

(No Model.)

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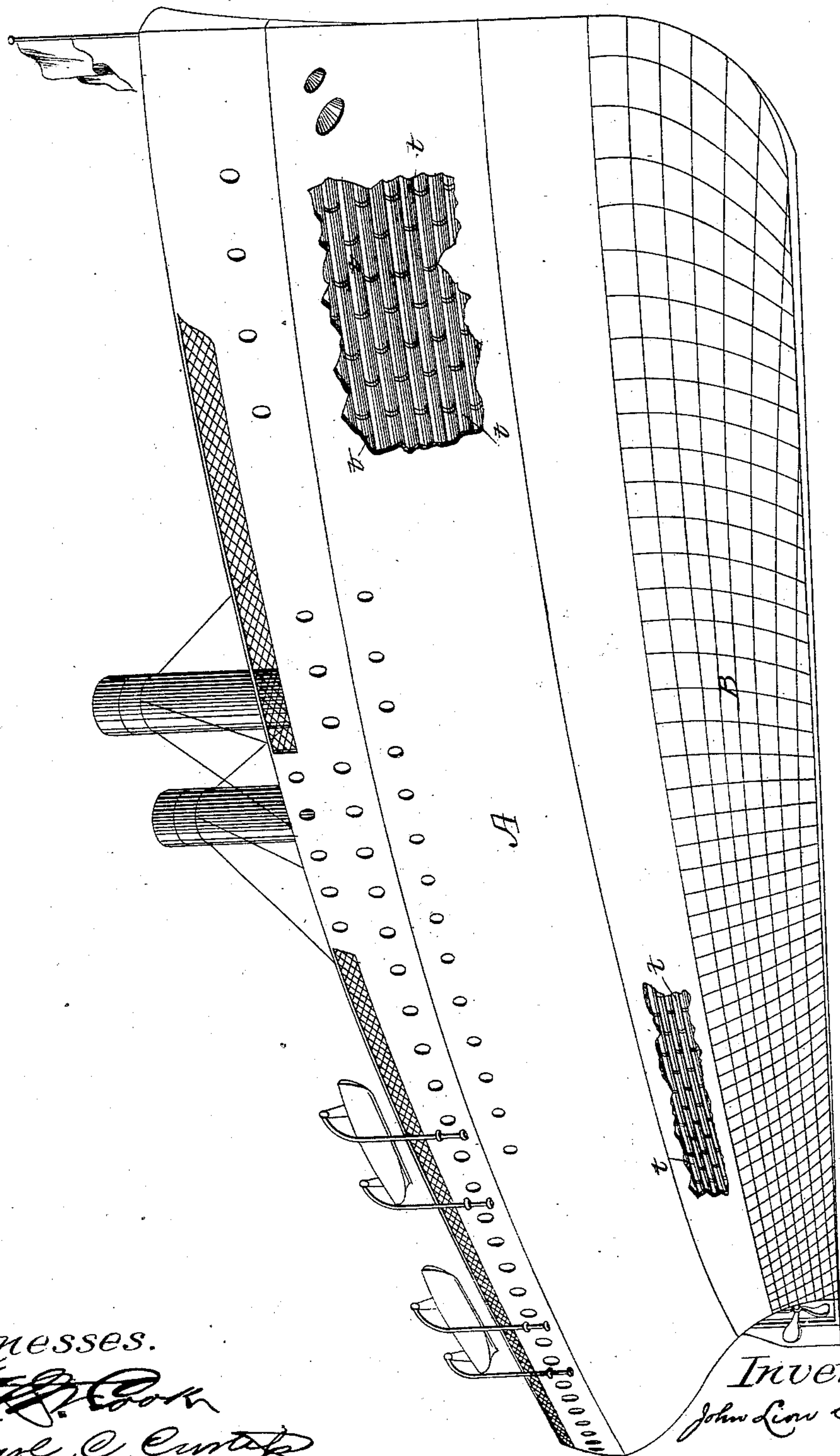
J. L. ESHELMAN.

CONSTRUCTION OF SEA GOING VESSELS.

Patented June 19, 1883.

No. 279,863.

Fig. 1.



Witnesses.

John L. Eshelman
Carl C. Curtis

Inventor.

John L. Eshelman

(No Model.)

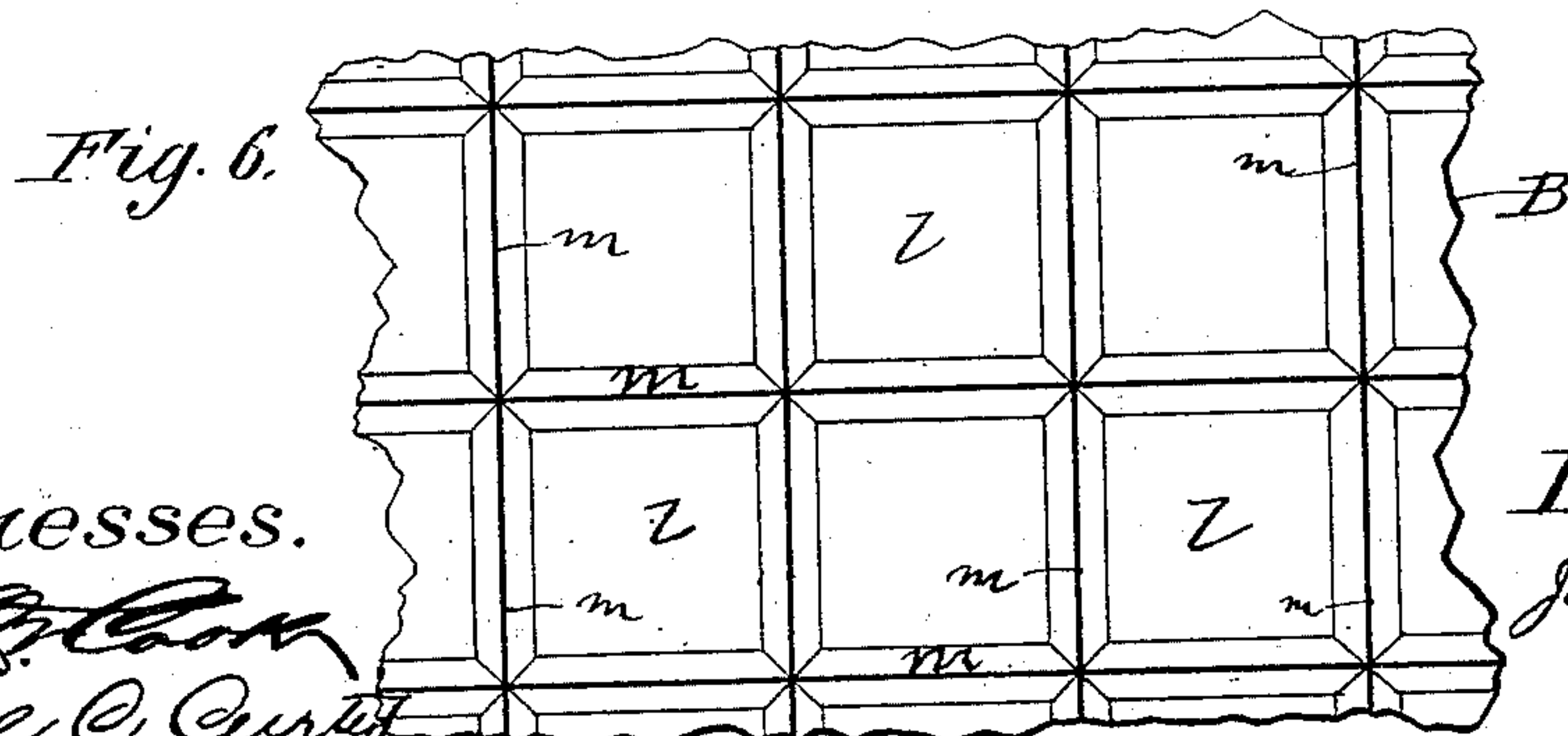
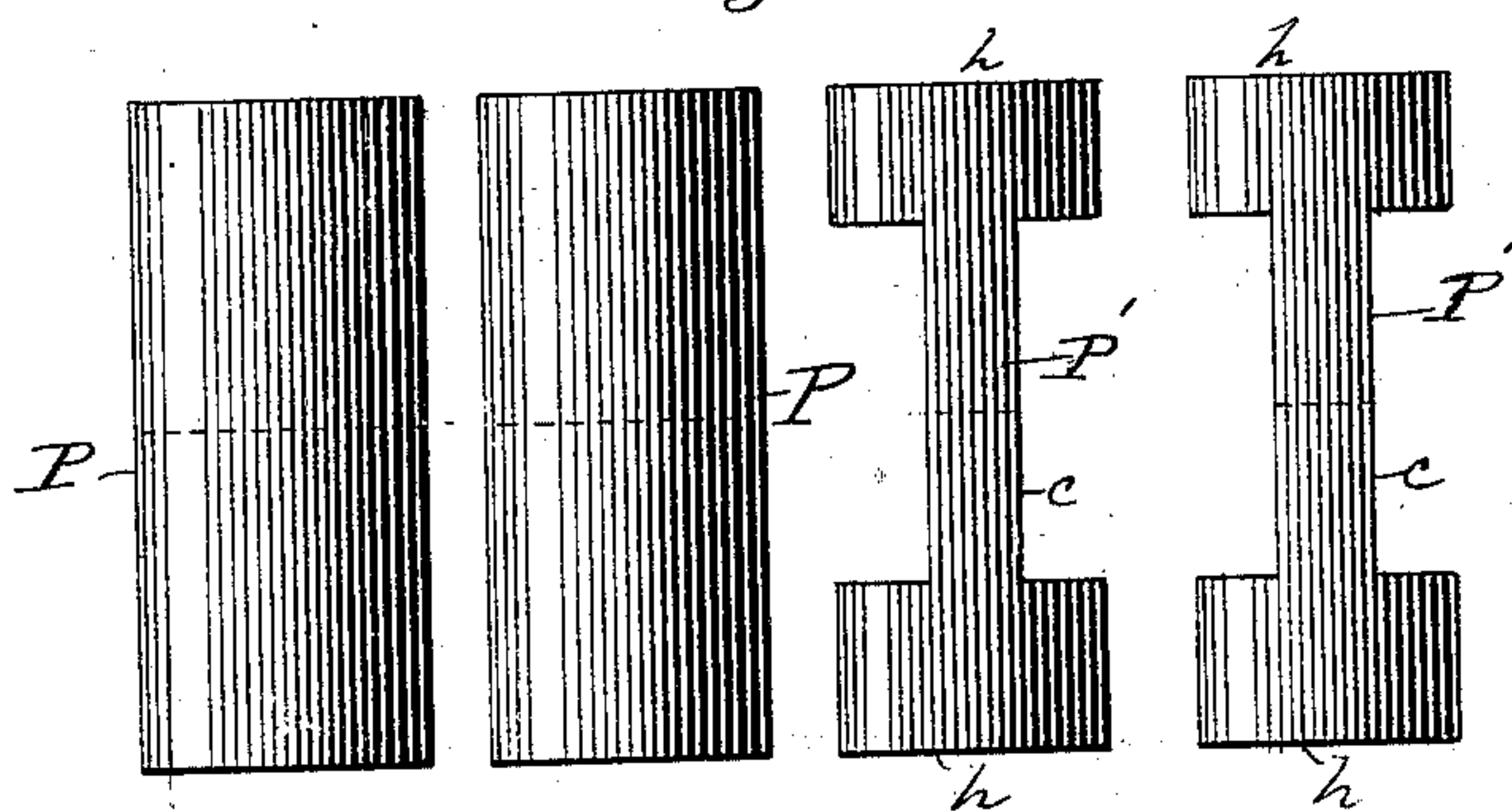
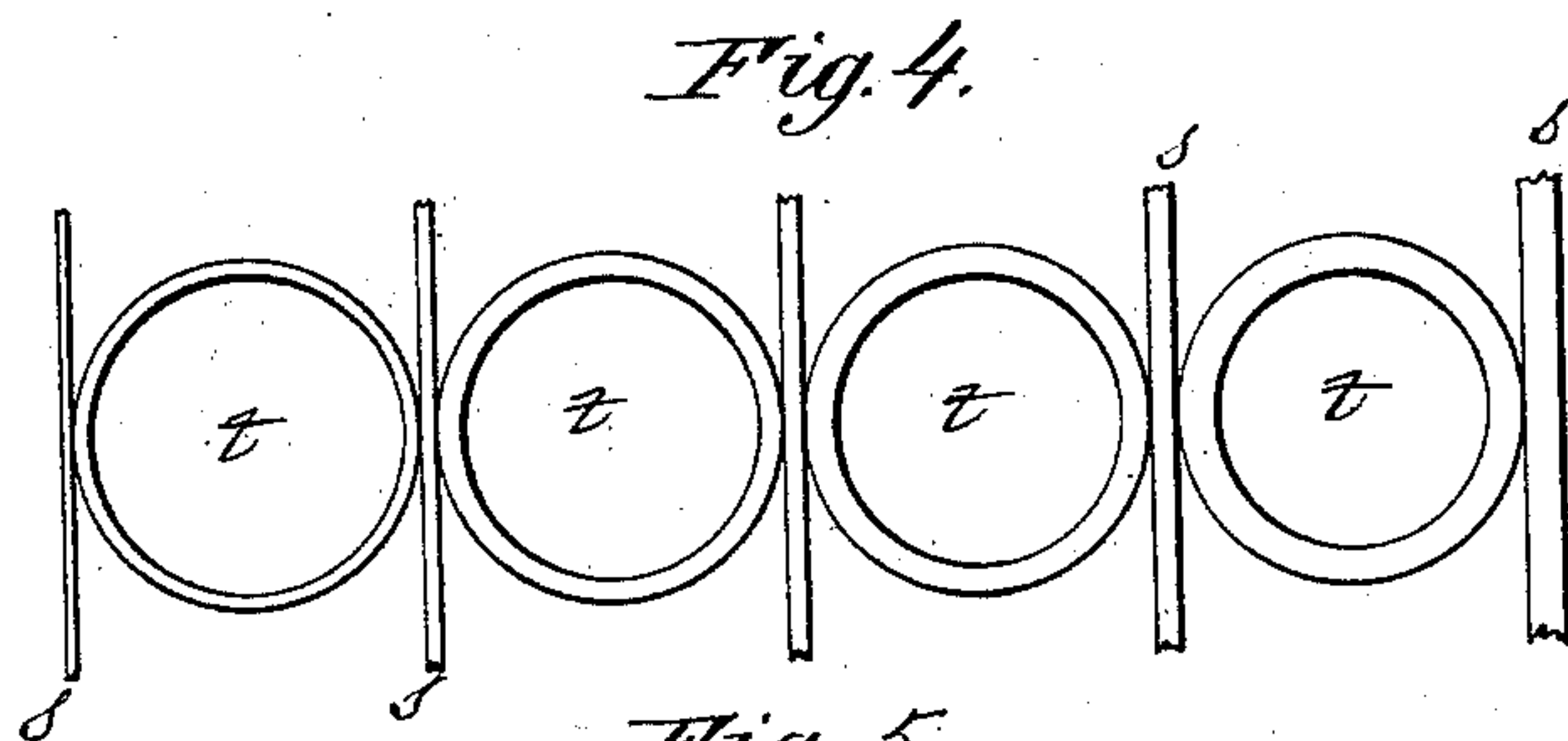
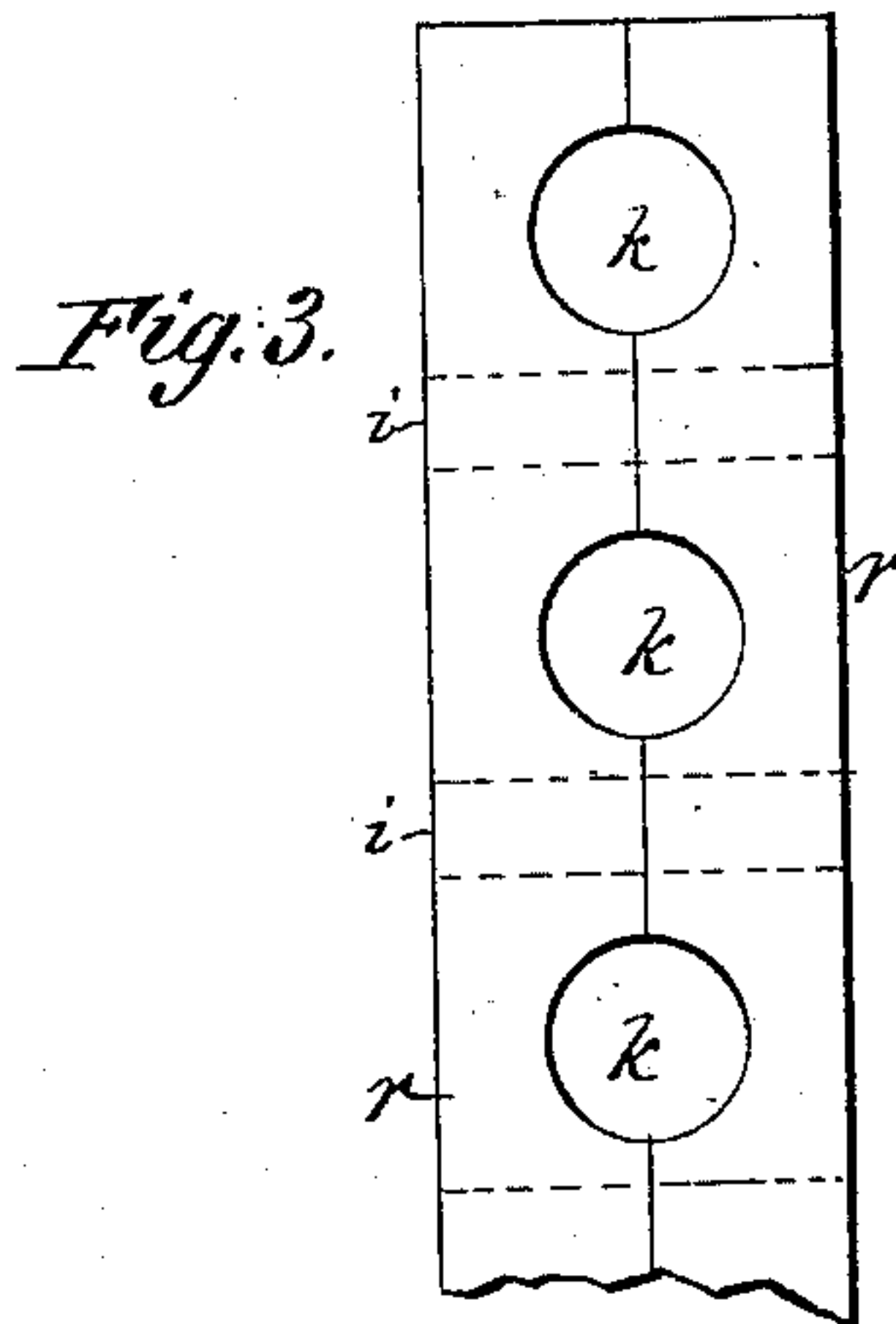
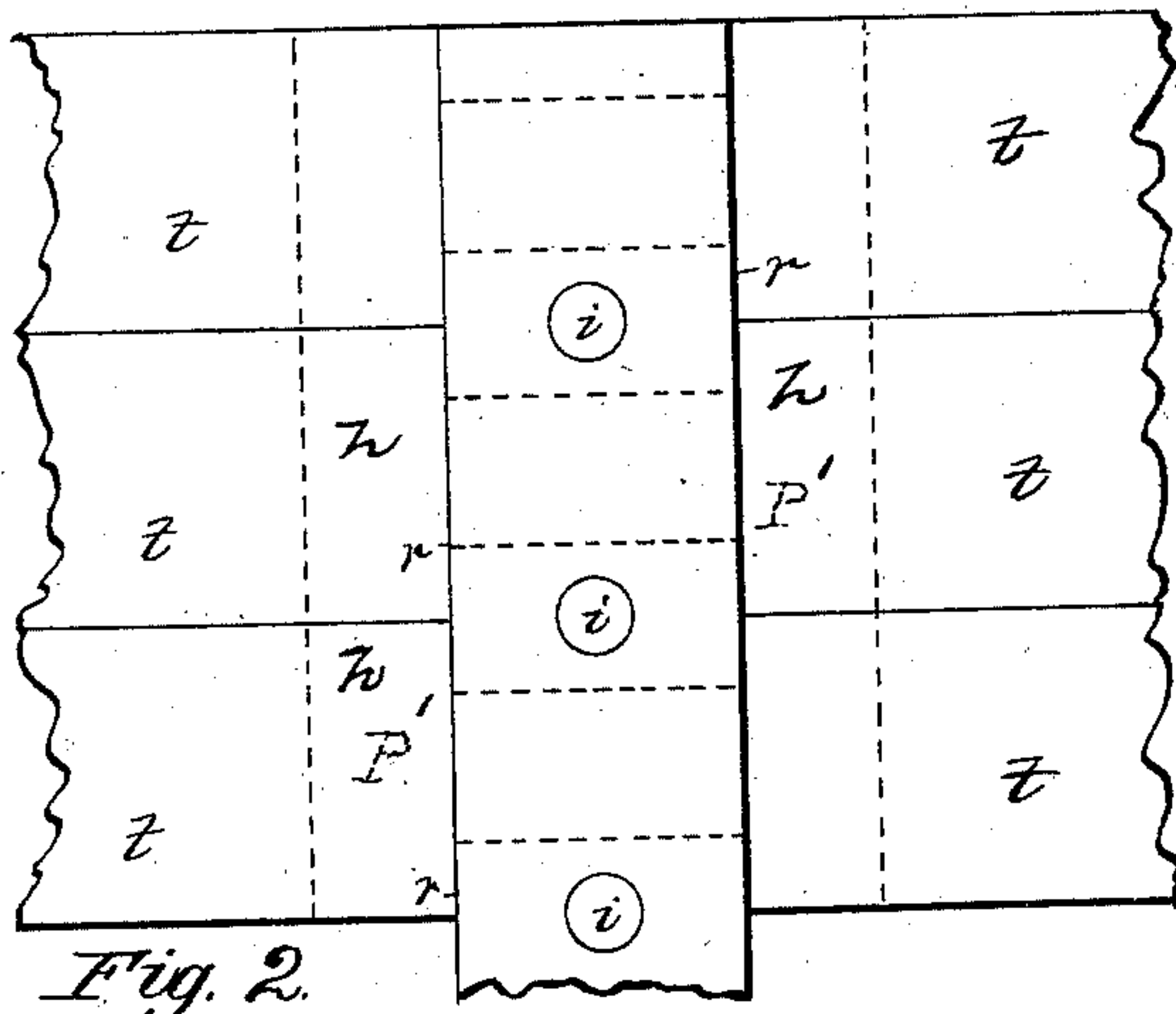
2 Sheets—Sheet 2.

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No. 279,863.

Patented June 19, 1883.



Inventor.
John Lion Eselman

Witnesses.

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Fig. 7.



UNITED STATES PATENT OFFICE.

JOHN L. ESHELMAN, OF LEADVILLE, COLORADO.

CONSTRUCTION OF SEA-GOING VESSELS.

SPECIFICATION forming part of Letters Patent No. 279,863, dated June 19, 1883.

Application filed January 4, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN L. ESHELMAN, of Leadville, in the county of Lake and State of Colorado, have made certain new and useful

5 Improvements in Ships, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings and letters of reference marked thereon, in which—

10 Figure 1 is a perspective view of my improved vessel, showing the arrangement of the tubes and cradle. Fig. 2 is an elevation of a series of tubes connected at their ends by plugs passing through orifices in a rib. Fig. 15 3 is a side view of a rib. Fig. 4 is transverse section of a series of tubes and skins interposed between them, forming a section of the hull of the vessel. Fig. 5 is an elevation of a series of plugs of two forms adapted to be inserted in the tubes. Fig. 6 is a plan view of the cradle secured to the bottom of the vessel, and Fig. 7 is a cross-section of the same.

Similar letters indicate like parts in all the figures.

25 The object of my invention is to construct the hull of a vessel of a stronger and more buoyant form than heretofore made with the same amount of material; and to this end my invention consists, first, in constructing the 30 entire hull of a vessel, from the keel to the main deck, of a series of horizontal tubes resting on each other, with skins interposed between them, and a skin secured to the outer surface of the outer tubes and the inner sur- 35 face of the inner tubes.

My invention further consists of an anti-friction cradle made to conform with the bottom of the hull and secured thereto, whereby the bottom is strengthened, and an additional 40 weight is applied to the bottom of the hull, so that the ship will float on her keel.

My invention further consists in certain details of construction, hereinafter more fully set forth, and pointed out in the claims.

45 The material I prefer to employ in the construction of my improved hull is steel, and it is built up of a series of tubes, *t*, placed side by side and extending transversely the thickness of the vessel, with skins *s* interposed between the tubes *t*, and skins secured to the 50 outer and inner tubes of the hull, as shown in Fig. 4. The tubes *t*, forming one row of tubes,

rest on the row of tubes beneath them, so that the hull from keel to main deck is built up of tubes. The diameters and lengths of the tubes 55 *t* are comparatively small, and they are joined together at measured intervals by plugs, each tube thus forming a water-tight compartment.

The plugs *P P'* may be solid or hollow, as desired. In Fig. 5 I have shown two forms of 60 plugs. The cylindrical ones, *P*, are employed to join two tubes where no ribs are employed between them, and those *P'*, with cylindrical heads *h h*, connected by the smaller cylinders *c*, being employed to join the superimposed 65 tubes *t* (see Fig. 2) at their junction with a rib, *r*, the heads *h* of the plug *P'* being inserted in the opposite adjacent tubes *t*, and the smaller cylindrical part *c* of the plug passing through the hole *k* of the rib *r*, and bolts being inserted 70 in the holes *i* of the rib, the tubes *t* and rib *r* being flush with each other, and skins *s* being secured to the outer and inner faces of the tubes *t* and ribs *r*. The outer tubes *t* are made 75 thicker than the others, and also the outer skin, *s*, and the other tubes and skins gradually decrease in thickness from the outside to the inside of the hull, making the hull strongest on its outer face, to resist shot or pressure 80 thereon.

The keel, keelson, and sister keelson, before being laid, are made hollow and plugged at measured intervals, and the stern-post is similarly constructed, to insure greater buoyancy. The knees, beams, and carlings are hollow 85 tubes plugged at measured intervals. The decks and transoms for the hatchways are constructed of tubes, in the same manner as the sides of the vessel, and provided with wooden coverings. The steel skins and tubes connect- 90 ing with the keel, commencing with the garboard-streak, are made much heavier proportionately than the upper sides of the vessel, for the double purpose of having sufficient thickness and strength to attach the cradle herein- 95 after described, and also to give greater weight to the vessel near its bottom, so that it will always float keel downward. *B* (see Figs. 1 and 6) represents the cradle or water-bottom, made to conform in shape to the bottom of the hull, 100 and provided with a series of longitudinal and cross ribs, *m*, projecting from its outer face, forming rectangular water-spaces *l*, whereby the friction of the vessel in its movements

would be decreased. The cradle strengthens the bottom of the vessel by forming a covering for the bottom of the hull, and also adds weight to the lower part of the hull, causing it
5 always to float keel downward.

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

1. A hull of a vessel built up entirely of a series of longitudinal tubes, *t*, resting on each
10 other from keel to main deck, and longitudinal skins secured thereto between the said tubes, and on the outer and inner faces of the outer and inner tubes, substantially as described.

2. A hull of a vessel built up of a series of
15 tubes and skins, said tubes and skins gradually decreasing in thickness from the outer to the inner side of the hull, substantially as described.

3. The combination, with the longitudinal
20 tubes or cylinders *t*, of the plugs *P'*, composed of the cylindrical heads *h*, connected together

by the smaller parts *c*, substantially as described.

4. The combination, with a series of tubes, *t*, and double-headed plugs *P'*, of the ribs *r*, hav-
25 ing holes *k* and skins *s*, substantially as described.

5. The combination, with the hull of a vessel built up entirely of a series of longitudinal tubes, *t*, resting on each other from keel to main
30 deck, and skins secured to said tubes, of the cradle *B*, secured to its bottom, substantially as shown and described.

6. The combination, with the longitudinal tubes or cylinders *t*, of the cradle or water-
35 bottom *B*, provided with longitudinal and cross ribs *m* on its outer faces, forming water-spaces *l*, substantially as shown and described.

JOHN LION ESHELMAN.

Witnesses:

GEO. W. COOK,
CARL C. CURTISS.