

MIZEN TOP-GALLANT STAY-SAIL—FORE AND MAIN SPENCERS.



THE MIZEN TOP-GALLANT STAY-SAIL, Fig. 345,

Is bent to the hanks on the mizen top-gallant stay-sail stay, which leads, like the main one, through a block or thimble strapped to the main top-mast head, and is hauled down into the main-top like the main-top-gallant stay-sail into the fore-top: and sometimes it is triced up on a jack-stay, like the middle stay-sail. (See page 61). The shape of this sail depends on which of the above methods it is carried.

The HALLIARDS (w) are reeved through the sheave-hole in the pole of the mizen top-gallant mast, just above the rigging, or through a block lashed there, and bent to the peak with a sheet-bend. (See page 8). The down-hauler is reeved as before: The sheets are middled and bent to the clew, like those of the mizen top-mast stay-sail, leading clear over the mizen top-mast stay, and belaying to the foremost mizen shroud, or to the fife-rail, on each side.

It is in practice in the Merchant Service to *seam prick* the stay-sails (i. e. to sew them in a zig-zag manner) when they are made; because the strain of the sheets lies directly across the seams, from the clew to the tack.

THE FORE AND MAIN SPENCERS, Fig. 346.

The sail is made with a mast leech, which is bent to a batten or a jack-stay (a) on the mast; hoops are put on the gaff, and the head of the sail is bent to them, and the sail is hauled out upon the gaff by an out-hauler (b).

The sheet (c), which is either single or double, is hooked to an eye-bolt in the water-way.

The sail is furled by brails (d), of which there are generally three; the head brail is bent to the head cringle, and led through a block at the throat of the gaff to the deck: the middle brail is bent to a cringle in the after leech, as far distant from the gaff as the block on the mast is distant from the throat of the gaff: the lower or foot brail is bent according to the same rule.

The STUDDING-SAILS are for temporary use. These sails, like the others, derive their names from the masts to which they belong. Thus the lower studding-sails from the lower masts, the top-mast studding-sails from the top-masts, and the top-gallant studding-sails from the top-gallant masts, &c.

The LOWER STUDDING-SAILS are square at the head, foot and leech, and pieced at the earings and clews.

STUDDING-SAIL BOOMS—LOWER STUDDING-SAIL.



Previously to these sails being set, the top-mast studding-sail boom (a), Fig. 347, which rests in the boom iron, on the lower yard, is launched out, and the heel is secured by a lashing. At the outer end of the boom is strapped a block (b), which rests upon the upper side, and through it is reeved the top-mast studding-sail tack (c), one part leading aft to the gangway, and the other either before or abaft the boom, as occasion may require. Another block (d) is put over the boom end, or is lashed to it, hanging underneath, for the outer halliards of the lower studding sail (e). In merchant ships, when this sail is gored, having more cloths at the foot than the head, this block has a short pendent, which is retained to the boom further in by a selvagee strap. Over the boom end there is a pendent (f) with a block spliced in for a brace (g) to reeve through, for the better security of the boom when it blows fresh. After this, another pendent, called a *Topping-lift Pendent*, is put over, having a thimble spliced in the end: the top-burton tackle being overhauled, the hook of its lower block (h) is put through this thimble, and bowsed taught. This answers the same purpose that the lifts do to the lower yards.

The TOP-MAST STUDDING-SAIL BOOM is often got on the yard by the lower studding-sail halliards: and sometimes, one of the fore bunt-lines is cast off from the foot of the sail, and made fast to it. When the rigging above mentioned is put on, the boom, in men-of-war, is launched out by a boom tackle; but in small ships, the yard sheet (i), which is reeved through a block in the inner quarter of the lower yard, and through another at the outer one (k), is made fast to the heel-lashing of the boom, and the men on deck hauling upon it, launch it out. When the boom is small, it is first launched out by hand.

THE TOP-GALLANT STUDDING-SAIL BOOM, Fig. 348,

Rests in the iron (a) in the top-sail yard-arm, and the heel is secured to the yard with a lashing: there is no rigging to this boom but a thimble (b), which is strapped to the end of it, for the top-gallant studding-sail tack.

THE LOWER STUDDING-SAIL BOOM, Fig. 349,

Has a large iron hook (l), called a *Goose-neck*, driven into the inner end, which is hooked to an eye-bolt in the side, between the fore chains and the cat-head. At the outer end, a block (m), is strapped, for the lower studding-sail tack (n), to reeve through, one end of which is led through a block at the gangway. In the middle of the boom are two straps (o), with thimbles seized in them: one of these lies above, and the other below the boom.

The TOPPING-LIFT (p) is reeved through a block (q), spliced in a long span, which goes round the lower mast-head: the end is clinched to the upper strap (o) in the middle of the boom. In order to keep the boom from flying up, which is often the case when a ship rolls in going large, a block (r) is lashed to an eye-bolt in the bends, and a rope called a *Martingale* (s) being reeved through it, is bent to the other strap (o) in the middle of the boom: it is set taught on the fore-castle, and belayed to a timber-head. Men-of-war have a tackle hooked to the boom, to keep it down. A block (t) is lashed on the outer quarter of the sprit-sail yard, and the FORE-GUY (u) is reeved through it, and clinched to the middle of the boom, just without the strap: the AFTER-GUY (v) is clinched close to it, and reeved through a block lashed round a timber-head at the gangway. *To get this boom out and in, see pages 81 and 82.*

THE LOWER STUDDING-SAIL, Fig. 350,

Is bent to a short yard (w.) The OUTER HALLIARDS (x) are reeved through a block in a span, which goes round the lower cap, through the block (y) at the top-mast studding-sail boom end, and are hitched round the yard (w) with a fisherman's bend. (See page 8). In the Merchant Service there is frequently a pendent (a), having a large eye spliced in one end, and a block in the other; the eye is taken round the top-mast head above the rigging, and the block being put through the eye, the outer halliards are reeved through it, as before. When the lower studding-sail is taken in, and the halliards are unreeved, this block is stopped to the top-mast shrouds. In small ships, where no topping-lift is used to the top-mast studding-sail boom, a single block is hooked to the top-burton pendent, and the halliards are reeved through it.

The INNER HALLIARDS are reeved through a block (z) at the inner quarter of the lower yard, through another at the outer quarter, and bent to the inner head cringle. The *tack* is reeved through the block (c) and bent to the outer clew. The *sheet* (d) is middled, and the bight bent to the inner clew.

STUDDING-SAILS.



THE TOP-MAST STUDDING-SAIL, Fig. 351,

Is bent to a yard (e) with knittles and earings, and frequently laced to it. This sail has sometimes a reef-band in it. It is gored in the outer leech, according to the length of the boom and the squareness of the yard, and also at the head from the outer to the inner earing. The foot of the sail is generally parallel to the head. This sail is more gored in the Merchant Service than in the Navy, because there is a greater disproportion in the squareness of the lower and top-sail yards in the former, than in the latter. Half way up the outer leech, a cringle (f) is worked, having a thimble in it. The DOWN-HAULER is reeved through the block (g), seized to the tack clew, through the cringle (f), and bent to the outer yard-arm. The halliards (h) are reeved through a block hooked to an eye-bolt in the top-mast cap, through the jewel-block (i) at the top-sail yard-arm, and bent to the yard about one-third from the inner arm, with a fisherman's bend. (See page 8).

The TACK (k) is reeved through a block at the top-mast studding-sail boom end, and is led through a block lashed to the rail in the waist. The SHEET (l) is bent with a long and short leg: the long leg leads down before the lower yard; the short one has a thimble spliced in its end, and the yard sheet, (m) mentioned in the former page, is bent to it.

The TOP-GALLANT STUDDING-SAIL is gored at the head, foot and outer leech, and bent to the yard in the same manner. The halliards (n) are reeved through a block (o), strapped in a span round the top-gallant mast-head above the rigging, then through the jewel-block (p) at the yard-arm, and bent to the top-gallant studding-sail yard, about one third from the inner arm. The TACK (q) is reeved through the thimble (r) at the boom end, bent to the tack clew, and belayed in the top, or led to the deck alongside the top-mast studding-sail tack. The SHEET (s) is middled and bent to the inner clew: one end is led into the top, and the other made fast to the top-sail yard. There is seldom any down-hauler to this sail; but if there be, it is bent like that of the top-mast studding-sail.

The MAIN STUDDING-SAIL BOOM, which is now out of use, is hooked to an eye-bolt in the fore end of the main channel, and rigged like the fore one. The tack is reeved through a block lashed to a timber-head well aft on the quarter-deck. The after guy is reeved through a block lashed to an eye-bolt in the quarter piece: the fore guy is led through a block lashed to the fore chains. The MAIN TOP-MAST, and MAIN TOP-GALLANT studding-sail booms are rigged as the fore ones. The top-mast studding-sail tack is reeved through a block on the quarter, and the top-gallant one is belayed in the main-top, or led through a block in the mizen rigging, and belayed on deck.

The lower studding-sail is often set flying, that is, without a boom. When this is the case, Fig. 352, the sail is spread at the foot by lashing the clews (a) to a small yard: a span (d) is made fast to the yard, and the guy (e) bent to it.

The top-gallant studding-sail is set flying, in the Merchant Service, like Fig. 353, but it is very unsafe, and seldom practiced.

The two clews are lashed to the top-mast studding-sail yard-arms: the top-mast studding-sail down-hauler (f) is reeved through a thimble (g) on the top-mast studding-sail yard, and bent to the top-gallant studding-sail yard (p), which is made fast to the top-mast studding-sail yard with a rope-yarn before it is sent up.

The top-mast studding-sail halliards are hoisted on, and the slack of the top-gallant ones gathered in, and when the top-mast studding-sail (k) is up, the top-gallant studding-sail halliards are hoisted on, which breaks the rope-yarn, and lets the sail go up. If these sails be set *abaft* the top-sail and top-gallant sail, the top-mast studding-sail yard must be lashed to the top-sail yard, (which may be of bad consequence in a sudden squall), otherwise the weather yard-arm will fly forward: and if they be set *before* these sails, the lee yard-arms may injure the top-sail and top-gallant sail by pressing against them.

The royal studding-sails are set the same as the top-gallant studding-sails.