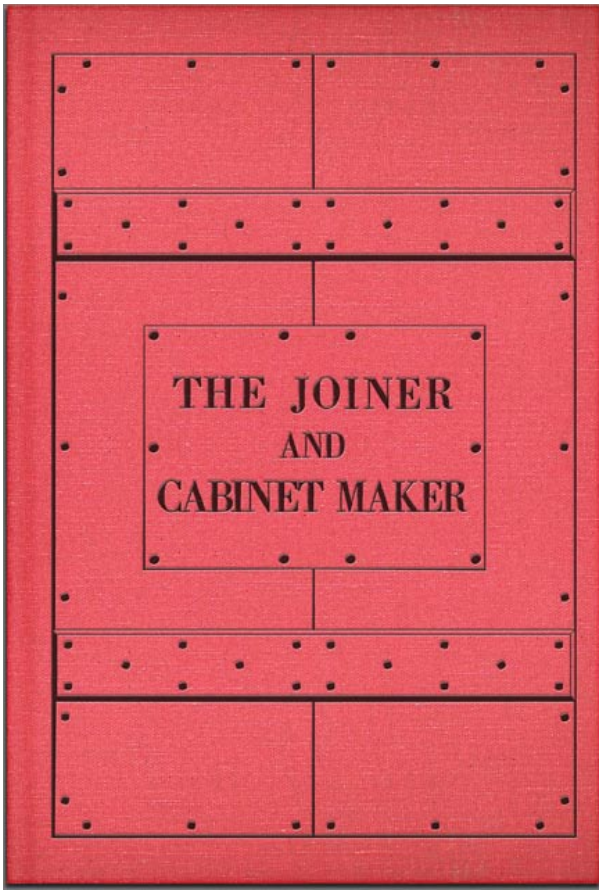
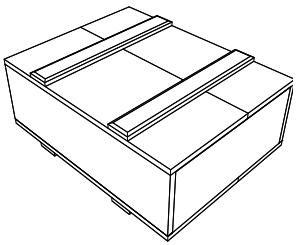
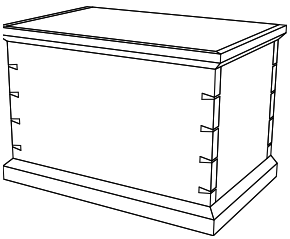
THE JOINER AND CABINET MAKER

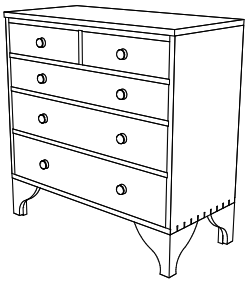


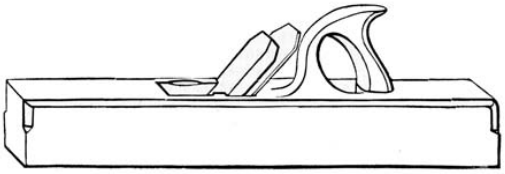
Enjoy this Preview Edition of
"The Joiner and Cabinet Maker"

Click here to order your copy directly from
Tools for Working Wood.com









The Joiner
and
Cabinet Maker

His Work
And its Principles

"Whatever thy hand findeth to do, do it with thy might."
Ecclesiastes ix. 10.

ENLARGED EDITION WITH ILLUSTRATIONS

by Anon,
Christopher Schwarz &
Joel Moskowitz

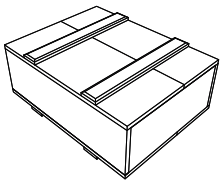
Contents

Part I: History

Part II: The Original Text

Part III: Construction

Part IV: Further Reading



Part I: History

Introduction

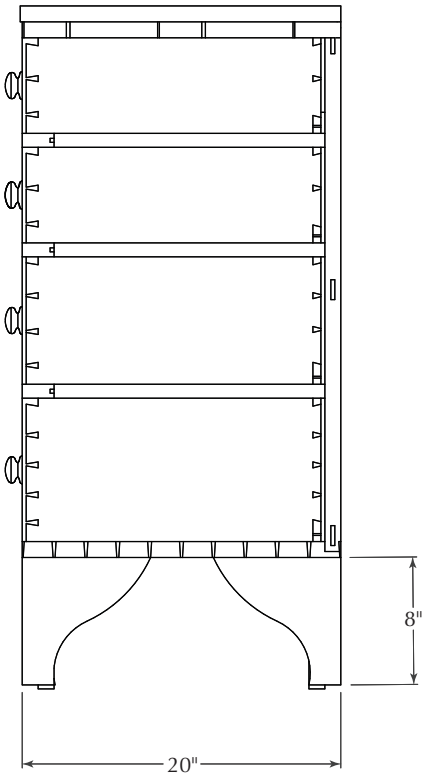
In 1839, an English publisher issued a small book on woodworking that has – until now – escaped detection by scholars, historians and woodworkers.

Titled "The Joiner and Cabinet Maker," this short book was written by an anonymous tradesman and tells the fictional tale of Thomas, a lad of 13 or 14 who is apprenticed to a rural shop that builds everything from built-ins to more elaborate veneered casework. The book was written to guide young people who might be considering a life in the joinery or cabinet making trades, and every page is filled with surprises.

Unlike other woodworking books at the time, "The Joiner and Cabinet Maker" focuses on how apprentices can obtain the basic skills needed to work in a hand-tool shop. It begins with Thomas tending the fire to keep the hide glue warm, and it details how he learns stock preparation, many forms of joinery and casework construction. It ends with Thomas building a veneered mahogany chest of drawers that is French polished.

Thanks to this book, we can stop guessing at how some operations were performed by hand and read first-hand how joints were cut and casework was assembled in one rural English shop.

Even more delightful is that Thomas builds three projects during the course of his journey in the book, and there is enough detail in the text and illustrations to re-create these three projects just as they were built in 1839.



Profile View (Section)

When we first read this book, we knew we had to republish it. Simply reprinting the book would have been the easy path, however. What we did was much more involved.

We have published "The Joiner and Cabinet Maker" with additional chapters that will help you understand why the book is important, plus details that will make you a better hand-tool woodworker. In this expanded edition, you'll find:

• A historical snapshot of early 19th-century England. Moskowitz, a book collector and avid history buff, explains what England was like at the time this book was written, including the state of the labor force and woodworking technology. This dip into the historical record will expand your enjoyment of Thomas's tale in "The Joiner and Cabinet Maker."

• The complete text of "The Joiner and Cabinet Maker," unabridged and unaltered. We present every word of the 1839 original (plus a chapter on so-called "modern tools" added in a later edition), with footnotes from Moskowitz that will help you understand the significance of the story.

• Chapters on the construction of the three projects from "The Joiner and Cabinet Maker." Schwarz built all three projects – a Packing Box, a dovetailed Schoolbox and a Chest of Drawers – using hand tools (confession time: he ripped the drawer stock on a table saw). His chapters in this new edition of "The Joiner and Cabinet Maker" show the operations in the book, explain details on construction and discuss the hand-tool methods that have arisen since this book was published.

• Complete construction drawings and cut lists for the modern woodworker. This will save you the hours we spent decoding the construction information offered in "The Joiner and Cabinet Maker."

We encourage you to read this entire book and attempt to build the three projects using hand tools. That is a tall order, we know. However, building the Packing Box, the Schoolbox and the Chest of Drawers will unlock the basic skills needed for all hand-tool woodworking, and it will offer insights into how traditional, high-quality casework was really built.

— Christopher Schwarz & Joel Moskowitz

In "The Joiner and Cabinet Maker," Thomas is called on to make everything from a rough shipping box to a fine dresser. But it should be realized that Thomas really doesn't learn how to do the finest work, with lots of inlay or carving, because typically there would not have been the demand for that in rural areas. If someone wealthy in the hamlet wanted to commission such a piece, he or she would go to a shop in a major city where they had the specialists. By the same token, an average middle-class person in his area, say a farmer, would have been happy to hire Thomas's shop to fit out a barn or make a door, but would have purchased mundane items such as chairs by buying them mass-produced and ready-made, in the latest style, shipped via railroad or one of the canals that covered the country, from the great chairmaking city of High Wycombe. There is no mention of a lathe in the shop in "The Joiner and Cabinet Maker," and in the few places where turned work is mentioned, the text implies that the work would have been either bought finished as a stock item or jobbed out to a local turner.

Power and Machines

Everything in Thomas's shop is done by hand although it would be common in the time period to get sawn wood from a power mill. Unlike in the United States, where mechanized factories drove out the handwork shop, Britain had commercial workshops without any power assists of any kind, even in London, at least until the Great Depression (1929). When power tools were used, the machines were considered dangerous, and it was common to have wood milled by specialists in a separate machine room. The local lumberyard performed this function for small shops in London even in the 20th century.

"… Incidentally the saw-mills charged one penny for each straight cut.

The saw-mill we used was close by in a courtyard, and my first visit was quite an experience. I had to take some drawer trays that had to be channelled and give them to the second man working the moulding-machine…

The planing machine was belching out large wooden chips in a cloud of dust. Machines were without dust extractors. It was years later before they were inserted.

I passed the first man working the band-saw and stopped at the second machine but it was unoccupied, so I placed the work on the smooth iron top. As [I] turned away I was grabbed by my collar, the operator swore at me saying, "Get the hell out of here." Unknown to me the machine was in motion

with an inch cutter revolving so fast it seemed stationary.

Of course the operator should never leave a machine with the power on. The spindle moulder was the charge-hand and while checking work done he left his bench for a moment.

That's how accidents happen.

In fact the great majority of saw-mill operators had the tops of fingers off. Today with more safeguards accidents are less frequent."

– Sam Clarke, "Sam: An East End Cabinet Maker," London, 1920s

At the time of "The Joiner and Cabinet Maker," the first stationary power tools were being widely introduced in England. Henry Mayhew's "The Morning Chronicle Survey of Labour and the Poor" mentions that planing machines were first introduced in London beginning in 1829. By 1850, when Mayhew published his work, sawing by steam and machine planing had completely altered the technical landscape (at least in London). According to Mayhew's informants, a good joiner should be able to plane about 20 deal planks "of the usual length" (12' to 16') in a day. With experience, that number would rise to 30. A steam planer of the time could plane 450 planks in a day. Mayhew's sources also mention that machines could saw out veneer finer, and with less waste, than human sawyers. At that time, the only work left for the remaining sawyers was in sawing wood for trades where the machines could not economically work the needed shapes. Moulding machines were also in use at this time.

None of the early machines would have been found in a typical workshop. Steam power needed constant maintenance and tricky belting, and it would have been expensive. Outside of the big cities, work was still done by hand. Where comparatively small lots of timber were sawn, it still made sense to saw the wood on site and avoid transporting (by pack animal) wood that later would be wasted anyway. Bodgers, turners in the chairmaking industry, honed this practice to its apex and would set up in the forest, cutting and turning green wood into chair legs on site for delivery to the factory, ready for the next stage of manufacture.

The Joiner's Trade

According the 1841 Census (via Mayhew), the first British census that broke down data by trade, the country had about 163,000 carpenters and joiners and 31,000 cabinet makers or upholsterers. These numbers don't

planed. Having planed straight one side of the board which he wants to square, Thomas lays it upon the shooting-board with the straight edge close along the cross piece, and holds it steady with his left hand. The end to be planed square hangs a little over the edge of the shooting-board; and against this end Thomas works the face of the plane, which for this purpose is laid on its side on the bench. Here again the jack is used first to take off the roughness left by the saw, and the trying-plane to finish the work up square. In planing cross-grain in this way, great care must be taken not to split off a little piece at each side, and the planes must be kept very sharp and set very fine. To do this well requires a good deal of practice; Thomas, we know, has had a good deal, and he manages at length to make his sides square and exactly of the same size, so as to fit whichever way he turns them; and so likewise his ends. This is a matter of importance, as the box will not be square unless it be carefully attended to.

"And now for dovetailing the corners," says Thomas, half afraid to attempt so large a joint, for as yet he has practised only on smaller pieces; but the same care and attention which make a good joint with small pieces will also with large ones. The gauge was set before to the exact thickness of the pieces for the sides and ends of the box; with this, Thomas in the first place makes a clear but faint[29] mark all across each end of his four pieces, both inside and out. He then begins to dovetail one corner of the box; suppose it to be the one nearest to us in fig. 2, [p. 44], which is a drawing of the box that we are seeing Thomas make. He

[28] *Up until now Thomas has used panel saws, both rip and crosscut, to dimension his lumber. Now he needs a finer saw for more accurate work. For this, he uses a "sash saw." The standard description of a sash saw is a 14"-long backed saw with about 4" depth of cut, filed rip. When you sharpen a saw with a hand file, there is enough variation in the filing so that you usually get a little fleam, which allows the saw to make smoother crosscuts. The primary use of a sash saw, or at least its original use, was in window construction. There are a couple points worth mentioning here. Because buildings have many windows, there is generally much more finish carpentry in a building than there are pieces of furniture. London circa 1839 had about five times as many joiners as furniture makers. Thomas is also training in a joinery shop that mostly worked on buildings and built-ins, so it makes sense that this is the type of saw he uses for precise cuts. The saw also has decent depth for use in a miter box. Because there were far more joiners and carpenters than cabinet makers, they certainly influenced the design, evolution and modification of many tools. And, as the 19th century progressed, manufacturers consolidated tool models so some of the highly specific designs of cabinet making tools evolved into more joiner-friendly designs.*

Specific planes for use on shooting boards existed then, but they are rare. It is far more common and just as easy to use a regular bench plane.

takes one of the shorter pieces and fixes it in the vice end uppermost, and with that face towards him which he intends to be the inside of the box. He then marks out upon the end with his pencil, the pins of the dovetail, as they are called. Six of them are about the right number in a box of this depth; one is hidden in the drawing by the projecting piece of wood which runs round the bottom of the box. One is made at each extremity of the wood, and the others at regular distances between them. The shape of the pins will be seen better in fig. 3, [p. 44], where a part of the joint is shewn on a larger scale, and with the two pieces of it not yet put together. From this figure, the reader will see the reason of the name given to the joint; these pins are something the shape of a dove's tail. It was on dovetails like this, with not more than three or four pins, that Thomas practised at first. It will be seen that the pins are made thicker towards the inside of the box than towards the outside. In a joint of this size they may be made a quarter of an inch in the thickest part, and an eighth in the thinnest; the two outside ones may be a little stouter. And care should be taken to make them regular, and with both sides sloping equally. Having marked them out on the end, Thomas next marks them square along the outside and inside as far as the gauge mark which he had before drawn across the piece of wood; and then he saws along the marks which he has made, taking care not to cut into the pins at all. The saw with which he does this is called a *dovetail-saw*[30], and is a smaller and finer-toothed sash-saw. Thomas now takes the piece of wood out of the vice, and lays it flat on the bench, that he may cut away the parts between the pins, so as to leave the pins standing out, as shewn in fig. 3. This is done with a broad chisel, as broad as can go between the pins without touching them; and the chisel is struck with a wooden hammer, called a mallet. Thomas begins to cut from the outside, placing the edge of his chisel not exactly on the gauge mark, but a little nearer

[29] *The author makes a point of telling us that the marking gauge lines should be "clear but faint." These days big, deep, visible gauge lines are considered by many to be the mark of hand work. The goal in better work was to avoid the marks, although they are common enough in old pieces of all qualities. If you mark the joint deeply or use a cutting gauge you will have to plane the sides deeply to remove the mark, or it will absorb finish and become more visible. With a slightly dull marking gauge the line will be shallow, visible enough (especially if enhanced with pencil) and just dent the wood. Only a tiny amount of planing is needed to remove excess marks, and the normal finishing process will not catch extra finish in any remaining line. In general, when using hand tools, minimizing deep scribe lines is a good policy as you will find yourself marking lots of joints and sometimes make mistakes; you don't want to have to worry that a scribe line will become blatantly visible after the finish is applied.*

Thomas sets his marking gauge so it is the exact thickness of his work. Then he marks out the baselines on his pinboards and tailboards. It's interesting to note that Thomas doesn't use the word "tails." He calls the pins the pins. But he calls the mating part of the joint (which today we call the "tails") the "pin-hole." I'm going to use the modern terms: pins and tails.

board a bit and shoot some more.

What is interesting about the description of shooting in "The Joiner and Cabinet Maker" is that Thomas starts shooting with a jack plane to remove the roughness of the saw. Then he follows up by shooting with his trying plane.

I have two theories here: Either Thomas has a rip sash saw that has torn out the grain, or Thomas isn't all that good a sawyer yet. If the latter is true, Thomas had better start making some more practice joints because the next section has a good deal of sawing in it.

'And Now for Dovetailing the Corners'

There is so much written about dovetailing that I almost hate to discuss it here. There is nothing new to be said that will change anyone's mind if they have established the way they like to cut this joint.

However, for those woodworkers who haven't cut many dovetails, the following section could be useful. Thomas and I cut dovetails differently, so comparing the two techniques will point out the

A shallow rabbet on the inside of your tailboard makes it easier to transfer marks from one board to the other. It takes a little extra time, but it can save you time later on, depending on how you cut dovetails.

advantages and disadvantages of each approach.

Thomas begins cutting the first joint by marking the baseline of the joint using a marking gauge set for the exact thickness of the joint. This, in and of itself, is an interesting detail. Modern woodworkers are mostly in two camps: Either set the gauge so it is a little wider or set the gauge so it is a little narrower than the thickness. If you set it wider, you'll have some end grain to trim away to flush up your tails and pins after the joint is assembled. If you do it the other way, you'll have some face grain to trim away instead.

I've experimented with both perspectives (a lot) and they work. However, I like to do it the way Thomas does: Shoot for the exact dimension. You're going to have to plane down the entire assembly anyway, so why make extra work for yourself on the pins or the tails?

Then Thomas marks the pins on the end grain and the face grain and saws them out. I, however, take an additional step. I plane the shallowest rabbet possible on the inside edge of my tailboards. This rabbet is as wide as my stock is thick. And the rabbet is about 1/64" deep. This little rabbet makes it easier for me to transfer the marks from one board to another when I am marking out the second half of the dovetail joint.

The disadvantage of this shallow rabbet is that you need an extra tool (a fillister plane) and it adds another step. I do a lot of dovetailing and have found the extra step is well worth my time – it saves time in lining up my boards.

Next up is sawing the first half of the joint. Thomas cuts his pins first, so let's explore that method. The layout of his joint is interesting. Thomas spaces his dovetails so there is 1/8" between the joints at the narrow end and 1/4" between the joints at the baseline. That translates to a slope of about 4.8° – that's fairly shallow.

And because the slope of the dovetail vexes so many, let's take a look at this topic and the advice that is both modern and vintage.

I've seen this joint cut with a wide variety of slopes. And every person who cuts this joint has a personal or historical preference about the slope they use. For some craftsmen, the slope varies simply because they eyeball the layout. Frank Klausz, one of the two living dovetail savants I know, says he cuts his dovetails anywhere between 10° to 15° off the vertical. The late Tage Frid preferred slopes of "about 10°."

Other well-known dovetailers use marking jigs to lay out the joint, which locks them into particular angles. Rob Cosman, the other living dovetail savant I know, uses 10° for softwoods and 8.5° for hardwoods. For all the years I've been cutting dovetails, I've used the angles used by my first instructor: 10° for softwoods and 8.5° for hardwoods, just like Cosman. But for some reason, I've become dissatisfied with the way the joints look when they are visible on a piece of casework.

So I hit my library, and now my head hurts from the bludgeoning. Dovetails might take their name from a bird, but reading about them is a trip down the rabbit hole.

What the Dead Guys Say

To understand how little that is certain with dovetails, let's take an abbreviated journey through the literature. I promise to be quick like a bunny. Charles H. Hayward, the mid-20th-century pope of hand-cut joinery, suggests three slopes: Use 12° for coarse work. Use 10° or 7° for decorative dovetails. There is no advice on hardwoods vs. softwoods. F.E. Hoard and A.W. Marlow, the authors of the 1952 tome "The Cabinetmaker's Treasury," say you should use 15°. Period.

"Audel's Carpenter's Guide," an early 20th-century technical manual, says that 7.5° is for an exposed joint and 10° is right for "heavier work." No advice on hardwoods vs. softwoods. "Modern Practical Joinery," the

58 SKYRING'S LIST OF PRICES.

SAWYERS' PRICES.

	l.	s	d.
Memel and all other fir timbers, not less than one foot diameter, nor exceeding four cuts in each piece, per load	0	7	6
For every extra cut, add one-fourth.			
If cut by the 100 feet superficial	0	4	0
Dye square Berwick or dram, two cuts	0	7	0
For every extra cut, add one half.			
All fir timbers or scantling, under six inches, per foot run	0	0	0½
Ditto, exceeding six inches	0	0	0½
Oak, under six inches	0	0	0½
Ditto, exceeding six inches	0	0	1

Circular work, or old timber, double price.

DEALS, BATTENS, PLANKS, &c. per Dozen Cuts.

	s.	d		s.	d.
6 feet deals, per dozen	1	9	6 feet planks, per dozen	2	9
8 feet ditto ..	2	3	8 feet ditto ..	3	6
10 feet ditto ..	3	0	10 feet ditto ..	4	3
12 feet ditto ..	3	6	12 feet ditto ..	5	0
14 feet ditto ..	4	0	14 feet ditto ..	5	6
16 feet ditto ..	4	6	16 feet ditto ..	6	3
18 feet ditto ..	[illegible]	9	18 feet ditto ..	7	0
20 feet ditto ..	5	6	20 feet ditto ..	7	9
10 feet Swede deals ..	3	6	If tailed down, add ..	0	3
12 feet ditto ..	4	0	Pantile laths, per dozen	0	8
14 feet ditto ..	4	6	Oak wedges, per pair	0	4
10 feet battens ..	2	0	Fir ditto	0	3
12 feet ditto ..	2	6	Pale boards ..	1	8
14 feet ditto ..	3	0	FLAT CUTS IN DEALS.		
16 feet ditto ..	3	6	10 and 12 feet per dozen	1	6
18 feet ditto ..	4	0	14 and 16 feet, ditto	1	9
20 feet ditto ..	4	6	18 and 20 feet, ditto	2	0

SAW MILL PRICES.

	s.	d		s.	d.
Deal ends, per dozen	1	3	8 feet planks, per dozen	2	6
6 feet deals ..	1	6	10 ditto	3	0
8 ditto	2	0	12 ditto	3	6
10 ditto	2	6	14 ditto	4	3
12 ditto	3	0	16 ditto	5	0
14 ditto	3	6	18 ditto	5	6
16 ditto	4	0	20 ditto	6	3
18 ditto	4	6	10 feet battens ..	1	10
20 ditto	5	0	12 ditto	2	0
10 and 12 feet, flat cuts	1	2	14 ditto	2	9

At left are sawmill prices from the 1826 edition of "Skyring's Builders' Prices." At right are the sawmill prices from the 1833 edition.

SAWYERS' PRICES.

	l.	s	d.
Memel and all other fir timbers, not less than one foot diameter, nor exceeding four cuts in each piece, per load	0	7	0
For every extra cut, add one-fourth.			
If cut by the 100 feet superficial	0	4	0
Dye square Berwick or dram, two cuts	0	6	6
For every extra cut, add one half.			
All fir timbers or scantling, under six inches, per foot run	0	0	0½
Ditto, exceeding six inches	0	0	0½
Oak, under six inches	0	0	0½
Ditto, exceeding six inches	0	0	1
Cross cuts, each	0	0	6

Circular work, or old timbers double price.

It is customary to allow four cuts (if less in any piece of Timber,) when cut by the Load.

DEALS, BATTENs, and PLANKS, per Dozen Cuts.

	s.	d		s.	d
6 feet DEALS, per dozen	2	0	6 feet PLANKS, per doz	2	6
8 feet ditto ..	2	6	8 feet ditto ..	3	3
10 feet ditto ..	3	0	10 feet ditto ..	4	0
12 feet ditto ..	3	6	12 feet ditto ..	4	6
14 feet ditto ..	4	3	14 feet ditto ..	5	3
16 feet ditto ..	5	0	16 feet ditto ..	6	0
18 feet ditto ..	5	6	18 feet ditto ..	7	0
20 feet ditto ..	6	3	20 feet ditto ..	7	9
10 feet SWEDE DEALS	3	6	If tailed down, add ..	0	3
12 feet ditto ..	4	0	PANTILE LATHS, per dozen	0	8
14 feet ditto ..	4	6	Oak wedges, per pair	0	4
10 feet BATTENS ..	2	6	Fir ditto	0	3
12 feet ditto ..	3	0	Pale BOARDS ..	1	8
14 feet ditto ..	3	6	FLAT CUTS IN DEALS.		
16 feet ditto ..	4	0	10 and 12 feet per dozen	1	9
18 feet ditto ..	4	6	14 and 16 feet, ditto	2	0
20 feet ditto ..	5	0	18 and 20 feet, ditto	2	3

SAW MILL PRICES.

	s.	d		s.	d.
Deal ends, per dozen	1	3	8 feet Planks, per dozen	2	6
6 feet Deals ..	1	6	10 ditto	3	0
8 ditto	2	0	12 ditto	3	6
10 ditto	2	6	14 ditto	4	0
12 ditto	3	0	16 ditto	5	0
14 ditto	3	6	18 ditto	5	6
16 ditto	4	0	20 ditto	6	0
18 ditto	4	6	10 feet BATTENS ..	1	9
20 ditto	5	0	12 ditto	2	3
10 and 12 feet flat cuts	1	2	14 ditto	2	6