

SANTA MARIA, 1492,
SCALE: 1/72, length: 465mm, wide: 250mm, height: 445mm

HISTORY:

Santa Maria was the flagship of Christopher Columbus on his first voyage to America. On August 1492 Santa Maria, Pinta and Nina started their voyage to America in Palos de la Frontera port in southwest coast of Spain. After two months at 12 October sailors saw a land. There are no exact drawings of the Santa Maria but it is supposed that a length of hull of the ship was about 35 meters and displacement about 200tons.

Recommended tool list:

- 1) Modeler's knife or scalpel
- 2) Mini drilling machine
- 3) Drill bits
- 4) Selection of abrasive paper
- 5) Scissors
- 6) Pliers
- 7) Clothes pegs or crocodile clips
- 8) Pencil
- 9) Rule
- 10) Set of needle files
- 11) Sewing machine
- 12) Electric plank bender

Before you begin:

Before you begin to build the model it is necessary with a vengeance read building instructions and plans. Also chronology of assembly steps is necessary to keep. You check if the parts go together before you glue it respectively you make any corrections with sandpaper. During the gluing, painting, lacquering and at work with another chemical materials is necessary well ventilated in your working room. You cut the parts from sheet until actually required for fitting. You cut by knife only in direction off ward your body so that you head to injury risk.

Coloring:

Medieval ships were protected against influence of salt water and woodworms by a mixture of tar and thanks to it the hull of ships was a reddish-brown or brownish-black color. This effect it is possible to get by staining of the wood by dark wood stain. It is recommended to use the wood stain before gluing of the parts. Decks of the ships were probably in naturally color of wood. Anchors and other metal parts were a black color.

Bending of wooden strips:

The Wooden strips will be more flexible if you will boil it in hot water about 10-15 minutes. You can bend the strips along any cylindrical area but ideal is using of special plank bender (it would be best to use electric plank bender). If you need to do very small radius so you must bend the wooden strips in more steps.

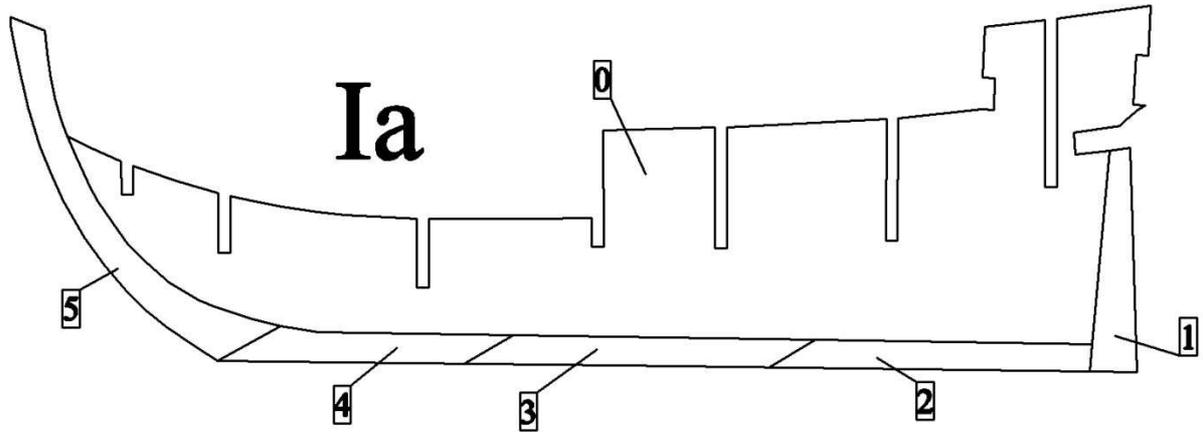
Work with photo etched parts:

Very carefully cut out parts by a pliers or scissors from a sheet. The photo etched parts glue by cyanoacrilate adhesive.

Model building process:

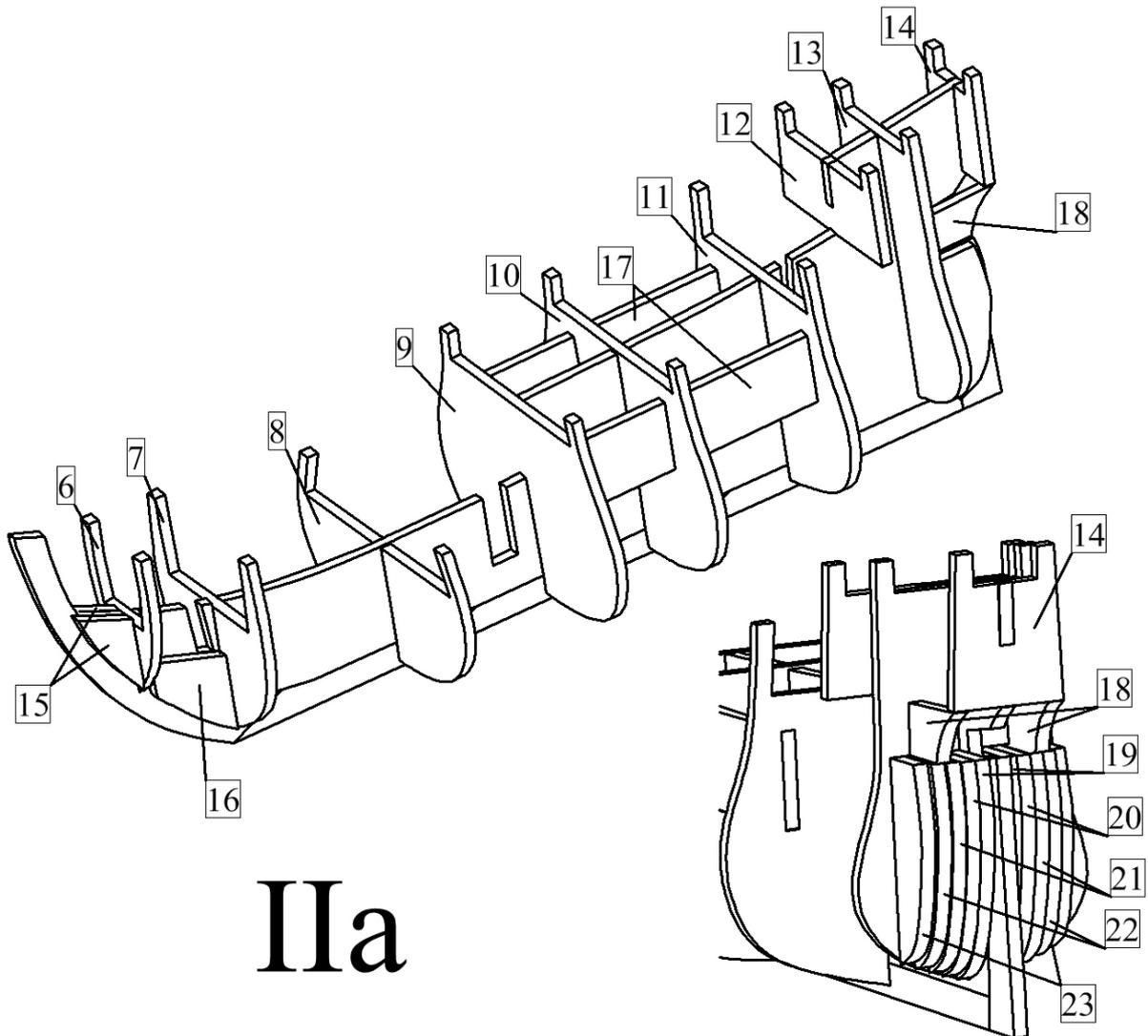
I) Keel:

a) First glue a keel from parts 0-5. The parts glue together and then lade them by any weight on a flat area.

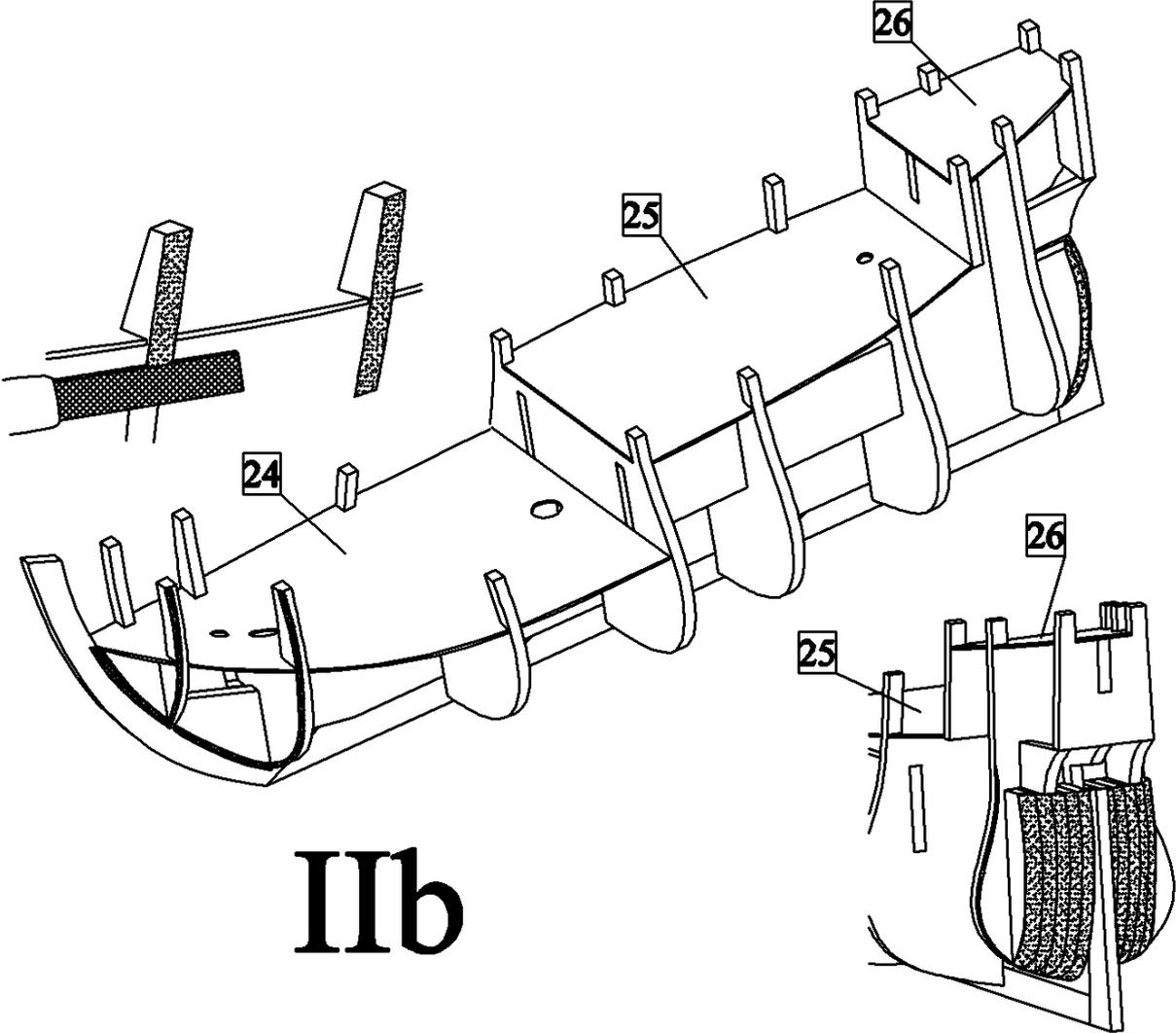


II) Framing of a hull:

a) First glue frames 7-14, fore reinforcements 15, 16 and stern reinforcements and 18-23 to the keel 0 and reinforcements 17 to the frames 9-11.



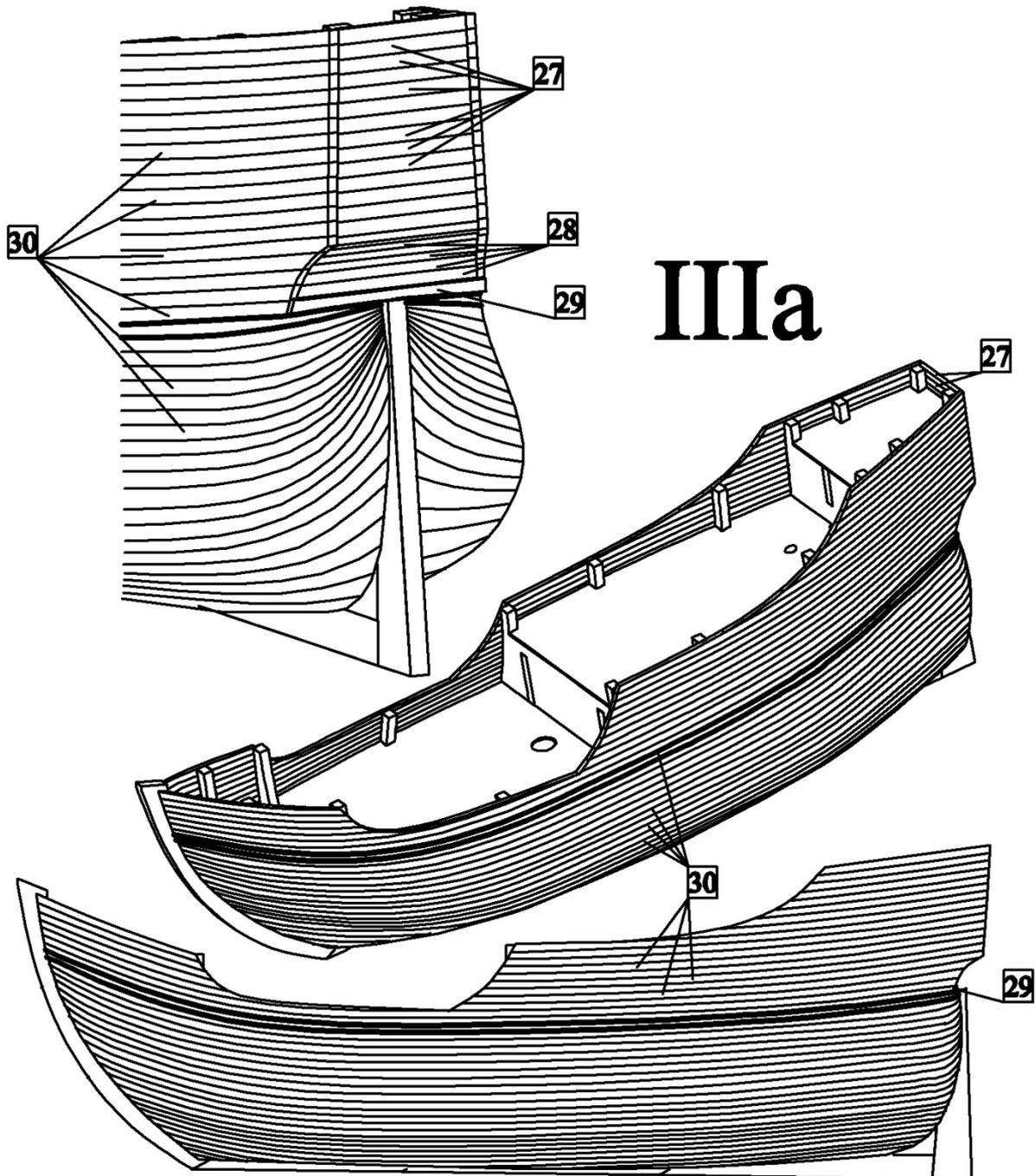
b) First glue decks 24-26 to the framing of the hull. Then sharpen by a sand paper or files the fore and aft reinforcements and frames into needed shape.



IIb

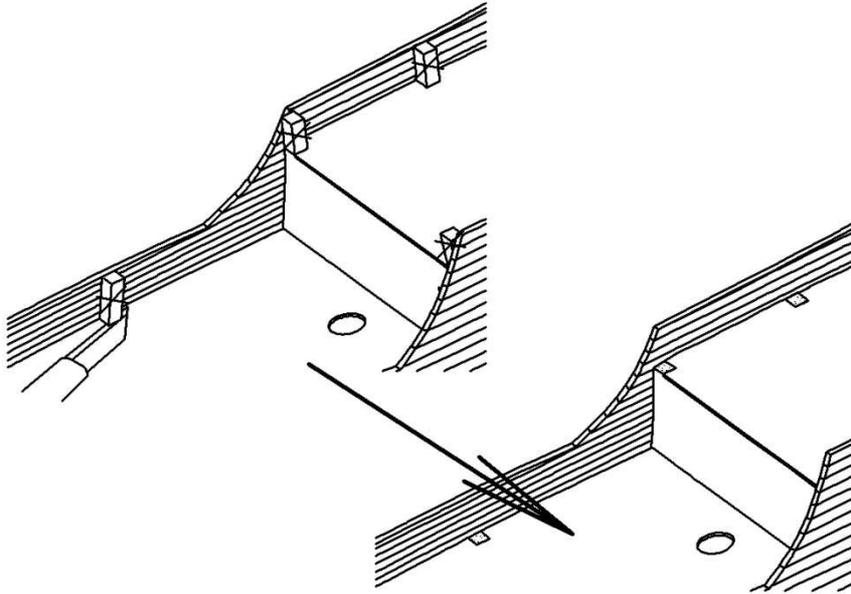
III) Hull planking I:

a) First glue strips 27 and 28 to the stern of the ship. Then plank the hull by strips 30. First bend the strips by procedure which is described in the beginning of these instructions before you will glue them to the framing. Then start the planking of the hull by strips which are draw by bold lines on the figure below and also on the plan. Start with the planking on the stern (where quite small radius of strips is needed) and then continue to the stem.



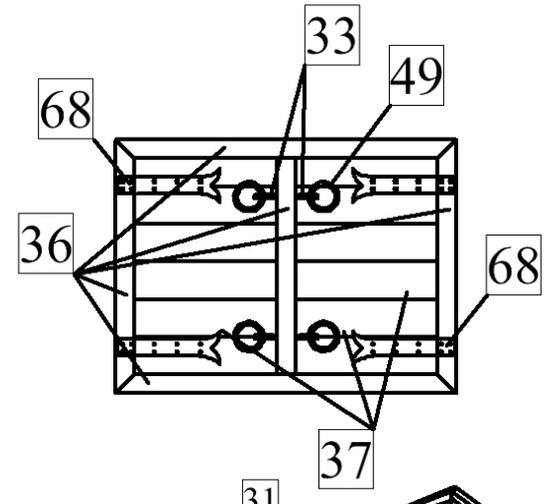
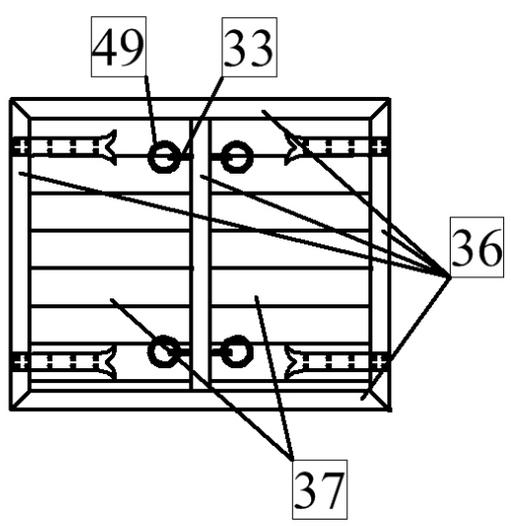
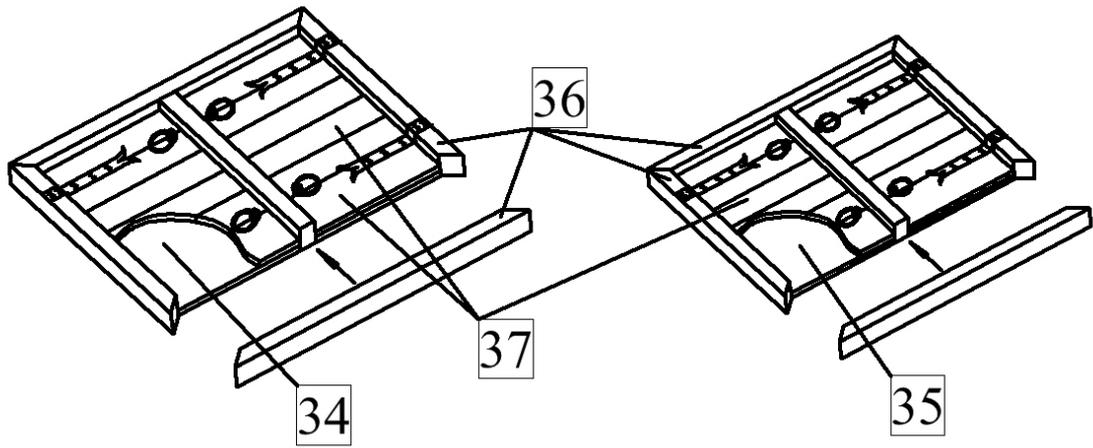
IV) Deck:

a) Cut out the parts of the frames which overlap decks.

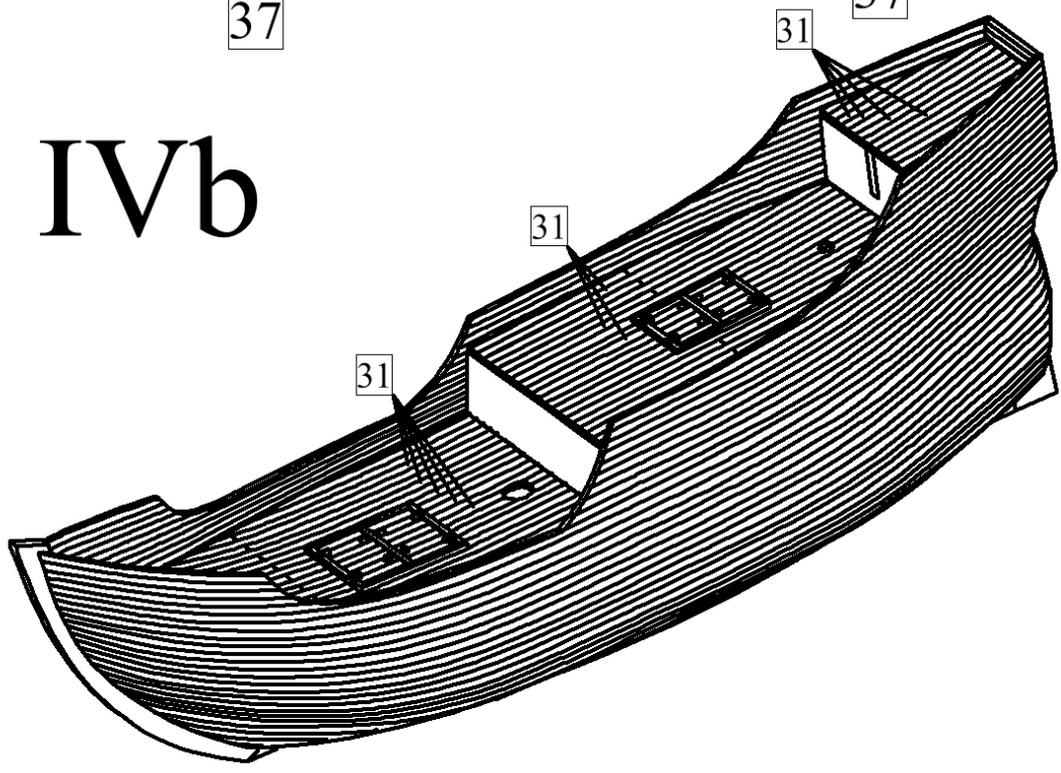


IVa

b) First plank the decks by strips 31. Then make hatch covers. First make frames of the hatches from parts 34-36 and then glue them to the decks. Then plank the hatches by strips 37 and glue to them hinges 68 and eyes 33 with rings 49.

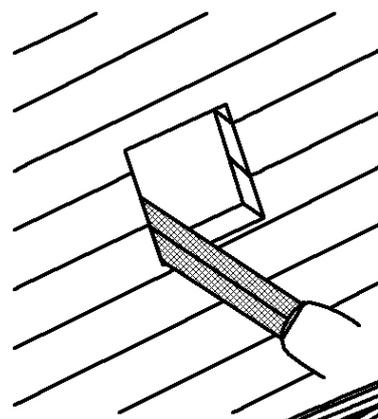
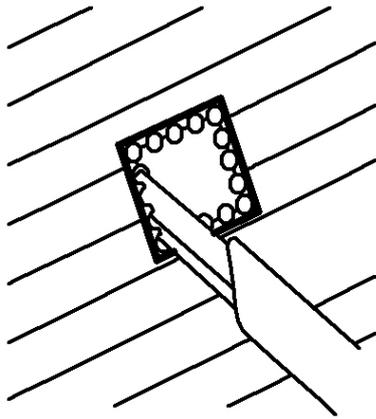
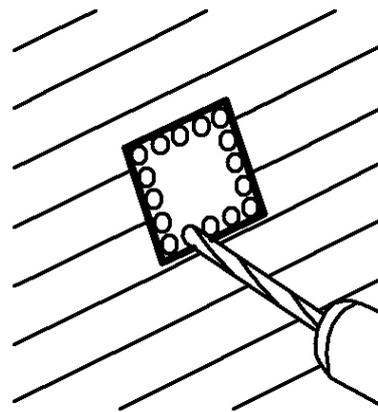
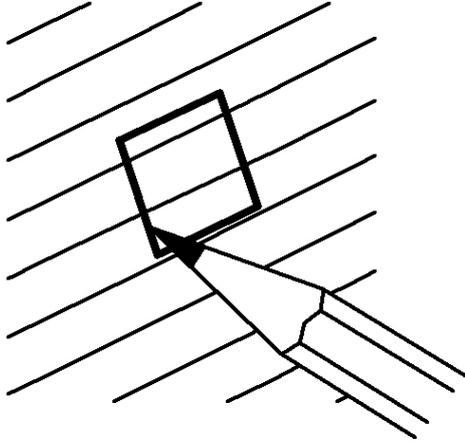


IVb

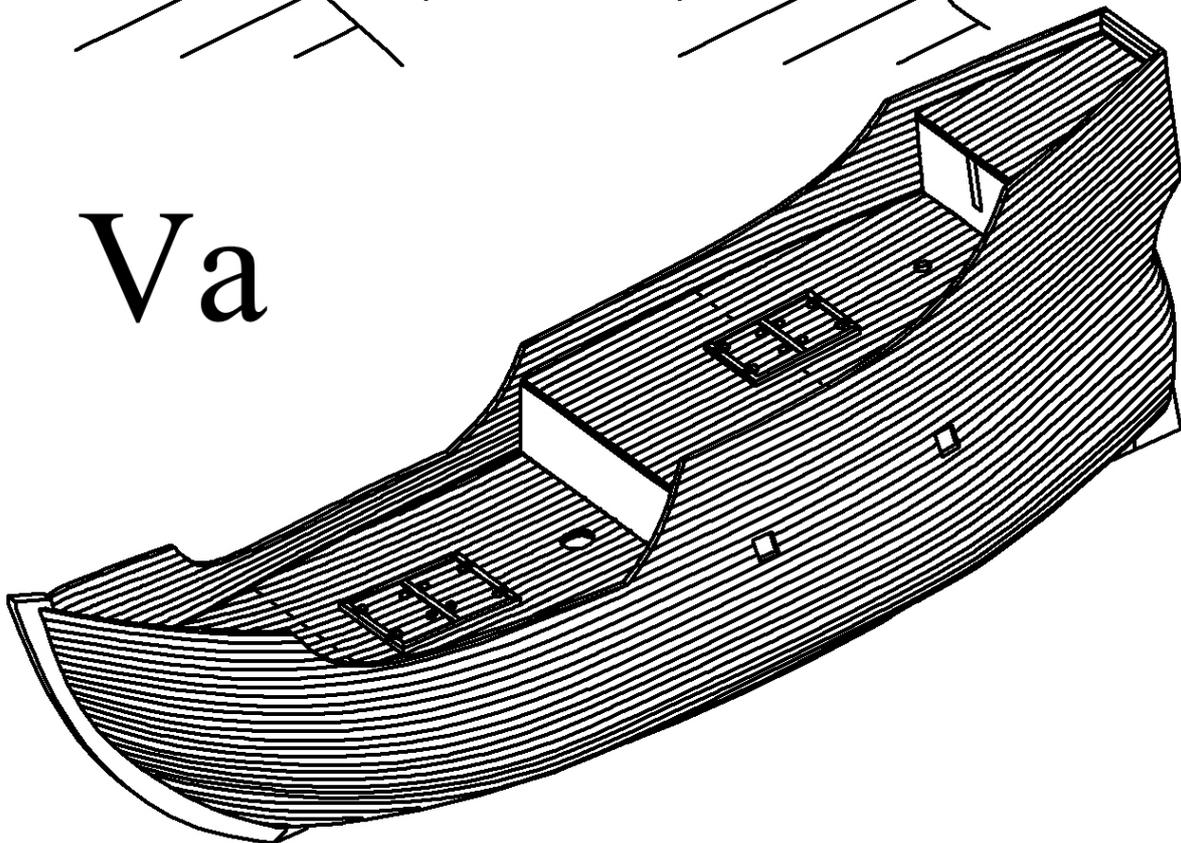


V) Hull planking II:

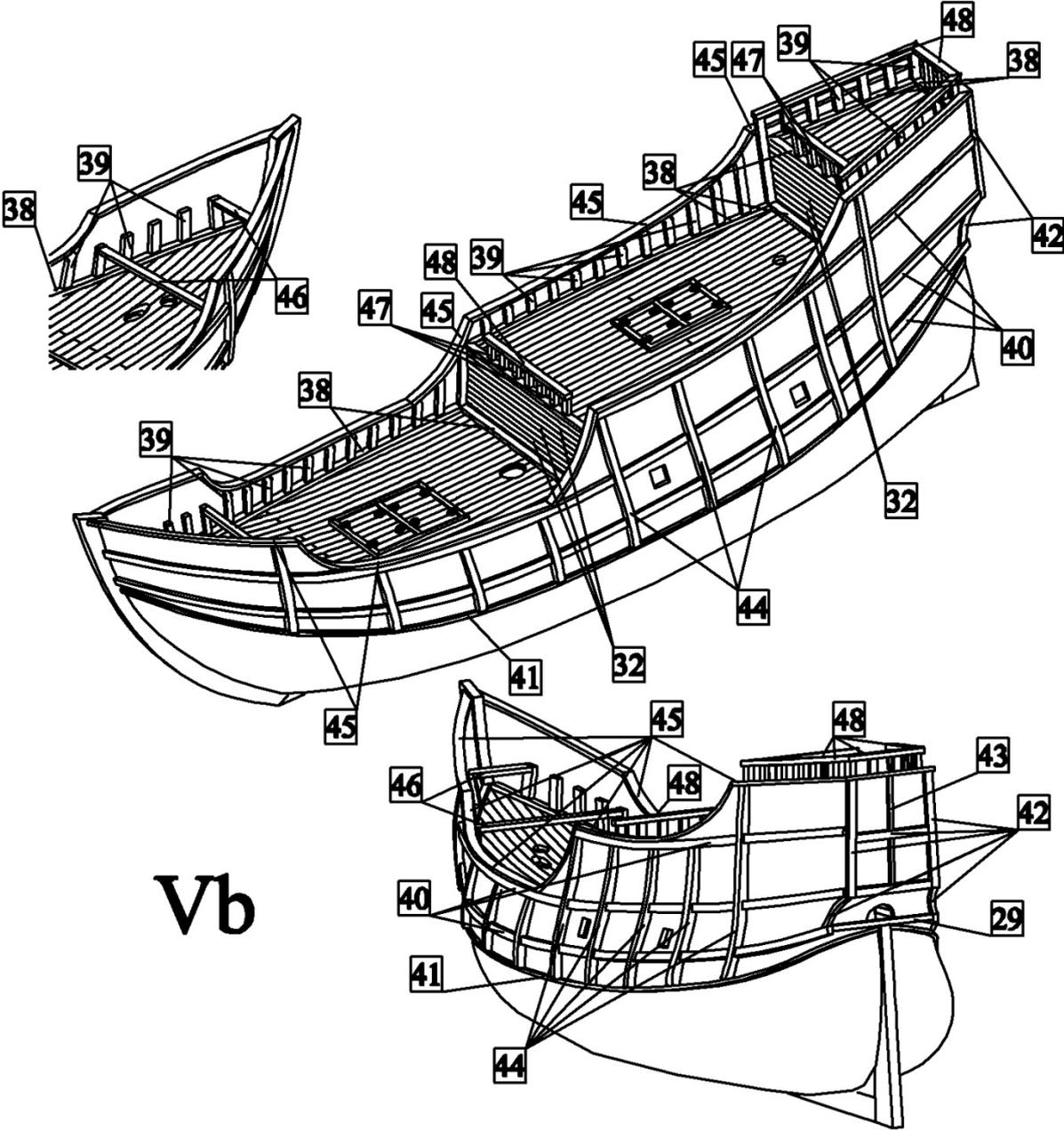
a) Make four gun ports into the hull (two gun ports on both sides). First draw outlines of the gun ports by a pencil on the hull. Then drill holes near the outlines. Then cut out the gun ports by a sharp knife or scalpel. Finally sharpen the gun ports by needle files.



Va



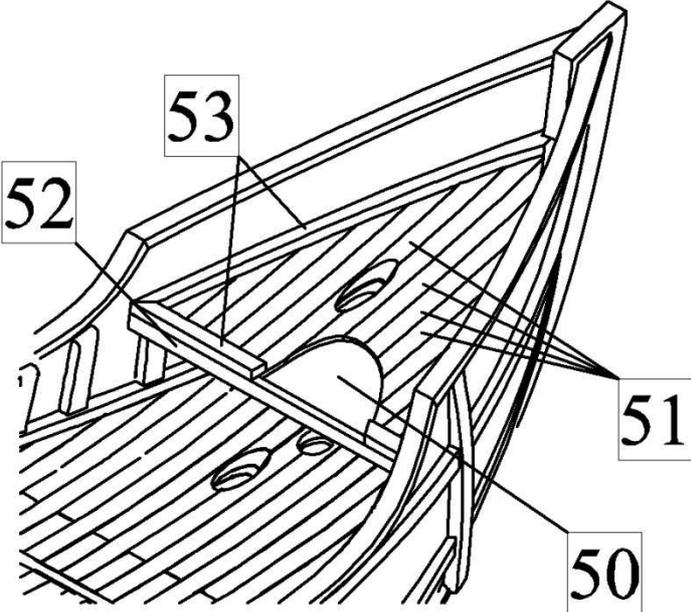
b) First planking by strips 32 walls of decks. Then glue waterway 38 to the decks and framing 39 to the bulwarks. Then glue beams 46 to the bow and railings 47 and 48 to the hull. Then glue wales 40 and 41 and reinforcement frames 42-44. Finally glue plank sheer 45 to the hull.



Vb

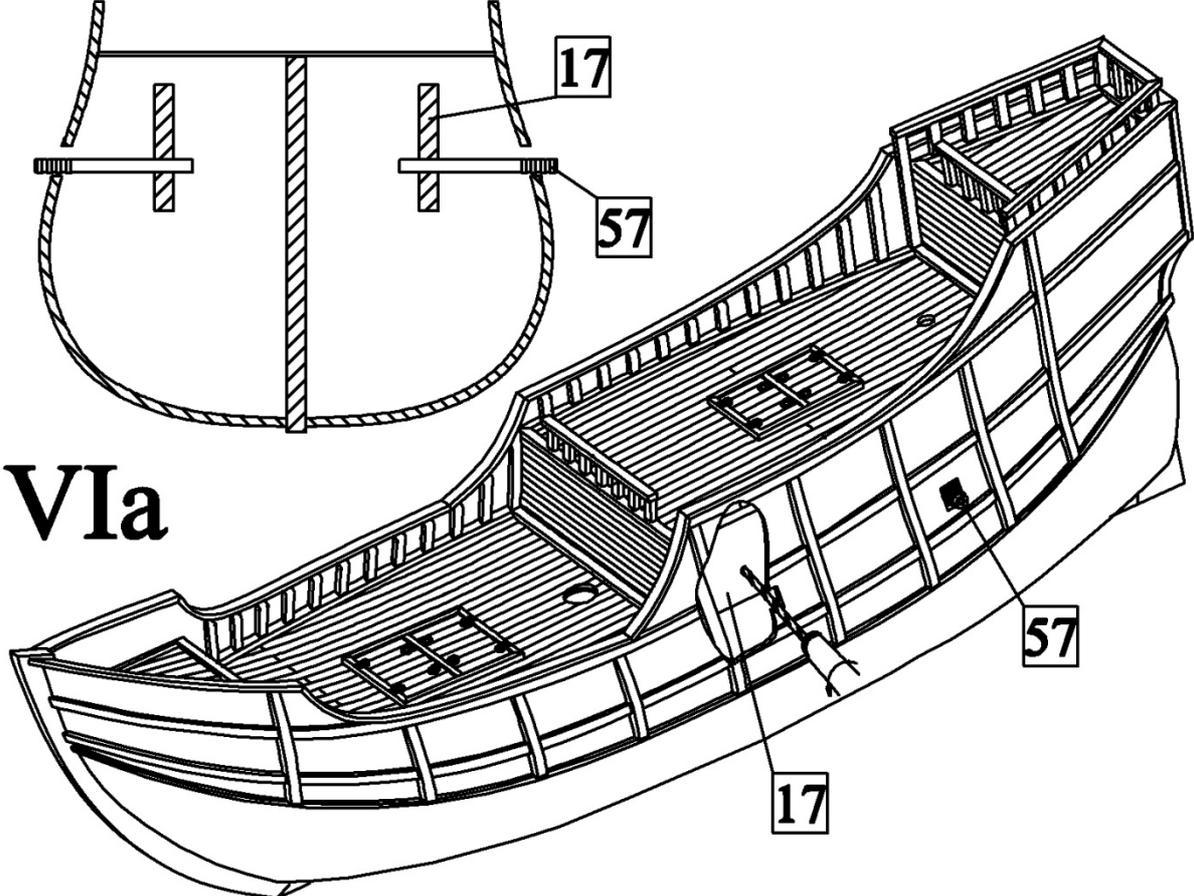
c) First glue a deck 50 to the bow and then plank it by strips 51. Then border it by strips 52 and 53.

Vc



VI) Details:

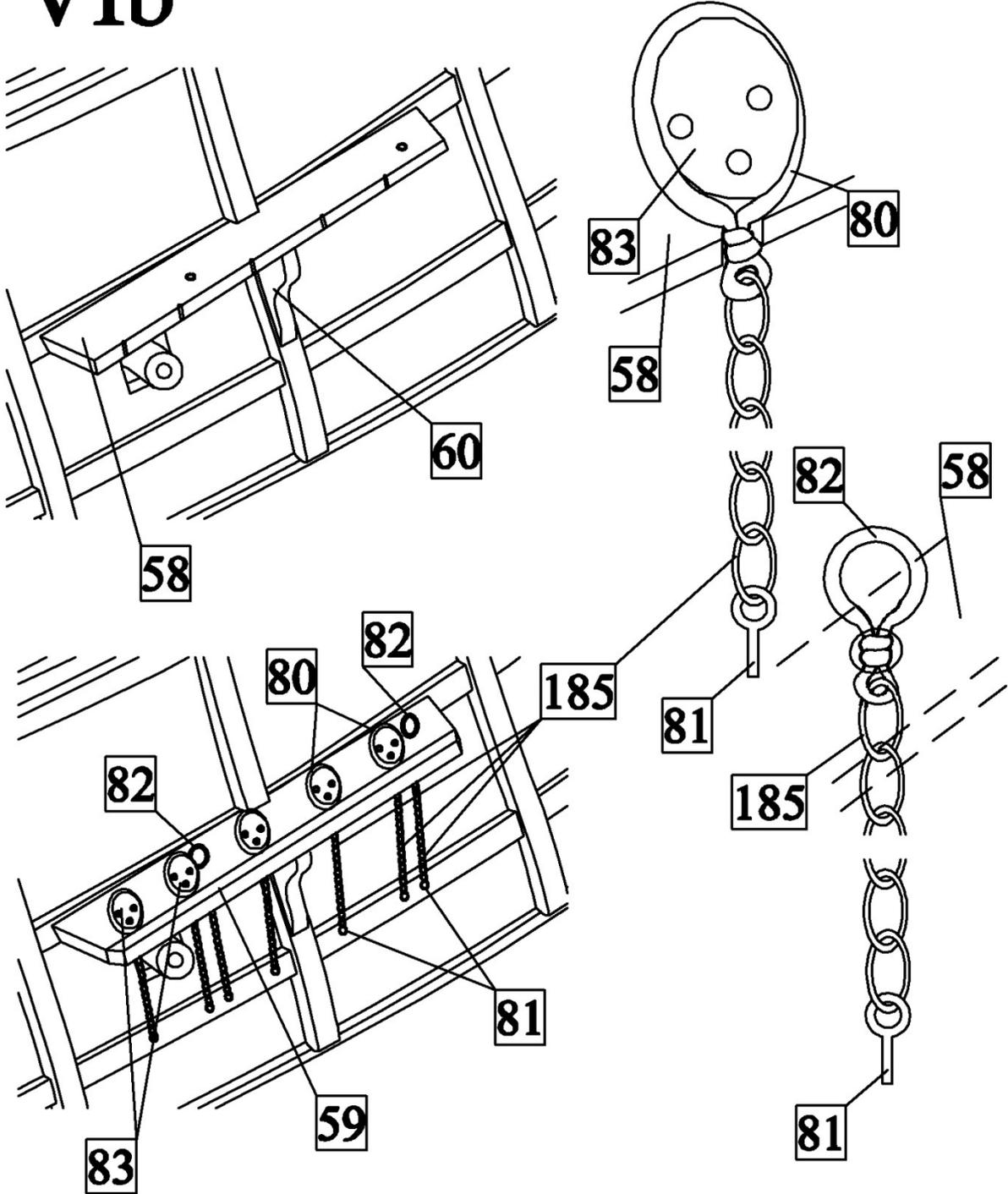
a) Install guns into the hull. First drill holes for gun barrels into the frames 17. Then glue the gun barrels 57 into the holes.



VIa

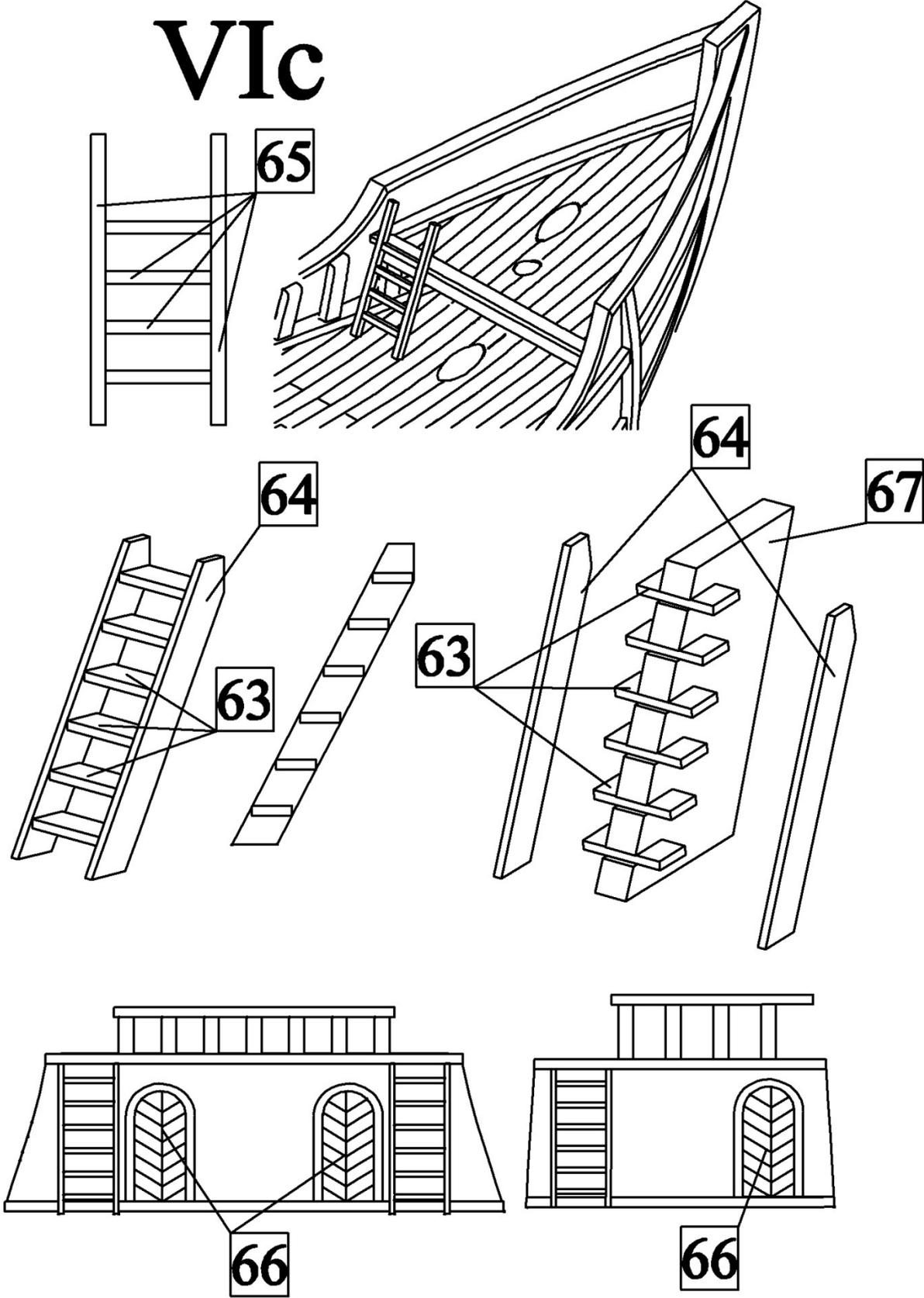
b) First glue channels 58 with their knee 60 to the hull. Then make mounting of the deadeyes blocks 83 and eyebolts 82 and fix them by chain 185 to the channels and to the hull.

VIb

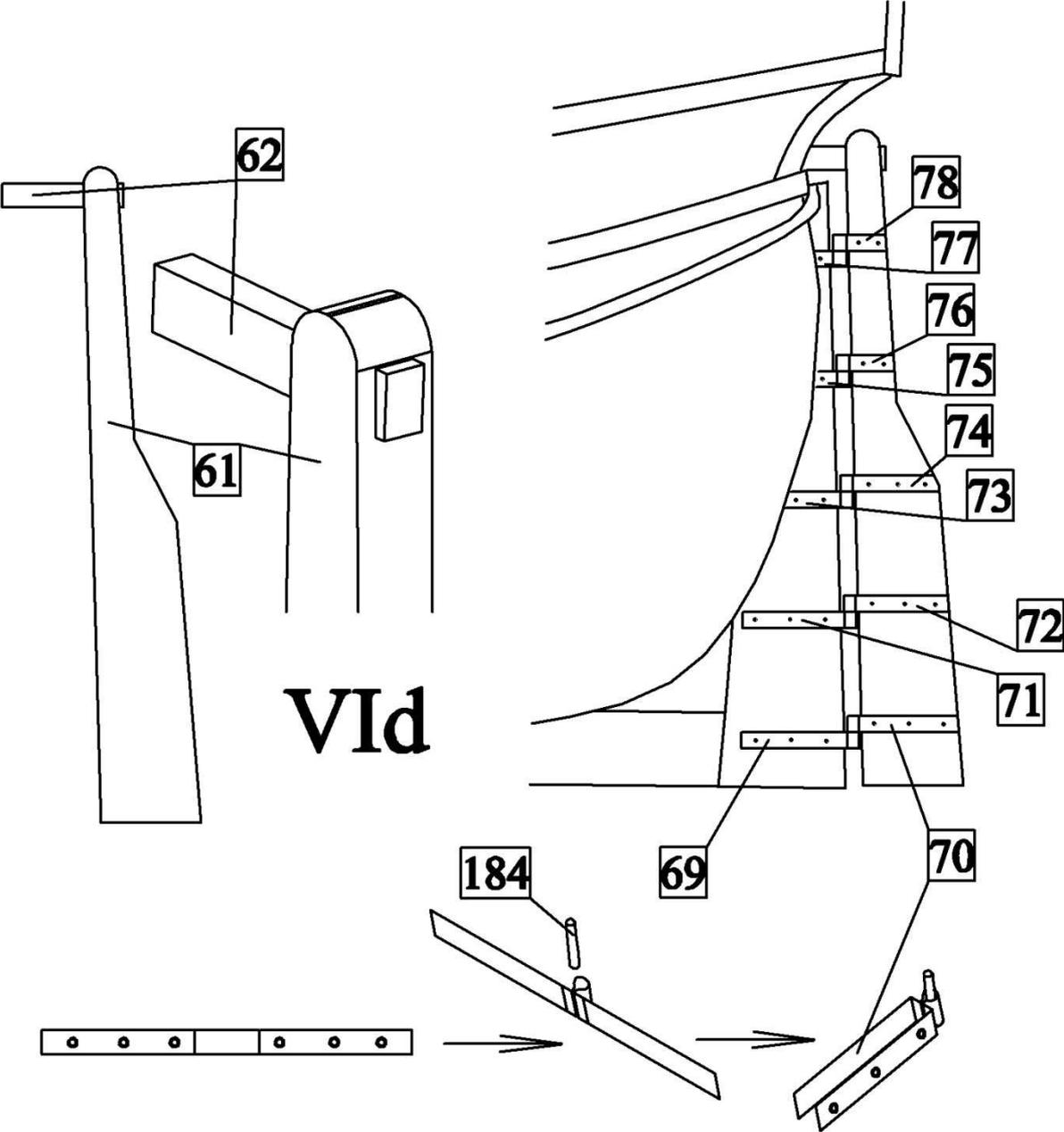


c) First make ladder from strips 65 and then glue it to the bow. Then make stairs from parts 63 and 64 and then glue them to the decks. Finally glue doors 66 to their places.

VIc

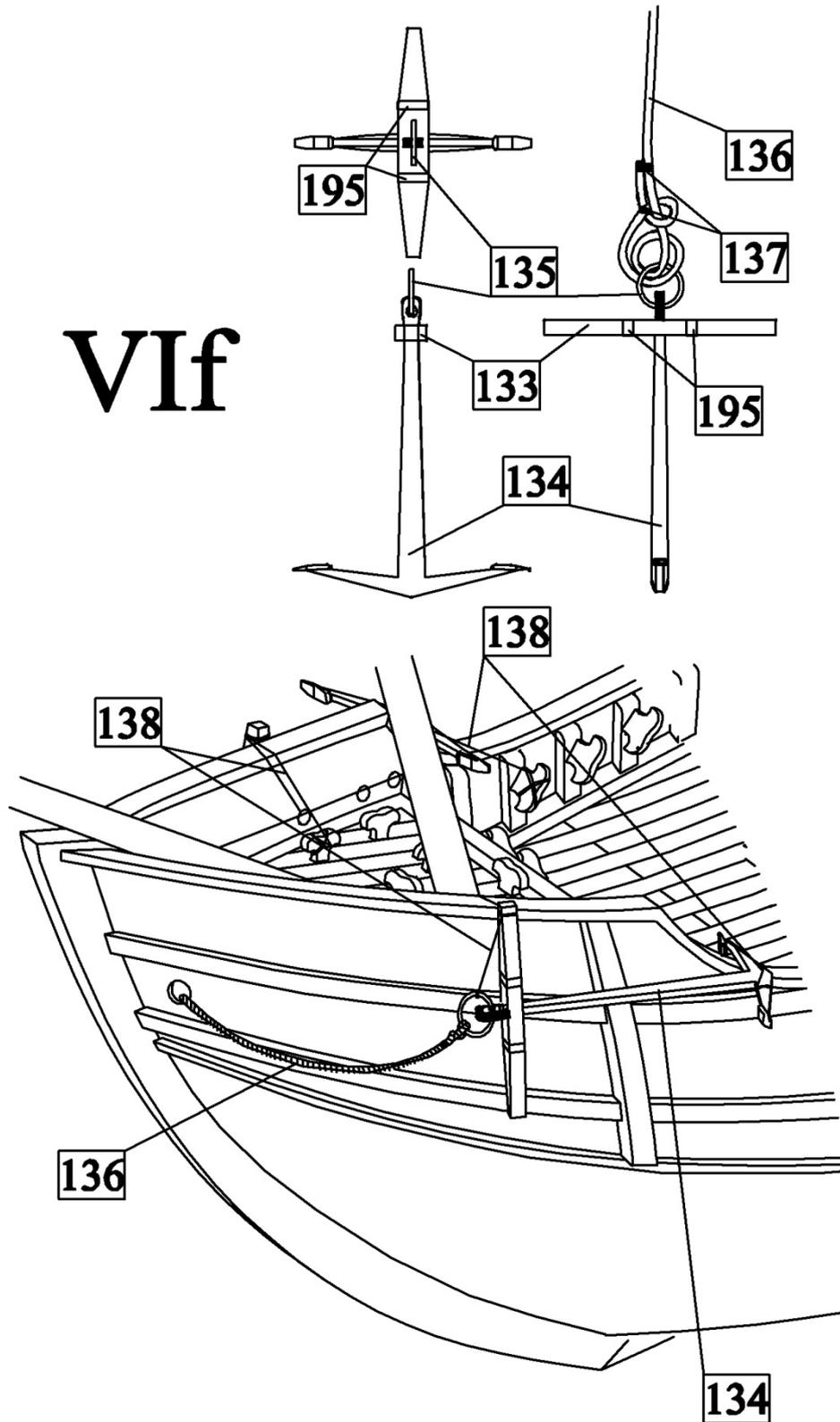


d) First glue a rudder from parts 61 and 62. Then install the rudder with hinges 69-78 to stern post.



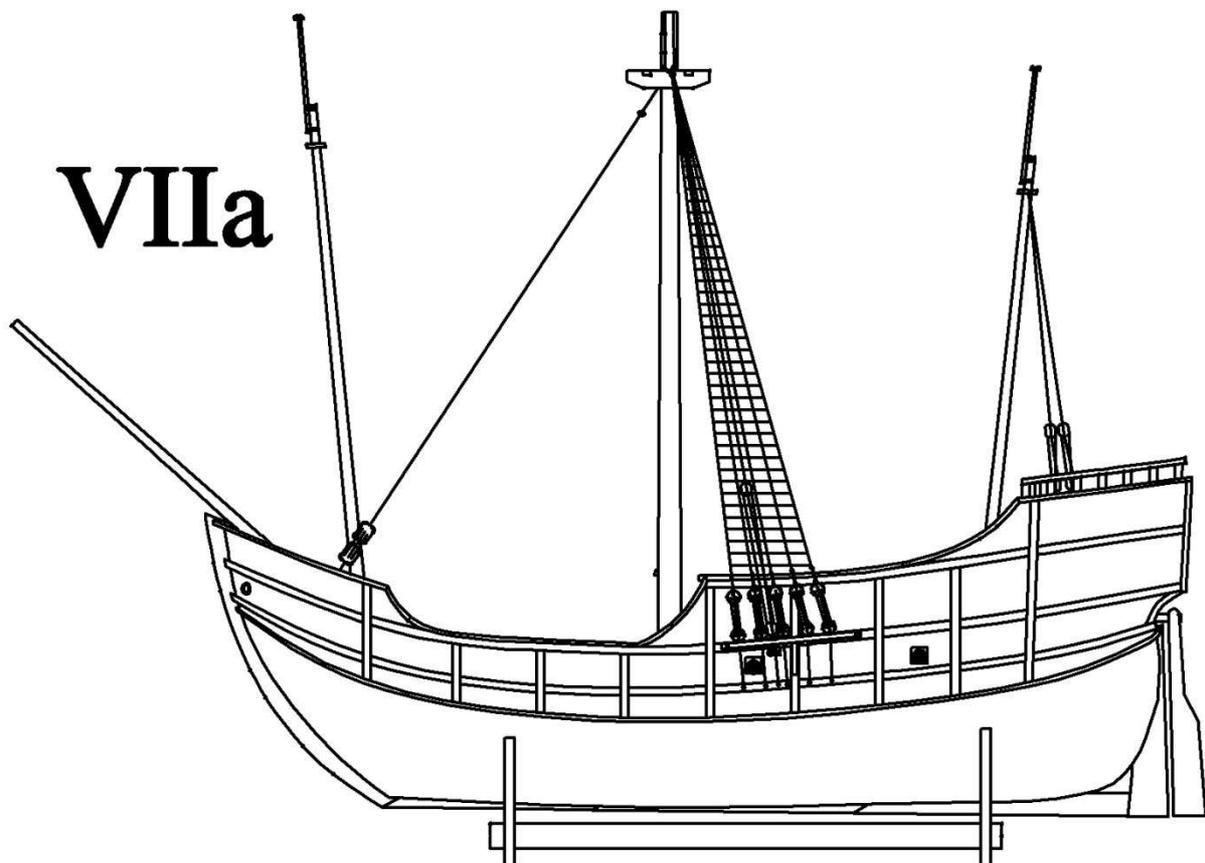
e) After the plan 2 glue cleats 84-113, eyebolts 114-129, knighthead 79 and mast foots 54-56 to the hull and decks. Then make a stand from parts 130-132.

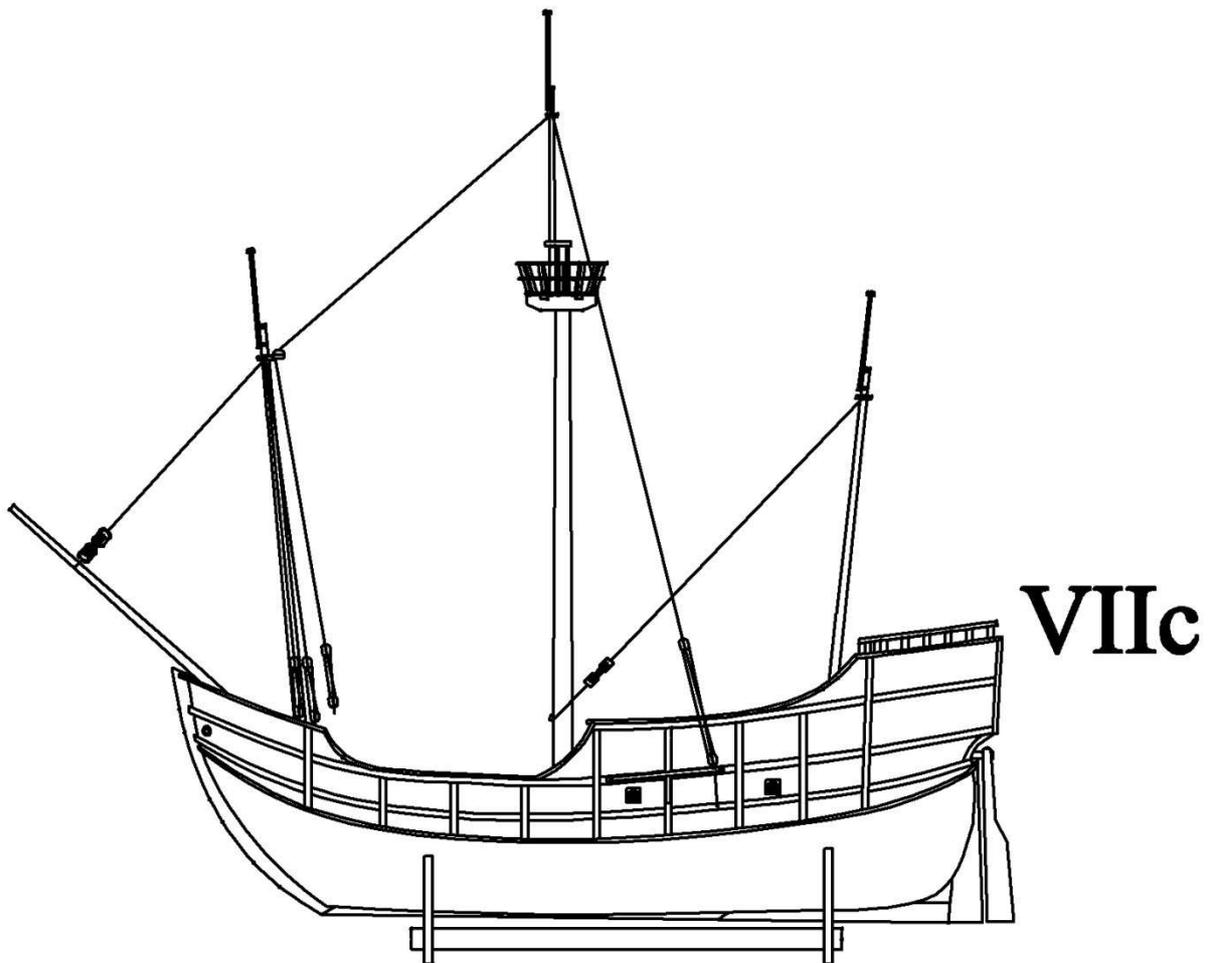
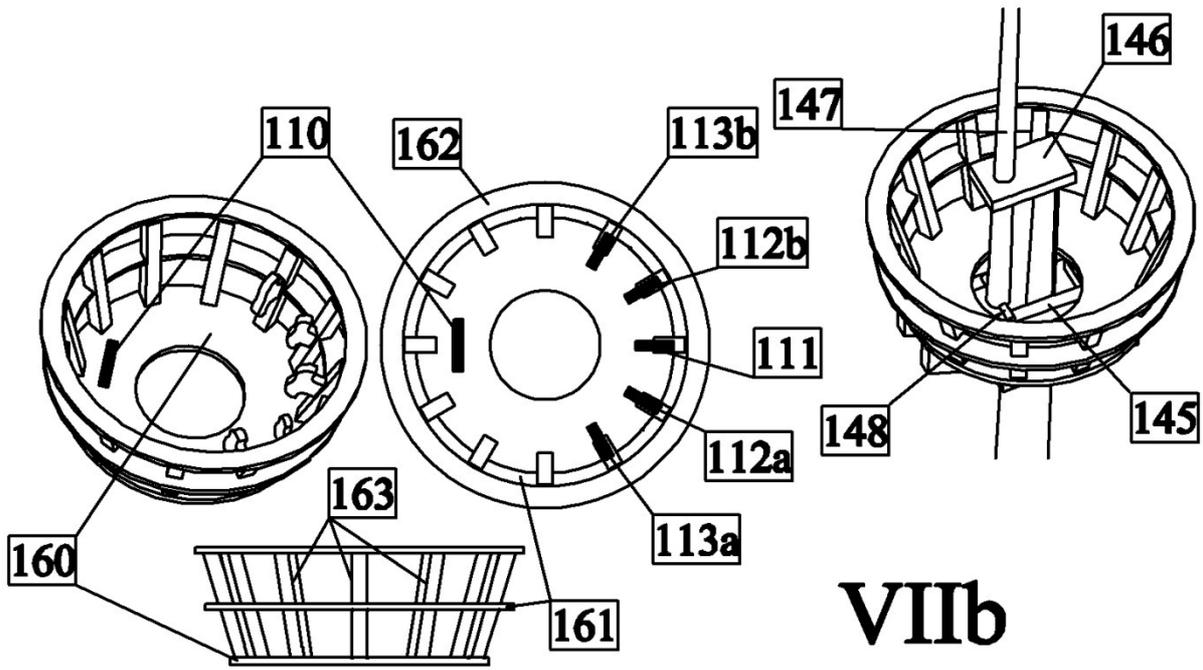
f) Make anchors from parts 133-135 and 195. Then tie anchor cable 136 to the anchors and the anchors tie to the hull how it is shown in the figure below.

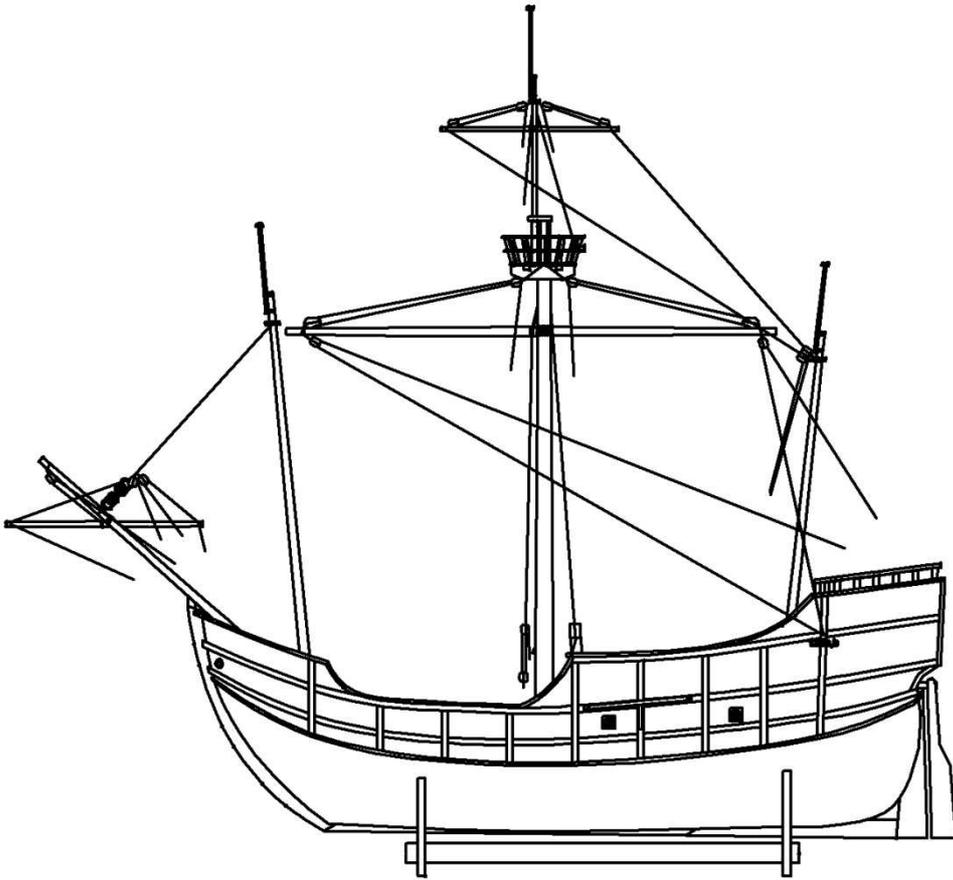


VII) Rigging:

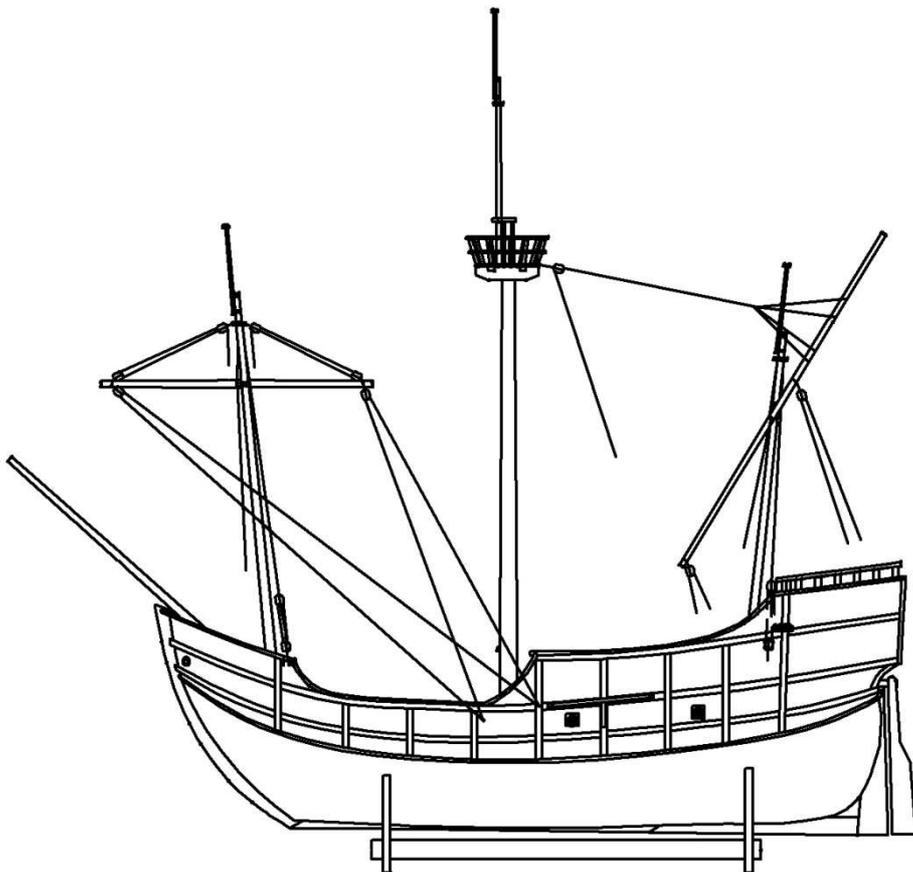
- a) First sharpen by a sand paper bowsprit 141 and masts 142, 152 and 156. Then glue cleats 108 and 109 to the bowsprit. Then wind ropes 140 to the main mast and glue pawl 143, trestletrees 145 and crosstrees 186 to the main mast too. Then glue cheeks 153 and 157 and flag masts 150 and 158 to the fore and aft masts. Then glue the masts to the hull. Then tie standing rigging to the fore and aft masts. The scheme of the standing rigging is shown in the plan 3.
- b) First make a top from parts 160-163 and topmast 147 with flag mast 150. Then glue the top, topmast and mast cap 146 to the main mast. Then tie the flag mast to the topmast.
- c) Tie standing rigging to the foremast, topmast and aft mast. The scheme of the standing rigging is shown in the plan 4.
- d) First sharpen by a sand paper yards 164-168. Then tie the yards to the main mast and bowsprit. Then tie running rigging to these yards. The scheme of the running rigging is shown in the plan 5.
- e) First tie the yards to the fore and aft masts. Then tie running rigging to these yards. The scheme of the running rigging is shown in the plan 6.







VIIId

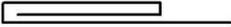
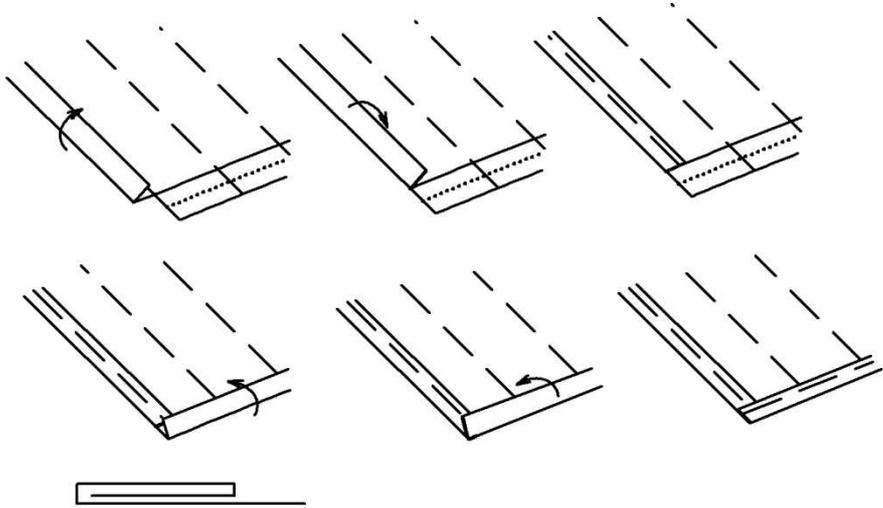
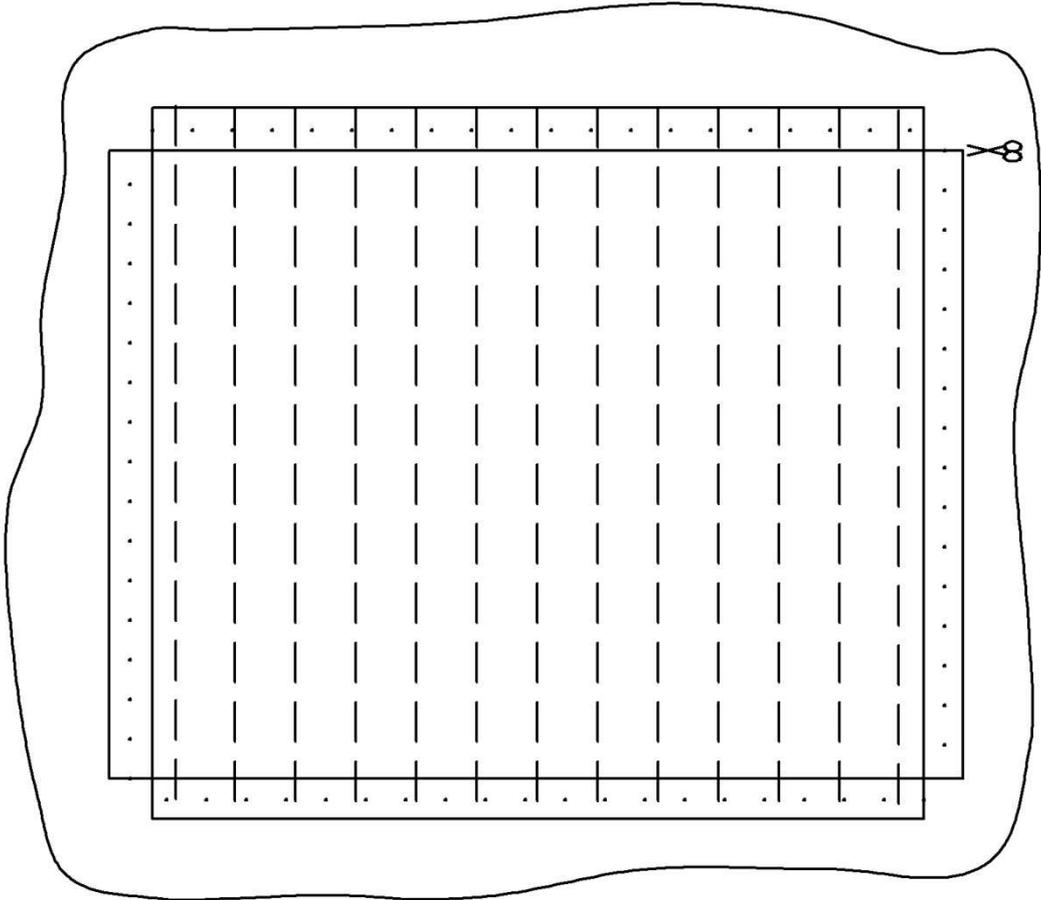


VIIe

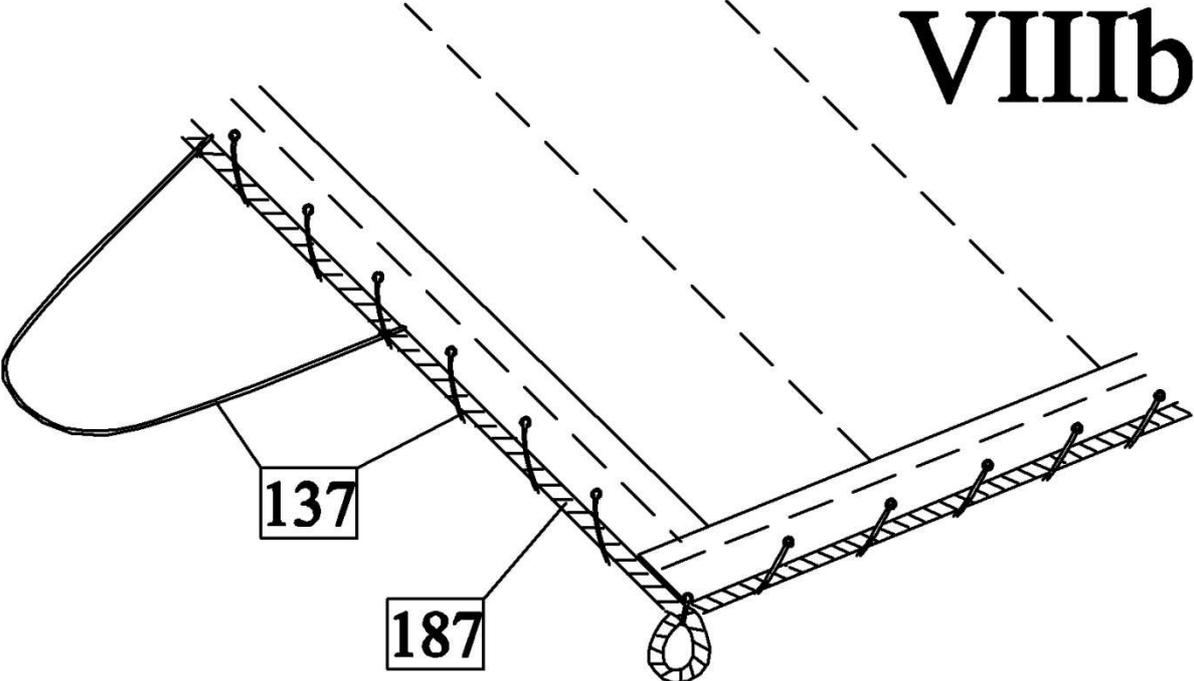
VIII) Sails:

a) Make sail 179-183. First draw by pencil contours of the sail on the cloth. To the border of the sails add about 10mm for fell. By the pencil draw on the cloth also seams which divided the sail into simple segments. Then scissor the sail with fells and sewn it like it is shown below.

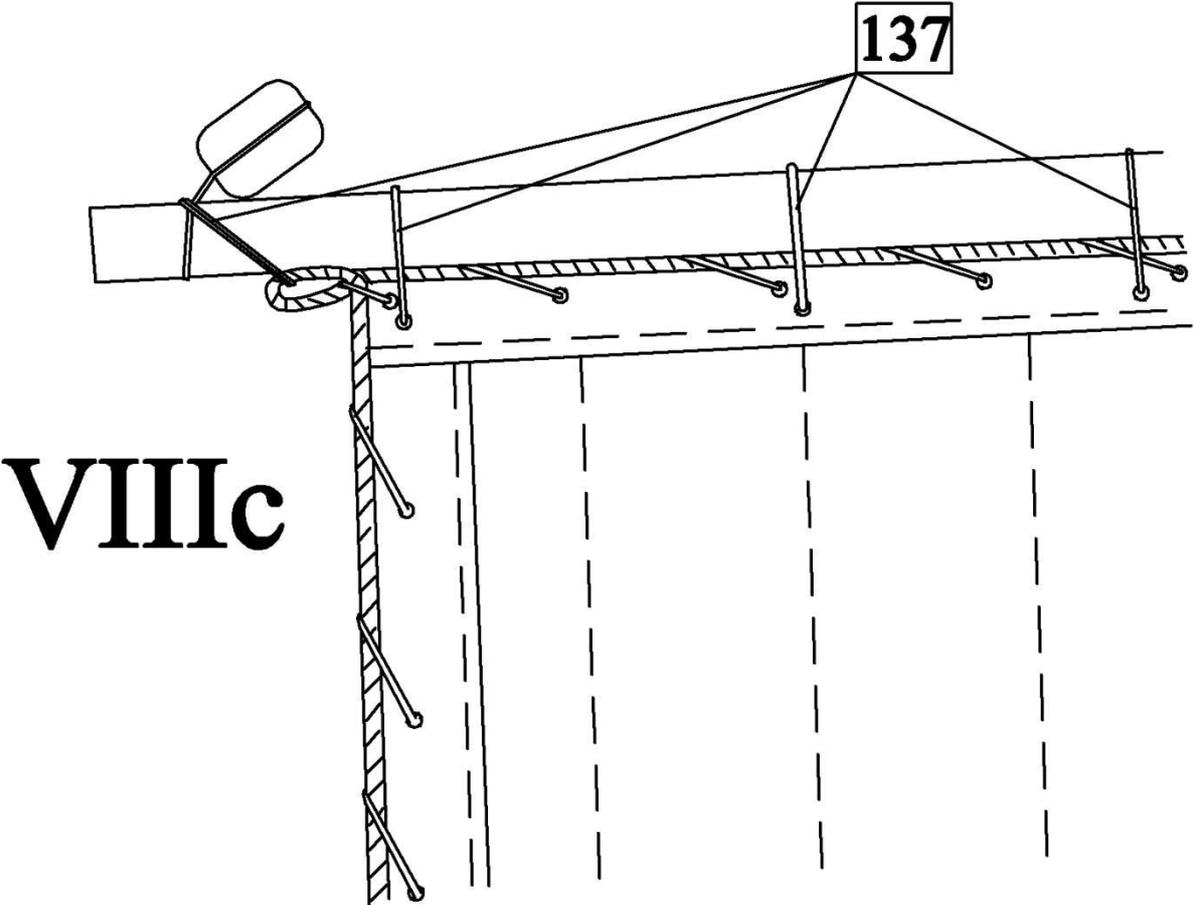
VIIIa



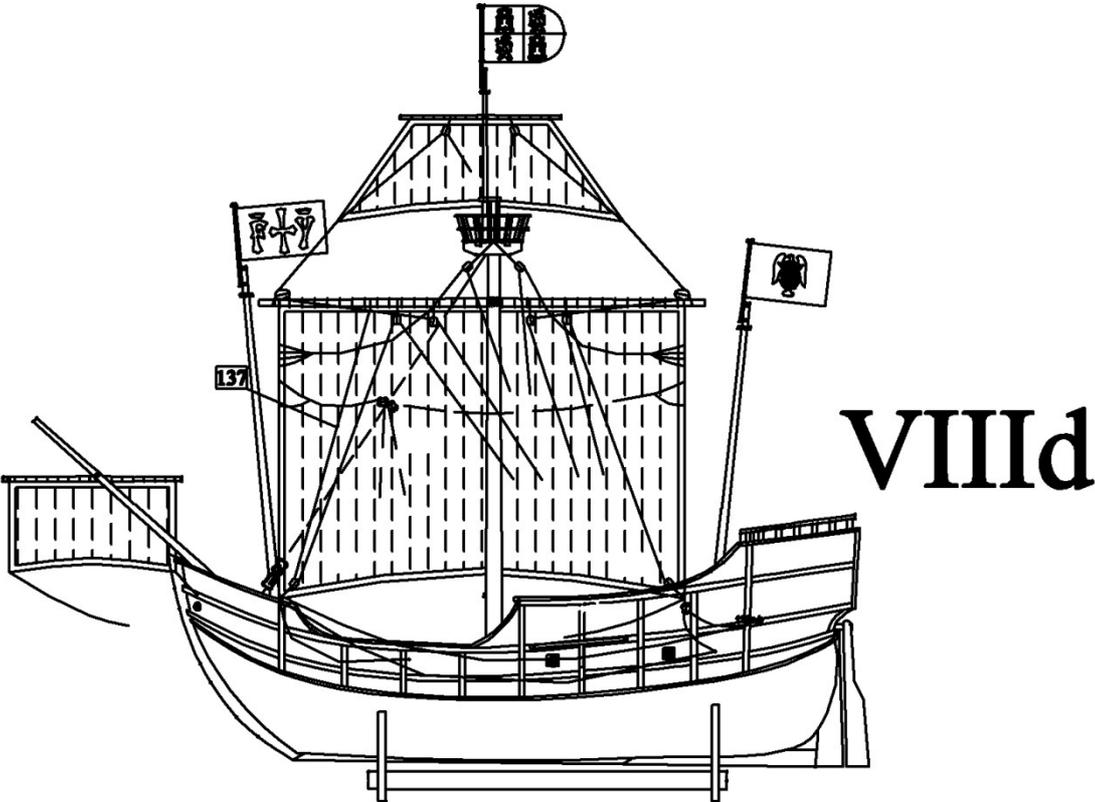
b) To the circumference of the sails sew on ropes 187 so that in the corner of the sail will eyes with diameters about 3mm. Then tie ropes 137 to the rope 187



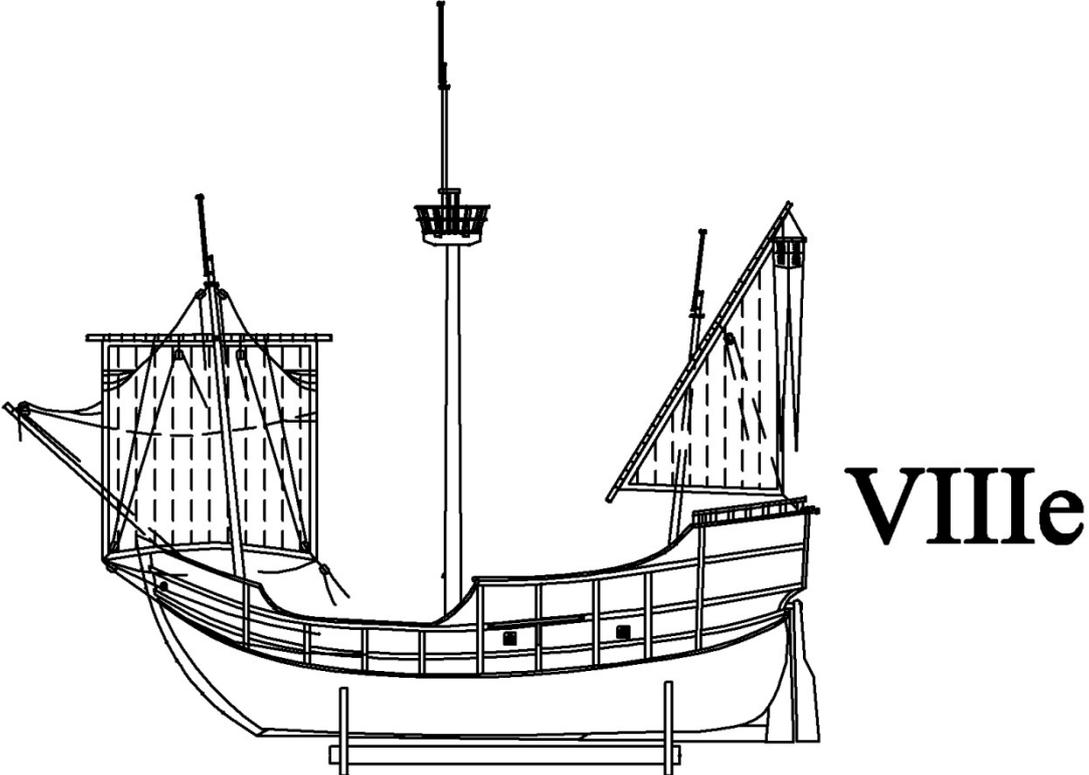
c) Tie the sails to the yards by rope 137.



d) After the plan 7 tie the sails to bowsprit and main mast. Then tie ropes for control to the sails, eyebolts and cleats. Finally tie flags to the flag masts.

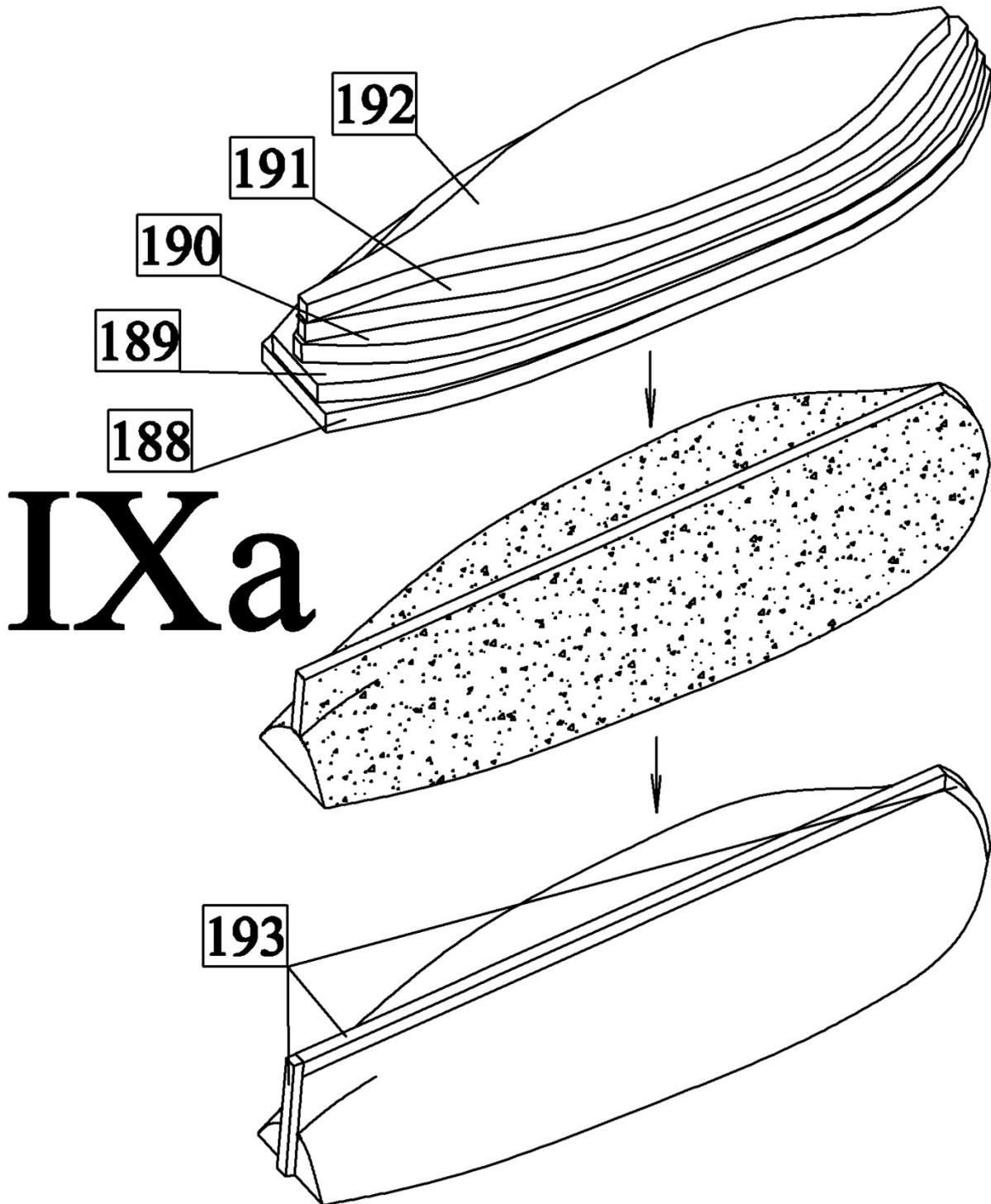


e) After the plan 8 tie the sails to fore and aft masts. Then tie ropes for control to the sails, eyebolts and cleats. Finally tie pennant to the flagpole.



IX) Boat:

a) First glue together parts 188-192. Then sharpen the boat by a sand paper into needed shape. Finally glue keel, stem and stern post 193 to the boat.



Part list:

0	Keel	plywood 4mm	1pc
1-5	Keel	wood 4mm	1pc
6-14	Frames	plywood 4mm	1pc
15-23	Reinforcements	plywood 4mm	2pcs
24-26	Deck	plywood 1mm	1pc
27-30	Planking	strip 2x3mm	90pc
31	Deck	strip 0,5x4mm	30pcs
32	Planking	strip 2x3mm	90pc
33	Eyebolts	eyebolt	100pcs
34	Hatches	plywood 1mm	90pcs
35	Hatches	plywood 1mm	30pcs
36	Hatches	strip 2x2mm	2pcs
37	Hatches	strip 0,5x4mm	30pcs
38	Waterways	strip 2x3mm	90pcs
39	Framing	strip 2x3mm	90pcs
40	Wales	strip 2x3mm	90pcs
41	Wales	strip 1x1mm	4pcs
42	Planking	strip 2x3mm	90pcs
43	Planking	strip 1x1mm	4pcs
44	Planking	strip 3x3mm	4pcs
45	Plank sheer	strip 2x4mm	4pcs
46	Beam	strip 2x3mm	90pcs
47, 48	Railings	strip 2x3mm	90pcs
49	Ring	ring 4mm	8pcs
50	Deck	plywood 1mm	1pc
51	Deck	strip 0,5x4mm	30pcs
52, 53	Waterways	strip 2x3mm	90pcs
54-56	Mast foot	plywood 1mm	1pc
57	Gun barrel	gun barrel	4pcs
58	Channel	wood 2mm	2pcs
59	Capping strip	strip 2x2mm	2pcs
60	Knee	wood 2mm	2pcs
61	Rudder	wood 4mm	1pc
62	Rudder	strip 2x3mm	90pcs
63	Stairs	plywood 1mm	6pcs
64	Stairs	plywood 1mm	18pcs
65	Ladder	strip 1x1mm	4pcs
66	Doors	wood 2mm	3pcs
67	Preparation for stairs	plywood 4mm	1pc
68	Hinges	photoetched part	8pcs
69-78	Rudder hinges	photoetched part	1pc
79	Knighthead	wood 4mm	1pc
80	Dead eyes felloe	wire 0,5mm	1m
81	Eyebolts	eyebolt	100pcs
82	Eyebolts	wire 0,5mm	1m
83	Dead eye blocks	dead eyes block	20pcs
84-113	Cleats	wood 2mm	60pcs

114-129	Eyebolts	eyebolt	100pcs
130-131	Stand	plywood 4mm	1pc
132	Stand	dowel 10mm	2pcs
133	Anchor	wood 2mm	2pcs
134	Anchor	cast	2pcs
135	Ring	ring 6mm	2pcs
136	Rigging	rope 2mm, hell	0,5m
137	Rigging	rope 0,25mm, hell	40m
138	Rigging	rope 0,5mm, dark	20m
140	Rigging	rope 1mm, dark	10m
141	Bowsprit	dowel 6mm	2pcs
142	Main mast	dowel 10mm	2pcs
143	Pawl	strip 1x1mm	4pcs
144	-----		
145	Trestletrees	wood 2mm	90pcs
146	Mast cap	wood 2mm	1pc
147	Topmast	dowel 3mm	1pc
148	Pin	wire 1mm	0,1m
149	Cheeks	strip 1x1mm	4pcs
150	Flag mast	dowel 2mm	1pc
151	Truck	dowel 3mm	1pc
152	Fore mast	dowel 6mm	2pcs
153	Cheeks	strip 1x1mm	4pcs
154	Flag mast	dowel 2mm	1pc
155	Truck	dowel 3mm	1pc
156	Aft mast	dowel 5mm	2pcs
157	Cheeks	strip 1x1mm	4pcs
158	Flag mast	dowel 2mm	1pc
159	Truck	dowel 3mm	1pc
160	Top	plywood 1mm	1pc
161	Top	plywood 1mm	1pc
162	Top	plywood 1mm	1pc
163	Top	strip 2x2mm	2pcs
164	Spritsail yard	dowel 3mm	1pc
165	Fore yard	dowel 4mm	1pc
166	Main yard	dowel 5mm	2pcs
167	Topsail yard	dowel 2mm	1pc
168	Mizen yard	dowel 3mm	1pc
169	Blocks	block 5mm, 1hole	80pcs
170	Blocks	block 7mm, violin	2pcs
171	Blocks	block 7mm, 3 holes	5pcs
172	Blocks	block 5mm, 3holes	2pcs
173	Rollers	roller 2mm	100pcs
174-177	Flags	flags	1pc
178	Flag pole	dowel 2mm	1pc
179-183	Sails	cloth	1pc
184	Rudder hinges	wire 1mm	0,1m
185	Chain	chain	0,5m
186	Crosstrees	strip 2x3mm	90pcs
187	Rigging	rope 1mm, hell	5m

188-192	Boat	wood 2mm	1pc
193	Keel of boat	strip 1x1mm	1pc
194	Barrels	barrel 12x14mm	10pcs
195	Mounting of the anchor	photoetched part	4pcs