No. 757,474. PATENTED APR. 19, 1904.

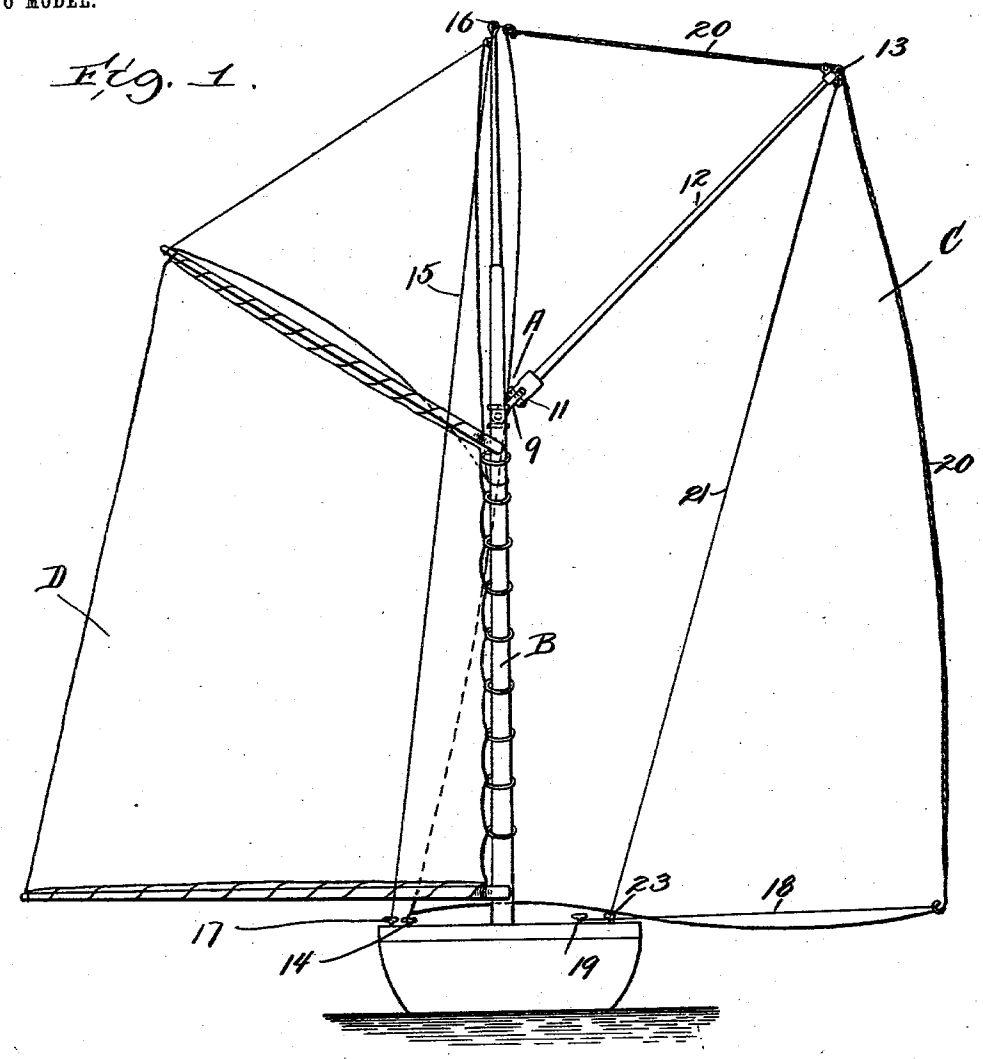
G. A. LOWRY.

SPINNAKER SAIL.

APPLICATION FILED SEPT. 15, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.



Witnesses.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 2

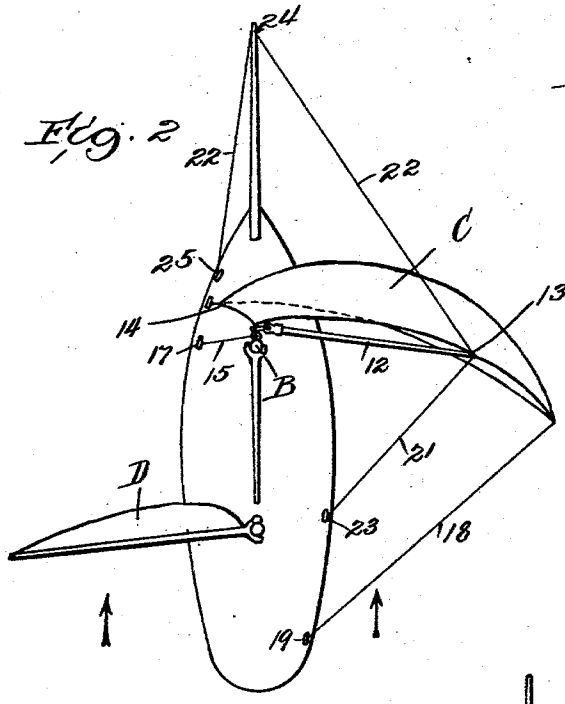


Fig. 3

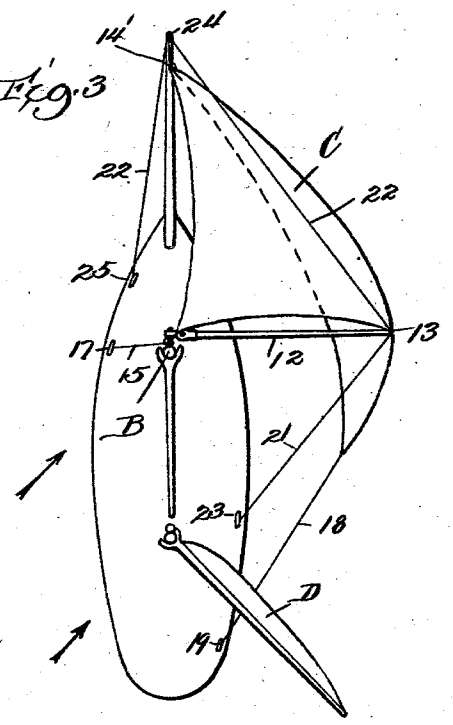


Fig. 4

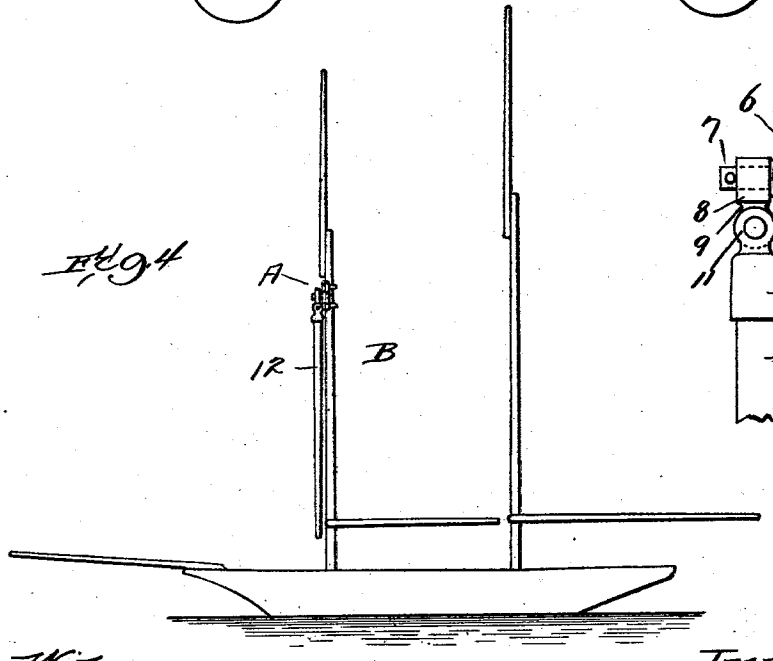
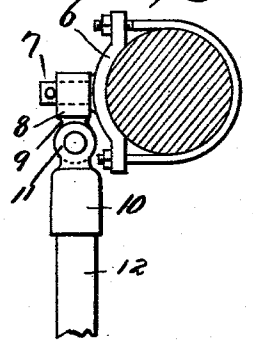


Fig. 5.



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No. 757,474. Patented April 19, 1904.

UNITED STATES PATENT OFFICE.

GEORGE A. LOWRY, OF CHICAGO, ILLINOIS.

SPINNAKER-SAIL.

SPECIFICATION forming part of Letters Patent No. 757,474, dated April 19, 1904.

Application filed September 15, 1902. Serial No. 123,416. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. LOWRY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Spinnaker-Sail, of which the following is a specification.

This invention relates to spinnaker-sails.

The object of the invention is to provide a spinnaker-sail wherein is obtained an extensive area of canvas.

A further object of the invention is to provide a spinnaker-sail wherein an extensive area of canvas is presented to light airs aloft.

A further object of the invention is to provide a spinnaker-sail and arrangement thereof wherein such sail may be used with the wind abeam or on the quarter.

Other objects of the invention will appear more fully hereinafter.

The invention consists, substantially, in the construction, combination, location, and arrangement of parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawings, and finally pointed out in the appended claims.

Referring to the accompanying drawings, and to the various views and reference-signs appearing thereon, Figure 1 is a view in rear elevation of a schooner-rigged boat, showing the spinnaker-sail embodying my invention as it would appear when the vessel is sailing before the wind. Fig. 2 is a plan view of the same on a somewhat smaller scale. Fig. 3 is a view similar to Fig. 2, with the spinnaker-sail arranged for a beam or quartering wind—that is, when the boat is sailing on a broad reach—the arrows indicating the direction of the wind. Fig. 4 is a side view of a boat, showing the disposition of the sprit or spinnaker-boom when the spinnaker-sail is not in use. Fig. 5 is a broken detail view in section showing a form of means for securing the spinnaker sprit or boom to the mast to allow the spinnaker-sail to be set in different positions and at different angles, according to the direction of the wind.

The same part is designated by the same reference-sign wherever it occurs throughout the several views.

The ordinary spinnaker-sail, such as has commonly heretofore been employed, is a triangular-shaped sail having its peak or apex or narrowest corner connected to the topmast-head, while the brace-line of the sail has been secured to the spinnaker sprit or boom, the latter being mounted near the bottom or step of the mast. In the use of a sail of this character, which is usually employed only when the wind is dead astern—that is, with the boat sailing directly before the wind—it will be noted that the sail is necessarily of much less area than the mainsail and gaff or club-topsail, and since it gets nearly all its spread at the bottom or foot, where there is least air, much less effective area or spread of canvas is secured by the use of such sail on one side of the boat than on the other side, which carries the mainsail and club or gaff topsail. This has the same effect as trying to row a boat with a long oar on one side and a short oar on the other side, causing the boat to unduly yaw and imposing a heavy drag on the rudder. Moreover, a spinnaker is a light-air sail, and, as is well known, in light airs the greatest air movement is aloft, and since the greatest spread or area of sail of a spinnaker is at its foot it will be seen that a spinnaker of the triangular form loses much of its effectiveness. Again, with the use of a triangular spinnaker-sail necessitates the use of a very long, and consequently clumsy, boom.

It is among the special purposes of my invention to provide a spinnaker-sail in which a wide spread or area of canvas is secured aloft, where the movement of the light airs is greatest.

It is also among the special purposes of my invention to provide a spinnaker-sail which can be readily set for winds which are not directly astern, but which may be abeam or quartering and wherein an objectionably-long boom is not necessary.

In the drawings, reference-sign 12 designates the spinnaker sprit or boom, which is suitably secured in any convenient manner near the top of the foremast, as indicated generally by reference-sign A. Preferably and as shown this sprit or boom may be se-

cured to the mast by a universal-joint connection, so as to enable said sprit or boom to be swung into any desired position or angle to spread the sail according to the conditions and direction of the wind. Any suitable or convenient form of universal-joint connection may be employed for this purpose. In the particular form shown, to which, however, my invention is not to be limited or restricted, I suitably clamp or otherwise secure a cleat 6 to the mast at a point near the masthead and on which cleat is formed or carried a stud 7, projecting therefrom. A collar 8 is sleeved upon said stud and is provided with an ear 9. A socket-piece 10 is provided with coöperating ears 11, adapted to be hinged or pivoted to the ear 9 in any convenient manner, and the sprit or boom 12 is stepped or otherwise secured in the socket-piece 10. From this construction it will be seen that the sprit or boom may be swung into any desired position or angle for use in spreading the spinnaker-sail or folded down upon the foremast B when not required for use, as indicated in Fig. 4.

Reference-sign C designates the spinnaker-sail, which instead of being triangular, as heretofore, is of general rectangular shape, as shown. When this sail is spread to sail before the wind, as indicated in Figs. 1 and 2, the outer upper corner thereof is suitably secured, as at 13, to the outer end of the sprit or boom 12. The diagonal opposite corner of the sail is suitably secured, as at 14, to some convenient part of the boat. The upper free or inner corner of the sail has attached thereto a rope, clue-line, or sheet 15, said rope, line, or sheet passing through the block, sheave, or an eye, as indicated at 16, at the top of the foretopmast and is secured in any convenient manner and at a convenient point on the boat—as, for instance, by means of a cleat 17. The outer corner of the sail is secured to another rope, clue-line, or sheet 18, said rope, line, or sheet being led inboard and secured to the boat at a convenient point—as, for instance, by means of a cleat 19. Braces or ropes 21 22 are secured to the outer or free end of the sprit or boom 12, the former leading aft and secured in any convenient manner and at a convenient point upon the boat—as, for instance, on cleat 23—and the former leading forward and after passing through a block or over a sheave or eye 24, carried at the end of the bowsprit and then secured at any convenient point upon the boat—as, for instance, by means of cleat 25. If desired and in order to impart more or less stiffness to the edges of the sail, said edges may be provided with a selvage or may be whipped to a rope, as indicated at 20.

From the foregoing description it will be seen that in order to bend the sail all that is necessary is to secure the upper and outer corner of the sail to the outer free end of the sprit or boom 12, as at 13, and the upper inner corner of the sail to the rope, cleu-line, or sheet 15 and to see that the ropes or braces 21 22 are secured to the outer or free end of the sprit or boom and the cleu-line or sheet 18 secured to the lower outer corner of the sail. In order to spread the sail, the lower inner corner of the sail is secured, as at 14, and the sail hoisted through rope 15, the sail being pulled up into place by the hoisting-rope 14, the pull on said rope at the same time carrying the sprit along with it. The stay ropes, braces, or lines 18, 21, and 22 are then hauled taut and secured in their several positions. In order to take in sail, all that is necessary is to slack up on rope 15, thereby allowing the sprit or boom to swing downwardly. Then by hauling in on rope 18 the end sail will drop down on deck.

The arrangement of the sail may be changed according to the direction of the wind—as, for instance, when sailing on a broad reach—that is, with the wind quartering or nearly abeam. In this case the inner lower corner is secured to the outer end of the bowsprit, as indicated at 14′. (See Fig. 3.) In this manner the sail is thrown into a better position to catch the wind more directly. Of course it is to be understood that the foresail is lowered when the spinnaker is in use with an abeam or quartering wind.

In the foregoing description and in the drawings I have not gone into the details of construction nor exact proportions, nor have I given any attention to the other sails usually employed nor to their arrangement, and therefore, so far as my present invention is concerned, the mainsail (indicated at D) or the other sails employed and their masts and booms or sprits may be of any suitable construction and arrangement or type.

From the foregoing description it will be seen that I provide an exceedingly-simple arrangement of spinnaker, easily operated and handled, and that by arranging the spinnaker sprit or boom at the masthead of the foremast I am enabled to obtain a much greater spread of canvas aloft particularly, and hence am enabled to gain a great advantage in catching light breezes, which, as is well known, are usually stronger aloft than nearer the deck. It will also be seen that with my arrangement I am enabled to set the sail to accommodate a beam or quartering wind as well as a stern wind.

It is obvious that many variations and changes in the details of construction and arrangement would readily suggest themselves to persons skilled in the art and still fall within the spirit and scope of my invention. I do not desire, therefore, to be limited or restricted to the exact details shown and described; but,

Having now set forth the object and nature of my invention and a construction embodying

the principles thereof, what I claim as new and useful and of my own invention, and desire to secure by Letters Patent, is—

1. The combination with a mast, of a spinnaker sprit or boom connected to the mast near its top or head, and a spinnaker-sail having its upper outer corner connected to said boom, and a sheet connected to the upper inner corner of said sail and leading to the mast at a point above said sprit or boom, as and for the purpose set forth.

2. The combination with a mast, of a sprit or boom pivotally connected thereto at a point adjacent to the masthead and connected at its free end to the upper corner of a spinnaker-sail, and a sheet connected to the upper inner corner of said sail and leading to the mast at a point above said sprit or boom, as and for the purpose set forth.

3. The combination with a mast, of a spinnaker sprit or boom connected thereto through a universal-joint connection, and a spinnaker-sail having its upper outer corner connected to the free end of said boom, and a sheet connected to the upper inner corner of said sail and leading to the mast at a point above said sprit or boom, as and for the purpose set forth.

4. The combination with a mast, of a spinnaker sprit or boom connected thereto through a universal-joint connection at a point adjacent to the masthead, and a spinnaker-sail having its upper outer corner connected to the free end of said boom, and a sheet connected to the upper inner corner of said sail and leading to a point on said mast above the sprit or boom, as and for the purpose set forth.

5. A spinnaker-sail of substantially rectangular shape, a spinnaker sprit or boom having its outer free end connected to the upper and outer corner of the sail, and operating ropes or lines connected to the other corners of the sail, the rope or line connected to the upper inner corner of said sail leading to a point above said sprit or boom as and for the purpose set forth.

6. A spinnaker-sail of substantially rectangular shape connected at its inner lower corner to the boat, a sprit or boom having its outer or free end connected to the upper and outer corner of the sail, and sheets connected to the other corners of said sail, the sheet connected to the upper inner corner leading to a point above the sprit or boom, as and for the purpose set forth.

7. A spinnaker-sail of substantially rectangular shape having its lower inner corner connected to the boat, a sprit or boom connected to the diagonally opposite corner, and operating-lines connected to the other corners of said sail, the line connected to the upper inner corner leading to a point above the sprit or boom as and for the purpose set forth.

8. The combination with a mast, of a spinnaker sprit or boom hinged or pivotally connected thereto at a point near the masthead, a spinnaker-sail of substantially rectangular shape having its outer upper corner connected to the free end of said sprit or boom and its diagonally opposite corner connected to the boat, and a hoisting-line connected to the outer free end of said sprit or boom, and to the upper inner corner of the sail and leading to the mast at a point above the point of pivotal connection of the sprit or boom, all combined and arranged as and for the purpose set forth.

9. The combination with a mast, of a spinnaker sprit or boom pivotally connected near the masthead, a spinnaker-sail of substantially rectangular shape having its outer upper corner connected to the free end of said boom, a hoisting-rope connected to the upper inner corner of said sail and leading to the mast at a point above the point of pivotal connection of the sprit or boom to the mast, braces or stay-ropes also connected to the free end of said boom, and a clue-line connected to the lower outer corner of said sail, all combined and arranged as and for the purpose set forth.

In witness whereof I have hereunto set my hand, this 10th day of September, 1902, in the presence of the subscribing witnesses.

GEORGE A. LOWRY.

Witnesses:
WM. M. RHEEM,
N. L. JOHNSON.