


$$
1003.2
$$

## The Complete

 MODELLIST: SHETYINGThe true and exact way of $R$ aifing the Model of any Ship or Veffel, firall or great, either in proportion, or out of proportion.
ALSO,

The manner how to find the Length of every Rope exactly : $A N D$
TABLes which give the true bignefs of every Rope in each Veffel.

Together with
The Weights of their Anchors and Cables.
Performed by Thomas Miller, of great Yarmouth Seaman; And Alafter in the Art of Rajifing the Model.
LONDON,

Printed by W. G. for George Hwrlock, and are to be fold at bis Shop at St. Magnus Church, at the hithes end of LordonBridge, near Thamss-Street. i 667.

18 מalgrgh arld

## Totbe Rigbt Worfhipful Major

## William Burton,

 ALDERMANof the Torn of great Yarmouth, Efquire. $S I R$,


Wifh you much peace and happinefs both in Soul and Body. Sir, I do very well know, and am fenfible, that you are a great deal better knowing in this Art of Rigging, then my weak fancy will ever attain unto, which did invite me to prefent You with my weak Works: And knowing You to be one that was ever very free to accept of the well meaning of any one; which did the more urge me to the performance of the fame, not fearing but it would have a loving acceptance from Your Worthy felf to publifh the fame. So defiring not to be tedious, but only to prefent my humble thankfulnefs for former Courtefies received from You, I fhall ever remain,

Your Worßips

Hиmble Servant

## THOMAS MILLER.

## 

 To the READER.

Enile READER $I$ do bera, prefent you will the Rure did Exint way if Rigging by the Alodell. But I Isuff confefs it is ly the perfivations offime that bave the trive tafte of it : for I did not intend to publinn it as $y^{\prime} t$, but tathing it into $A$ feriows confideraratipen, I thought it not conwentent ant tonger to obfiure the rifticedion of frits a trme liclut, and as it is truth, fo it is fo plain and eafle, that any one ali bough he could never before obtan to cut ont a jbips Rigging, may by shis way Rigg any slip fmall or great, with a wecks prattive or lefs. But if it wire balf focalic again as it is mhich is almnft tmpplfoble, y=t I fay, if it were focafic, it is pndfible a mank may bave the Book, and yet never conse to Kigg a ship, if he do not endevour to get the ufe of the Book, which is a thing that ma, joon be abt ainced.

Likenvfic, I could bave finewed a greas deal of Curiofuy in the Models and have draivn them perfectly like a ship: for, for Anl this way matter of drafting, few or nome gobeyond me. But I find it not of Rigging is convenicent, for at firft, I did to fo, and fome that 1 learked, mill hold true mere fo wife they could almof have left th: Galfita rune after in all Veficls, the Feather, that is, they were for afficted pith, ibe draft of the
Imall or ercar, Imall or grear, $\begin{aligned} & \text { but for thore Ship, they minded that more than the fubjlance that belenged to }\end{aligned}$ Rules by way it. So I have now in every refpect latid it domn in a more plain of p. oportion, manner, and as 1 find this Book 10 be accepted of, I fball prefents
formerly prin. formerly prin- manner, and as cannot you with another in the fusture. So I comilnde,
ted, hold, but will deecive thofe shas utult 10 them.

And remain yours

in all my Practice THOMAS MILLER.

## Infructions for the raifing of the Model of

 any Sbip or Vefel, fmall or great. Hen you go to raico the Model of any fip or veffel, you mult in the firft place know the lengeth of her Keel, and the defth in her Hold, and the breadeh ot her Beam.

Firlt knowing the lergth of the Ke-I, take Thr lenetb of th. length of the Keel off your Scale, ani i place the Kee?.
it on your faper that you intend to rarie your
Model on, making two pricksone with one point of the Compaffes, the orher with the other then diraw aline with your pen or penfil of black lead, as fiom $A$ to $B$.

Then take the depth of the Hold off from your :cale with your Compaffes, and fet one foot in the end of the Feel line at $A$, and with the other make a prick at $D$, and likewife from $B 10 C$ : then with jour keet Ruler and black lead, or pen, draw another line parallel with the keel, and that is the line for the firf Deck.

Then for the height between the firf and fecond Deck, which appea- The beight bereth in the figure following, to be 6 foor and a half, then take 6 foot twoce tbe fit and a half off from your Scale, and fet one foot of your compafies at $D$, or facond Dick and with the other make a prick at $E$, and likewife from $C$ to $F$. So muft you doe for the height between the 2 d . and 3 d . Deck, and fo for the Cabin and Coch and round Houfe above that, and for the fore-caftel all in the fame manner, and then draw lines from prick to ptick.

Then for the Stem raife a perpendicular line from the fore-part of To raife the the Kecl to the fecond Deck, then take two thirds of the depth in hold, Strm. which in the figure is I 3 foor, then fet I foot of your compaffes at $B$, and with the other mark a prick at $G$ : 0 o likewife $f$ et $I$ foot in the upper end of the line at $H$, and with the orher foot make a prick at $I$, then draw a line from $g$ to $I$ parallel to that from $B$ to $H$, then from that

2 A Rule for maft ing and jarding hy proportion.
outermolt liac, draw the Stem to the Keel with what iiveep you plea;e runging the top of your ttem 3 or 4 foot above the line, as it is in the figure, nen youmay draw it double as you pleaie, and he Keel likewife.
Voic. And when you draw your Deck-lines, ler your lower Deck-line run a foot or 2 beyond the en 1 of the Keel aft, and io in like manner all your Decks, and then joyn them together iomething rounding, that t. © Mode! may hive a Rake aft, and thew thip thape. You mult draw your Modal and Scal: together at ths Keel, as jou fee in the figure D, and note how many feet loever your Model is by the Keel, fo make and
Th: maticht of the sculle. divide the Scale into 15 equal parts, as is thewed, the a firftequal parts of the Scale divide into 20 feet, 6 of thoie feet are one Fathom, and II of tho.e feet are two Fathom. And the other 13 divifions numbred by $10,20,30$, sec. to 130 are 10 feet a piete. By the Fathoms I meaiure the Iength of the Ropes, and alio the Canvais for the failes; and by the Scale oi ecyual parts, I meafure the Model, the larger you draw the Modals of your veffels or ilhips, the better you may lee to do your worke.
A Rule for masting and yarding by proportion, but for my purt I make no ufe of it, becanfe it will not bold.
The maia mal The Main-malt mult be twice and one half the lenget of the
The froc-Maf Tbe Fore-maft eight nintis of the Main-maft.
Hzan top-mai The Main-top-maft half the Main-maft, and the Main-top-galiantof tof-sallent-malt, half the Main-top-matt.
m, $\Omega$.
The fore-top-
The Fore-top-malt, half the Fore-maft, and the Fore-top-gallantMall, \& top-malt, half the Fore-top-malt.
gallant-Maip.
The solk-Sprit. Taz Bolt-fprit, the length of the Fore-malt.
Tue nifin $3 L_{1} / \beta$ The Afiffen-maln, the height of the Main-top-mat from the quarterer mollen top- Deck, and the Miffen-top-malt half that. Mal.

Ti: Main-yard 6 feaven parts of the Main-matf, and the Main-top-Main-9erd on Til-yard balf that, and Top-gallant-yard half that. yard.

> The ves of the Nodel.

The Fore-yard eight ninths of the Main-yard, and the Fore-top-fail- Forc-jard o yard half that, and Top-ozillant-yard half that.

The Mifien-yardiomething fhorter then the Fore-yard.
Mifen jard.
The Sp:it-fail-yard and Crof-jack-yard both one, the Crof-jack-yard Sovii-fail-gard half the Miffen-yard.
yard.

The Sprit-fail top-fail-yard half the Sprit-fail-yard, and the Sprit-\{ail Sprit-fail top-top-malt almolt half the Sprit-fail-ya:d.

Note, That all the Imall yards, are half the great gards from Cloat to (leat, or fromens saring of the Top-Jail no anosher, jos may bave Note. what rard armes jou pleafe.

## The Use of the Model.

IN theie figures you fee two yards one Hoylted, and the other Lower- $v \int_{c}$. ed or a Portlens, the top-fail-yard alio one Hoyred, and the other down upon the Cape, io mult you make in afl the Models you raife: the yard a portlens pives the length of top-fail-heats, and lifts, and tye or Jeers and Bunt-lines, and Leech-lines, or Halli-yards meafuring from the Hounds to the Deck.

The yards Hoyfted gives the lenuth of Clew-lines, Brales, and Clewqaspers, and Tackles, and Sheats, and Bow lines.

In the fmall ones, is fhewed the length of Shrorvds and Top-fail Halliards with Brafes, and Lifts, as in the figure $B$.

In the furure $A$ is flewed how to give a azar eflimation, how many yards of Canvals is in 2 main Courle. Whin you come in any Ship o: Veffel, and defire to knowv how many yards of Canvais is in the main or. fore-Courie: Firft, you mult know the depth of your fail, and the breadeh of the Canvafs that the fail is made of, then take off fo much from the Scale as you fee the Cloth is in breadth, and place fo many clorhs is the Model on the main or fore-yard, the fame depth that the rail is on, as you fee the main-Courle in this figure: After you have io done, then take a Fathom or tivo off from your fcale, and meafure every clorh up and down as you do the Ropes, and that gives you tit nu:nber of yards.

Likewife

1. Wienie, here is hewed in this figure the way how to place your Garnet and Runner, and Sprit-fail-top-fail, Cran-lines, and main lay, and fore tray to find the true length of them.

In the figure $C$ is theived the way to find the number of yards, that is in a main or fore-to p-fail, the fame way that you mature one fail, you molt measure ail,

But this you mut observe, that you are to place your middle Cloath frt in a rop-fail, and from thence to each yards arm, that your goers at the Clew may fall out right.
sa litenife to Likewise it fheweth the length of main-top-fail-ho $n$-lines, and fo find the tenth you mutt do to find the length of fore-rop- fail-bow-lines: draw only of all Rapes. a line from the top-rail-yard-arm, to themain-yard-arm with your pen, or black-lead: Note from the further yard-arm, that you may take them at the largeft extent, and 10 your Braces: in like manner, it thews alio the length of main-bow. line, and main-fieat, and maintack and fingle-Ciarnst.

All this I could have performed in one Model, but then it would have been fo full this you would tot fo well hive undertiood it : but you may perform all in one figure, inftarching 3 or 4 thees of paper together, and then your Model will be of a very good volume, for the bigger it is, the leffe errour will be, and your belt way to perform all in one Model, is, to draw your yarcis with black-lead only, especially the low fl yards, and then you may rub them out after you have meafured nut your Rioring, leaving only a little feck or foot, at the end of each yards-arm, that you may the eafier draw them again, if you have occafion, the two foots will give you the length of them again without any more trouble, and then it will not be fo eafie for any one to teal away the ute of your Model by, as he that hath an ingenious pate my do: and to prevent that, I feidom let any yards be feen, but only leave two little pricks to give me the length of them, at any time, when occation requite.

And then I dray them out again with black-lead, and meafure out my Ricing, and write them in a piece of paper, and then ivith the crums of white bred, and a dean linen cloth, I rub them out again, and fo leave only the matt landing.
The fore-sbaz- Then for the Channel bines, if you fee the ship or Veffel, then welbiacs. you know the better where to place them; or if the be upon the flocks, that they be not brought too, he that is a Seaman will give a nee gucis where they flould $6=$, and if they be not placed jut in the place

## The vep of itse AFodel.

where they thould bsit is no great matter. But rather endeavour to place them a little too low rather than too high.

Or two thirds of the fay or main-matt is a a.good Rule for your The levglt of Shrowdes, for your ftay mult be as long as the maft.

Then for the placing of your malt, there is very feiv but knows the To pluce the main-maft mult ttand in the middle, and to that end ralic a pe:pendr- Main maffs. cular line from the middle of the Kecl, making a liule tlep fome tivo foot, or two foot and a half, as is in the figure $D_{\text {at }} X_{\text {; }}$; if your tiep be not $\{0$ high as it fhould be, or if it be a little higher then it flould be, io it be not tivo muci, it breaks no iquare, fo long as you give a handiome allowance for the end of your fhrowds to turn up.

Then after you have raifed the mall a his proper length, then allow for the malt-head, and their place, the crois-trees, but if you meafure your maft as it is allowed any Boat-[Wain, to do: then you muft mind the heigth of the matt-head, and it is the fureft way to know exayty the length of the malt and yards, and then you cannot work amis: for I have meafured very few malis, buid difficr fomething, therefore I advile you to know the true lenght of your maft and yards.

Now the fore-maft ftands juft upon the breft hook, and there you To place the mult place a thing imitating a fep, of fome 6 or 7 foot high, or 4 fore maf. or 5 foot high, according as the fhip or veffel is in bignts's, or according as you fee the fore-malt will fandin proportion to the main-maf, as youreye will give you that: and as you fee it agrees with the mainmaft in height, io place your feep as in the Model $D$, at $L$ : and if it fand balf a foot too high or too lorv, it is no great matter fo long as the fhrowdes are long enough.

Now in placiog your Miffen-maft, your judgment muft bi betree $T$ o place the there, thao about any maft: becrule there is no juft Rule to be given mi ifin maf. but only your eye mult be your beft Rule.

Therefore, after you have raifed your Model and placed your mainmalt, then obferve the Model well, and you may foon perceive where you fhall place the miffen-maf: And this obirerve, that if it becomes not the Model, it will not become the thip, neith:r thit nor no maft nor Rigging about the fhip or venel, for after you have raifed the true Model of any fhip or veffel, it is juft then, as if you were placing of the mafts in the Veffel ie felf; and afteryou have placed your milts and yards, you may meafure out your Rieeing asexictly as if you fhould measure from place to place on Boordthe hip or veffes, with a leadline or fpan- yard svhere every reppo fhould go.

The Belf- Now the Bolt-iprit you mult place as you fee in the Model $D$, at $H$
Jprit. $\quad$ F $C$, lectung it run fronn fix foot beyond the fore-malt; this mof be

For the

 done in a hip, but in orher veffels they are placed orherwayes, therefore you mult place them as you tee the veffel requires. Decks o the height in the feridge, and great Cabin and roundhoure if the have any, and likewife the Fore calle, for my own part I never fee no fhip nor velfel fince I bigan to prattice this Art: But I could give a nee eltimation of her heights between Decks, and the like without meafuring, if I did but fee the fhip or vafill, but indeed if I went a Board, I could gueis the better by my own height. And 1 would be fure to account them rather with the loweft then with the higheft, that my Rigging fhould fall out Ing enough.

## The prattice

Your only way to be expert in raifing of the Modit, is to make a Book of large and good paper Royal, and what hhip or veffel foever you come in, you may by difcourfe with the Mafter or Carpenter come to know the true lengeh and depth, and breadth, and height of mafts, and length of yards.

Or if fhe be a Merchant fhip, you may meafure the depthin hould and bread h of the beam your felf, when the is lioht and hef Ballalt, cut, and likewiie when the lay a fhore, with a Carpenters Rule meafure the Keel and the mafts and yards likewife, when you have opportunity, and then raife the Model of her in your Book.

And likewife, if you be in any hip that lay op in Winter, then you have an opportunity for your own fhip, or any fhip or veffel that lies by you to get the Model of them, then place them in your Book of Models, then at any time if you fall with a veffel to rigge of any of them demenfions, there you have the Model raifed to your hand,

And likewile, when youl are at home in the day time or in the even. ing, you may up, in your flate or on paper, with your black-lead Penfit, that jon may rub out. as before is mentioned, raife an hundeed models by fuppofition, which will bring your hand into the way of raifing a Model complete and handiome.

And likewife, you will by that come to be expert and perfeet in giving allowance for the fweep of mafts-heads, and blocks, and dead-men-eyes and the like: That when you come to raife a Model by a true proportion, you may go through with your work without fear : for it will
come to you with eafe enough if you take but any pains at all to practice it, and not to do 25 a gteat many do, so buy Books and be a little fond of them at the prefent, and afteriward lay then up, and rever practice by them till they have occafion indeed to make ule of them, and then they run fo head-long upon the Work, thas there is one gro:s errour o: other in their work, and then to like themelelves wholl, they impute the fault on the Book or on the Auchor of it, when the fauld lyes wholly in themeclves for want of practice.

Therefore it is very good when you have opportunity, to be praetifing to raife a Model, for you cannot be too pe-feat, becauie the Rigging of a fhip is a thing that camnot be done in fecret, and you have many eyes upon you, and if you do not complete your work, it makes fuch a blot in your Scutchzon that it will icarce were out in ieven years time, for every one will be fpending his verdiet, as well he that knows nothing, as be that doth.
Therefore to prevent all dangers and to fop all mouths, I advile you once more to be very diligent in prastifing your felf, till you find that you are perfeat in the work, which you will foon be by obferving the Rules wich I have before mentioned.
For the meafuring of the Rigging you mult have a penfil of black- For the mealeid on purpofe for thatufe, then any Rope that you defire to meafure; furing of the firlt, draw a line with the black lead, and then meafure it, and put that Rigging. out agzin, then your Model will be the clearer to find the reft of the Rigeing

As for Brafes draw a line from the yard-arm to the place where the For Brafes. Brafe fhould go, you may draw it double if you pleale, as the B-ales go, o: you may draw but one fingle line, and fo a ake a Fathom off from your Scale, and where it goes double tell two Fathom, and where it goes fingle tell but one.

And likewile fore-top-fail-fhats, draw 2 line from the top-fail yard 7 op-failthat is upon the Cape, $2 s$ you fee in the Modil $D$, down to the yards. Sheats arm, that is a Portlens, as you fee it is from the fore-top-fail-yard to the fore-yard, then take one Fathom or two off your Scale, and meafare from the top-fail-yard to the fore-yard upon the line that you have drawn, and then from the fore-yards arm into the maft, and fo down to the fore-caltle, and there you have the jult lengeh of your top-failSheat, and it is left to your own difcretion what tray you will allow: fo likewife mult you co for your main-top-fail-fheat, and fore-top-gallant-clew-lines, and top-fail-clew-lines, you mult do as you fee in
the Model, and fo for any Ropes whatfoever, if you will have th:m go after your own way, draw a line with your black-lead where you will have it 80 , and 10 meafure tha length of it, And there you have it (as a man may lay) to an Inch. So I hope I hall not need to fill your head with any more flories, for here is directions enough for any one that hath any wit at all. And he that fees how to mealure one Rope, may
The fays. But this, Nute, That when you mazfure the ©lays, you mult meafure the Collar firft double 3 or 4 Fathom, according as you fee the Model require it, for as it becomes the Model, fo it will become the Ihp or veflel, and jou mult know that the Collar belongs to the length of the ftay.
The pencurts of But for the Penents of Brafes, you muft meafure them firft 3 Fathom Bisfor. or 3 Fathom, as you fee it will become the Model, and there mark the Block, and fo meafure the length of the Brace from that.

So defiring you to mind well what is before mentioned, for I have cut it off as briefly as polfible I may, that you might the eafier get it by heart, which with fmall pains you may, and then you fhall be the better able to difcourfe, and likewife to complete your Work.

## Here followeth the bignefs of Ropes, for fuch Mafts as follow.




The bignefs of the Bolt-Jprit-rigging.

Penents of fheats<br>Sheats<br>Clew-lines<br>Garnets<br>Penents of Erafes<br>Brafes<br>Halliards<br>Tye<br>Bunt-lines<br>Horie<br>Lifts

| Tbe bigne/s of the fprit fail-sop-rigging. | inc. |  | 3 ${ }^{3}$ |  |  | $\left\lvert\, \begin{aligned} & 6 \\ & \text { inc. }\end{aligned}\right.$ |  |  | inc |  |  |  | \| 12 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Shrowds | 3 | 3 | 2-1 | $2 \frac{1}{2}$ | 2 | 2 | 1: | $2!$ | 2 ' | 2 |  |  | 1 |
| Laniards | 2 | $1{ }^{\frac{1}{4}}$ | $\mathrm{I}_{4}$ | $1 \frac{1}{3}$ | 1 | 1 | 1 | 2 | - | 1 |  |  | 1 |
| Penents of Brales | $2:$ | $2!$ | 2 | 2 | 1-1 | $\mathrm{I}_{1}{ }^{\text {\% }}$ | $\mathrm{I}_{1}{ }^{\prime}$ | 2 | $1 \frac{3}{4}$ | I: |  |  | I |
| Brales | 2 | $1 \frac{1}{1}$ | ${ }_{1}^{1}$ | I: | $\frac{1}{2}$ | 1 | 1 | I, | 1 | 1 | 1 |  | 1 |
| Tie | 3 | 3 | 3 | $2 \frac{1}{2}$ | 2 | 3 | $1{ }^{\text {: }}$ | 2 | ${ }^{1}$ | 1 |  |  | I |
| Halliards | 3 | 2 | 2 | 2 | 12 | 111 | $1 \frac{1}{3}$ | 2 | 1 |  |  |  | I |
| Elew-lines | 2 2: | 3 | 2 | 2 | $1:$ | + | 1 | 2 | 1 | 1 | 1 |  | I |
| Penents of Tackels | 3 | 3 | $2 \frac{1}{4}$ | 2 | $1:$ | \% |  |  |  |  | , |  |  |
| Fals to them | 2 | 3 | 1 | $\mathrm{r}^{2}$ |  |  | 1 |  |  |  |  |  |  |
| Lifts | 2 | 2 | $1 \frac{1}{2}$ | $\mathrm{I}_{1}^{2}$ | $\mathrm{I}_{2}$ | ${ }^{\prime}$ ! | 1 | $1{ }^{\frac{1}{1}}$ | $1 \frac{1}{8}$ | 1 | 1 |  | I |
| Puttockes | 3 | 3 | $2 \frac{1}{1}$ |  | 2 |  | 2 |  |  |  |  |  |  |
| Parrel-Ropes | 2 | 2 | ${ }_{4}$ | I. |  | $1:$ |  |  | $1:$ | $\mathrm{I}_{2}$ | 1 |  |  |



7 he Crofsojack.
Lifrs
Brács
Penents
Halliards


|  |  |
| :---: | :---: |
| - पुur ह1 fo thw m |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |



C 2
The Sheat-anchor 60 a $0003 \mid$ heat-anchor 29 oo of Shear-anchor 18 of po Belt-bower 56000 1 Beft-bower 25000 Belt-bower 1700
 Stream-anchor 250 oo Stream-anchor 90 o, Stream-anchor 420 Kedg-anchor 720 al Kedg-anchor $227 \mid$ Kedg-anchor 220

## 2

6
10

Sheat-anchor 4300 of Sheat-anchor 280 O' Sheat-anchor is 00 Beft-bower 40005 Belt-bower 270 o Beft-bower 1000 Small. bower 390 o 3 Stream-anch, 200 I 2 Stream-anch. 4322


$$
\begin{array}{lll}
31 & 7 & 11
\end{array}
$$

Sheat-anchor 35332 Sheat-anchor $2202 \mid$ Sheat-anchor 700 Beft-bower 340002 Beft-bower is 0 o Belt-bower 600 Small-bower $31 \begin{array}{llllllllllllllllll}11 & 2 & 2 & 7 & \text { Small-bower } 9: 0 & 0 & \text { Small-bower } & 5 & 2 & 0\end{array}$ Stream-anch- 11 |  | 3 | 2 | 5 | Stream-anch. 5 | 0 | 2 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | Kedg-anchor 4000 al Kedg-anchor 2000

$$
4
$$

8

$$
12
$$

Sheat-anchor 3200 of Sheat-anchor 270 of Beat-anchor

| Eeft-bower | 30 | 0 | 0 | 0 | Belt-bower | 23 | 3 | 5 | Belt-bower | 4 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 0 | 0 | 0 |  |  |  |  |  |  |  |  |
| Small-bower | 27 | 0 | 2 | 2 | Small-bower | 23 | 0 | 0 | Small-bower | 3 |
| 2 | 3 | 3 |  |  |  |  |  |  |  |  |

Cables


cables of 17 |cables of 15 |cables of 13 | cables of | 16 | cables of | 14 | cables of |
| :--- | :--- | :--- | :--- | :--- |
| cables of | 11 | cables of | 9 |  |

$$
7
$$

$\begin{array}{lr}\text { cables of } & 10 \\ \text { cables of } & 9\end{array}$

10

| cables of 12 |  |  |  |
| :--- | :--- | :--- | :--- | :--- |
| cables of 11 | $\begin{array}{ll}\text { cables of } & 8 \\ \text { cables of } & 7 \\ \text { cables of } & 6\end{array}$ | $\begin{array}{l}\text { cables of } \\ \text { cables of } \\ \text { cables of }\end{array}$ | 8 |
| 7 |  |  |  | Weight

18

## VV eight of Cables

|  |  | $c$ | $q$ | A Cable of | 21 |
| :--- | :---: | :--- | :---: | :---: | ---: |
| A hes | doth way | 90 | 0 | 0 |  |
| A Cable of | 20 | doth way | 80 | 0 | 0 |
| A Cable of | 19 | doth way | 70 | 0 | 0 |
| A Cable of | 18 | doth way | 66 | 0 | 0 |
| A Cable of | 17 | doth way | 59 | 0 | 11 |
| A Cable of | 16 | doth way | 53 | 2 | 7 |
| A Cable of | 15 | doth way | 46 | 2 | 7 |
| A Cable of | 14 | doth way | 40 | 2 | 0 |
| A Cable of | 13 | doth way | 34 | 2 | 10 |
| A Cable of | 12 | doth way | 29 | 2 | 1 |
| A Cable of | 11 | doth way | 25 | 3 | 6 |
| A Cable of | 10 | doth way | 20 | 3 | 4 |
| A Cable of | 9 | doth way | 17 | 3 | 13 |
| A Cable of | 8 | doth way | 13 | 3 | 7 |
| A Cable of | 7 | doth way | 9 | 3 | 12 |
| A Cable of | 6 | doth way | 7 | 1 | 0 |
| A Cable of | 5 | doth way | 5 | 3 | 12 |
| A Cable of | 4 | doth way | 3 | 3 | 0 |

## An Index．

IN the firt Page is fleivec，how to raife the Modil of any flip， ir $v=$ ffel，imall or great．
In the lecond paide is thee ed a Rule for mafing and yar ing．
From the third to the ergh is Cheved the uic of the Mod 1 ．
In the firlt colymn of the $n$ nth page，where the figure of a ftands on the 10 ，is thewed the bigneis of liticing that is required in a thip，that the main－maft is 34 tnches threuch．

In rhe lecond coluan is thewed the bigneis of the Riring the main－malt is 32 inches tirough．

In the rord column is thewed the bignefs of Rigoing for a main－mift of ；oinches throu⿱⿰㇒一大口

In the fourth column is thewed the bignefs of Rigging for a main－ malt of 29 inches tlirough．

In the fifth columnis thewed the bi onefs of Rig ing for a main－maft of 28 inches through．

In the lixth column is thewed the $b$ gigels of $\mathrm{Ri}_{\text {woing }}$ for a main－maft of 20 tiches through．

Ir the ieventh column is theived the bieneis of Rigging for a main－ maft of 26 inches throuoh．

In the elohth column is thewed the bigne s of Rieging for 2 matn－ malt of 24 inches through．

In the ointh column is thewed the bignefs of Rioging for the main－ mall of 23 incies through．

In the tenth column is theived the bigneis of Rigging for a main－ malt of 19 inches through．

In the eleventh columb is theived the bigneis of Riging for a main－ maft of 13 inches through．

In the twelfth column is fhewed the bignefs of Rigging for a main－ matt of 13 inches．

In the tenth $\mathrm{Pa}_{2}$ e is fhewed in the r colamns the bigneis of Rigning for the fore－maft，anwerable for the main－maft，and mais top－ maft in the numth paje．

In the 12 coltimns of the eleventh Page is thewed the bignefs of （prit－\｛2！），and fprt－fail－top－mali Rivefing for fuch thips．

In the 12 columns of the twelfth Page is thewed tha bifineis of miffen－maft，and cro［s－jack Rigsing．

## An Index.

If: $1=12$ culumns of the thirteenth Page, is thewed the bigoels of


T0 1. 12 colimns of the fourteenth Page, is fhewed the bignols of - nu0 ion Mant R/aine.
14. Ife ix ciffens at the firteenth $\mathrm{Paj}_{\mathrm{g}}$, is thewed the bigneis of


In ine 16 pare is inewed by the $I$ : figures, the Anchors for feh Chips at a't to be malted and Riajed.

If tee 17 page is thewed by the 13 figires, the Cables for fuch Absit s .

In ite $t 8$ page is fhewed the weight of Cabls.
From a Cable of 21 inches to a four-inch-rope.
Inthe 19 page is hewed the Model of a great (oip, of an hundetd and 25 foot by the Keel, and likeivie the making of the Scale.

In fie 2 page is thewe the 3 imall models.
Likewile, Nore, that on the rop of evary column in the $9,10,11$, $12,13,14$, and 15 pages, thre is a figure iet, as thus, $1,2,3,4,5$, $6,7,8,9,10,11,12$, which is to direct you aright to complete a Welle nlips rigeing in bigneis.

And as for the length, the Model oives yonetat fo true, that you are! tuit feat, bat that fou filp will be well Rifeed.

So isaving you to your practice, an- whithec you a good proceeting is well ior your good as my credir, I con-flade, and Reit

Yours
T. M.

## FINIS.

