

Identifying Sailing Ships

This brief paper is intended to provide an introduction to identifying various types of sailing ships. It will familiarize readers with the basic characteristics of ships' types and the key principle used to classify them: the ship's rig. Some basic knowledge of nautical terminology greatly aids in classifying sailing ships, so we will begin with some background information on rigs and sails.

Rig

A ship's type is primarily determined by her rig, or her configuration of masts and sails. While the number of masts is easily determined, understanding the type of sails used on a ship requires some explanation. Sails fall into two categories: square and fore-and-aft. A square sail is generally rectangular in shape, but more importantly, a square sail is set, or hung, from a yard. (See fig. 1.) A yard is simply a horizontal spar attached to the mast. A ship using square sails is said to be square-rigged.¹

Fore-and-aft sails, on the other hand, are either triangular or four-sided (though not rectangular), and "are set from their luffs on masts or stays" (fig. 2.)² The luff is simply the leading edge of the sail closest to the front of the ship. A triangular sail is set in front of, or to the fore of, the mast and is set to a stay, rather than a yard. (The stay is a rope or line used to support to the mast which runs from the masthead, or top of the mast, down to deck level. Stays are arranged in the fore-aft direction, and run from front to back, as opposed to the lateral, port to starboard direction. See figure 3.) A four-sided sail is set to the aft side of the mast, or behind it. The luff is set to the mast. The head, or top side, of the sail is set to a gaff, a spar attached to the mast, while the foot, or bottom, is usually set to spar called a boom. Ships using these four-sided sails set to gaffs are often called gaff-rigged.³ (See figure 4.)

In identifying ships, it is important to bear in mind the fact many types of ships use both square and fore-and aft sails. Most of the major ships types from the age of sail are classified as square-rigged even though in some cases they may actually have more fore-and-aft sails than square sails.⁴ Ultimately, when determining a ship's type, you will be considering the number and placement of its square sails versus its fore-and-aft sails.

Naming Masts and Sails

You may also find it useful to have some familiarity with terms relating to masts and sails. The largest and primary mast on a ship is known as the mainmast. On large ships, this main mast is usually the second mast from the bow. A mast set to the fore of the mainmast, or nearer to the bow, is called the foremast while one set abaft, or further towards the stern, is known as the

¹ Kemp, Peter, ed. *The Oxford Companion to Ships & the Sea*. (London: Oxford University Press, 1976), pp. 703-706.

² *Ibid.*, p. 320.

³ Blackburn, Graham. *The Illustrated Encyclopedia of Ships, Boats, Vessels and Other Water-borne Craft*. (Woodstock, NY: Overlook Press, 1978) p. 411.

⁴ *Ibid.*, p. 706. Kemp explains, this is because a ship's rig is classified by her main driving sails, the sails that really put the ship in motion: "Where [the main driving sails] are set from yards, the rig is considered to be square, irrespective of the number of fore-and-aft sails set; where the main driving sails are set by their luffs, the rig is recognized as fore-and-aft" p. 709.

mizzenmast. In ships with more than three masts, the third mast from the bow is known as the mizzenmast.⁵

As ships grew in size, masts grew taller to accommodate more sails. Moving from the deck upward, the sails were named as follows: course, topsail, topgallant, royal, and skysail. Not all ships carried all of these sails, of course. A schooner typically set only the bottom two levels, the course and topsails. A full-rigged ship, however, might have four masts, each consisting of all five sections.

The masts had similar names: lower mast (for the course sails), top mast, topgallant mast, royal mast, and skysail mast. In some cases the two sails might be set in the topsail and topgallant levels. These were then named lower and upper topsail or topgallant. The different sails and sections of masts were further classified by their masts. For example, a topsail on the foremast was known as the foretopsail, while its mast was named the foretopmast (fig. 6).

Lastly, most sailing ships of the great age of sail had a bowsprit, or a large spar which projected over the bow of the ship. The bowsprit was used to anchor the stays for the foremast and for setting jibs. (See figures 3 and 7).

Types of Ships

The following ship type definitions are primarily taken from the Peter Kemp's *The Oxford Companion to Ships & the Sea* and from Harold Underhill's *Sailing Ships and Rigging*.

Ship – This is the generic name for sea-going vessels, but it also describes a particular type of vessel. A ship has a bowsprit and three masts. Each mast has course, topsail, and topgallant levels and is square-rigged.⁶ (See figs. 8, 9, and 10.)

Barque (or bark) – A barque has three masts. The foremast and mainmast are square-rigged, while the mizzenmast is fore-and-aft rigged.⁷ (See fig. 11.)

Barquentine – Like a barque, the barquentine has three masts, and combines both square and fore-and-aft rigging. On a barquentine, the foremast is square-rigged while the main and mizzen masts are fore-and-aft rigged.⁸ (See figs. 12, 13.)

Brig – Brig was originally an abbreviation for brigantine. Eventually, however, it became a specific type of ship. A brig has two masts, both of which are square-rigged.⁹ A brig usually sets a spanker sail (see fig. 5) on the lower mainmast.¹⁰ (See figs. 14, 15.)

Hermaphrodite brig – Another two masted vessel, related to the brig and the brigantine. The hermaphrodite brig's foremast was square-rigged and its mainmast fore-and-aft rigged. Underhill writes that this rig is now called a brigantine.¹¹

⁵ Underhill, Harold A. *Sailing Ships and Rigging*. 2nd ed. (Glasgow: Brown, Son & Ferguson, Ltd., 1955; reprint ed., Glasgow: Brown, Son & Ferguson, Ltd., 1988), p 111.

⁶ *Ibid.*, p. 780.

⁷ *Ibid.*, p. 61.

⁸ *Ibid.*, p. 62.

⁹ *Ibid.*, p. 109.

¹⁰ Underhill, p. 9.

¹¹ *Ibid.*, p. 7.

Brigantine – Similar to a brig, a brigantine has two masts. The foremast is square-rigged while the mainmast is fore-and-aft rigged.¹² According to Harold Underhill, the original, or true brigantine had a square-rigged foremast. Its mainmast had a fore-and-aft rigged mainsail and a square topsail, similar to a schooner. This rig was apparently not particularly popular, however, and the square topsails on the mainmast were replaced by fore-and-aft sails.¹³ (figs. 18, 19)

Schooner – A schooner had two or more masts, all of which were fore-and-aft rigged. In the original rig, the foremast carried square topsails. Eventually these topsails were replaced by jib-headed or jack-yard-topsails.¹⁴ (figs. 20 – 23)

[“A jib-headed topsail is a triangular topsail set above the mainsail in gaff-rigged, or fore-and-aft rigged vessel. The top, or peak, of the topsail is hoisted to the masthead [or top of the mast] and the foot is stretched along the top of the gaff.” (See fig. 26.) A jack-yard topsail is also a triangular topsail, but larger than a jib-headed sail. It is set in the much the same way as the jib-headed topsail. Jack-yards are used to extend the top of the mast and the length of the gaff, allowing for a larger area of sail.¹⁵ (See fig. 27.)]

Sloop – A sloop is a ship with one fore-and-aft rigged mast.¹⁶ (See fig. 24.)

Ketch – A ketch has two masts. Both masts are fore-and-aft rigged, but the mizzenmast is considerably smaller than the fore. This mizzen mast is situated, or stepped, to the fore of the tiller.¹⁷ (The tiller is the handle used to move the rudder.) (See fig. 25.)

Yawl – Very similar to the ketch, the yawl’s mizzen mast is stepped right at the stern of the vessel and abaft, or behind, the tiller.¹⁸ (See fig. 26.)

Clipper – A generic term for very fast sailing ships; the clipper is less a type of rig than it is a type of hull design. The clipper hull has a “long, sharp bow which flared outward as it rose above the water, and long, clean run aft.”¹⁹ Clippers usually had an overhanging stern that projected off the back of the ship, over the water. While these features tended to reduce the ships’ cargo capacity, they did help the clippers reach great speeds by reducing the hull’s contact with the water. Clippers were often rigged like ships, i.e. with three (or more) square-rigged masts.²⁰ Their rig often consisted of a great number of sails in order to have the largest area of sail possible – another element which added to their speed.²¹ (See figures 29, 30.)

¹² Ibid., p. 109.

¹³ Underhill, p. 7.

¹⁴ Kemp, p. 758.

¹⁵ Ibid., pp 433, 423.

¹⁶ Ibid., p 809.

¹⁷ Underhill, p. 12.

¹⁸ Underhill, p 12.

¹⁹ Howe, Octavius T., and Matthews, Frederick C. *American Clipper Ships 1833 – 1858*. Vol. 1: *Adelaide – Lotus*. (Salem, MA: Marine Research Society, 1926-27; reprint ed., New York: Dover Publications, Inc., 1986), p. v.

²⁰ Kemp, p. 172.

²¹ Blackburn, p. 96.

List of Illustrations

- Fig. 1 – Parts of a square sail.²²
Fig. 2 -- Parts of a fore-and-aft sail.²³
Fig. 3 – Gaff and boom.²⁴
Fig. 4 – Stay, Staysails and Jibs.²⁵
Fig. 5 – Sails of a square-rigged ship.²⁶
Fig. 6 – Diagrams of different rigs showing positions of yards with sails set and furled.²⁷
Fig. 7 – Bowsprit.²⁸
Fig. 8 – Full-rigged ship.²⁹
Fig. 9 – Four-masted double topsail ship.³⁰
Fig. 10 – Sails of a full-rigged ship.³¹
Fig. 11 – Bark.³²
Fig. 12 – Barquentine.³³
Fig. 13 – Sails of a barquentine.³⁴
Fig. 14 – Brig.³⁵
Fig. 15 – Sails of a brig.³⁶
Fig. 16 – Hermaphrodite brig.³⁷
Fig. 17 – Sails of a brigantine.³⁸
Fig. 18 – Brigantine.³⁹
Fig. 19 – Brigantine (original rig).⁴⁰
Fig. 20 – Square topsail schooner.⁴¹
Fig. 21 – Sails of a topsail schooner.⁴²
Fig. 22 – Fore-and aft three-mast schooner.⁴³
Fig. 23 – Sails of a fore-and-aft schooner.⁴⁴
Fig. 24 – Sloop.⁴⁵
Fig. 25 – Sails of a ketch.⁴⁶
Fig. 26 – Yawl.⁴⁷

²² Blackburn, p. 434.

²³ Kemp, p. 739.

²⁴ Blackburn, p. 411

²⁵ Blackburn, p. 415.

²⁶ Kemp, p. 738.

²⁷ Underhill, p. 88.

²⁸ Underhill, p. 103.

²⁹ U.S. Treasury Department, Bureau of Navigation. *Twenty-Fifth Annual List of the Merchant Vessels of the United States*. (Washington, D.C.: Government Printing Office, 1893), p. xxvii.

³⁰ *Ibid.*, p. xxvi.

³¹ Underhill, p. 92.

³² U.S. Treasury Dept., p. xxviii.

³³ *Ibid.*, p. xxviii.

³⁴ Underhill, p. 92.

³⁵ U.S. Treasury Department, Bureau of Navigation. *Twenty-Second Annual List of the Merchant Vessels of the United States*. (Washington, D.C.: Government Printing Office, 1890), p. xxix.

³⁶ Underhill, p. 93.

³⁷ U.S. Treasury Dept., *Twenty-Fifth Annual List*, p. xxxi.

³⁸ Underhill, p. 93.

³⁹ U.S. Treasury Dept., *Twenty-Fifth Annual List*, p. xxxii.

⁴⁰ Underhill, p. 7.

⁴¹ U.S. Treasury Dept., *Twenty-Fifth Annual List*, p. xxxiii.

⁴² Underhill, p. 94.

⁴³ U.S. Treasury Dept., *Twenty-Fifth Annual List*, p. xxxv.

⁴⁴ Underhill, p. 94.

⁴⁵ U.S. Treasury Dept., *Twenty-Fifth Annual List*, p. xxxvi.

⁴⁶ Underhill, p. 95.

- Fig. 27 – Ketch.⁴⁸
Fig. 28 – Clipper ship.⁴⁹
Fig. 29 – Clipper ship.⁵⁰
Fig. 30 -- Jib-headed topsail.⁵¹
Fig. 28 – Jack-yard topsail.⁵²

⁴⁷ U.S. Treasury Dept., *Twenty-Fifth Annual List*, p. xliv.

⁴⁸ Underhill, p. 66.

⁴⁹ Blackburn, p. 97.

⁵⁰ *Ibid.*, p. 97.

⁵¹ Blackburn, p. 415.

⁵² Blackburn, p. 414.

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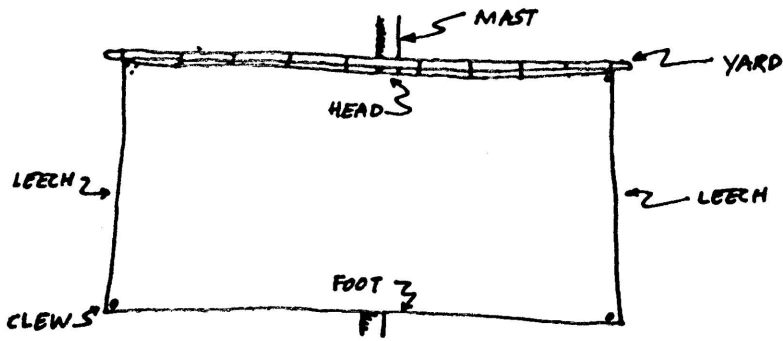


Fig. 1 - Parts of a square sail.

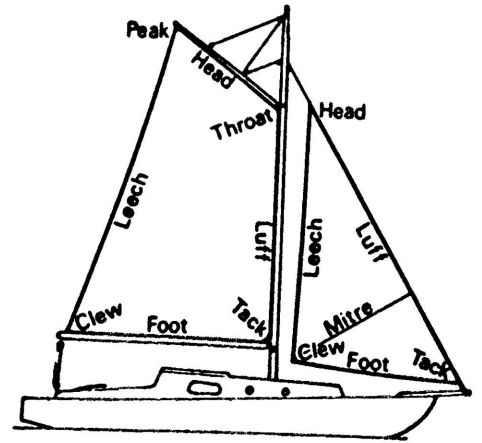


Fig. 2 - Parts of four-sided and triangular fore-and-aft sails.

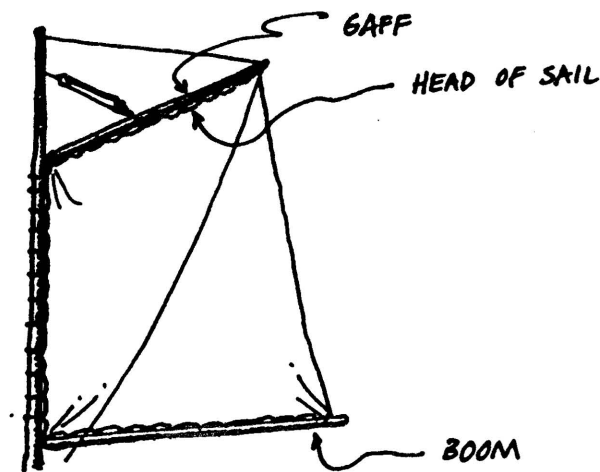


Fig. 4 - Gaff and boom.

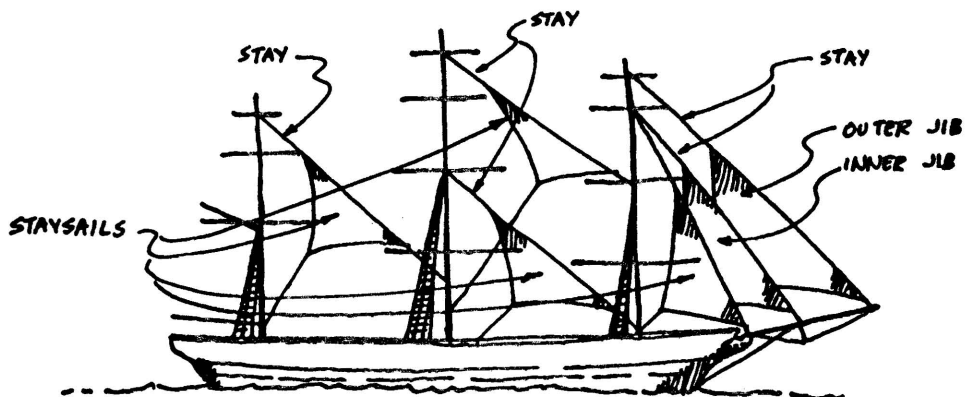


Fig. 3 - Stays, staysails, and jibs.

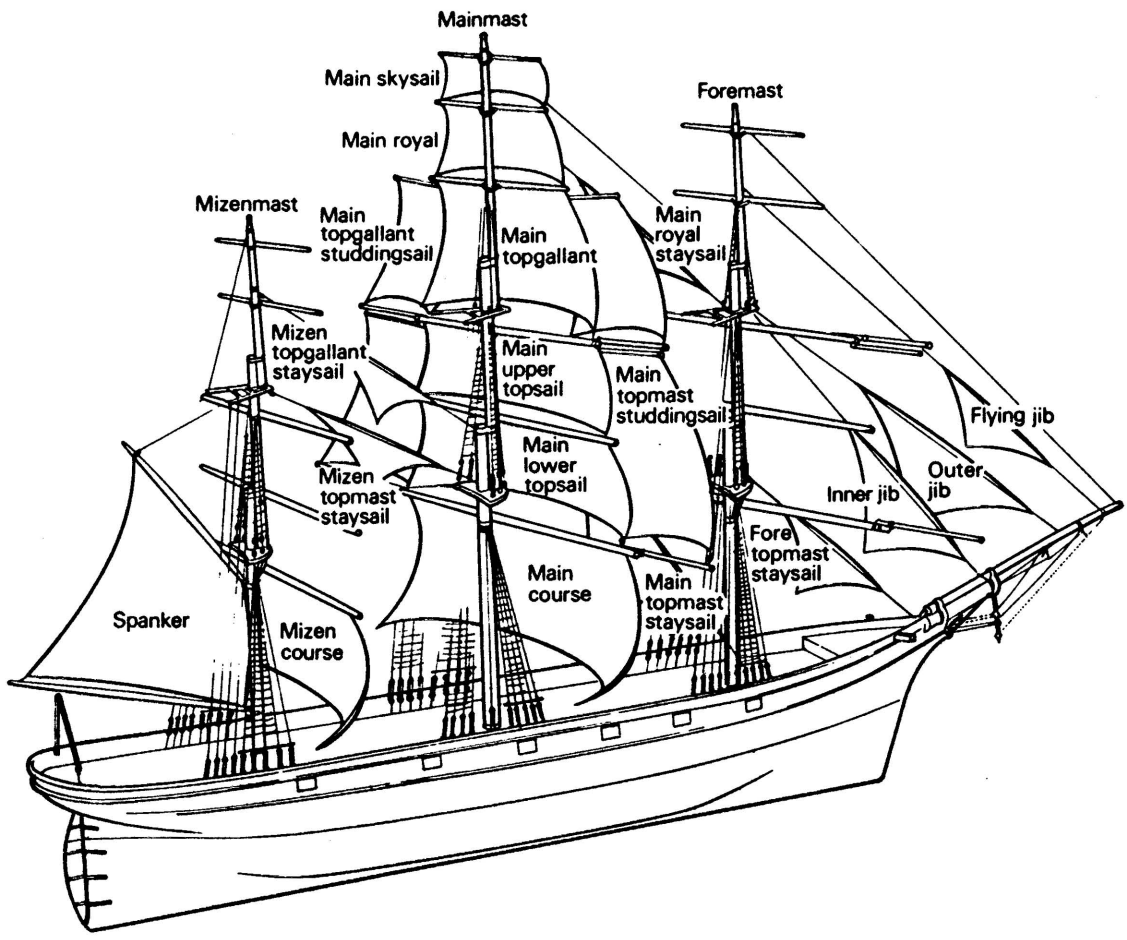


Fig. 5 - Sails of a square-rigged ship.

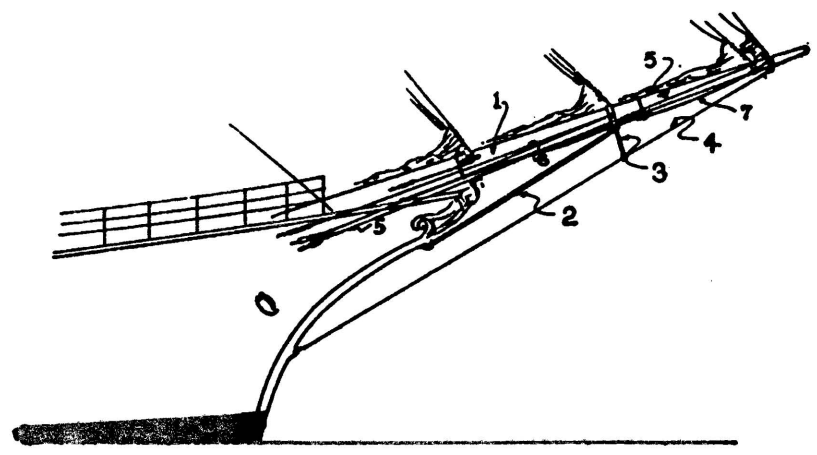
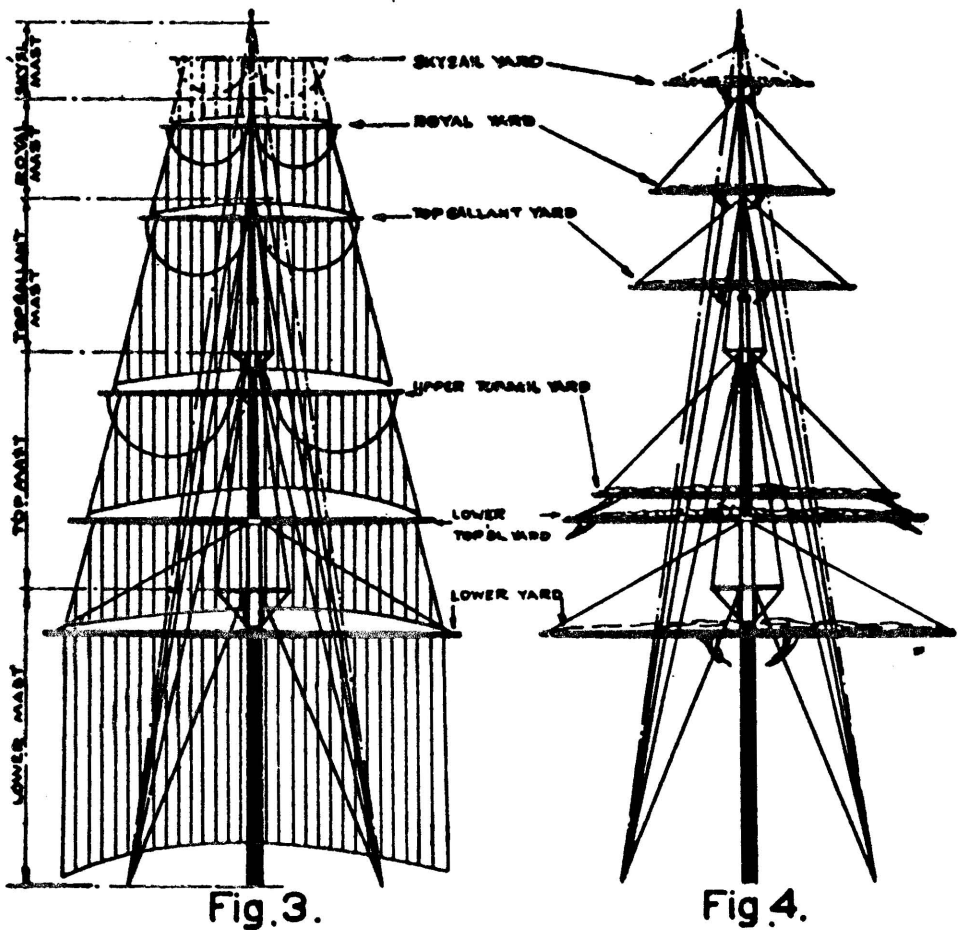
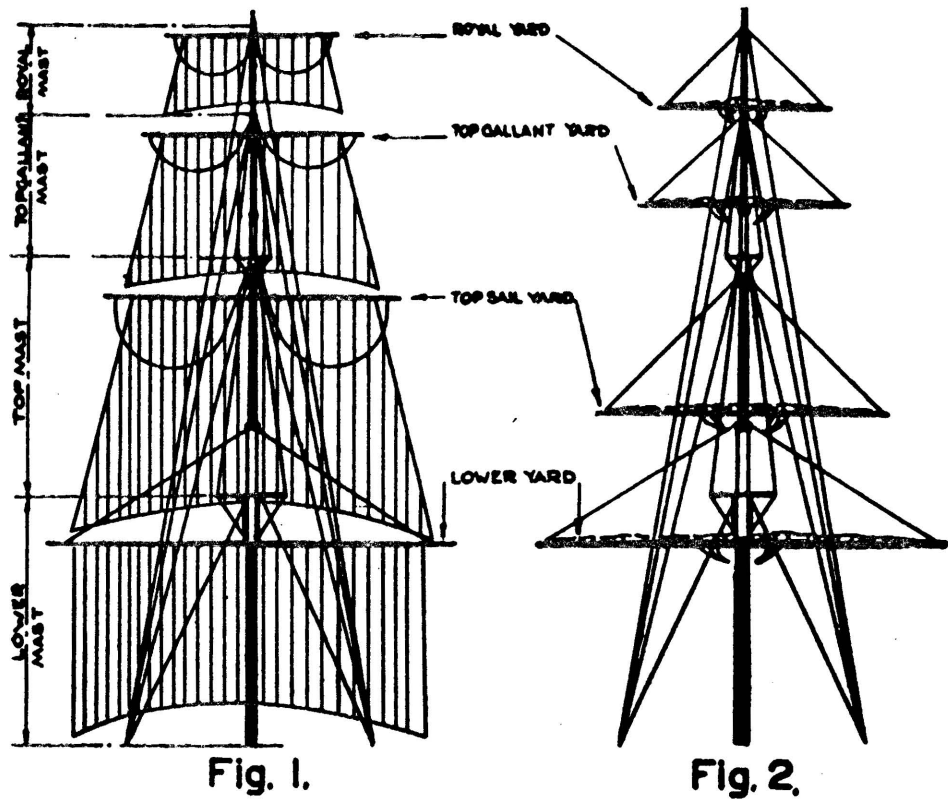


Fig. 7 - Bowsprit.



DIAGRAMS OF DIFFERENT RIGS SHOWING POSITION OF YARDS WITH SAILS SET AND FURLED.

Fig. 6 - Diagrams of different rigs showing positions of yards with sails set and furled.

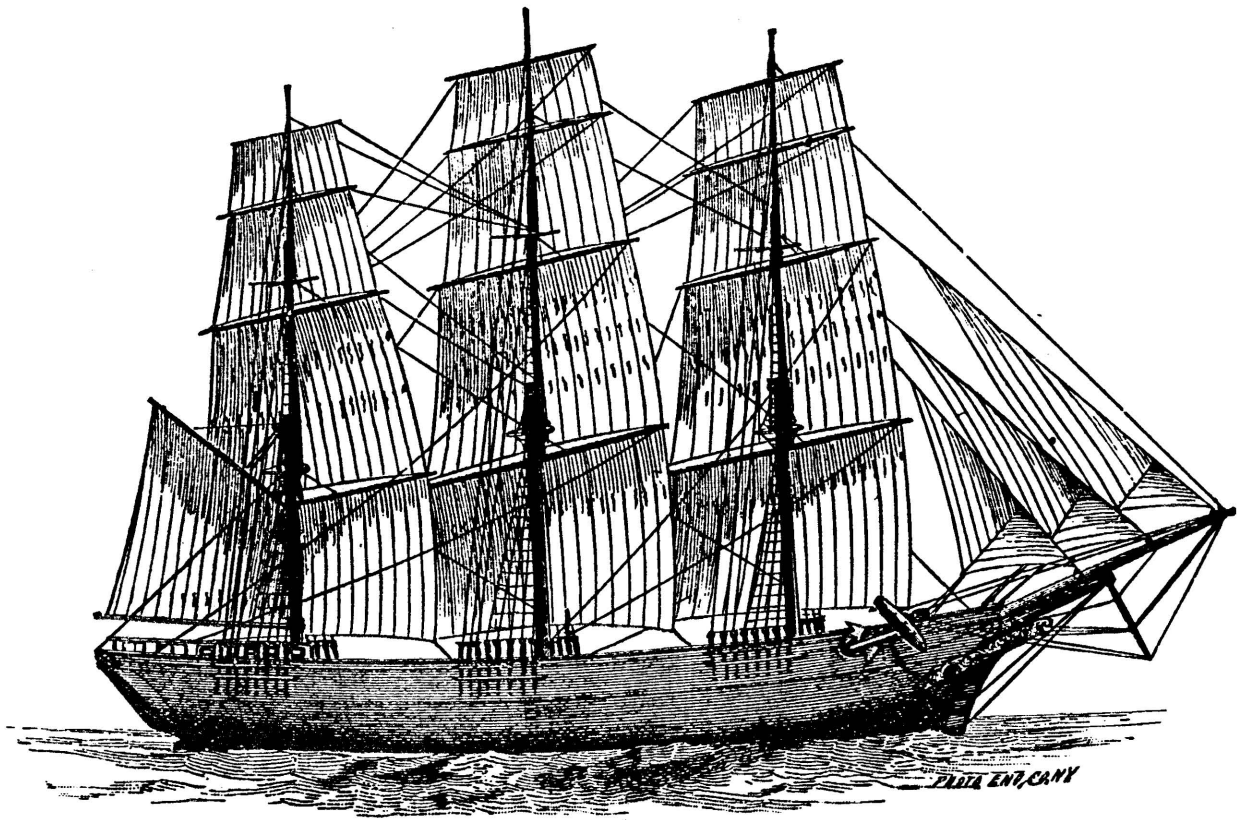


Fig. 8 – Full-rigged ship.

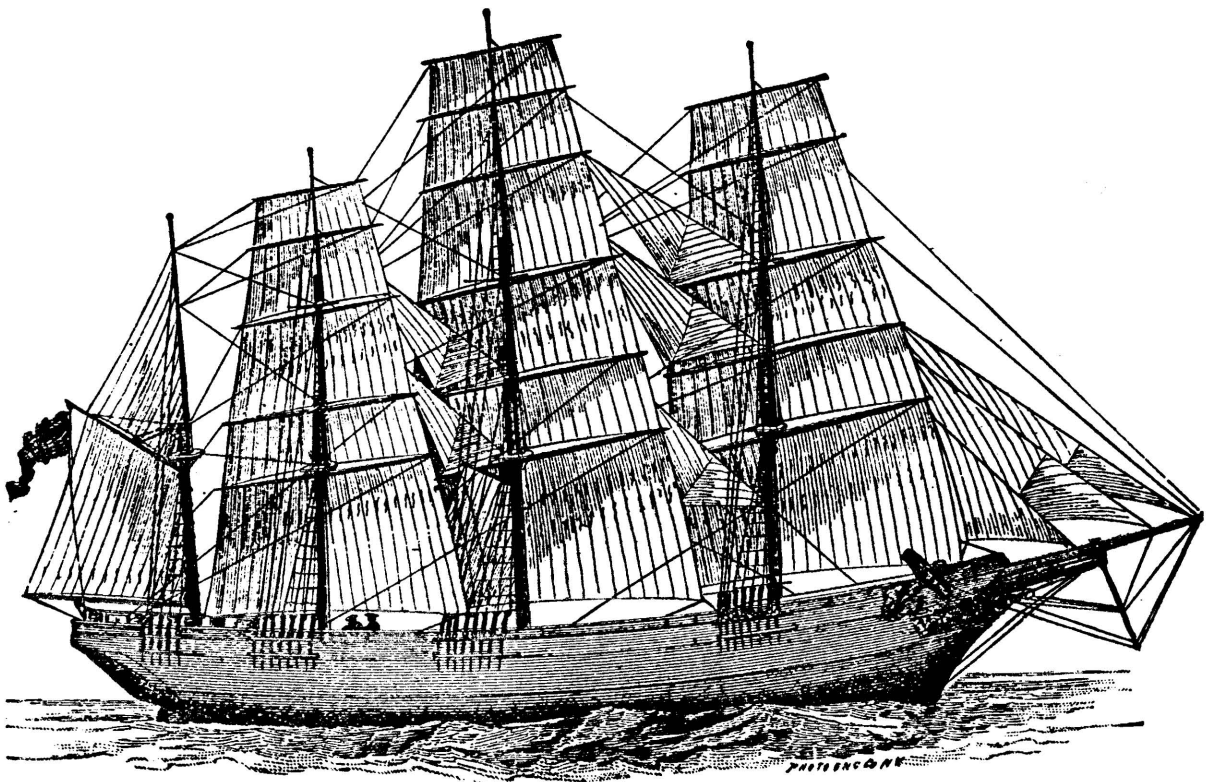
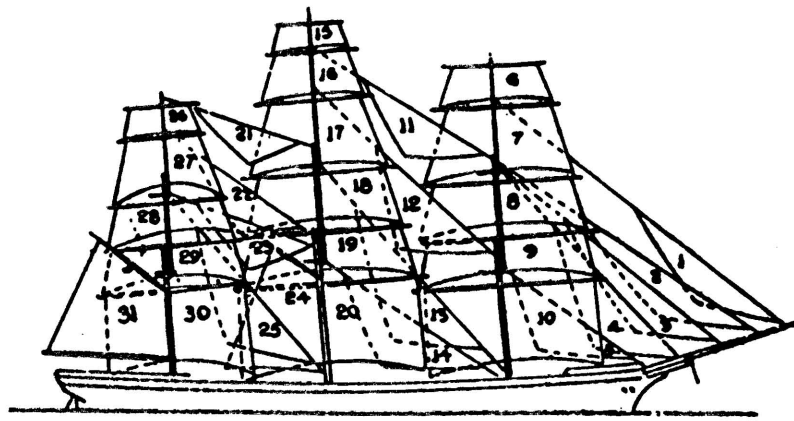


Fig. 9 – Four-masted double topsail ship.



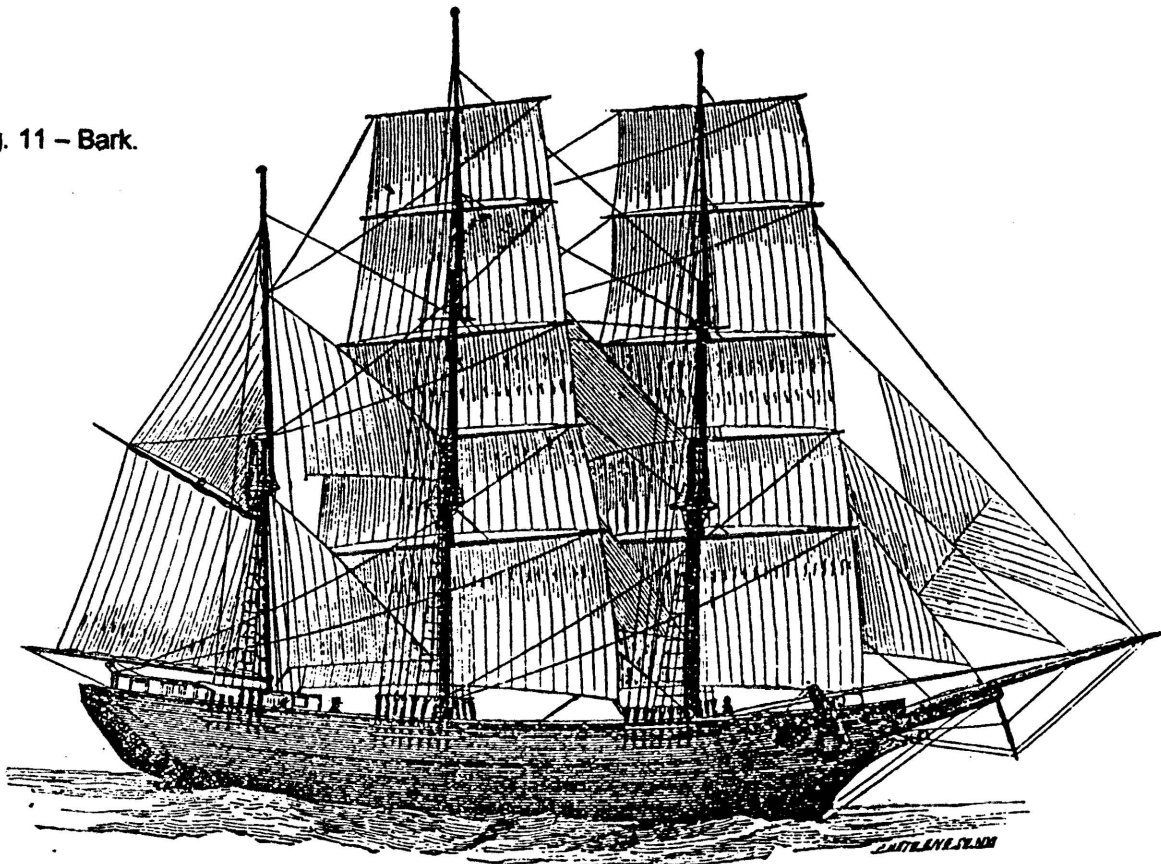
SAILS OF A FULL-RIGGED SHIP.

- | | |
|-------------------------------|---------------------------------|
| 1. Flying-jib. | 17. Main-topgallant. |
| 2. Outer-jib. | 18. Main-upper-topsail. |
| 3. Inner-jib. | 19. Main-lower-topsail. |
| 4. Fore-topmast-staysail. | 20. Mainsail or main-course. |
| 5. Fore-staysail.* | 21. Mizzen-royal-staysail. |
| 6. Fore-royal. | 22. Mizzen-topgallant-staysail. |
| 7. Fore-topgallant. | 23. Mizzen-middle-staysail.* |
| 8. Fore-upper-topsail. | 24. Main-spencer.* |
| 9. Fore-lower-topsail. | 25. Mizzen-topmast-staysail. |
| 10. Fore-sail or fore-course. | 26. Mizzen-royal. |
| 11. Main-royal-staysail. | 27. Mizzen-topgallant. |
| 12. Main-topgallant-staysail. | 28. Mizzen-upper-topsail. |
| 13. Main topmast-staysail. | 29. Mizzen-lower-topsail. |
| 14. Main-staysail.* | 30. Mizzen or cro'jack. |
| 15. Main-skysail. | 31. Spanker or driver. |
| 16. Main-royal. | |

* These sails were not common to all ships.

Fig. 10 – Sails of a full-rigged ship.

Fig. 11 – Bark.



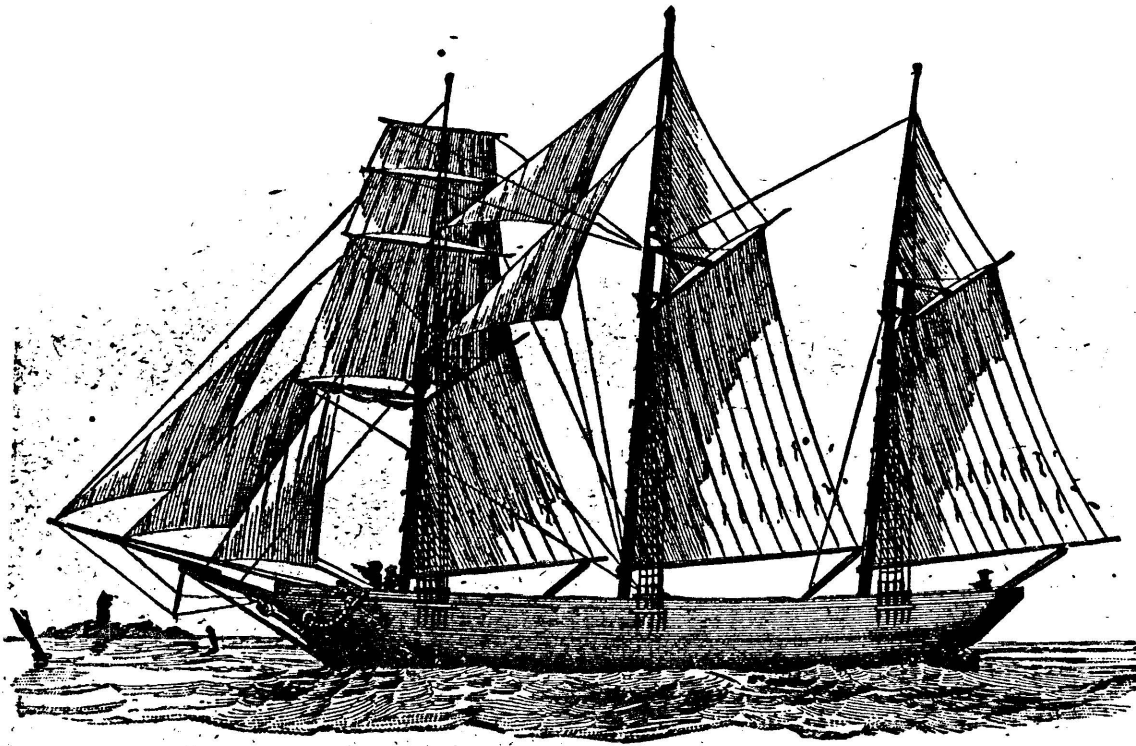
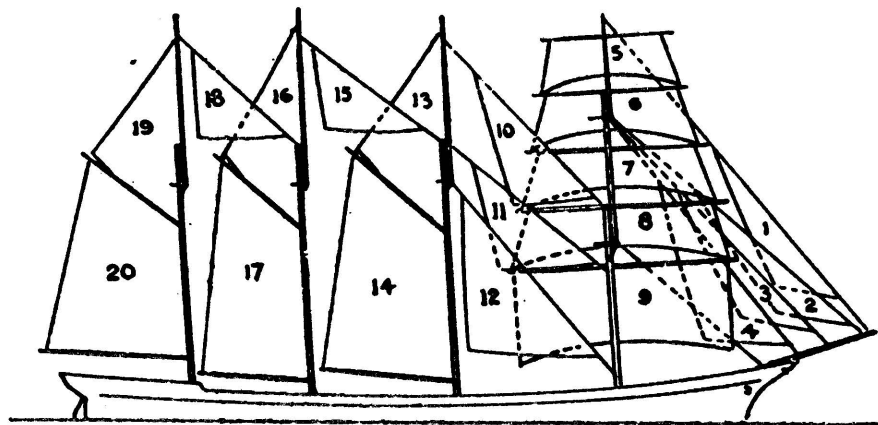


Fig. 12 - Barquentine.



SAILS OF A BARQUENTINE.

- | | |
|-------------------------------|------------------------------|
| 1. Flying-jib. | 11. Main-topmast-staysail. |
| 2. Outer-jib. | 12. Main-staysail. |
| 3. Inner-jib. | 13. Main-gaff-topsail. |
| 4. Fore-topmast-staysail. | 14. Main-sail. |
| 5. Fore-upper-topgallant. | 15. Mizzen-topmast-staysail. |
| 6. Fore-lower-topgallant. | 16. Mizzen-gaff-topsail. |
| 7. Fore-upper-topsail. | 17. Mizzen. |
| 8. Fore-lower-topsail. | 18. Jigger-topmast-staysail. |
| 9. Fore-sail or fore-course. | 19. Jigger-gaff topsail. |
| 10. Main-topgallant-staysail. | 20. Jigger or spanker. |

NOTE.—This diagram shows a barquentine with stump-topgallant rig on the fore-mast, but a barquentine can carry royals and skysails on the fore.

Fig. 13 - Sails of a barquentine.

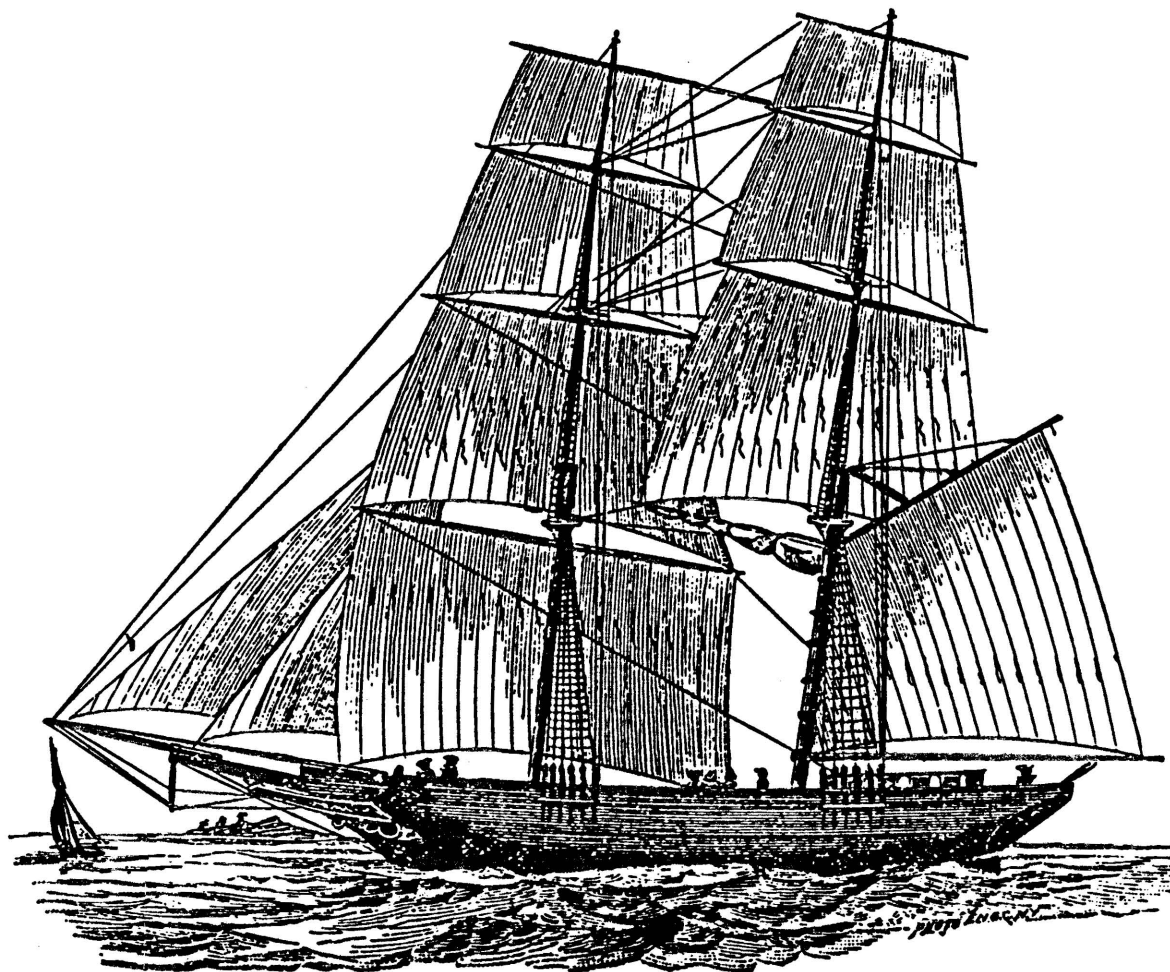
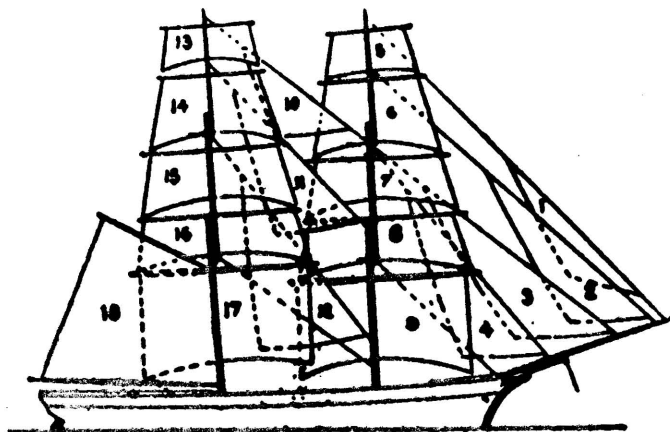


Fig. 14 - Brig.



SAILS OF A BRIG OR SNOW.

- | | |
|--|--------------------------------|
| 1. Flying-jib. | 10. Main-royal-staysail. |
| 2. Fore-topgallant-staysail or
outer-jib. | 11. Main-topgallant-staysail. |
| 3. Jib. | 12. Main-topmast-staysail. |
| 4. Fore-topmast-staysail. | 13. Main-royal. |
| 5. Fore-royal. | 14. Main-topgallant. |
| 6. Fore-topgallant. | 15. Main-upper-topsail. |
| 7. Fore-upper-topsail. | 16. Main-lower-topsail. |
| 8. Fore-lower-topsail. | 17. Main-sail or main course. |
| 9. Fore-sail or fore-course. | 18. Spanker, driver or trysail |

Fig. 15 - Sails of a brig.

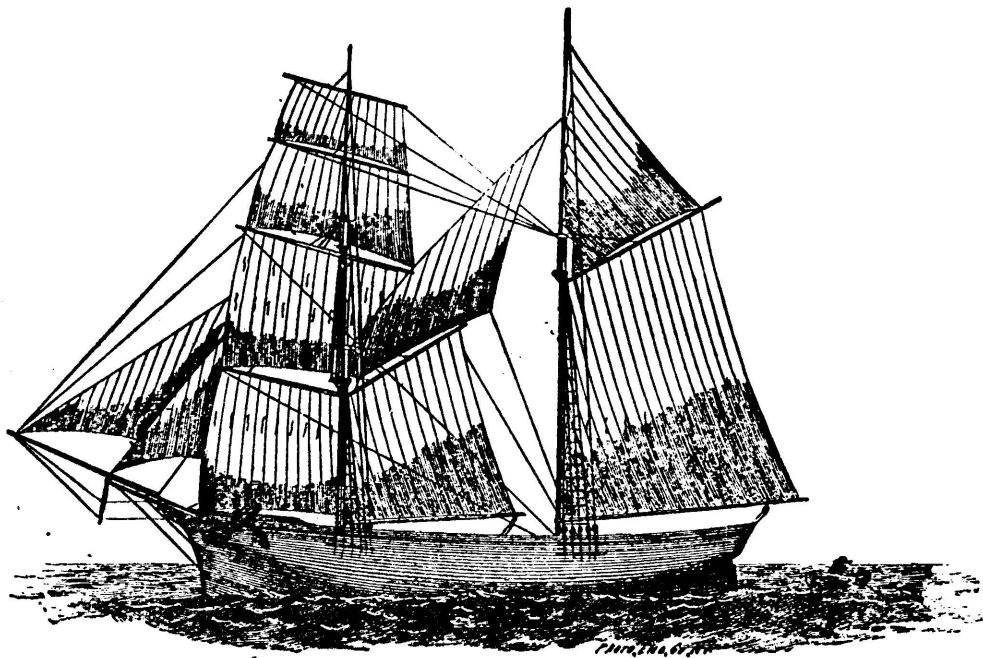
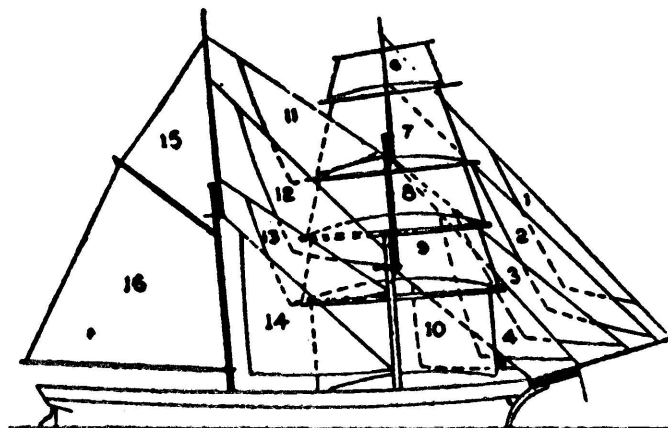


Fig. 16 – Hermaphrodite brig.



SAILS OF A BRIGANTINE. (Hermaphrodite-brig.)

- | | |
|--|-----------------------------------|
| 1. Flying-jib. | 9. Fore-lower-topsail. |
| 2. Fore-topgallant-staysail or
outer-jib. | 10. Fore-sail or fore-course. |
| 3. Jib. | 11. Main-topgallant-staysail. |
| 4. Fore-topmast-staysail. | 12. Main-topmast-staysail. |
| 5. Fore-staysail.* | 13. Middle-staysail. |
| 6. Fore-royal. | 14. Main-staysail. |
| 7. Fore-topgallant. | 15. Gaff-topsail. |
| 8. Fore-upper-topsail. | 16. Main-sail, spanker or driver. |
| * This sail was not in general use. | |

Fig. 17 – Sails of a brigantine.

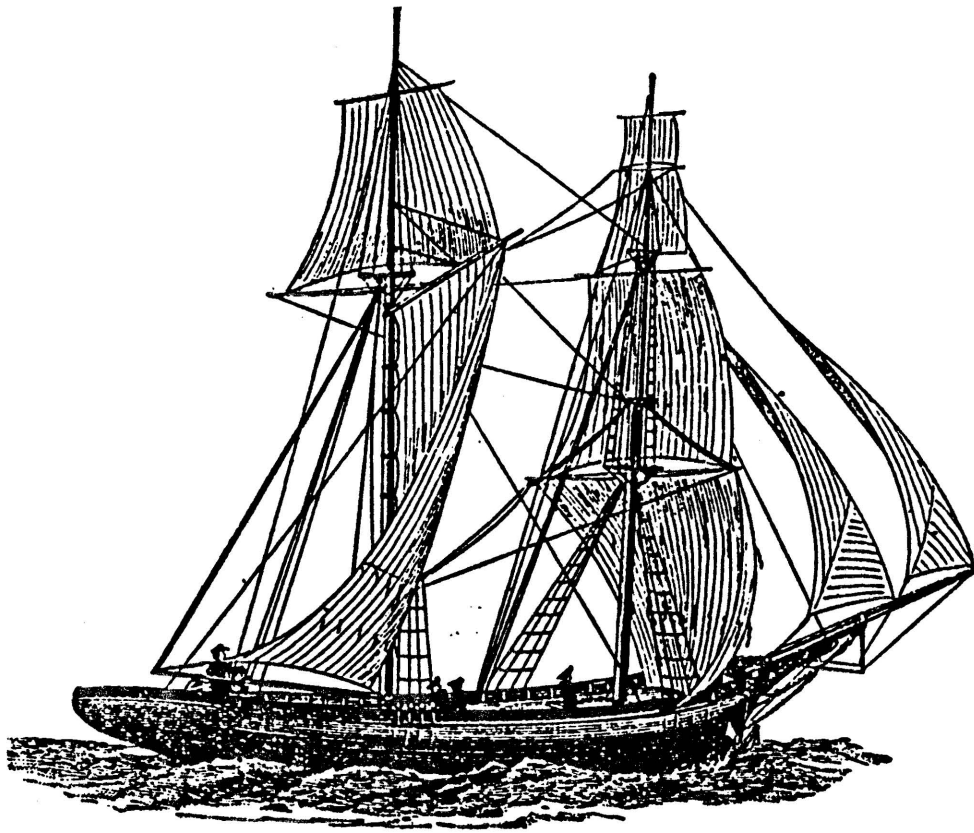


Fig. 18 – Brigantine.

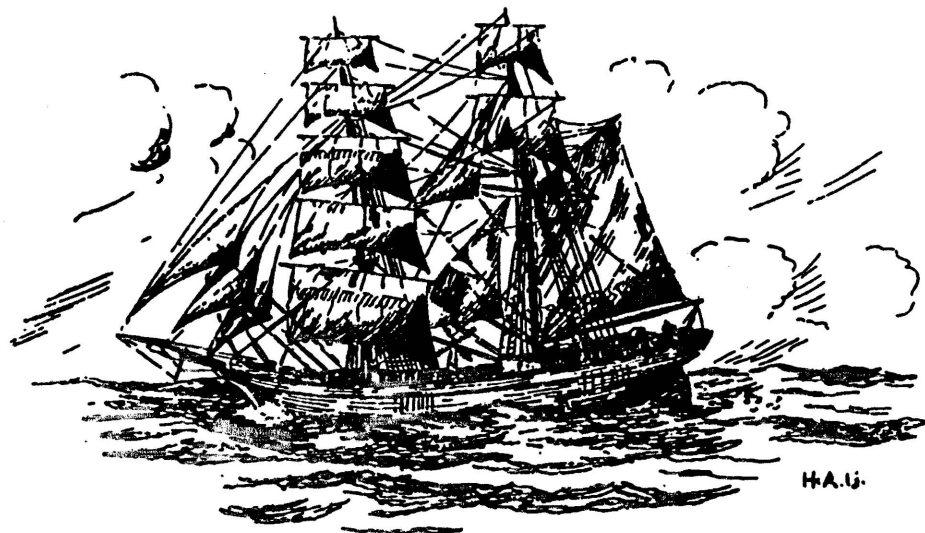


Fig. 19 – Brigantine (original rig).

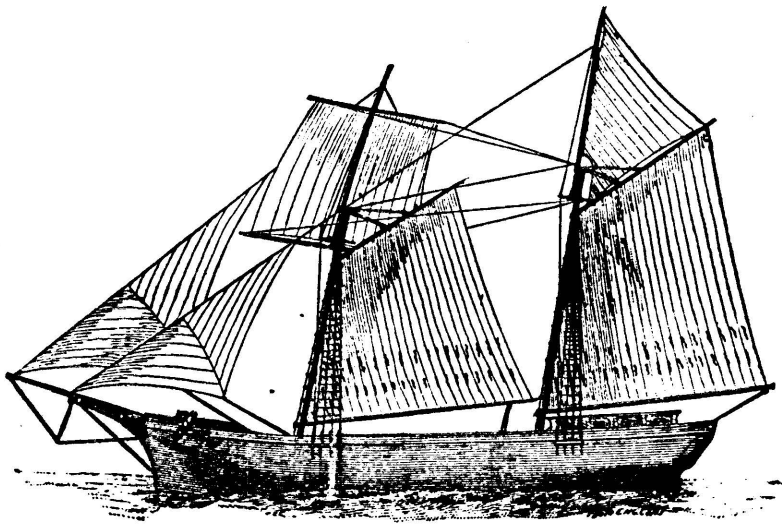
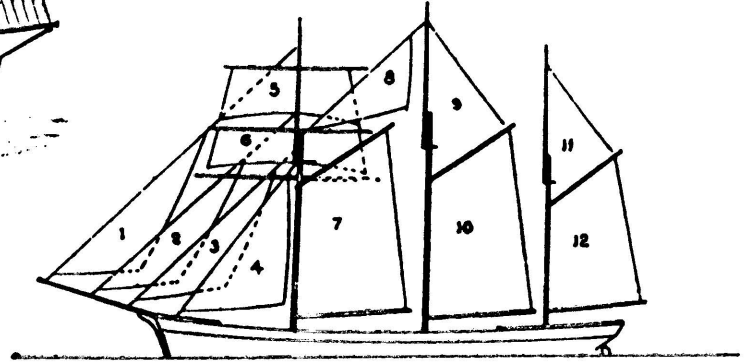


Fig. 20 - Square topsail schooner.

Fig. 21 - Sails of a topsail schooner.



SAILS OF A TOPSAIL SCHOONER.

- | | |
|--|---------------------------|
| 1. Flying-jib. | 7. Fore-sail. |
| 2. Fore-topmast-staysail or outer-jib. | 8. Main-topmast-staysail. |
| 3. Jib. | 9. Main-gaff-topsail. |
| 4. Fore-staysail. | 10. Main-sail. |
| 5. Fore-upper-topsail. | 11. Mizzen-gaff-topsail. |
| 6. Fore-lower-topsail. | 12. Mizzen. |

NOTE.—The sails of a two-mast topsail schooner are as above but No 11 and 12 are omitted.

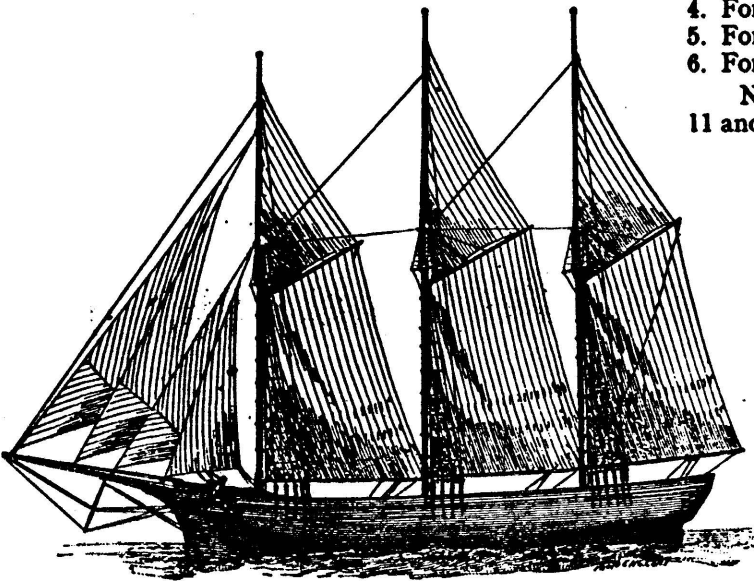
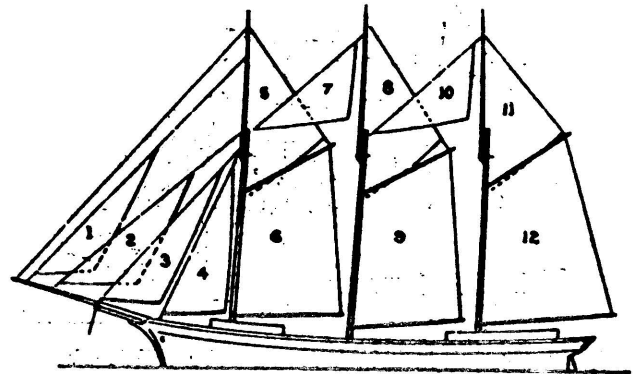


Fig. 22 - Fore-and-aft three-mast schooner.



SAILS OF A FORE-AND-AFT SCHOONER.

- | | |
|--|------------------------------|
| 1. Flying-jib. | 7. Main-topmast-staysail. |
| 2. Fore-topmast-staysail or outer-jib. | 8. Main-gaff-topsail. |
| 3. Jib. | 9. Main-sail. |
| 4. Fore-staysail. | 10. Mizzen-topmast-staysail. |
| 5. Fore-gaff-topsail. | 11. Mizzen-gaff-topsail. |
| 6. Fore-sail. | 12. Mizzen. |

NOTE.—The names of a two-mast schooner are as above but Nos. 10, 11 and 12 are omitted.

Fig. 23 - Sails of a fore-and-aft schooner.

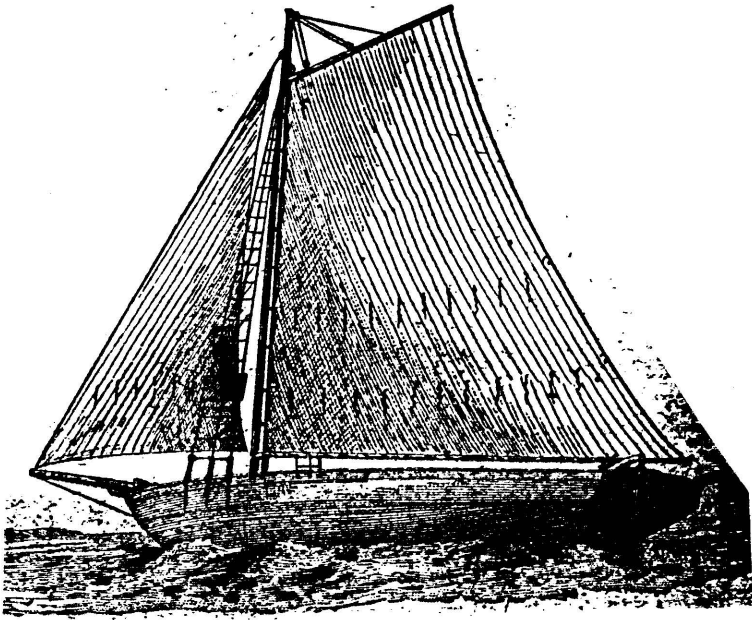
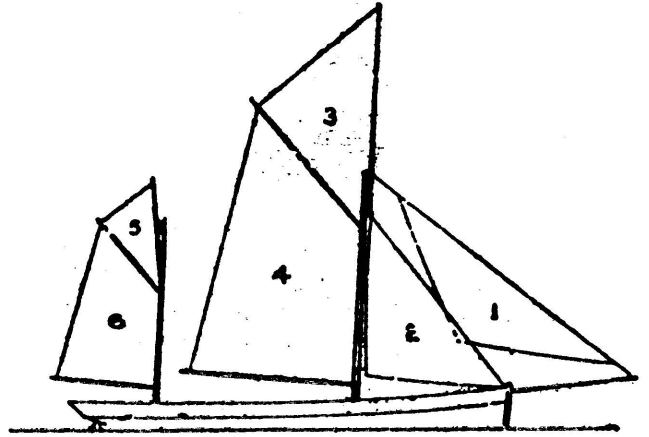


Fig. 24 – Sloop.

Fig. 25 – Sails of a ketch.



SAILS OF A KETCH.

- | | |
|-------------------------------|------------------|
| 1. Jib. | 4. Main-sail. |
| 2. Fore-sail or fore-staysail | 5. Mizentopsail. |
| 3. Main-topsail. | 6. Mizen. |

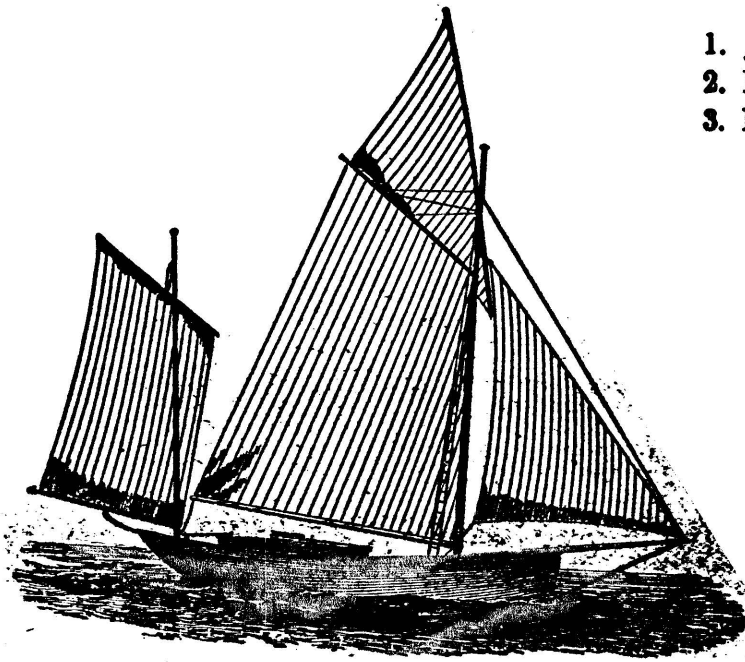


Fig. 26 – Yawl.

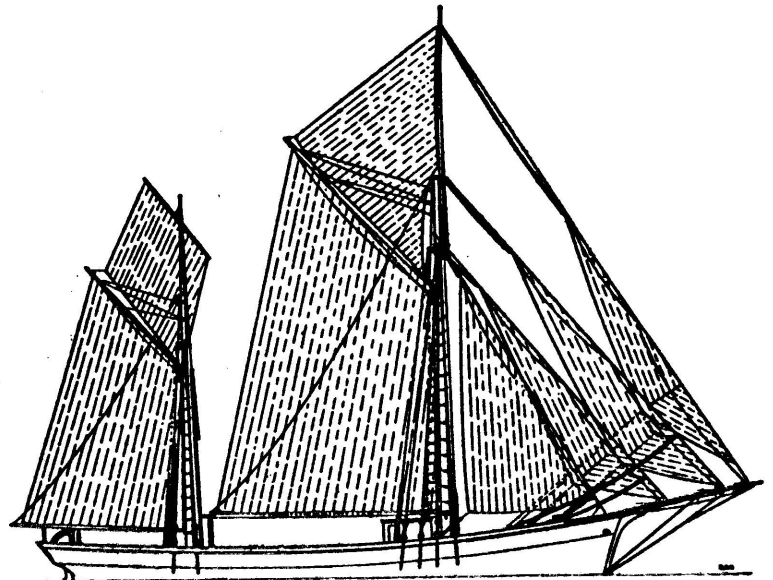


Fig. 27 – Ketch.

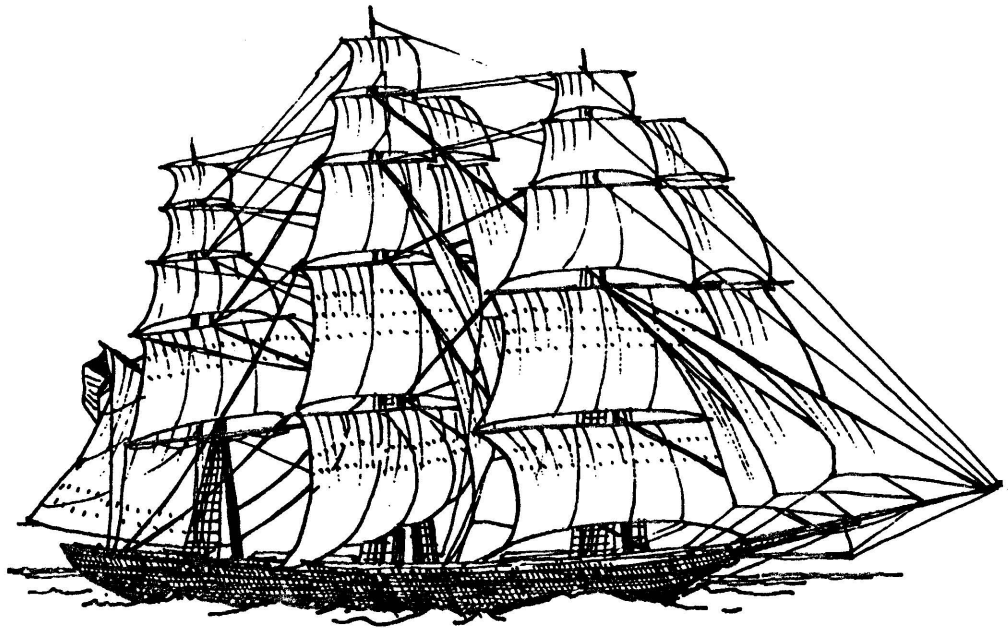


Fig. 28 – Clipper ship.

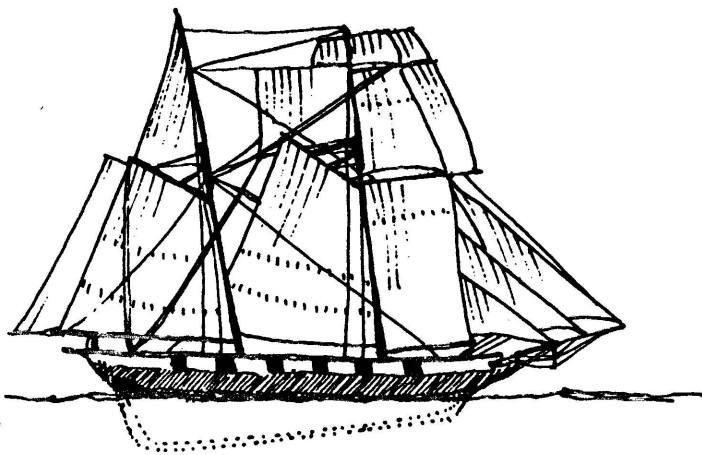


Fig. 29 – Clipper ship.

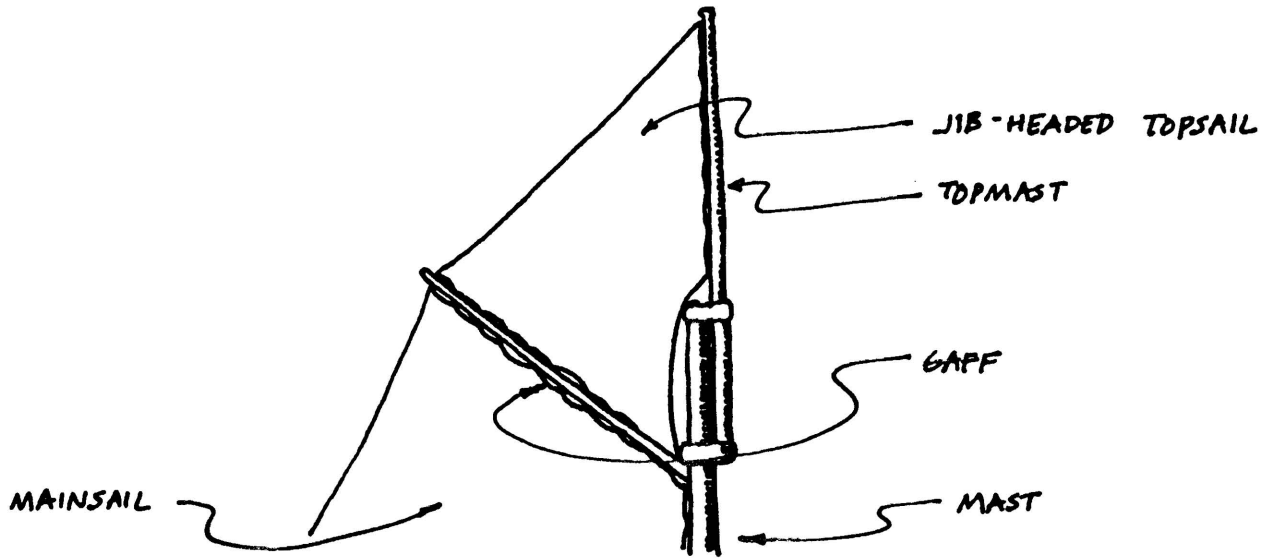


Fig. 30 - Jib-headed Topsail.

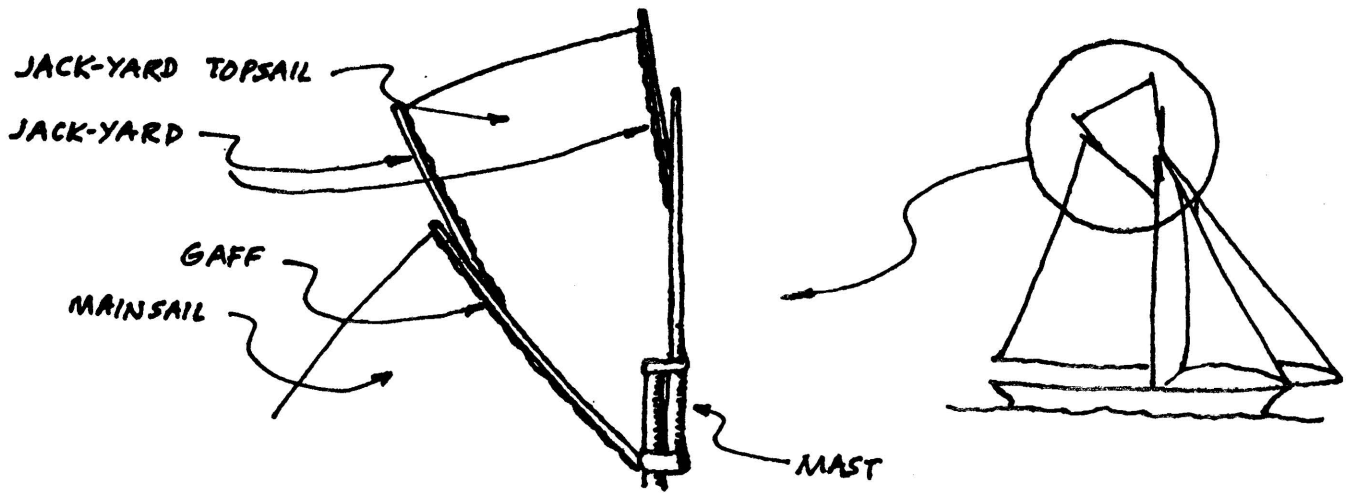


Fig. 31 - Jack-yard Topsail.