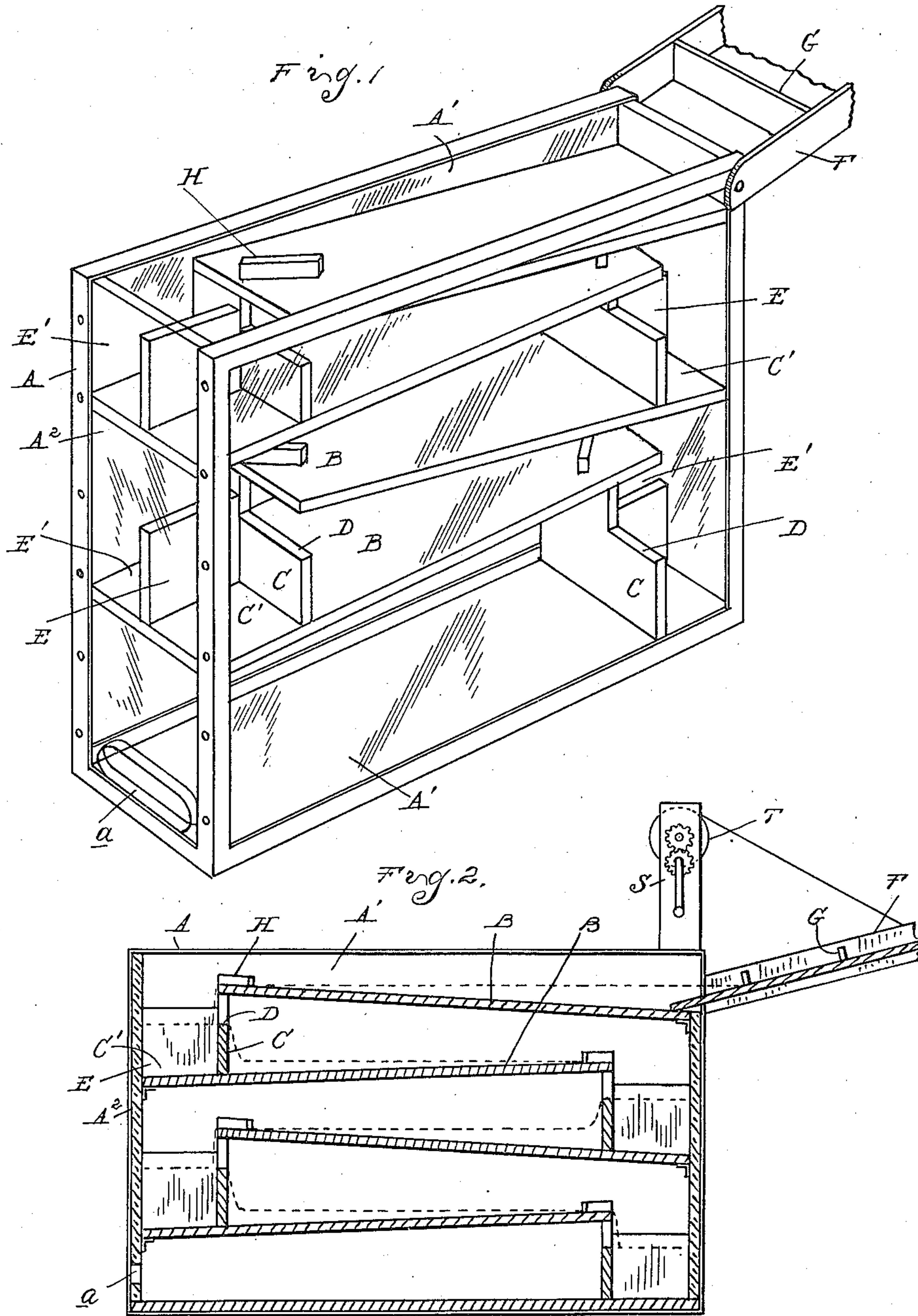


No. 841,662.

PATENTED JAN. 22, 1907.

T. BRANCH.
FISH LADDER.

APPLICATION FILED SEPT. 22, 1906.



Witnesses
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UNITED STATES PATENT OFFICE.

THOMAS BRANCH, OF OTISVILLE, MICHIGAN.

FISH-LADDER.

No. 841,662.

Specification of Letters Patent.

Patented Jan. 22, 1907.

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To all whom it may concern:

Be it known that I, THOMAS BRANCH, a citizen of the United States of America, residing at Otisville, in the county of Genesee and State of Michigan, United States of America, have invented certain new and useful Improvements in Fish-Ladders, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in fish-ladders; and it consists in a new and useful arrangement and combination of parts, as will be more fully hereinafter described, and set forth in the claims.

The objects of my invention are: first, to produce a lighted passage through which the fish will pass; second, to form a series of easy steps or falls; third, to provide dead-water adjacent each fall where the fish can rest and get a start for a jump, and, fourth, simplicity of construction.

In the drawings, Figure 1 is a perspective view of the ladder, and Fig. 2 is a vertical section thereof.

A is a casing open at the top and having transparent panels in one or more sides and ends. I preferably arrange such panels in both sides A' and the downstream end A². Any suitable material may be used for the frame; but I prefer to use an iron frame for simplicity and cheapness of construction and built up in sections flanged and bolted.

The water enters at the top of the casing at the upstream end by means of a supply chute or trough F, having one end pivoted on the casing and the other end suitably arranged for vertical adjustment, as by means of the standard S and windlass T, to secure the proper flow of water therethrough when any change occurs in the level of the stream. The trough F is provided with a series of transverse partitions G to decrease the velocity of the water.

The inlet for the fish and the outlet for the water is an opening *a* in the lower end of the downstream-wall A² of the casing.

In the casing are a series of superposed inclined planes B, connecting the sides of the casing and extending from alternate ends of said casing to points spaced from the opposite ends, and the water flows from one plane to the next. The inclines are alternately arranged and slope against the direction of the current, so that the deepest water on each level is below the fall from the pre-

ceding level. The water falling over the spaced ends of the planes from one level to the next forms an easy jump for the fish, for the water at the foot of each fall is deep, as above stated, and consequently almost dead, or at least slow; but to further assist and to provide resting-places I arrange partitions, as follows:

Below the spaced or fall end of each plane I arrange a transverse partition C, extending from side to side of the casing and from one plane to the next for a portion of the distance across the casing. For the remaining distance its top is cut away at D to provide a deep pocket C', and approximately at the cut-away point of the partition C to the adjacent end of the casing is a partition E, slightly lower than the full height of partition C and extending from said partition to the adjacent casing end or panel. It is obvious that this forms a still deeper pocket E', and the jump from one plane to the next is thus broken up into three small jumps—one over the cut-away portion D of partition C, the second over the partition E, and the third to the next plane.

To prevent too large a volume of water falling from the spaced end of one plane directly into the pocket C', I preferably arrange inclined vertical baffle-plates or partitions H on the end of each plane.

By providing the transparent panels above mentioned the interior of the ladder is well lighted and the fish will enter without hesitation. As is well known, very few varieties of fish will enter a dark passage-way.

However, if desired to cheapen the construction any or all of the transparent panels may be replaced by concrete or cement plates suitably secured in the iron framework. The planes B and the sides of the dead-water pockets are preferably lined with cement, with gravel scattered over it to give a natural appearance thereto.

What I claim is—

1. In a fish-ladder, the combination with an open-top casing having an opening through the lower end of one wall, of a series of superposed inclined planes in said casing, for the purpose described.

2. In a fish-ladder, the combination with an open-top casing having transparent panels and an opening through the lower end of one wall, of a series of superposed inclined planes in said casing, for the purpose described.

3. In a fish-ladder, the combination with an open-top casing having an opening through the lower end of one wall, of a series of inclined planes connecting the sides of said casing and extending from alternate ends of said casing to points adjacent to the opposite ends, for the purpose described.

4. In a fish-ladder, the combination with an open-top casing having an opening through the lower end of one wall, of a series of inclined planes connecting the sides of said casing and extending from alternate ends of said casing to points spaced from the opposite ends, and transverse partitions below the spaced end of each plane, for the purpose described.

5. In a fish-ladder, the combination with an open-top casing having an opening through the lower end of one wall, of a series of inclined planes connecting the sides of said cas-

ing and extending from alternate ends thereof to points spaced from the opposite ends, transverse partitions below the spaced end of each plane, the partitions extending from intermediate points on said transverse partition to the adjacent ends of the casing, for the purpose described.

6. In a fish-ladder, the combination with an open-top casing having an opening through the lower end of one wall, of a series of superposed inclined planes in said casing, and means for leading water to the top of said casing, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS BRANCH.

Witnesses:

JAMES P. BARRY,
THOS. O'DONNELL.