

M. G. HOLTON.
Fish Spawn-Hatchers.

No. 136,834.

Patented March 18, 1873.

Fig. 1.

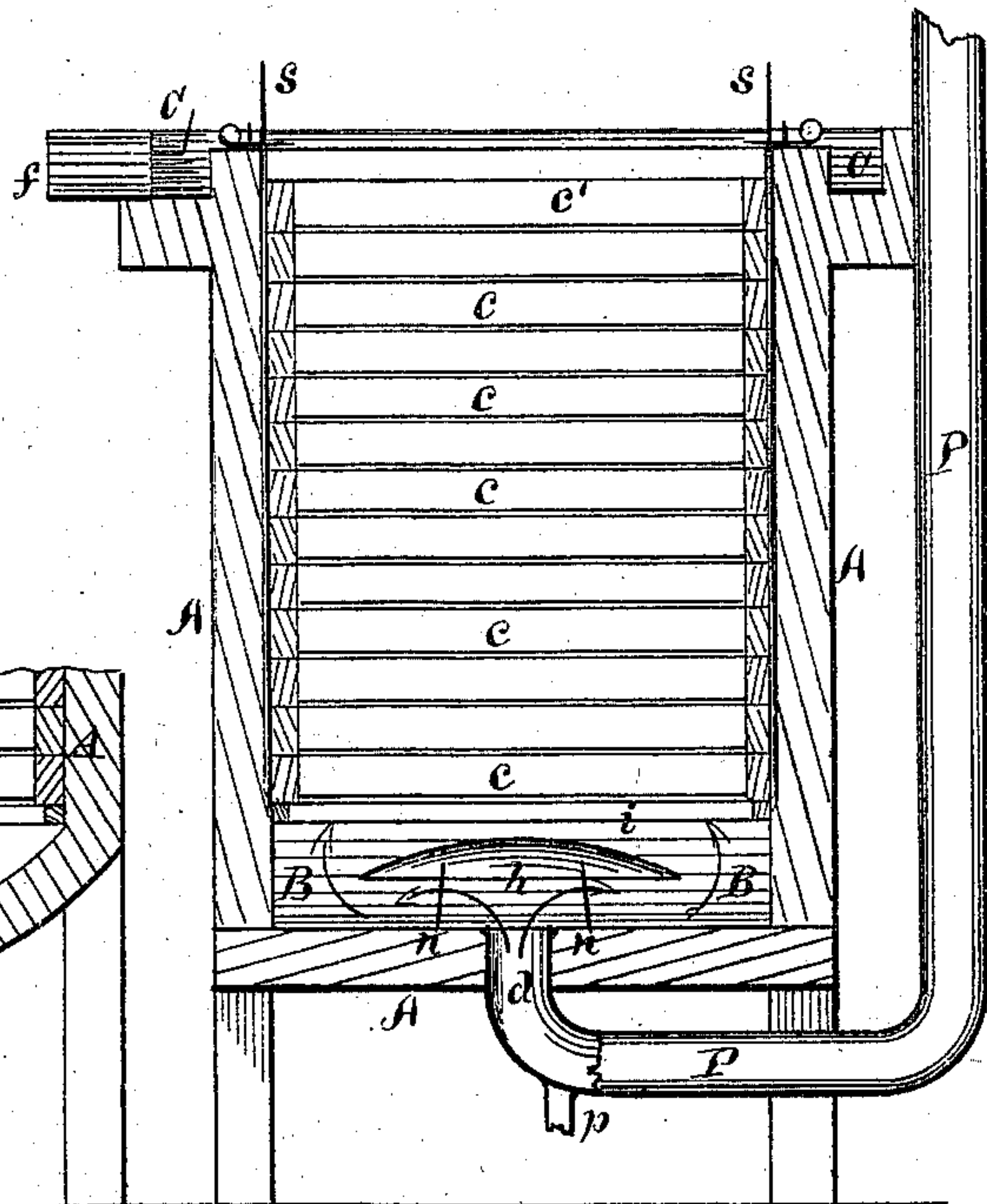


Fig. 3.

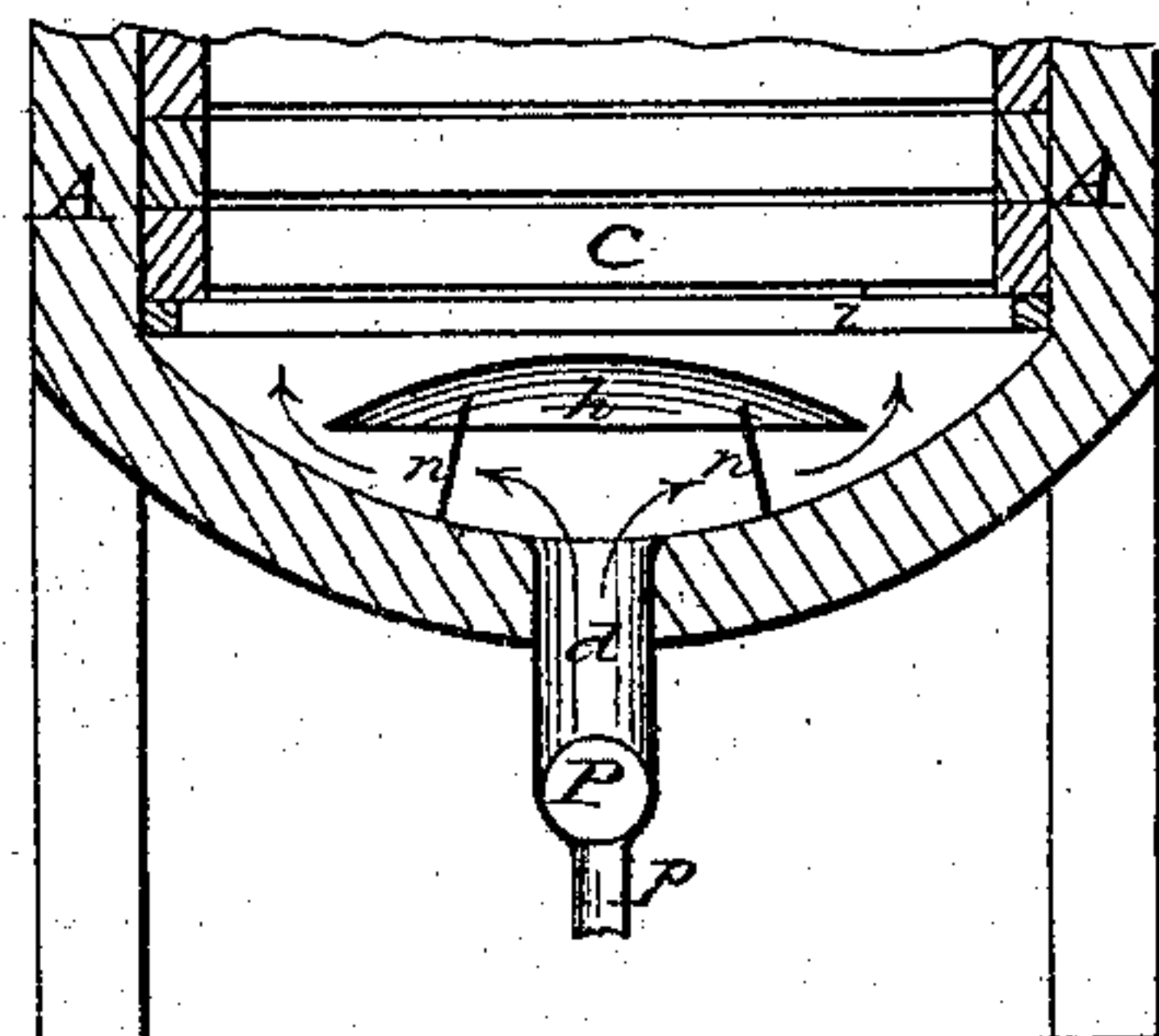
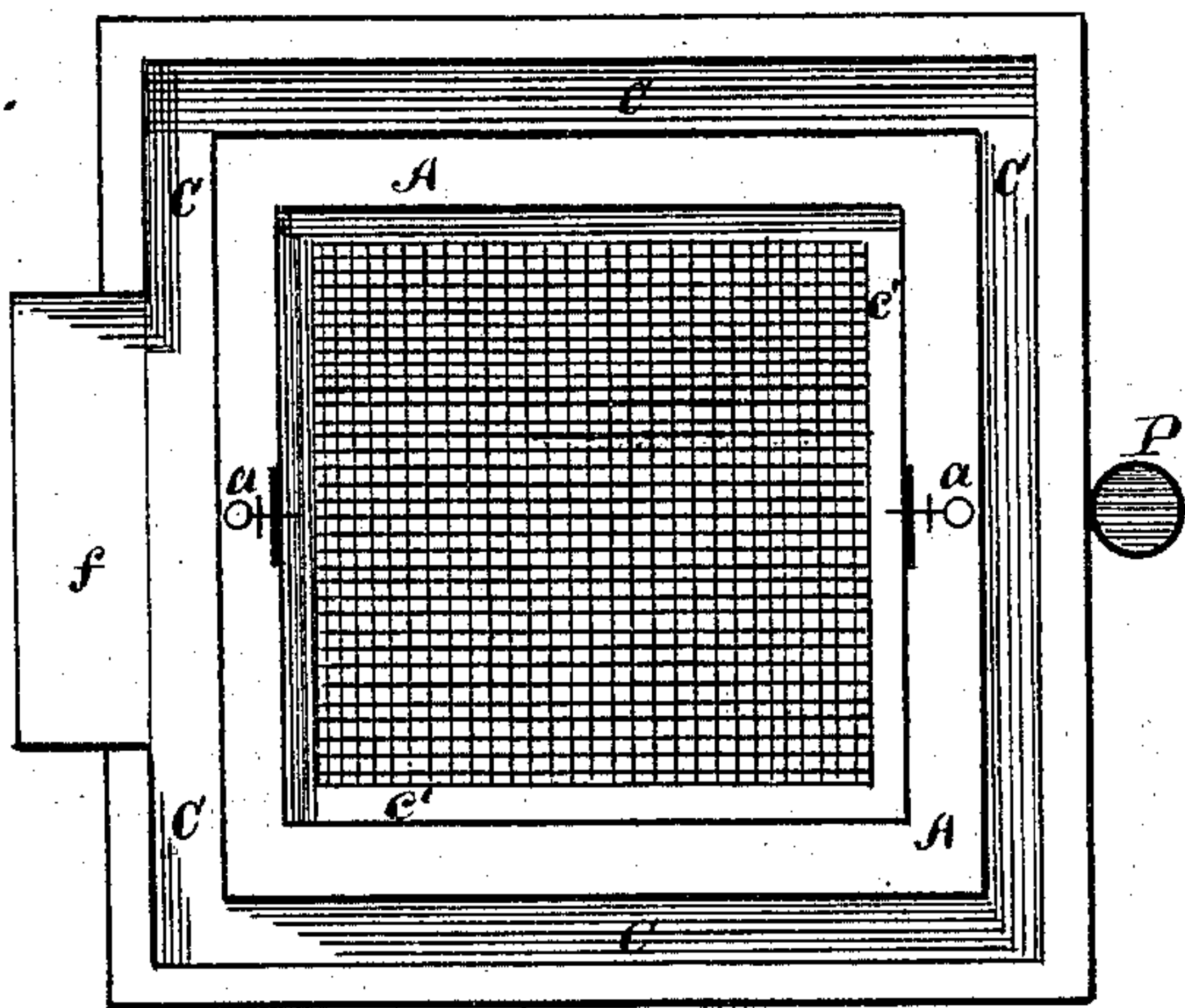


Fig 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

MARCELLUS G. HOLTON, OF ROCHESTER, NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO SETH GREEN, OF SAME PLACE.

IMPROVEMENT IN FISH-SPAWN HATCHERS.

Specification forming part of Letters Patent No. 136,834, dated March 18, 1873.

To all whom it may concern:

Be it known that I, MARCELLUS G. HOLTON, of Rochester, in the county of Monroe and State of New York, have invented certain Improvements in Pisciculture or Fish-Spawn Hatching, of which the following is a specification:

The object of my invention is to provide a simple and convenient method of fish-spawn hatching, which may be practically carried on during the winter season. Its nature consists, mainly, in the employment, in connection with the spawn-trays, of an upward current or flow of water through the layers of spawn, affording a thorough and constant circulation of fresh water through the same.

In the drawing, Figure 1 is a vertical central section of one case of trays. Fig. 2 is a top or plan view of the same. Fig. 3 is a transverse sectional view of the cylindrical bottom B.

A represents a square box or case, made water-tight, preferably of wood, and provided with a concave bottom, shown at B, or a hopper-bottom might do as well, the object being to cause any sediment, &c., to be easily removed through the discharge-pipe *p*. There is a channel, C, formed entirely around the case near the top. The outer walls of such channel are somewhat elevated above the upper edge of the case proper. This permits a gentle overflow from all sides of the tray-chamber, near the bottom of which is fixed a ledge, *i*, Fig. 1, upon which the trays *c* may rest. These latter consist of shallow rectangular frames, each provided with a fine wire-gauze bottom, upon which the spawn is deposited and held during the time of hatching. There is a suitable metallic or other strap, *s*, attached to two opposite sides of the bottom tray in each case of trays, whereby the whole set may be raised or lowered as may be necessary in removing or replacing them, as hereafter more fully described. There is a vertical recess cut in the sides of the case to receive the straps. The latter are perforated at distances corresponding to the vertical depth of each tray; and the straps, if made of metal, may be provided with a suitable pin, *a*; but, if leather is used, they may be hooked

upon a fixed pin in the upper edge of the case. A pipe, P, may be used to conduct the water from the spring or fountain into the bottom of the case; or a water-chamber may be formed entirely across that side of the case and also across the bottom. This latter construction is rather preferable for all except the first case in each tier, and, in fact, would not be objectionable for that. To insure a thorough distribution and circulation of the upward-flowing current of water through all parts of the trays, I provide the deflector *h*, which may be spherical, as shown, flat, or any other suitable shape. It is supported directly over the inlet-opening *d* upon suitable standards *n*. The discharge spout or trough *f* conveys the overflowing water to the descending water channel or chamber of the next succeeding case.

The case may be made of any desired size; but I prefer them about eighteen inches to two feet square, and from two to four feet or more in height, according to the amount of fall afforded to the water from the spring or fountain.

The cases may be arranged in tiers the whole length of the floor of the hatching-house, and the water overflowing from one made to pass into and through the next succeeding one to any desired extent, as to numbers.

The lower tray is suspended, when it is to be filled, in the position occupied by the upper tray *c'*. The spawn is deposited evenly over the surface of the wire-gauze, and in a suitable quantity. The tray is then lowered by the straps *s* sufficiently to permit the insertion of another tray, which is treated in a like manner, and so on until the case is filled. The trays and young fish may then be removed in a similar manner—that is, one tray at a time—and the water allowed to flow through during either process.

It will be seen that the spawn will remain evenly distributed on account of the longitudinal position of the trays; and, by means of the buoyant tendency of the upward current, there is no damage or loss of spawn by lack of circulation.

This plan is intended more especially for

winter hatching, or for the spawn of white fish; but it may also be used for almost any other kind.

What I claim as my invention is—

1. The spawn-hatching apparatus A, constructed as described, to produce an equally-distributed upward flow or circulation of the water, for the purposes set forth.

2. In a spawn-hatching device, the trays *c* and water-inlet opening *d*, in combination with the deflector *h*, arranged to operate substantially as and for the purposes shown and described.

3. In combination with the spawn-hatching apparatus A, the overflow-channels C, arranged to equalize the overflow on all sides, substantially as and for the purposes set forth.

4. In combination with the spawn-trays *c*, the concave or hopper-shaped bottom B, substantially as described, for the purposes set forth.

M. G. HOLTON.

Witnesses:

WM. S. LOUGHBOROUGH,
PATRICK MCINTYRE.