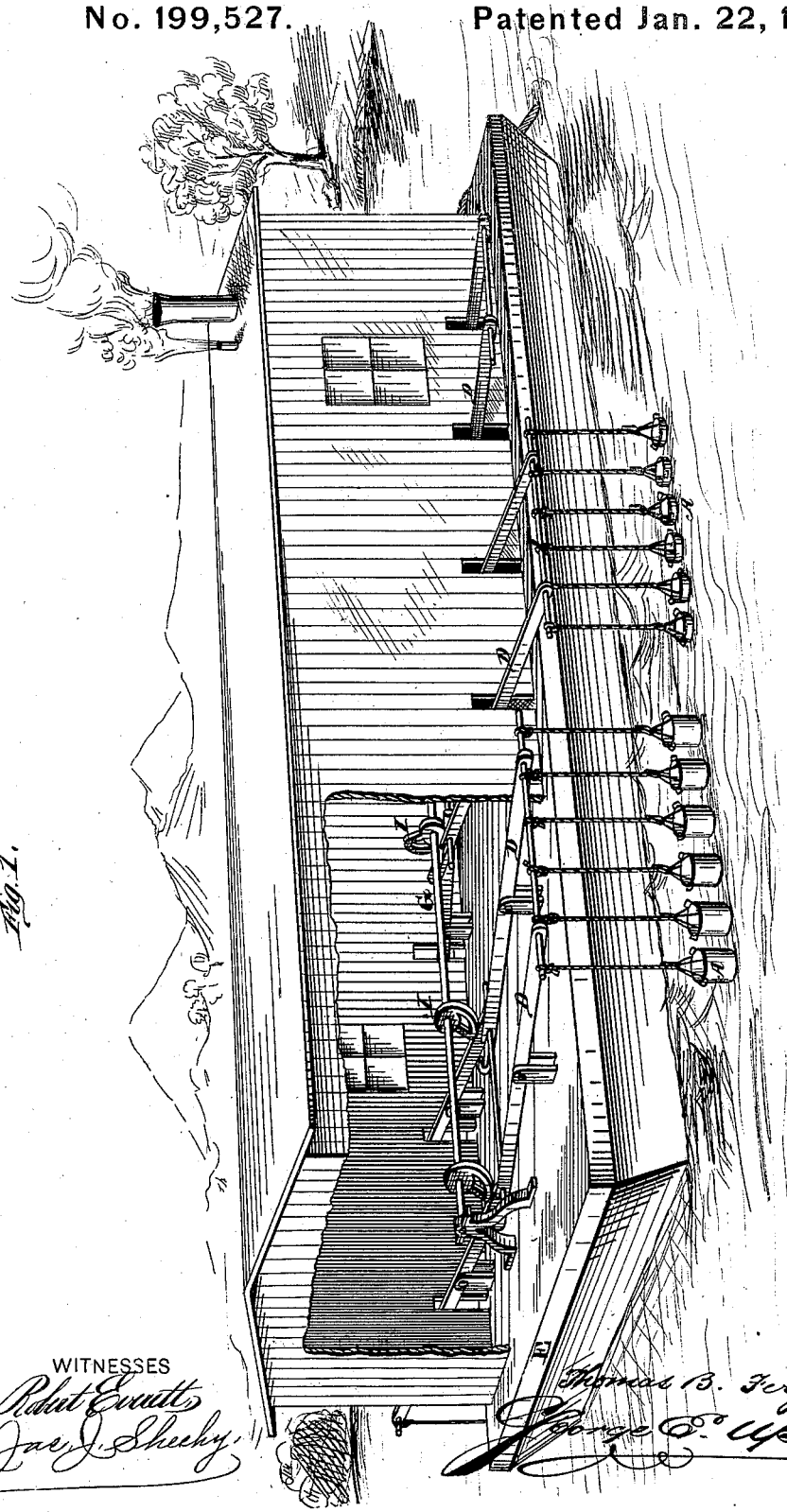

Fig. 1.

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2 Sheets—Sheet 2.

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Fig. 2.

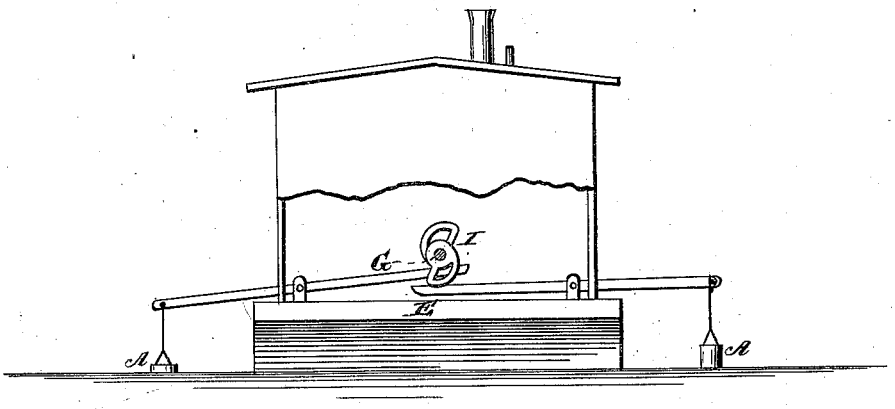


Fig. 3.

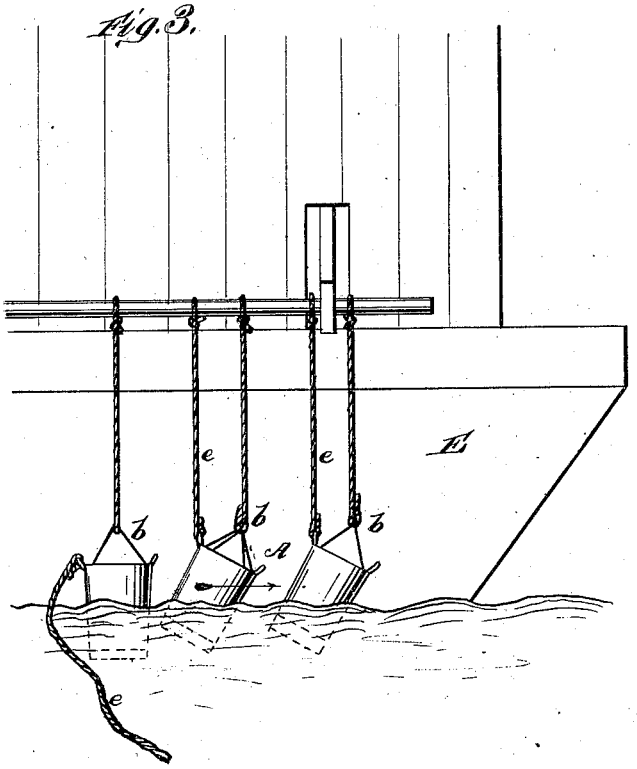
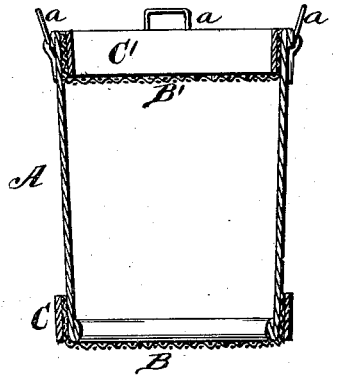


Fig. 4.



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UNITED STATES PATENT OFFICE.

THOMAS B. FERGUSON, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN FISH-HATCHING APPARATUS.

Specification forming part of Letters Patent No. **199,527**, dated January 22, 1878; application filed January 12, 1878.

To all whom it may concern:

Be it known that I, THOMAS BARKER FERGUSON, of Baltimore, in the county of Baltimore and State of Maryland, have invented a new and valuable Improvement in Fish-Hatching Apparatus; 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, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a scow having my fish-hatching apparatus attached thereto. Fig. 2 is an end view, showing a modification of my apparatus; and Fig. 3 is a view showing the tilting devices. Fig. 4 is a vertical central sectional view of one of my spawn-vessels.

My invention relates to methods and devices for hatching spawn of fishes, and has for its object to hatch such spawn in still waters, where the current will not impart sufficient motion to the eggs or furnish them with a sufficient change of water, and also in waters exposed to storms.

To this end the nature of my invention consists in a series of vessels in which the spawn is placed, combined with a mechanism that will impart sufficient motion to the vessels to create the necessary current and change of water.

It also consists in the construction of the spawn-vessels, and in the construction and combination of parts, as will be hereinafter more fully set forth.

The annexed drawings, to which reference is made, fully illustrate my invention.

A A represent a series of cylindrical vessels, made of sheet metal or other suitable material, and of any suitable dimensions, and which may be made slightly tapering or not, as may be deemed most advantageous. Each vessel A is provided at its lower end with a bottom, B, of wire-cloth or similar material, which is held in place by means of a metal band, C, as shown. Under certain circumstances the top of the vessel may be provided with a similar wire-cloth, B′, held in place by a metal band, C′, this latter band being placed within the vessel, while the bottom band C surrounds the lower end of the vessel on the outside. By this means the wire-cloths B and B′ can be easily removed when required, and as easily replaced.

The vessels A are provided at the top with suitable handles *a a*, and are suspended, by means of wires, cords, or chains *b b*, from the devices hereinafter described.

E represents the hull of a boat, scow, or other vessel, or pier, on each side of which is arranged a series of levers, D D, pivoted on such boat or vessel, and their outer ends projecting a suitable distance beyond the side of the same. These levers D on each side of the vessel may be arranged singly or in pairs. If in the latter way the two levers forming a pair have a rod, *d*, passing through their outer ends, and a series of vessels, A, are suspended from said rod by means of the cords or chains *b*, the vessels A thus hang outside of the boat or vessel in the water in such a manner that when the lowest they will only be about two-thirds under water.

The inner ends of the corresponding levers on the two sides of the boat may be connected together, as shown, or in any other suitable manner; or they may be left entirely disconnected, if so desired. These levers are operated by a series of eccentrics, I I, set at varying angles upon a continuously-rotating shaft, G, connected to and rotating by a steam-engine or other suitable motive power.

The levers D may be mounted above the deck of the vessel; or they may be arranged below the deck and project though the sides of the vessel, and the shaft with the eccentrics arranged to correspond with the location of the levers. In either case these eccentrics should be of such form that a slow motion upward will be secured for the vessels A, while they should move more rapidly, though gradually downward. By this means a current is created, even in still waters, sufficient to keep the eggs placed in the vessels A in motion, and change the water through the wire-cloths in the bottoms of the vessels.

When the boat or vessel is placed in water having a sufficient current no movement of the levers D is necessary; and in such case each vessel A is held in an inclined position by means of a side chain or rope, *e*, so as

to allow the current to pass through the vessel.

In such case, as well as in storms, the tops B′ should be put on the vessels A to protect the spawn. The vessels A, being cylindrical in form, present no angles or corners in which sediment, dirt, or matter deleterious to the life and development of the spawn can collect, and they are easily kept clean. Being made of sheet metal or other metallic substance, it prevents the development of injurious fungi and confervæ. Another advantage of the cylindrical form of the vessels is that it requires less force in its movement in the water than a box having angles or corners.

By this invention the spawn of fishes may be hatched in still waters, currents, and waters exposed to storms.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In the hatching of fish-spawn, the method of producing change of water in the vessels containing the spawn, and currents for moving the eggs, which consists in reciprocating the boxes or vessels in the water, substantially as herein set forth.

2. One or more series of vessels for containing the spawn, in combination with mechanism for moving the same up and down in the water, substantially as and for the purposes herein set forth.

3. The combination of the cylindrical vessel A, wire-cloths B B′, and fastening-bands C C′, substantially as and for the purposes herein set forth.

4. As a means for the hatching of fish-spawn, the combination of a portable scow or other vessel with a series of vessels, A, suspended from pivoted levers D, which are operated by a series of eccentrics, I, set at varying angles on a continuously-rotating shaft, G, substantially as set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

THOMAS BARKER FERGUSON.

Witnesses:

D. D. KANE,

GEORGE E. UPHAM.