

(No Model.)

4 Sheets—Sheet 1.

W. KING.
SAILING VESSEL.

No. 559,718.

Patented May 5, 1896.

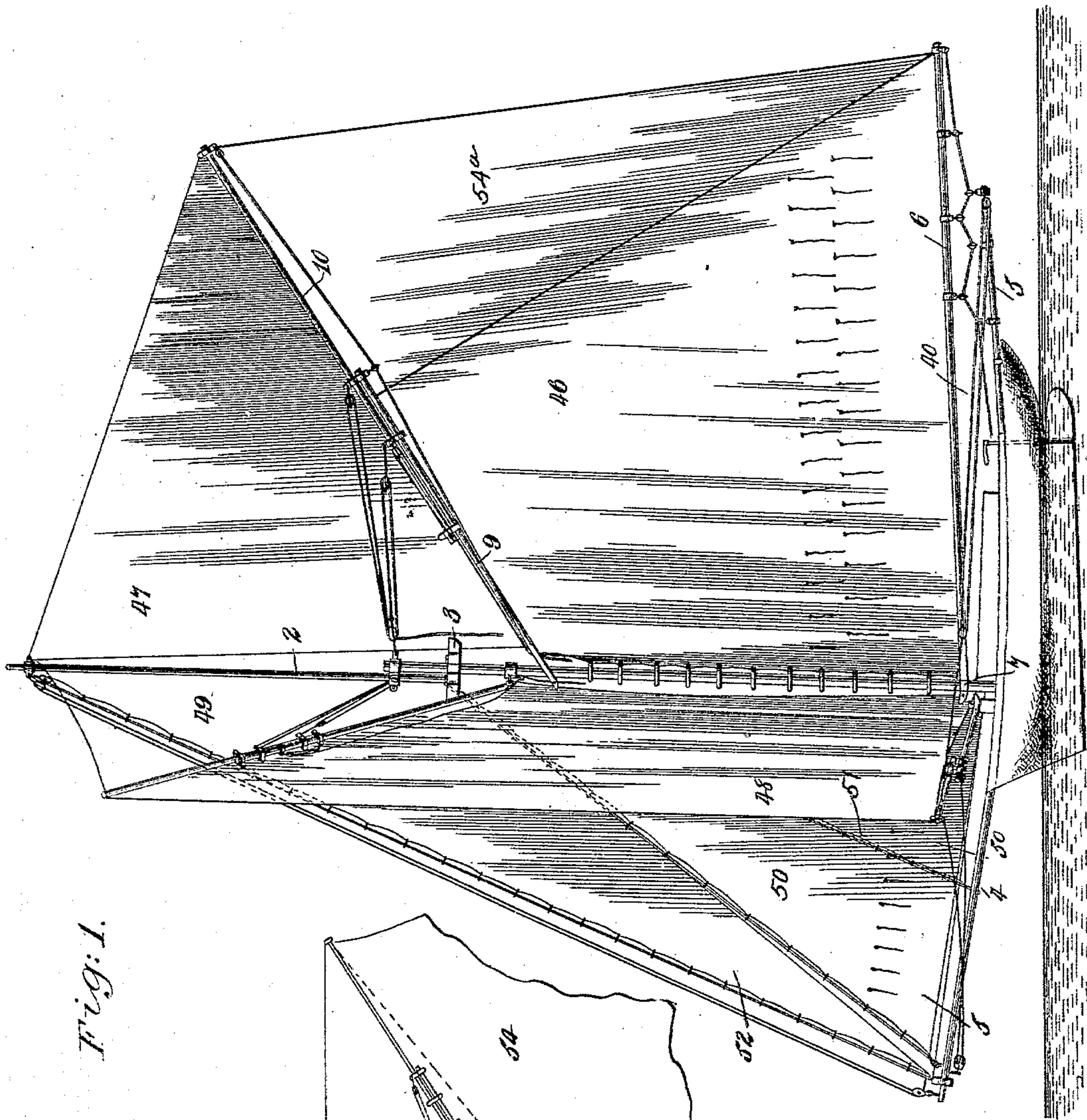


Fig. 1.

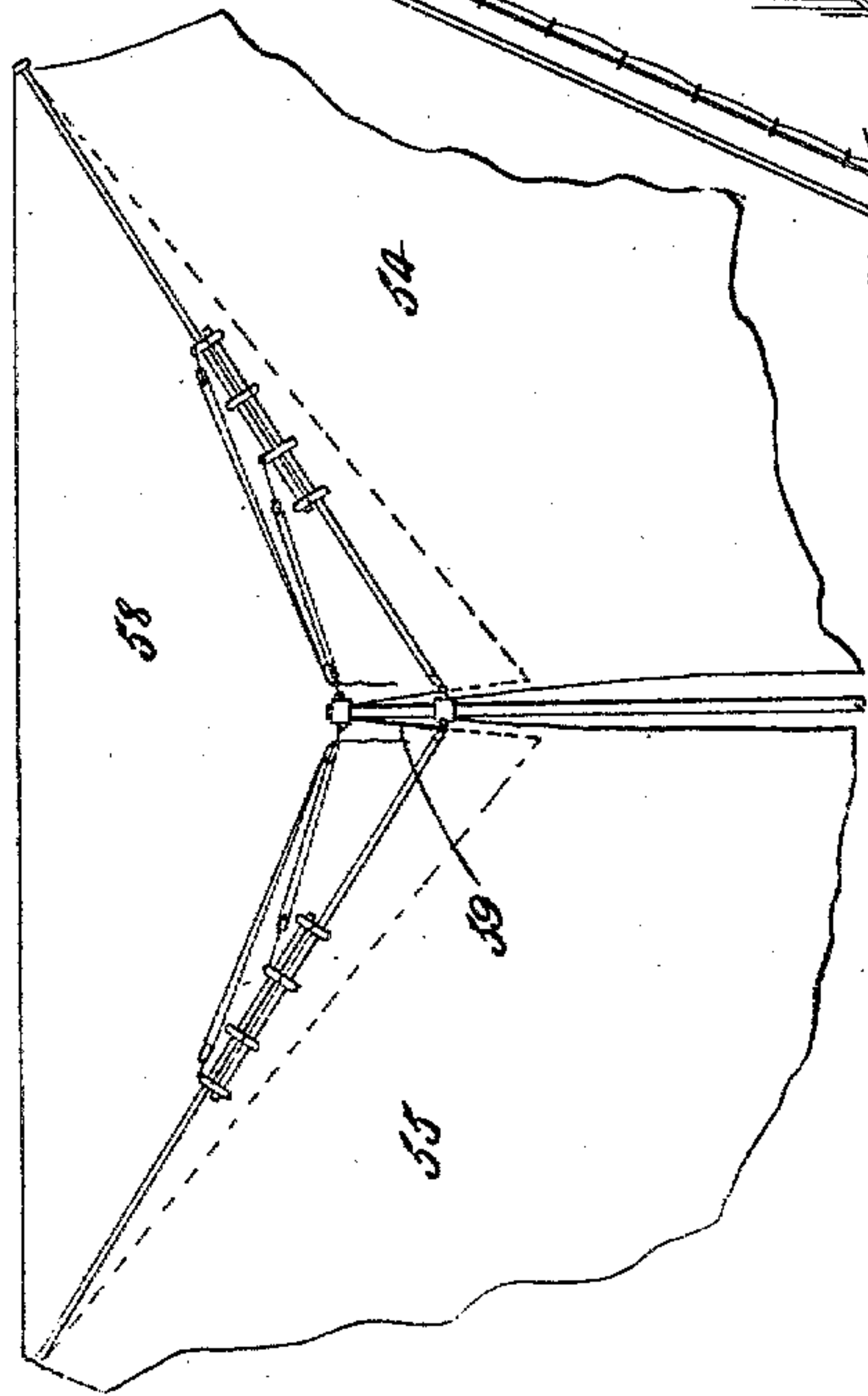


Fig. 8.

WITNESSES:

John A. Rennie

J. B. Owens

INVENTOR

W. King

BY *Munn & Co.*

ATTORNEYS.

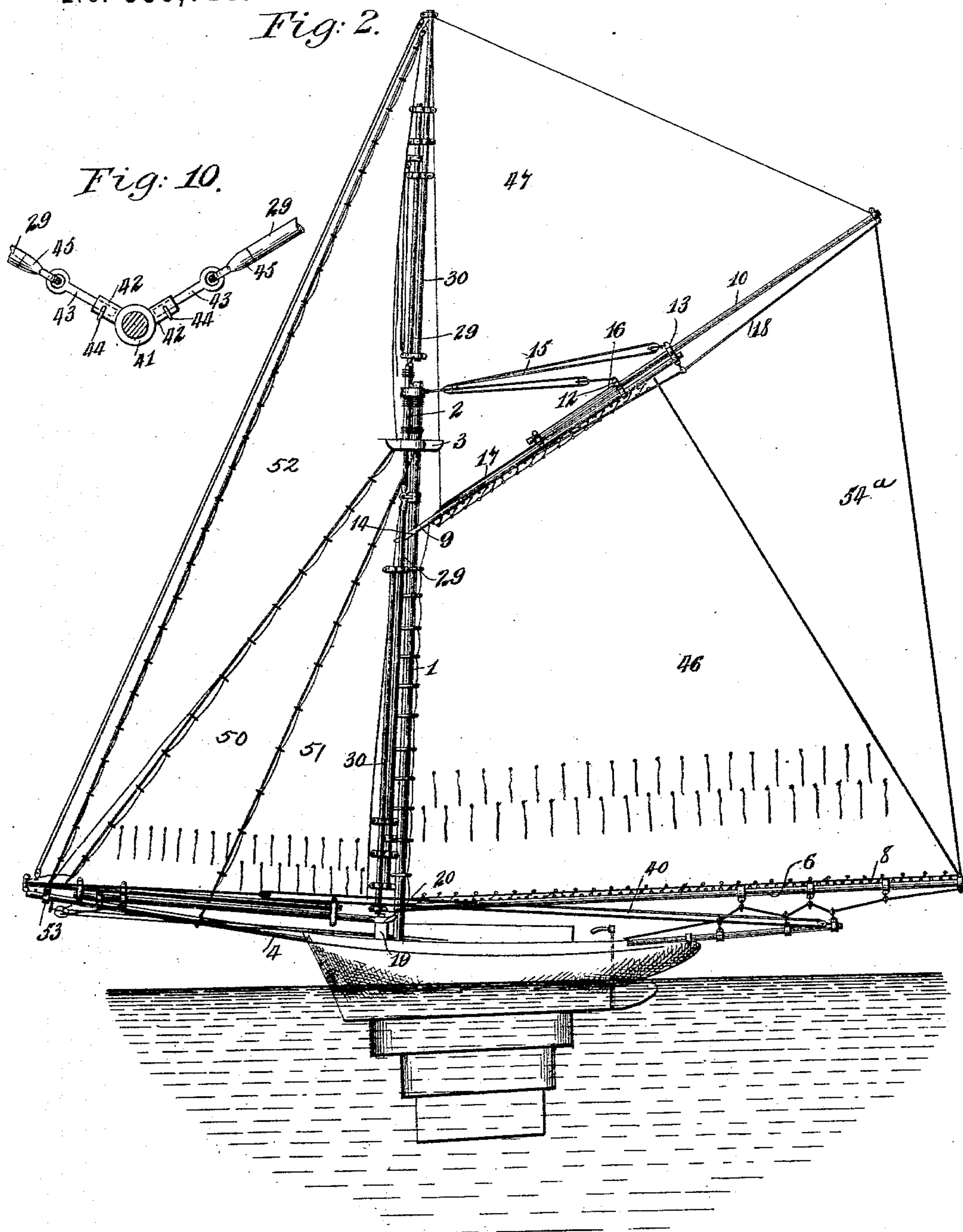
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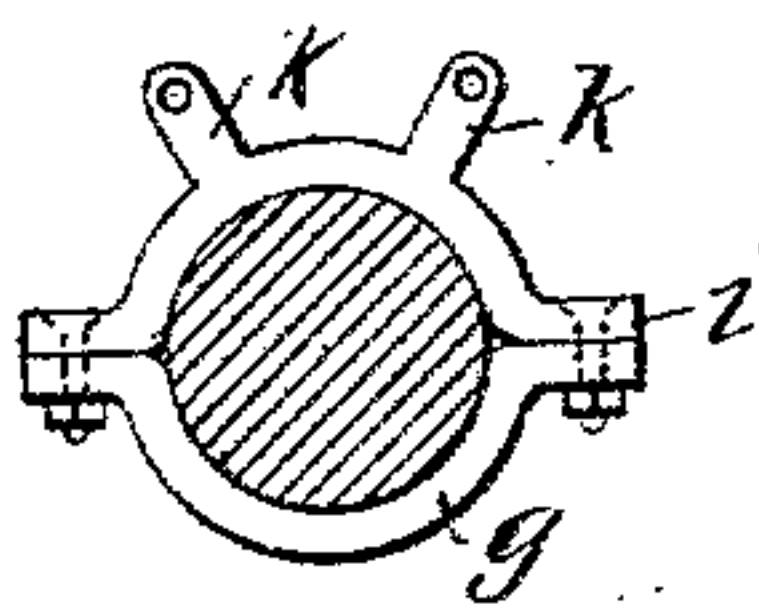


WITNESSES:

John A. Rennie

J. B. Owens

Fig. 9.



INVENTOR

W. King
BY *Munn & Co.*

ATTORNEYS.

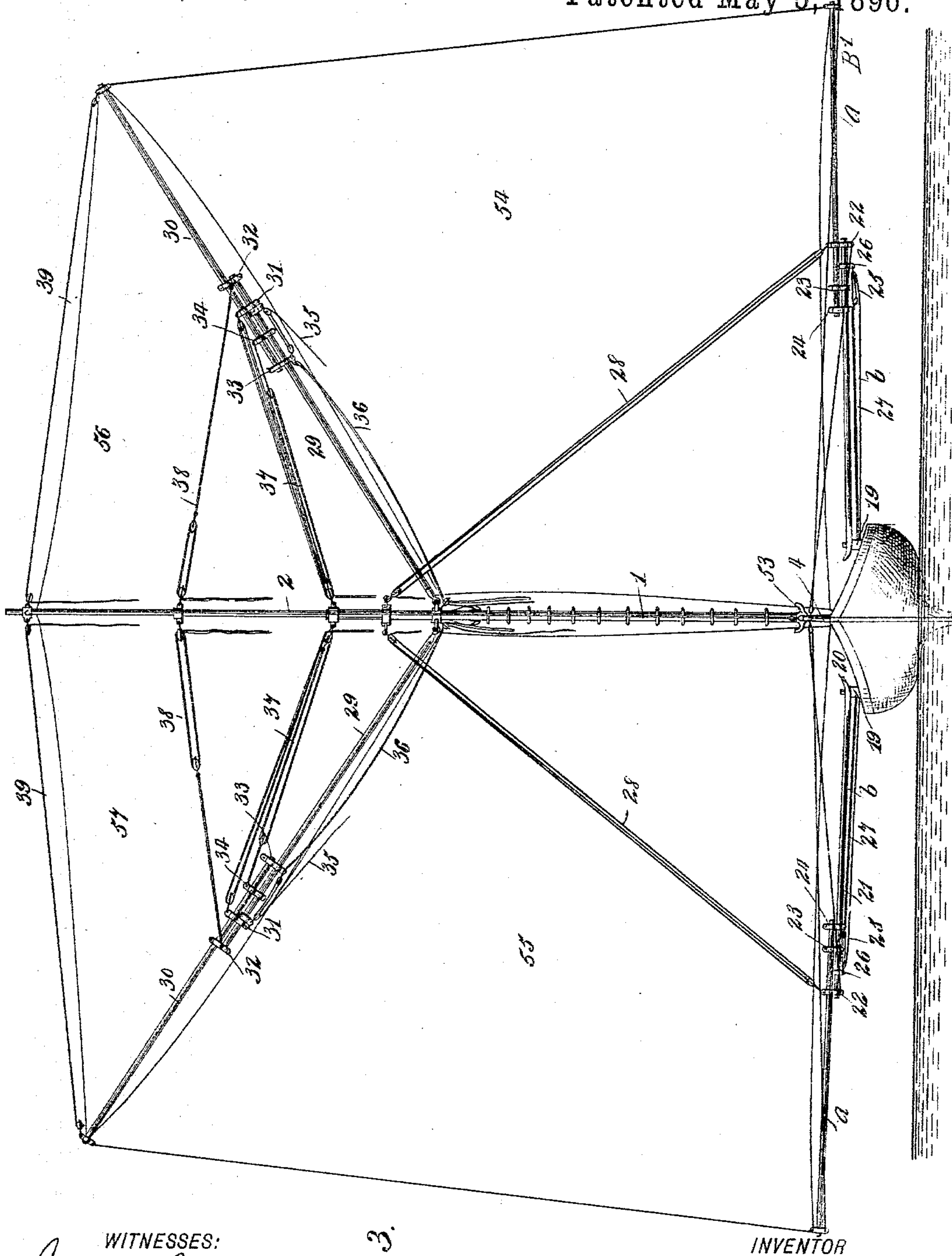
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WITNESSES:
John A. Rennie
J. R. Owens

Fig. 3.

INVENTOR
W. King
BY *Munn & Co.*
ATTORNEYS.

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Fig: 4.

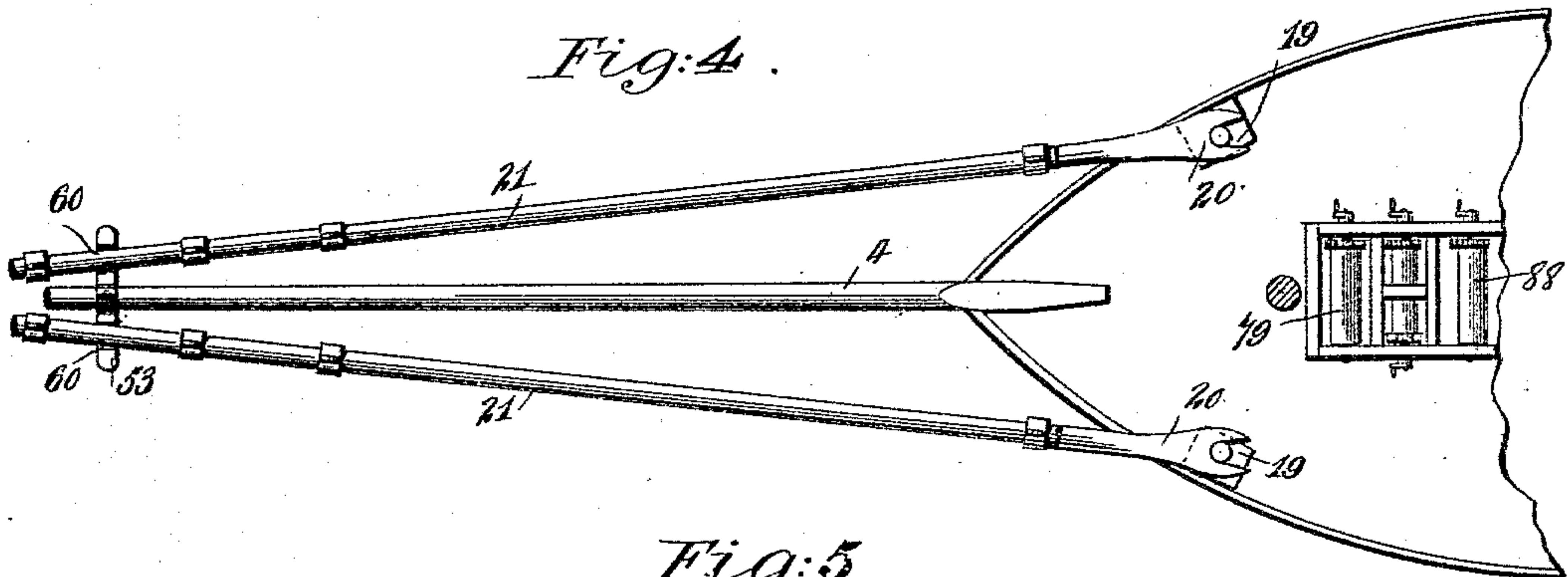
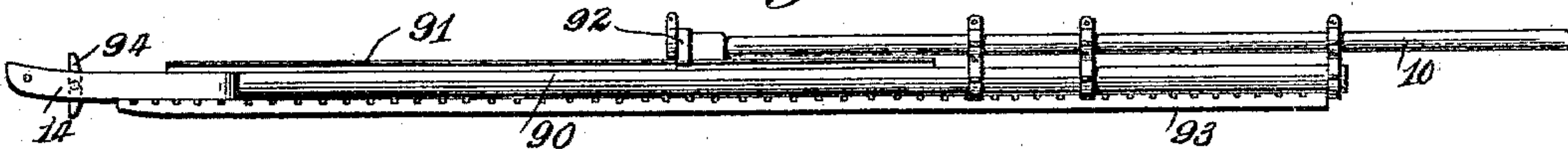


Fig: 5.



Fig: 6.

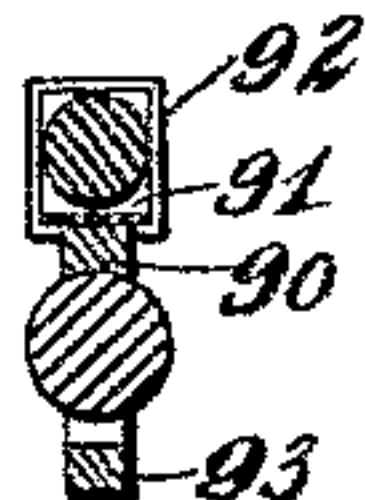


WITNESSES:

John A. Rennie

J. R. Owens

Fig: 7.



INVENTOR

W. King
BY *Munn & Co.*

ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM KING, OF NEW ORLEANS, LOUISIANA, ASSIGNOR OF ONE-HALF TO
RICHMOND J. MARTINEZ, OF SAME PLACE.

SAILING VESSEL.

SPECIFICATION forming part of Letters Patent No. 559,718, dated May 5, 1896.

Application filed August 3, 1895. Serial No. 558,142. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM KING, of New Orleans, in the parish of Orleans and State of Louisiana, have invented new and useful
5 Improvements in Sailing Vessels, of which the following is a full, clear, and exact description.

The object of this invention is to provide a sailing vessel which will be capable of carrying an increased amount of sail; and to this
10 end the invention consists in an improved construction of spars, whereby this increased amount of sail is made possible.

The invention will be fully described hereinafter and finally embodied in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

20 Figure 1 is a side elevation of the vessel, showing the spars and showing one manner of arranging the sails thereon. Fig. 2 is also an elevation showing the spars in a different relation. Fig. 3 is a front elevation showing
25 the spars in still another relation. Fig. 4 is a plan view illustrating the bowsprit of the vessel and the parts arranged therewith. Figs. 5 and 6 are detail views illustrative of the main-gaff. Fig. 7 is a detail section on the
30 line 1 1 of Fig. 5. Fig. 8 is a detail view showing the spars provided with a double topsail. Fig. 9 is a detail view showing the construction of a band for use on the improved spars; and Fig. 10 is a detail view
35 illustrating the manner of pivotally connecting the spinnaker-gaffs to the mast.

I will first describe the construction and arrangement of the spars of the vessel and show the various applications of the sails
40 thereto.

Referring particularly to Figs. 1, 2, 3, and 8, the reference-numeral 1 indicates the mast, which is stepped in the forward part of the hull, as will be more fully explained herein-
45 after, and which has a topmast 2, mounted thereon by means of the cross-trees 3, all of which is of the usual construction. The boat is provided with a bowsprit 4, which is extended out forward from the bow of the boat
50 and braced in the usual manner, and with a stern-bit 5, which projects rearwardly from

the stern of the vessel and is also suitably braced. Operating at the base of the mast 1 is the main-boom 6, and this is provided with a jaw 7, which embraces the base of the mast. Secured along the outer side of the boom 6
55 and extending throughout the length thereof is a notched plate 8, which is provided to receive the cords holding the mainsail in place. Fig. 2 illustrates this construction.

The main-gaff is composed of two extensible sections 9 and 10, slidably mounted on each other by means of the bands 12 and 13, the bands being fixed to the extension-section 9 and loosely embracing the outer section 10. The section 9 has the usual jaw 14, which
65 embraces the mast, as shown. Connected to the bands 12 and 13 are the halyards 15, which are connected also to the upper end of the mast and are provided to raise the main-gaff.

70 The band 12 has connected thereto a pulley 16, over which the halyard 17 operates, and this halyard is employed to extend the sections 9 and 10 of the main-gaff, which operation is effected by drawing on the halyard 17, and owing to the relation which this has with the pulley 16 the sections 9 and 10 are caused
75 to move together or to be extended. A down-haul rope or halyard 18 is provided and connected to the section 10, the said halyard being provided to draw the sections of the gaff together when it is desired to nest or house these parts.

Rising from each side of the hull of the vessel and slightly forward of the mast 1 are the steps 19, the same being one for each side and provided with reduced and rounded upper ends, which respectively receive the jaws 20 of the spinnaker-booms 21. The spinnaker-booms 21 are one for each of the steps 19, and each comprises two extensible sections *a* and *b*, the sections *b* being the inner sections and each having secured to its outer extremity a band 22. These bands 22 slidably embrace the respective sections *a*, and said sections
95 *a* have fixed to their inner extremities the bands 23 and 24, the said bands 23 and 24 being two for each of the sections *a* and being slidably engaged with the respective sections *b*. A halyard 25 is connected to the rear of the bands 24 and to the respective
100 bands 26, which bands 26 are secured to the

extremities of the inner sections *b* of each spinnaker-boom. This halyard 25 is provided to extend the sections *a* and *b* in the setting of the spinnaker-booms. The bands 24 are each provided with a downhaul 27, the same being provided to move the sections *a* of each spinnaker-boom inwardly in the operation of nesting the said booms. Reference to Fig. 3 will show that I provide the stays 28 and their associated blocks for sustaining the spinnaker-booms 21 in a horizontal position.

Each spinnaker is provided with a gaff, and these gaffs are composed of two sections 29 and 30, the sections 29 being the inner sections and having fixed to their outer ends the bands 31, 32, and 34, which slidably embrace the sections 30 of the spinnaker-gaffs, and these sections 30 are in turn each provided with a bracket 33, which embraces the adjacent inner section 29. Thus it will be seen that the two sections of each spinnaker-gaff are mounted to slide on each other, and by means of the four bands with which each gaff is provided these sections are braced with all necessary rigidity. The bands 32 and 31 of each spinnaker-gaff are provided with halyards 35, the office of the same being to extend the sections of the gaffs, while the bands 34 of each gaff have a downhaul-halyard 36 for reversing the operation of the halyards 35. These halyards are supplied with suitable blocks and other fixtures, as will be understood without detailed description.

In order to raise the gaffs of each spinnaker and to support them at the proper elevation, I provide the halyards 37, which are of the usual form, and which are connected to the bands of the sections 29 and to the topmast 2. Auxiliary halyards 38 are also provided for the same purpose and secured to the sections 29 and to the topmast 2. Still further, halyards 39 are provided and secured to the extremities of the respective sections 30 and to the peak or truck of the topmast, the purpose of the last halyards being to sustain the outer ends of the sections 30 against the weight of the sails which will be connected thereto.

The stern-bit 5 is provided to accommodate the lengthened form of the main-boom 6, and by reference to Figs. 1 and 2 it will be seen that a suitable arrangement of blocks and sheets is provided whereby this main-boom is regulated. The spinnaker-booms 21 are also supplied with the necessary sheets 40, as shown in Figs. 1 and 2, and these sheets are arranged fore and aft, so that the booms will be braced either way.

Fig. 9 shows the manner of connecting the spinnaker-gaffs to the mast, and this consists in a band 41, fixed to the upper portion of the mast and provided with sockets 42, the same being two in number and projecting radially from the bands. Fitted within the respective

sockets 42 are the pins 43, which are held therein by means of keys 44, and the said pins 43 have pivotally connected to their outer ends the respective sleeves 45, in which the sections 29 of the respective spinnaker-gaffs are fixed. Thus it will be seen that the spinnaker-gaffs are mounted with a pivotal movement, which is equally universal to that furnished by the usual jaw and with much more security; also this improvement dispenses with the necessity of halyards for arranging and supporting the gaffs.

Figs. 5, 6, and 7 illustrate the construction of the main-gaff, whereby the sections thereof are made capable of sliding readily one upon the other, and this comprises a beam 90, extended longitudinally of the upper section 9 of the gaff and having a plate 91 at its upper side, which has edges overhanging the corresponding sides of the beam and which edges are embraced by the lower and inwardly-extended portions of the band 92, in turn secured to the inner extremity of the section 10 of the gaff. By these means it will be seen that the section 10 may have easy sliding movement on the section 9, and also that the two sections will be retained in proper alignment and with all proper and desirable rigidity. The under side of the section 9 is also provided with a beam 93, having notches in its upper side, said beam being similar in construction and function to the notched plate or beam 8 of the main-boom 6, as hereinafter described. The jaw 14 of the section 90 of the boom is provided with a shoe 94, which bears against the mast and which is pivotally mounted in the jaw, and with balls 95, the same being mounted on a wire or rod extending from one of the jaws to the other. These balls 95 are adapted to lie on one side of the mast and the shoe 94 will lie on the opposite side.

Having now described the construction and arrangement of the spars of the vessel, I will proceed to explain the various ways in which sails may be bent thereon. Fig. 1 shows a mainsail 46 bent on the main-boom 6 and on the inner section 9 of the main-gaff. The extension 10 of the main-gaff carries the bonnet 54^a of the mainsail, which is held on the said gaff and on the main-boom. A topsail 47 is also provided and carried by the extended main-gaff and held at the truck of the topmast. The rigging shown in Fig. 2 comprises a mainsail 46 and its bonnet 54^a, together with a maintopsail 47. The jib-rigging in Fig. 2 is of the usual form and comprises a jib 50, a staysail 51, and a jib-topsail 52. In Fig. 2 the spinnaker-boom is contracted and nested in the crutch 53, secured on the bowsprit 4. When the topmast 2 has been carried away, either of the spinnaker-gaffs may be used in place of a topmast. This use is shown in Fig. 2, and there it will be seen that the starboard-gaff is raised on its mountings to form an extension of the mast 1 and carries a top-

sail 47. When the spars are so arranged, the starboard spinnaker-sail will be dispensed with. The port spinnaker-sail may be used, if desired; but in the view referred to the
5 port spinnaker-boom and its gaff are shown to be nested.

Fig. 3 shows the arrangement of the sails when the vessel is sailing before the wind, and comprises port and starboard spinnaker-
10 sails 54 and 55 and the port and starboard spinnaker-topsails 56 and 57, all of which is independent of the main-boom and its gaff. This comprises the whole of the sail plan when the vessel is running before the wind,
15 and by decreasing the number of sails it will be seen that the dangerous operation of jibing and handling other small sails is avoided.

Fig. 8 shows a spinnaker port and starboard topsail 58, which is well adapted to be used
20 in place of the spinnaker-topsails 56 and 57, and which consists of a single sheet having its outer ends carried by the spinnaker-gaffs and having at its lower corner a slit 59, which receives the halyards 15 of the main-gaff and
25 which permits the sail to project below the same and to a point commensurate with the jaws of the main-gaff. This sail may be used with or without a topmast and is independent of the same.

30 It will be obvious that the arrangement of sails above described does not exhaust, by any means, the variations which may be resorted to, and it will be understood that these variations may be made at any time and to any
35 extent without departing from my invention, and also that the arrangement of halyards and sheets shown and described is not as complete as will be necessary in the practically operative vessel; but all of this is a matter
40 of embodiment only and does not relate to the essence of the invention.

The crutch 53 at the outer end of the bowsprit 4 is for nesting the spinnaker-booms 21, and is preferably a transversely-extended
45 section of cast metal provided with a central eye which receives the bowsprit and with end

notches 60 for receiving the respective spinnaker-booms.

Having thus described my invention, I claim as new and desire to secure by Letters
50 Patent—

1. In a sailing vessel, the combination of the hull of a mast, two steps rigid on the hull of the vessel and arranged one at each side of the mast, the steps being independent of
55 the mast and near the sides of the hull and a spinnaker-boom pivotally mounted on each step, substantially as described.

2. In a sailing vessel, a spar, the same consisting of two sections, a band secured to each
60 section and slidably embracing the opposite section, a pulley connected with each band, and a halyard operating over the pulley, and connected to the remaining band substantially as described.
65

3. In a sailing vessel, a bowsprit, two steps rigidly secured one to each side of the hull, a spinnaker-boom pivotally mounted on each step, and a crutch carried by the bowsprit and having a notch at each side of the bow-
70 sprit, substantially as described.

4. In a sailing vessel, a centrally-disposed mast, a boom supported thereon, a main-gaff, a spinnaker-boom mounted at each side of the mast and each of said booms having two
75 sections slidably mounted on each other, and a spinnaker-gaff for each spinnaker, the said gaffs being each composed of two slidably-mounted sections, each being carried on the mast, said mast being the sole support of all
80 the gaffs, substantially as described.

5. In a sailing vessel, the combination of a mast, a main-boom thereon, a mainsail, a step rigid with the hull of the vessel and separate from the mast, a spinnaker-boom bearing on
85 said step, and a spinnaker-sail capable of supporting the spinnaker-boom, substantially as described.

WILLIAM KING.

Witnesses:

WILLIAM ROBERT CHRISTIAN,
SIDNEY ROBINSON.