

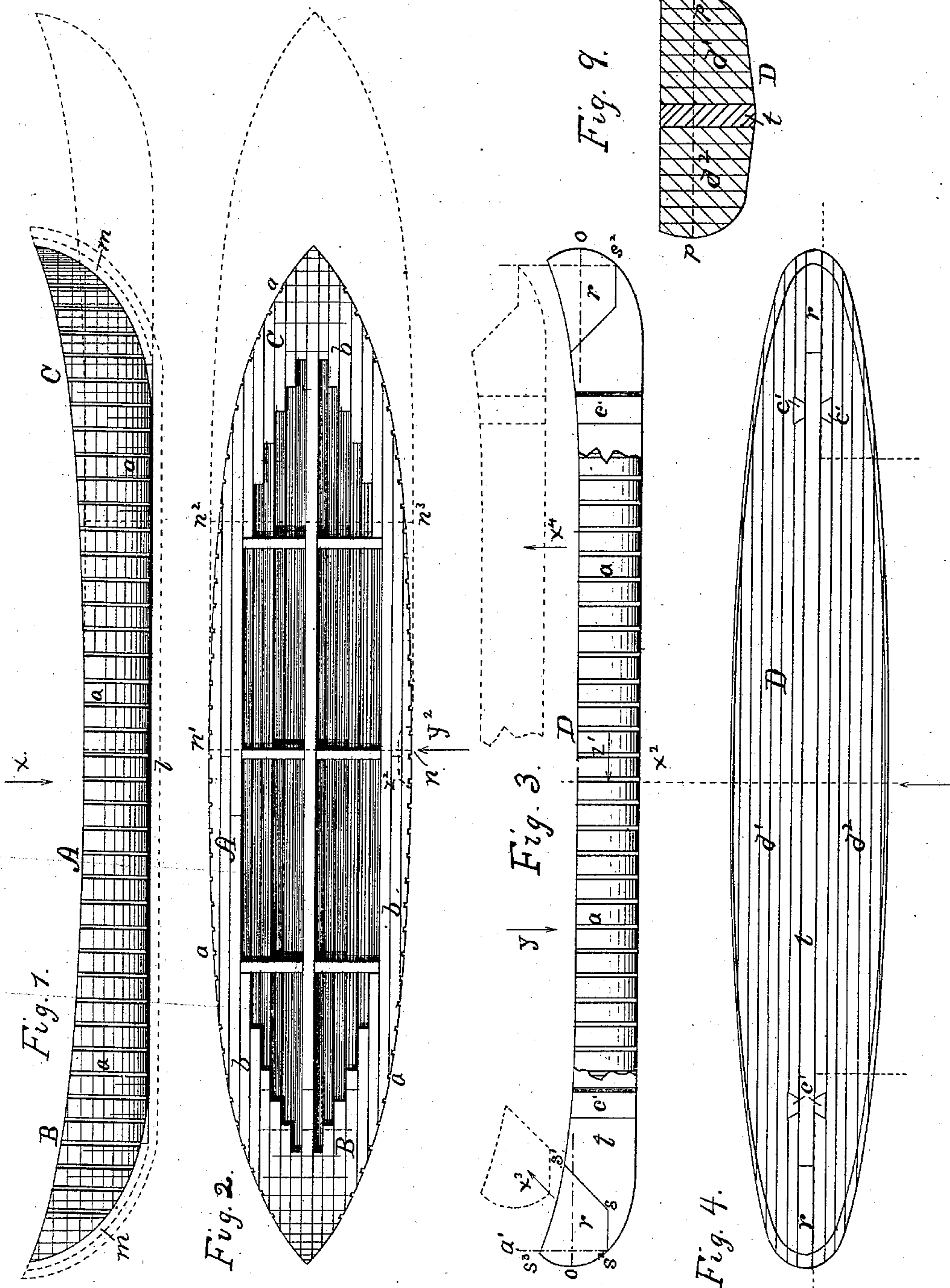
(No Model.)

2 Sheets—Sheet 1.

G. W. RUGGLES.
FORM TO BUILD BOATS OVER.

No. 311,038.

Patented Jan. 20, 1885.



Attest:
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Wm. V. Lockwood.

Inventor:
Geo. W. Ruggles.
By E. B. Whitmore,
att'y.

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Fig. 5.

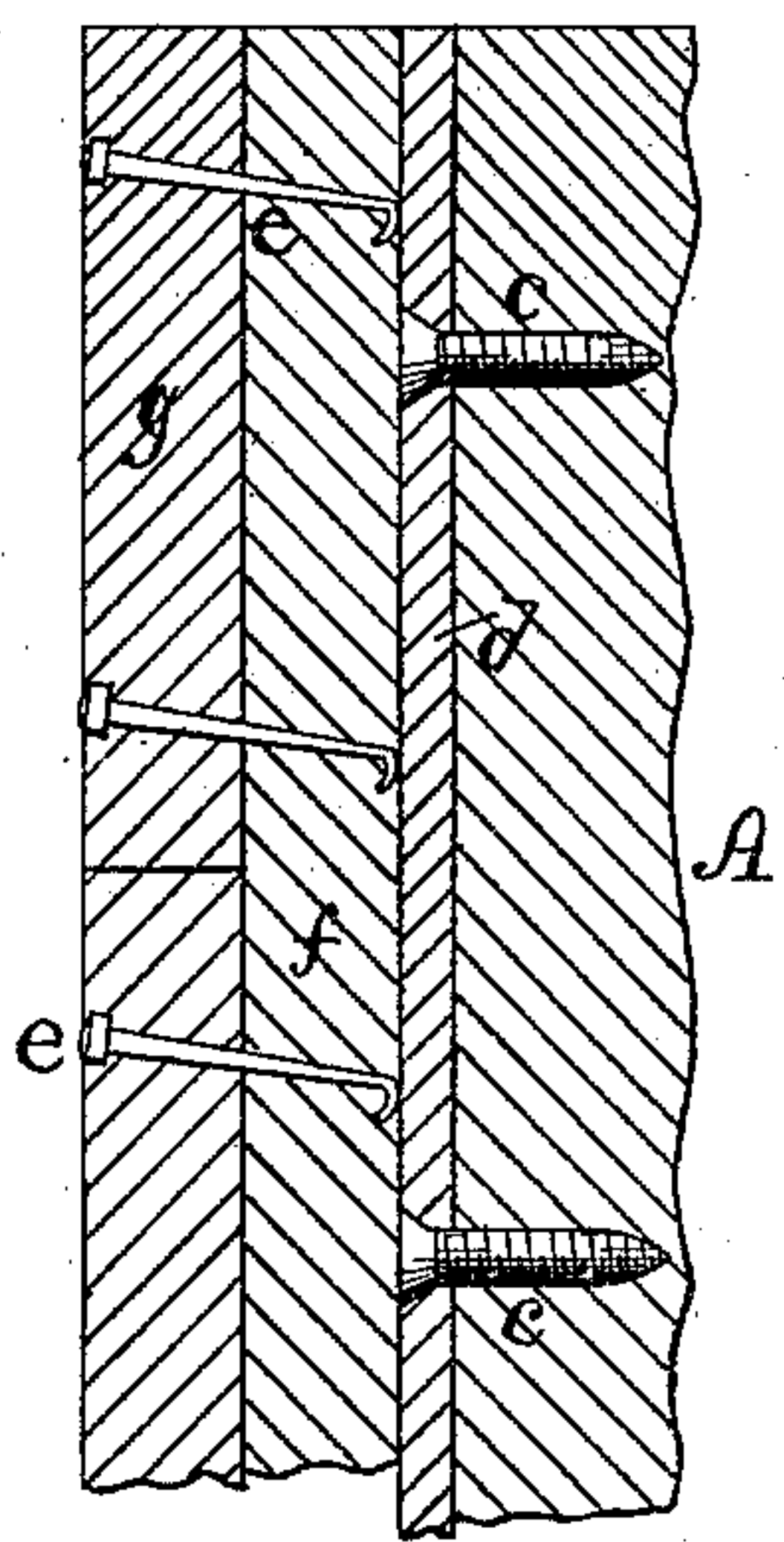
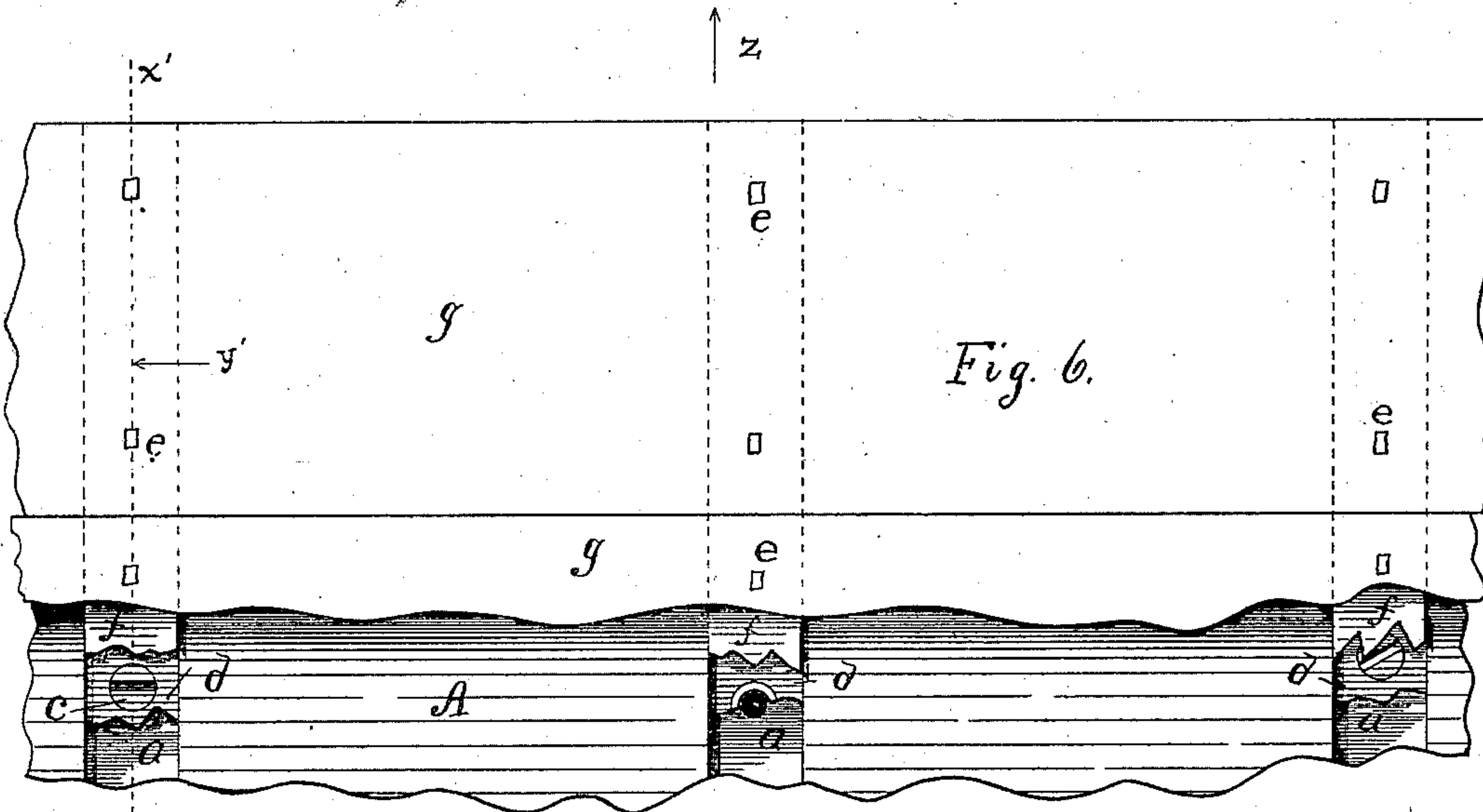
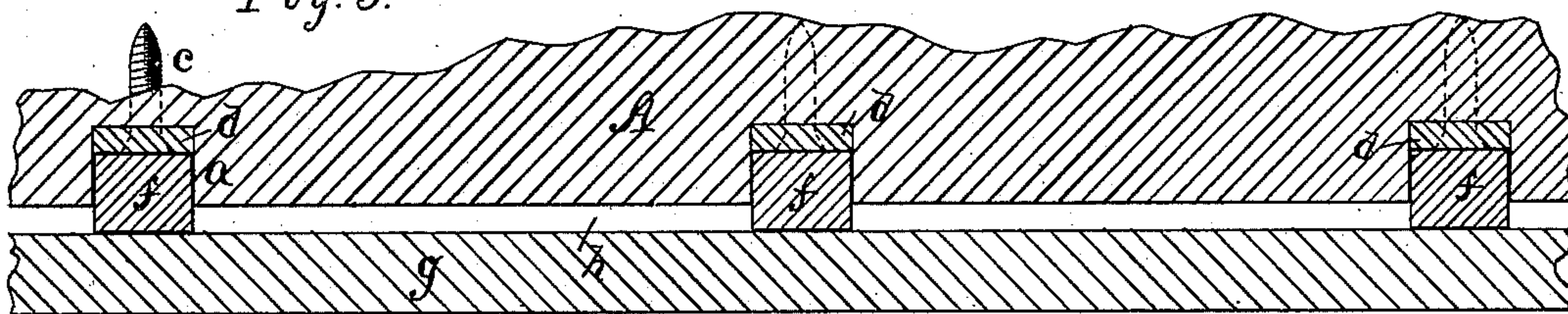


Fig. 7.

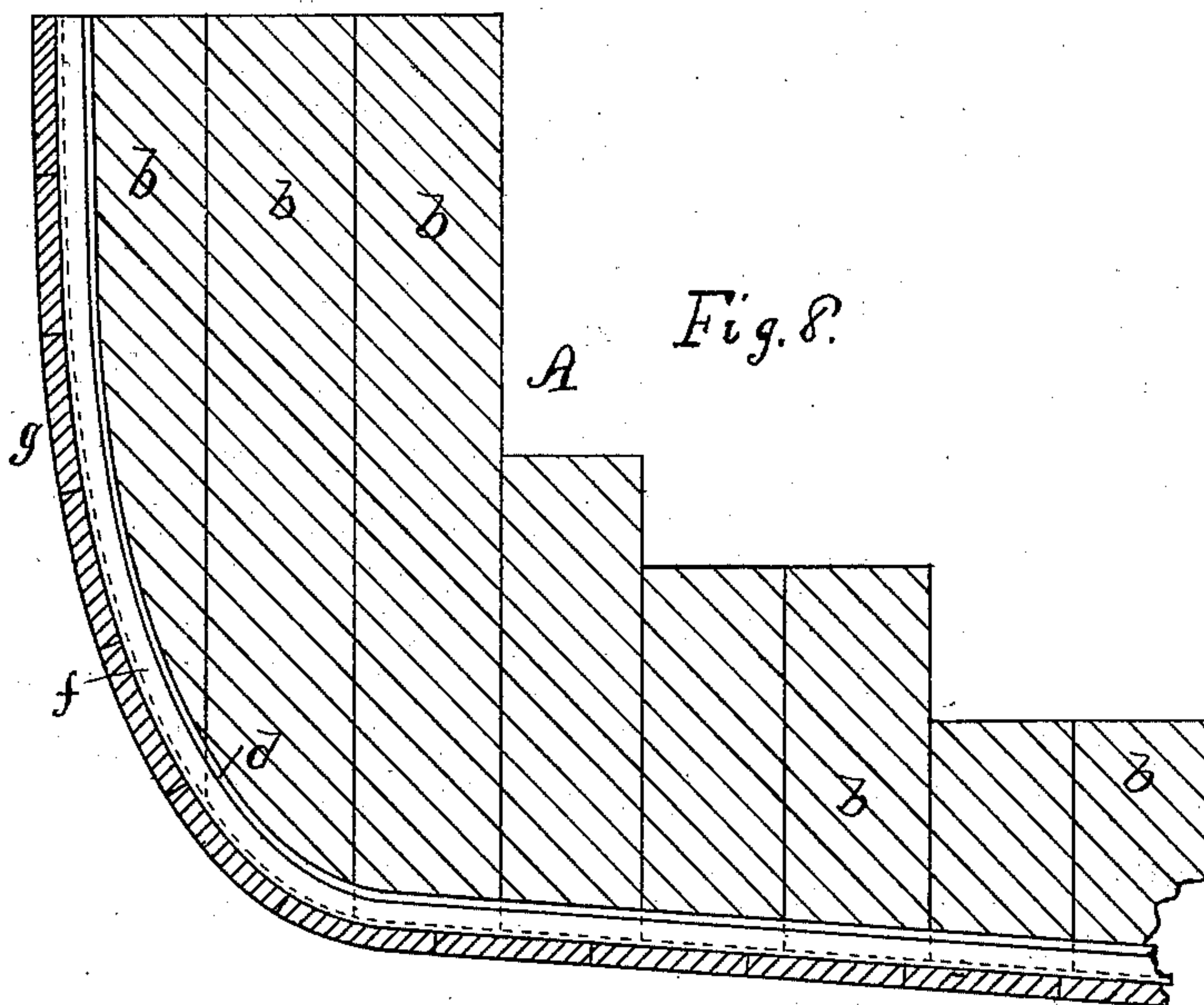


Fig. 8.

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UNITED STATES PATENT OFFICE.

GEORGE W. RUGGLES, OF CHARLOTTE, NEW YORK.

FORM TO BUILD BOATS OVER.

SPECIFICATION forming part of Letters Patent No. 311,038, dated January 20, 1885.

Application filed October 25, 1884. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. RUGGLES, of Charlotte, in the county of Monroe and State of New York, have invented a new and useful
5 Improvement in Forms to Build Boats Over, which improvement is fully set forth in the following specification and shown in the accompanying drawings.

The object of my invention is to produce a
10 new and novel core or body over which to construct skiffs, canoes, and other light row-boats, by means of which said boats can be produced in less time, with less material, and at much less expense, besides being truer and
15 more graceful in shape, and stronger, than boats built in the ordinary manner; also, by this method of construction any number of boats can be made uniform in all of their dimensions. This core or body is peculiarly
20 constructed, as is shown in the drawings, and will be hereinafter fully described, and more particularly pointed out in the claims.

Referring to the drawings, Figure 1, Sheet 1, is a side elevation of my improved core
25 over which to build shells of common row-boats or skiffs, parts being shown in dotted lines; Fig. 2, a plan of the same viewed as indicated by arrow x in Fig. 1, drawn to further show the construction of the core; Fig. 3, a
30 similar core or body over which to construct the shells of canoes, the core being shown in side elevation, parts being broken away and other parts shown in full-line and dotted-line positions; Fig. 4, a plan of the core shown in
35 Fig. 3, viewed as indicated by arrow y , drawn to show more fully the form of the sections of the core; Fig. 5, Sheet 2, a plan of a portion of the core of either form above mentioned, the view being of a part at the middle and at
40 one side of the core, (the part shown in this figure being that part of the core divided off by the dotted line z in Fig. 2,) viewed as indicated by the arrow x in Fig. 1, showing three
45 of the vertical grooves formed in the side surface of the core, the iron clinching-straps and ribs of the boat placed therein, and a portion of the planking or shell of the boat secured to the outer surfaces of the ribs; Fig. 6, a side
50 elevation of the parts shown in Fig. 5, viewed as indicated by arrow z , showing more clearly the vertical grooves in the side of the core,

the clinching-straps as secured therein, the ribs and planking of the boat; Fig. 7, a vertical cross-section of a portion of the outer part of the core at one side thereof, and planking 55 of the boat, together with one of the ribs and the clinching-strap, showing the relative arrangement of said parts and the manner in which the points of the nails are clinched, the section being on the dotted line x' in Fig. 6, 6c and viewed as indicated by arrow y' ; Fig. 8, a transverse section of a portion of the core through one of the vertical grooves, showing the clinching-strap with a rib and outside planking, the view being from the same direc- 65 tion in which Fig. 7 is seen, said Fig. 8 being drawn to a much smaller scale for the purpose of showing more of the parts of the core and boat; and Fig. 9, Sheet 1, a transverse section of the canoe-core shown in Figs. 3 and 70 4, taken upon the dotted line x^2 in said figures, viewed as indicated by arrow z' , but drawn to a larger scale, to assist to show more clearly the removable longitudinal center piece of said core; Figs. 1 to 4, inclusive, be- 75 ing drawn to the same scale—one-half of an inch to the foot—Figs. 5 to 7, inclusive, drawn full size, and Figs. 8 and 9 drawn to irregular scales intermediate between those above mentioned. 80

Referring to the parts, A is the core for building skiffs over, which may be made up in any desirable manner, solid or hollow, to suit the ideas of the builder; but I prefer to construct it out of planks b , set on edge side 85 by side and pinned together, as shown in Figs. 2 and 8, leaving an opening at the middle for the purpose of lightness and to economize in the use of material. After being built up the exterior of the core is cut or trimmed to 90 the exact shape or form desired to give the boat. Vertical grooves a are formed in the sides of the core, equally spaced, reaching from the gunwales to the keel, said grooves being given a width corresponding to the 95 width of the rib-timbers designed to be used in constructing the boats, which width for row-boats and canoes I prefer to make about one-half an inch. These grooves are made, preferably, three-eighths of an inch deep into the 100 core, and each groove is supplied with a piece of strap-iron, d , one-eighth of an inch thick

by one-half inch wide, which pieces of strap-iron are placed at the bottoms of the respective grooves *a*, and secured to the body of the core by means of ordinary wood-screws, *c*, as shown, said straps extending from gunwale to keel on either side of the core.

In constructing the boats the ribs *f*, which are three-eighths of an inch by one-half inch in cross-section, are placed in the grooves so as to fill the latter, as shown in the figures of Sheet 2, reaching from gunwale to gunwale across the keel, said ribs projecting, when thus placed in the groove, one-eighth of an inch beyond the surface of the core. The planking *g*, when nailed to the ribs to form the shell of the boat, does not touch the core, the projection of the ribs causing a space, *h*, Fig. 5, to be left between the planking and the core. The planks *g* forming the shell of the boat I prefer to make about two inches wide by three-eighths of an inch thick, and fasten to the ribs by clout-nails *e*, which are driven through the planks and ribs, as shown in Fig. 7. The nails are a little longer than the combined thickness of the planks and ribs, and the points of said nails, coming in contact with the iron clinching-straps *d* when driven in, are bent downward and clinched into the ribs, as shown. In nailing the planks onto the ribs I commence by placing a plank against the keel, and continue thence to the gunwale of the boat, driving the nails inclining downward, for the double purpose of drawing the planks nearer together to form tighter joints and to cause the nails to clinch by turning the points downward.

In constructing a boat the core is inverted and the ribs put in place in the grooves and held by temporary means. The keel *l* and aprons *m m*, attached thereto, (shown in dotted lines in Fig. 1,) are secured in place upon the core, after which the ribs are planked over, as stated. Before the planks are nailed to the ribs they are slightly tapered edgewise from the middle toward the ends, and steamed and bent to place over the ribs placed upon the core, and there held by temporary means until they become set to shape. The rigidity of the core perfectly resists the strain of the bent and twisted planks in their efforts to resume their normal shapes while being held to the curved exterior form of the core. The planks, in the first instance, are formed with the grain, and when bent and secured to place on the ribs there is very little tendency for them to split from driving in the nails.

In building boats in the usual manner, without using the rigid core to bend the planks to, the latter have to be sawed to curves to fit their respective places in the sides of the shell. An attempt to bend the planks edgewise to fit the form of the boat would distort the form of the latter, the frail frame of which being incapable of resisting the strain they would exert upon it. Planks sawed to curves for the sides of the boat are cut across the grain, so that in

nailing there is a great tendency for them to split; besides, in sawing to curve a wide board is used up in making a narrow plank of the desired shape, resulting in a great waste of lumber. When the shell is completed to an extent at which the core is no longer needed, the former is lifted off the core and thereafter finished in the usual manner. By using this core with the evenly-spaced grooves, the ribs are all held evenly and truly in place while the planks are being nailed on them, and the iron straps cause each nail to clinch by simply driving it home in the shell. Boats may be thus built rapidly and all uniform as to shape and dimensions, each one being a substantial copy of the core or body over which it is built. I also divide the core transversely at the center, so that the two end portions, B and C, may be separated longitudinally, and a section, $n n' n^2 n^3$, (shown in dotted lines in Figs. 1 and 2,) of any length, inserted between them, forming, with said end portions, a continuous core of different lengths, so that boats of different lengths may be built having the same breadth of beam. In said figures this elongation of the core is represented by dotted lines, a middle section being inserted to lengthen the core.

In Figs. 3 and 4, D represents a core over which to build canoes. This class of boats has the greatest length along the broken line *o o* below the extreme upward-turned points of the shell and the greatest width along the horizontal transverse dotted line *p* below the gunwales of the same, on account of which the core, if solid, could not be withdrawn from the shell after the latter is built over it. To enable the builder to remove the core from the shell, I form it in separate removable pieces or sections, as shown.

The piece *t* is a plank of uniform thickness of about two inches, extending longitudinally through from end to end and at the center of the core. This center plank has at each end a removable piece, *r*, which pieces are severed from the plank in the shape shown, the division-line *s s'* of each piece being very much inclined, making the base *s s^2* of the piece much shorter than the upper edge, *s s^3*. Each piece *r* is thus formed tapering edgewise, so that it may be readily drawn out of the core in the direction indicated by the arrow x^3 . After the pieces *r r* are removed the remainder of the center plank, *t*, may be lifted out of the shell, as indicated by the arrow x^4 and dotted portion of the plank. The plank *t* is made sufficiently short by cutting out the end pieces, *r r*, so that its extreme points $s^2 s^2$ will easily pass the inward-turned points of the shell at s^3 when being drawn out, as will appear from the vertical dot-and-dash lines a' . After the center plank, *t*, with the pieces *r r*, is removed from the core, the side pieces, d' and d^2 , may be removed from the shell successively by moving them laterally to occupy the space made vacant by the removal of the center

plank, in which position they will clear the sides of the shell when lifted out thereof. The center plank, *t*, is provided with four vertical strips, *c'*, two on either side, placed in couples 5 opposite each other, dovetailed in cross-section, secured with the narrow bases next the plank, which strips fit corresponding recesses in the side pieces, *d'* *d''*, of the core. By this means the parts or sections of the core are held 10 together and in place while the shell of a boat is being formed.

What I claim as my invention is—

1. A core or body having its exterior shaped to the form of a boat, over which to build the 15 shells of boats, said core being provided with vertical grooves *a*, formed in its sides, and clinching-straps *d*, held within the grooves, substantially as and for the purpose set forth.

2. A core or body having its exterior shaped 20 like a boat, over which to build the shells of boats, said core being made up of detachable or removable longitudinal sections joined together to form a complete core, and formed to be taken out separately from the shell of the 25 boat, substantially as described and shown.

3. A core or body having its exterior shaped like a boat, over which to build the shells of boats, said core being divided transversely at or near the middle into sections or parts, so that corresponding sections of different lengths 30 may be inserted between the said two original sections, to increase or decrease the extreme length of the core, substantially as shown and described, and for the purpose set forth.

4. A core or body having its exterior shaped to the form of a boat, over which to build the shells of boats, said core being provided at its sides with separate clinching-pieces *d*, to turn the points of the nails against, said clinching-pieces being located upon the core immediately 40 back of or beneath the ribs of the boat when said ribs are put in place upon the core, substantially as described.

G. W. RUGGLES.

Witnesses:

E. B. WHITMORE,
M. E. FURLONG.