

TO MAKE AS PERFECTLY AS POSSIBLE



André-Jacob Roubo

# To Make as Perfectly as Possible

*Roubo on Marquetry*

Donald C. Williams, Michele Pietryka-Pagán & Philippe Lafargue



LOST ART PRESS • FORT MITCHELL

André-Jacob Roubo

*To Make as Perfectly as Possible: Roubo on Marquetry*

A translation of *L'Art du menuisier*

*Second Edition with expanded annotations*

Published by Lost Art Press LLC in 2013

26 Greenbriar Ave., Fort Mitchell, KY 41017, USA

Web: <http://lostartpress.com>

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ISBN: 978-0-9850777-6-1

Editor: Christopher Schwarz

Copy editing, proof reading and index: Megan Fitzpatrick, Mary Hashman and Linda Watts

Photography: E.M. Ginger/42-Line for the plates; Donald C. Williams for shop photos

Book design and production: Wesley B. Tanner/Passim Editions

Distribution: John Hoffman

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*This book was printed & bound in the United States of America*

*Dedicated to*

POP AND FRED SCHINDLER: Giants on Whose Shoulders I Stand

*Donald C. Williams*



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*Annotations by Donald C. Williams noted in bold*

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# *Foreword*

The 18th century in Europe has been recognized by historians as the Age of Enlightenment. The major feature of this movement was the adoption of reason and science as the basis for knowledge. Philosophers, historians, academics and “encyclopedistes” worked to compile treatises on diverse aspects of life, including the trades, with this new perspective in mind.

In France, under the direction of Jean-Baptiste Colbert and support of Louis XIV, the “Academie Royale” was created with the purpose of publishing these treatises and maintaining an official library of information. These publications, beginning in 1709 and numbering nearly 30 by mid-century, were known as the “descriptions des arts et metiers.” Essentially, every specific skill and trade known at that time was analyzed and documented in great detail, including woodworking and furniture making.

One of the most recognized publications to include a description of the various trades was published as a subscription series in 1756 by two authors: Denis Diderot and Jean le Rond d'Alembert. They published l'Encyclopédie ou Dictionnaire Raisonné des Sciences des Arts et des Metiers in 1756, with engravings to illustrate various aspects of the topics, such as woodworking, listed in alphabetical order. Neither man had any specific training in the trades, as Diderot was a philosopher, art critic and writer, and d'Alembert was a mathematician, mechanician, physicist, philosopher and music theorist. Their goal was not to discuss any specific topic in extensive detail, but to analyze, in an alphabetical format, all the important terms of the day.

It is interesting to compare the Encyclopédie of Diderot with the extensive treatise on woodworking published at about the same time by André-Jacob Roubo. Diderot's work appeared independently of the Royal Academy, and it involved 160 authors who contributed entries to the 17 volumes of text and 11 volumes of illustrations. Roubo's work was by a single author, accepted by the Royal Academy, and it focused entirely on diverse aspects of woodworking in four volumes, with excellent illustrations, drawn by Roubo personally.

The first indication that L'Art du menuisier represented a major contribution to the advancement of knowledge appears as a two-page commentary printed at the beginning of the first volume. Immediately after the title page is the “Extrait des registres de l'Académie Royale des Sciences,” dated Dec. 17, 1768. These two pages serve to certify that the contents of A.-J. Roubo's work had been reviewed and accepted by the Royal Academy in France, unlike that of Diderot and d'Alembert.

This certification is highly significant, as Mr. Roubo was not a philosopher, or other academic, but trained as a furniture maker, and was referred to by the Academy as a “Compagnon Menuisier.” In fact, he was documenting, in exhaustive detail and accuracy, the diverse facets of woodworking that he had

spent his life pursuing as a profession. He had been trained in the traditional methods of furniture making as a member of the “Compagnon,” which was a historic system of learning that relied on transmission of knowledge from master to apprentice, working together “at the bench.”

Roubo was the highly educated son and grandson of a family of master woodworkers, and had spent his life in the trade. He knew how to identify the wide variety of woods available and which wood was appropriate for a specific trade or function. He used the tools of the trade on a regular basis and could clearly discuss their individual features and function. He was trained in geometry, design and construction, not just by reading other books, but more importantly by direct instruction from other masters working in different fields.

In fact, the Royal Academy preface, which endorses Roubo’s contribution to the knowledge of woodworking, specifically mentions that his work is written with a unique perspective, clarity of language, and supported by the excellent engravings, thus making it accessible to the ordinary worker. “*Que l’Académie seroit satisfaite si dans tous les Arts il se trouvoit des Ouvriers capables de rendre aussi bien les connaissances qu’ils ont acquises par un long exercice!*” [May the Academy be satisfied if in all the Arts, Workers were to be found capable of rendering rather well the knowledge that they have acquired by a long practice.]

The title, “*L’Art du menuisier*,” is important to translate properly, as “Art” is intended to mean “knowledge, or understanding,” and specifically of a trade, or “metier.” The “Menuisier” term is the title of a trade of woodworking that included everything that the carpenter did not do. For example, the carpenter would frame the house, but the menuisier would be involved in unique aspects of architecture, like building a dome or staircase, or complicated wall paneling and trim, as well as a specialist in making all types of solid-wood furniture. The only type of furniture that was not made by the menuisier was the furniture that involved veneering, ranging from plain veneer to very complicated marquetry surfaces. These pieces were made by an “*Ébéniste*,” and the famous André-Charles Boulle, named “first *ébéniste to the king*” in 1672, established the standard for this trade, which continues to modern times. It is remarkable that Roubo, a “*Compagnon Menuisier*,” was able to communicate in accurate detail such complicated and specific aspects, not only of the trade of menuisier, but also that of the *ébéniste*.

From the day of its first publication, *L’Art du menuisier* has been accepted as a trusted point of reference for the way things are made out of wood. This work is included in many libraries, and noted as a legal and professional benchmark that has stood the test of time. Until now, it has never been translated into English, and the significance of this first English edition cannot be overestimated. For the very first time in more than two centuries, the knowledge and understanding of woodworking from an 18th-century French perspective can be enjoyed by those who do not speak French. These volumes will immediately be recognized as a valuable reference for the modern woodworker who is interested in understanding exactly how his craft was practiced so many years ago.

Respectfully submitted:

W. Patrick Edwards

Patrice Lejeune

*The American School of French Marquetry*

## *Translator's Note*

I am not a professional translator – I am a professional textile conservator. This project began when a textile conservator colleague of mine forwarded a treatise to me and asked if I would be interested in translating it from French to English. It concerned the description of tapestry weaves, a very specific type of vocabulary that I had never seen before, but I agreed to give it a try.

Once Don Williams got wind of what I was doing for this colleague, he asked if I would be interested in translating a chapter of André-J. Roubo for him. As I was a novice adult student of French, having returned to studying the language at night school after only three years of instruction in high school, I took this as a challenge. It would be a way to improve my reading and understanding of French sentence structure – how much different could 18th-century French be, anyway?

As with any new project, the first part was the worst, even if Don had not asked me to translate his very favorite topic first: tools. I didn't know what these things were in English, never mind describing the parts of them in French. Because I was so unsure of myself in the beginning, I tried out a paragraph or two with three different native French speakers. I would produce my translation, then give the original French text to them and ask them to translate it. Without fail, they had quite a bit of difficulty, and they left out entire phrases they deemed extraneous to the meaning of a sentence or a paragraph. This, however, gave me courage to keep on doing what I was doing because I always got the essence of the paragraph correct.

My technique was as follows: I read each paragraph about five times. During the first read-through, I changed all the long “s” characters to “s,” because as you probably know, in the 18th century, the “s” could look much like the “f.” On the second reading, I circled all the words that I didn't know, which was a considerable number, given all the technical vocabulary involved in describing parts of tools, what they do and how they must be exactly the right size or they don't work properly. With the third reading, I substituted the word I had found in the dictionary into the sentence to see if the sentence sounded correct. This in itself is a challenge, because French has fewer words to describe something than English. The English language is much more precise – for example, we might have 15 different words to express the emotion “happy.” French has fewer words, so context is important. The fourth reading, I cut the original sentence into several, changing or eliminating conjunctions as necessary. In 18th-century French, each paragraph might consist of one very long sentence. So the trick was to cut the paragraph into several sentences, yet

retain the meaning that Roubo wanted to convey. The fifth reading followed the typing and was a check to see if the entire paragraph made sense. After a couple years and a couple of chapters of doing this, I was able to skip writing out the new paragraphs on lined paper, and just read and type directly.

There were times when I would translate a sentence and write into parentheses: (Don, is this making any sense at all?). At other times I would write: (Philippe, HELP!!!). Believe it or not, once you get into the rhythm of this kind of work, and the vocabulary starts to be retained in your brain, the process starts to flow, and you really are into some sort of groove, or “rainure,” “rayure,” “cannelure” or “orniere,” as Roubo would say.

I was working with seven dictionaries set out around myself, two of them dating back to the 18th century. They were a steal on eBay, because, after all, who would be interested in buying French dictionaries from that period? One dictionary was even a French-French Larousse, which I was proud to say I could use – my French had improved such that I could look up a French word, and understand the explanation also in French!

I think one of the most painful and difficult phrases encountered was in the tools chapter, when Roubo was describing the workbench. He went on and on concerning the “boîte a rappel.” Well “boîte” means box, so he was describing a box having some purpose. “Rappeller” is the verb meaning to call again, to call back or to call to order; to restore to life; to remind or call to mind; to recover; to summon up courage; to recall; to quote; to reference; to distribute; to bring together; to call off; to draw back a piece of something. Nowhere did I ever find that the “boîte a rappel” referred to the vise attached to a workbench! It was in these kinds of situations that I had to ask Don to please look at the engraved plate in question, inspect the particular diagram on this plate and tell me what Roubo was describing.

The footnotes were the most interesting part for me because it was there that Roubo told us about his own childhood, growing up poor, going to “work with his father at age 11, and having a grandfather who lived into his 80s, and when he died he wasn’t sick.” It was also where he commented on French society at large and the place of carpenters and cabinetmakers within that society, which was rapidly losing the appreciation for the highly skilled work that he and his workers accomplished within that society.

It’s been great fun, and a huge character-building experience for me. Don and I both understood that someone like Philippe Lafargue was an absolute requirement for this project; but in the meantime, I was propelled forward on this project by the thought that I was unlocking a little bit of new information with each sentence translated.

*Au revoir, and Bonne chance!*

Michele Pietryka-Pagán

# Preface

The Lineage and Process of *To Make as Perfectly as Possible*

In 1975, I was working as a finisher and restorer at the renowned Schindler & Son shop in Palm Beach, Fla. The old man, “Pop” Schindler, had started the company on the cusp of our first “Great Depression” and had somehow managed to keep the doors open, in great part thanks to his incredible depth of knowledge and skill as a traditionally trained Swiss apprentice.

One day an old-money Palm Beach client (Ambassador Something-or-other) pulled up with boxes full of parts for what looked like just another old piece of junk to put back together. It was, in fact, a simple (for him) tulipwood parquetry secretaire by Jean-Henri Riesener (1734-1806), successor to ébéniste du roi Jean-François Oeben, and cabinetmaker to King Louis XVI. After weeks of our painstaking reconstruction of the former pile of debris, as the piece was finished and awaiting delivery, Pop made a remark that puzzled me.

“Roubo would be proud,” he said simply.

“Roubo? I thought this was Ambassador Something-or-other’s cabinet,” I said.

Then he told me about *L’Art du menuisier*. Pop did not own a copy, but the shop’s most important patron (a renowned collector of French decorative arts) did, he said. Someday when we were over at the estate together he would ask to show it to me. That day never came, and I did not see the complete *L’Art du menuisier* with my own eyes until almost 10 years later.

The mid-1980s provided fertile soil for growing the organism that became *To Make as Perfectly as Possible*.

Philippe Lafargue entered my studio in 1985 as a post-graduate Fellow from École Boulle. During his tenure with me he whetted my appetite further by translating the Table of Contents of *L’Art du menuisier* and described some of the sections on marquetry.

At about that same time I met and collaborated with Michele Pagán, a textile conservator who was developing a collections preservation strategy for the heritage artifacts under the jurisdiction of the U.S. Department of State. That collaboration would eventually come to fruition in the book *Saving Stuff* (Fireside/Simon and Schuster, 2005).

So my passion for the scholarship compiled by André-Jacob Roubo festered, waxed and waned for nearly four decades. On one hand I was hampered by a near total lack of foreign-language skills, but still I was drawn to the unmistakable appeal of the images, which are themselves a great education. Over the years bits and pieces of translated text appeared in disparate places, invariably fanning the flames of my interest.

Rob Tarule’s popularization of the “Roubo workbench” was a critical inspiration, and I recall

spending time with him at a conference where we were both presenters as he walked me through designing, building and using the tool and the processes it engendered.

By 2008, Michele had completed two decades of globetrotting with her U.S. Navy officer husband and they had re-settled in Washington, D.C., and we resumed collaborating on many interesting projects. On our way back from the lunchroom one day she stopped to talk to another colleague and the conversation revolved around some translation Michele was doing of a historic French treatise. I had not known until then that Michele did translations from arcane technical French.

To say the least my ears perked up and a light went on in my head. I was starting to work on a monograph about historic finishing and wanted to know about some odd tools represented in Roubo's plate 296. Could she help explain what they were used for?

After looking at the text plate in the gigantic volume, she said, "Sure." Our work began in earnest in mid 2008, and five years later the first of our volumes is making its debut.

Eventually we pitched an idea to Chris Schwarz and he graciously agreed to partner with us in bringing Roubo to the modern woodworker. Rather than translating, annotating and interpreting the whole of *L'Art du menuisier*, we decided to focus on, well, the parts that interested me: marquetry, finishing and furniture making.

Our working regimen began with Michele translating Roubo as verbatim as possible, making no alterations to the original syntax unless that rendered the English incomprehensible. We decided that working from a transliteration like this was the best way to capture both the information and the flavor of the original. To assist her I frequently had to identify every tool in every engraved plate so she would know what to call them.

Then the text came for me to edit, enhance and reconfigure as necessary to make it readable to an artisan of the 21st century. I did not "rewrite" Roubo, but merely modified it enough to make it comprehensible and read smoothly, and I inserted annotations explaining some of Roubo's text. It took us more than two years to get through the first draft.

It was immediately apparent that Roubo assumed a large body of knowledge already in possession of the reader, and as a result left many gaps in his narrative. To make our volume as useful to as many people as possible, the original text was augmented extensively to make it more understandable. In addition, I began to select passages needing further visual presentations through photographic essays.

During the subsequent rounds of editing, the manuscript went back and forth numerous times to make sure we were getting it right, with each iteration taking weeks to complete. Only when we were both satisfied with the English text was the manuscript sent to Philippe, who had trained as a traditional craftsman the École Boulle in Paris. He was, and remains, well-versed in the arcane jargon of ancient French cabinetmaking, which is fortunate since some of the phrases Roubo used were simply untranslatable otherwise. Philippe reviewed the text from the perspective of a native Frenchman and historical craftsman to make sure the new English version would meet with Roubo's approval.

But this was not the end of the labors. I realized that my immersion in the text had dulled my

perspective on whether or not something would make sense to you, the reader. To alleviate these concerns I recruited three long-suffering friends whose woodworking, communication and critical-thinking skills were beyond question. Never-ending thanks are due to Robert Klein, Michael Mascelli and Martin O'Brien for their diligent review of the tens of thousands of words and hundreds of illustrations.

These readers had an entirely different responsibility than Michele (transliterating historical text into English), me (editing and annotating it to make sure it was comprehensible in 21st-century English), and Philippe (fealty to French craft traditions). Their charge was to ensure that *To Make as Perfectly as Possible* conformed to the original goal of being more than a simple recitation of historical materials and techniques. It also was to serve as a contemporary guide for today's artisans wishing to employ the techniques of 250 years ago.

These readers' task, then, was to provide critical feedback from the artisan's perspective on whether or not the manuscript accomplished that goal. In some cases it was as simple as determining whether some passage of text actually made sense; in others it was to suggest additional or different illustrations for the photo essays demonstrating the techniques.

When Chris and I first spoke of this project, I stated the team's goal as, "... to let the reader practically experience the sounds of the saws and fragrance of the wood shavings and glue pot in the shops where Roubo worked."

It is our fervent hope that we have provided this glimpse to you.

I am grateful to the folks at Lost Art Press who have contributed so much to seeing this through the press: editor Christopher Schwarz; copy editors Megan Fitzpatrick, Mary Hashman and Linda Watts; and John Hoffman, who has handled the subscriptions to the limited edition and distribution of the copies.

Finally, let me make a comment about the numerous tools constructed and exercises photographed for this volume. These are not intended to be slavish repetitions of that which Roubo describes, but rather to provide examples of how a modern craftsman might go about working in this traditional manner. Most of these photo essays are neither overly detailed nor complete, but are intended to help point you in the right direction to find your own path for working creatively, making things as perfectly as possible.

Donald C. Williams

## *A Key to the Text*

While reading *To Make as Perfectly as Possible*, here are some helpful tips about the structure of the book and some unfamiliar terms used in this published English translation.

The pages are set up much like the original 18th-century edition. As in the original printing, the margins of the pages contain references to page numbers and plates. Page numbers refer to the pages in the French work; they allow readers to find passages in the original and compare our English version with Roubo's French.

The plate numbers also duplicate the structure of the original. In the French text, the plates were printed in a separate section of the book, so the plate numbers helped the 18th-century reader locate the illustrations that matched the text. We have included the plate numbers because Roubo also used them as a way to jump to a new topic.

At times you will find different kinds of parenthetical comments in the text. Comments that are surrounded by parentheses are written by Roubo. Comments in brackets are from the translators. Footnotes in the text are from the original French edition and are Roubo's words.

Modern readers might also be bemused by the number of words in italics and the structure of the individual sentences. The italicized words are reproduced from the original. The goal of this translation was to reproduce the structure and feel of the original French work as much as possible – not to edit Roubo into 21st-century English. As such, you will find some sentences that have an elaborate structure. You will quickly develop an ear for the way Roubo writes.

You also will find essays inserted in the book that were written by Donald Williams. These essays, which explore a tool or process in detail, are set in a slightly smaller typeface. These essays are accompanied by photos and, of course, the voice changes to one of a 21st-century woodworker and researcher.

Instead of converting all of Roubo's measurements to U.S. Customary Units (or metric), we decided to use his original terms. As such, you will find the units of "thumbs" and "lines." A thumb is just slightly more than our modern inch – 1.066". The thumb is further divided into 12 "lines." Each line is equivalent to .088" today. The French foot is 12.44".

Christopher Schwarz  
*Editor*

## Section I

### The diverse sorts of Compositions in general: some detail and the Arrangement of wood veneer

The type of woodworking of which I speak, properly named Marquetry, consists of an assembly of diverse compositions of which it is comprised. These compositions are of two types: large and small.

The large compositions are ordinarily made of large pieces of veneer wood, often of the same species, of which the joints and the position of their grain oppose one another, forming different figures in either the overall composition of the work or in the various pieces of which it is comprised.

Small compositions differ from the first not only in their size, but also by the different woods

that are used; the smaller compositions are often surrounded by banding and string-work that separate them from the rest of the piece, as we will see later.

In general, the divisions, large as well as small, are formed by straight lines or circular lines, or finally a composition of one or the other, which makes the work more or less difficult to do [because the lines are so crisp and any errors are immediately apparent], whether one makes use of a little bit of the same

Plate 283  
*The Way to Cut Out Veneer Wood*

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procedures for executing the different compositions. That is why I am going to begin with the first technique of compositions composed of straight lines, as being the easiest, for which I will give some general examples, applications for practice being inexhaustible [in their combinations and varieties], not to give some specific precepts and details on this method, which being a matter of preference depends absolutely on the taste and creativity of the artist who composes the design of the work, whatever its nature. But before entering in [to] the details of these different compositions it is good to say something about cutting up and the general arrangement of wood veneer because this knowledge is absolutely necessary [for the craftsman] to be able to decide on the form and size of these compositions according to the species of wood that one wants to use.

After the appropriate wood veneer has been sawn in the manner that I discussed previously, *page 801*, one replanes them with a toothing plane as much for giving them an equal thickness as for giving them a grooved texture, so that they are in a better condition to absorb the glue with which one uses to adhere the veneer. During this operation, one needs to take great care to keep together the sheets that are produced, one on top of the other, because their grain and their nuances match perfectly, it is good, in tailoring them for size and form for different compartments, that similar pieces be placed side by side, which makes a very beautiful effect, as the grain and generally all the nuances that meet up in a sheet of veneer are thus doubled by being placed on each side of a join [book matched], as one can see in *Figs. 1, 2 and 6 of plate 284*.

On the matter of how the wood veneer is split [sawn], this observation is general: If they are made diagonally or in layers, and if they form rosettes, as in *Fig. 1* of the same plate, it is certain that the nuances of two sheets, thus split, cannot be perfectly equal as they are produced one on top of the other. Given that the different concentric layers of the tree are of an unequal diameter, they offer differing figures according to how they are cut more or less close to the center or the circumference of the tree.

If the woods are split parallel to their grain, it is still the same thing not only with regards to different diameters of the concentric layers of the piece of wood, but also with regards to the different irregularities that are encountered in the same piece, like neighboring knots and other irregularities that give various configurations to the fibers of the wood. These may be visible in one place of the piece but not found one-half thumb farther away. This observation is essential, especially for the compositions where it is necessary that the same patterns of the wood are repeated in numerous elements, like the points of diamonds, stars, rosettes, etc.

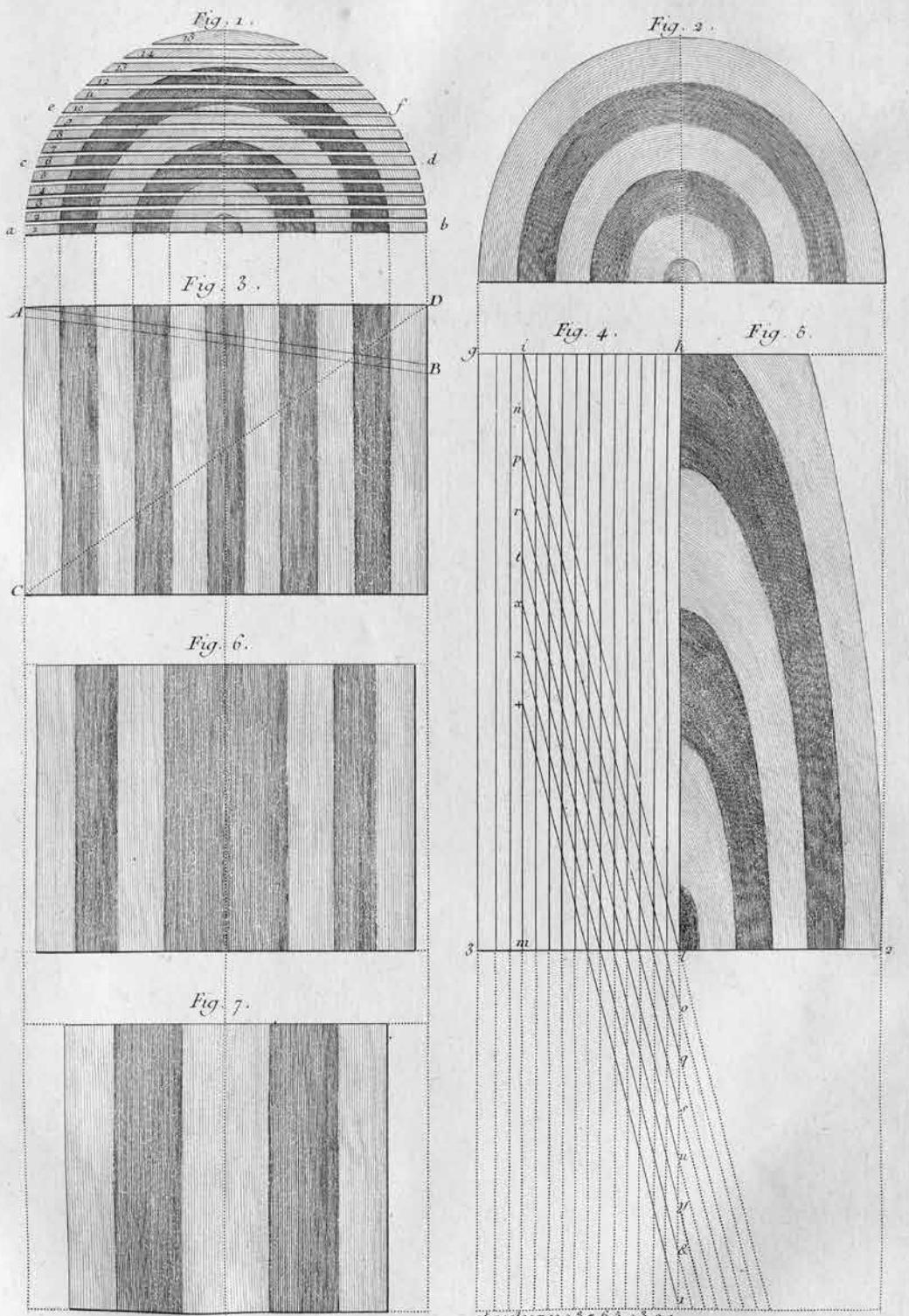
I know very well that it is not possible to have, in the same piece, more than two sheets that are perfectly the same; but as these sheets are very thin the difference from the first (beginning at the heart of the log) up to the 8th or 10th one is very slight, especially when the piece of split [sawn] wood is of a very large diameter and the grain of the wood formed by the concentric rings are very close from one to another. If, on the other hand, the piece of sawn wood is found to have very opened grain, and to be at the same time of a small diameter, as in *Fig. 1*, one can hardly have but two or three sheets similar on each side, which means that one is obliged to use the others in the pieces that require less regularity. See *Figs. 3, 6 and 7*, which represent the elevations of sheets *ab*,

Plate 283

Page 819

*MANIERE DE DEBITER LES BOIS DE PLAQUAGES.*

*Pl. 283.*



*A. J. Roubo Inv. Del. et Sculp.*

Plate 283. The Way to Cut Out Veneer Wood

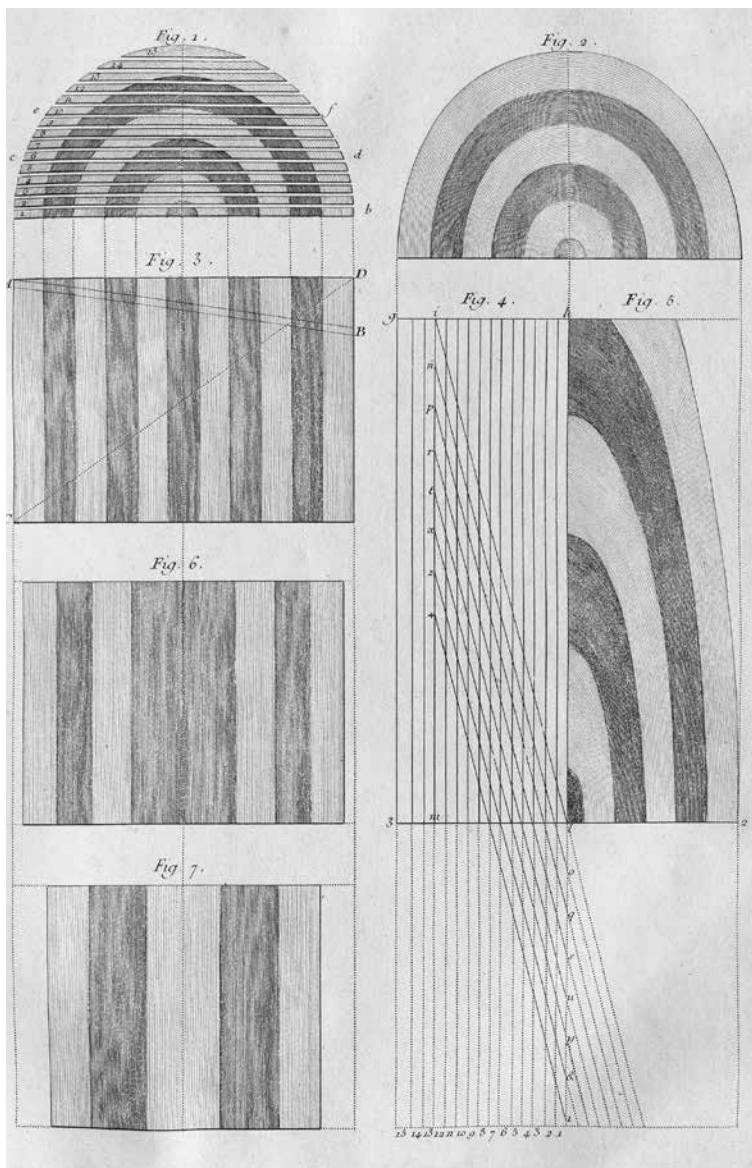


Plate 283

Page 820

*Fig. 4*, because the nuances of the inclined leaves not only will not be similar but neither will they be found to be of equal length. That is why, when one wishes to have many sheets supported as they are sown, like for example that in *Fig. 5*, which is taken on the diagonal *i-l*, it is necessary after having split [sawn] the piece in two equal pieces, like that in *Fig. 1*, to make a removal on the back of the piece, like that in *i-m*, taken from the extremity of the diagonal *i-l*, *Fig. 4*. Then one splits [saws] the piece in as many leaves as one judges appropriate, always parallel to this diagonal, and the points where each of them meets line *i-m*, restricting their length by the height. As a result one has sheets *n-o*, *p-q*, *r-s*, *t-u*, *x-y*, *z*, & *x-j*, equal in length to that of *i-l*, and perfectly similar to that of *Fig. 5* in both the nuance and the form, excepting that each is a bit longer than the previous

*cd*, and *ef* of *Fig. 1*, which are all different one from the other.<sup>1</sup>

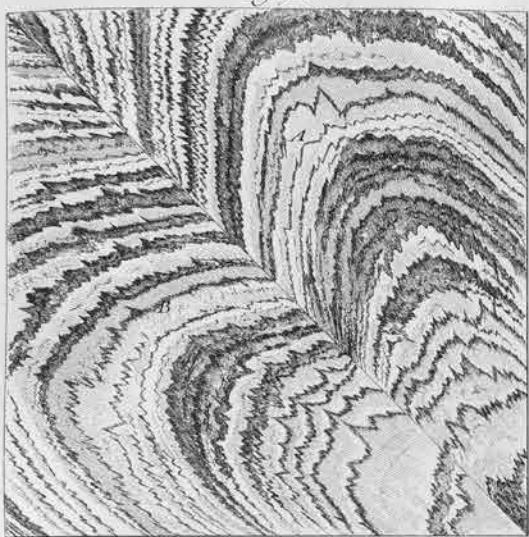
When the wood is as I have just said, and it is necessary to have a number of similar sheets, as in *Fig. 3*, or those of *Figs. 6 or 7*, since one cannot take but four or six identical from both sides and on the thickness of the tree, one is obliged to take them one from the end of the other. This presents many difficulties, given that it is very rare to find a piece of wood with perfectly straight grain over a considerable length and without finding some knots or other imperfections that can change the grain of the wood.

When one splits [saws] the wood obliquely in order to have leaves supported, as in *Fig. 5*, the length of these leaves, while one wishes that they be of the same form, cannot be taken from the horizontal line, as that of *g-h*,

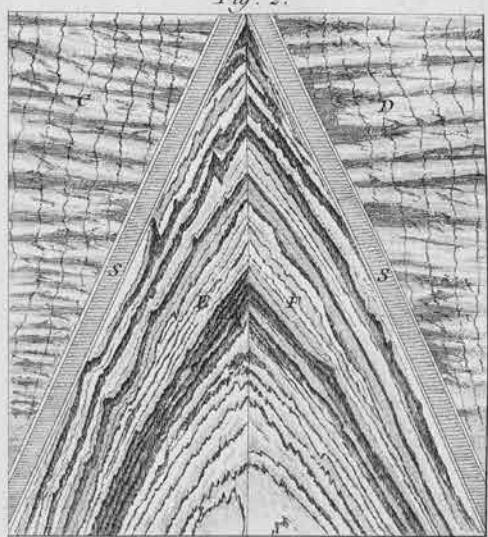
1. It is not exactly true that the concentric rings from whatever tree be as regular as I have represented them in the figures of this plate, whether for the difference in their colors or the regularity of their forms, which are extremely varied in wood [that is] even the most regular. If, therefore, I have represented wood in this manner it is only for the most sensible demonstration and to better know the advantages or disadvantages that are found in the cutting of veneer wood [in any particular manner], which is essential for a cabinet-maker to understand to render his work most perfect and for reducing the loss of wood, which must be considered given the costliness of wood and the waste of sawing, without counting the inevitable loss of scraps and mistakes.

*DIFFERENTES MANIERES DE DISPOSER LES BOIS DE PLAQUAGE* <sup>Pl. 284</sup>

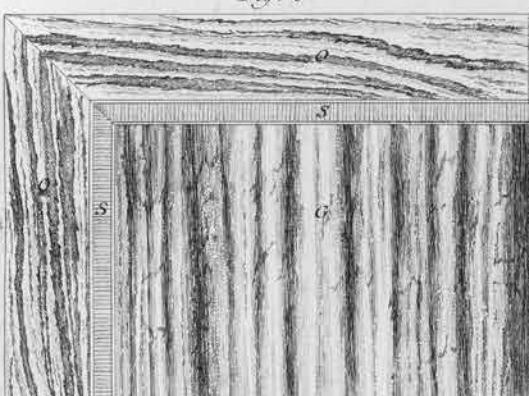
*Fig. 1.*



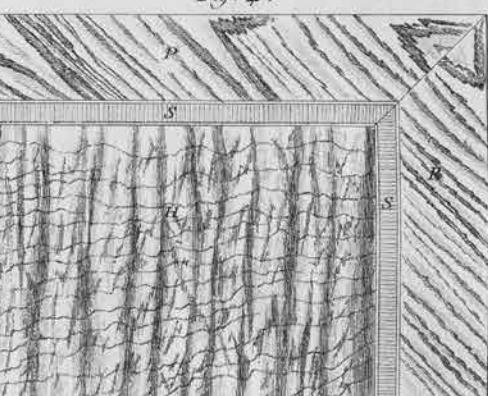
*Fig. 2.*



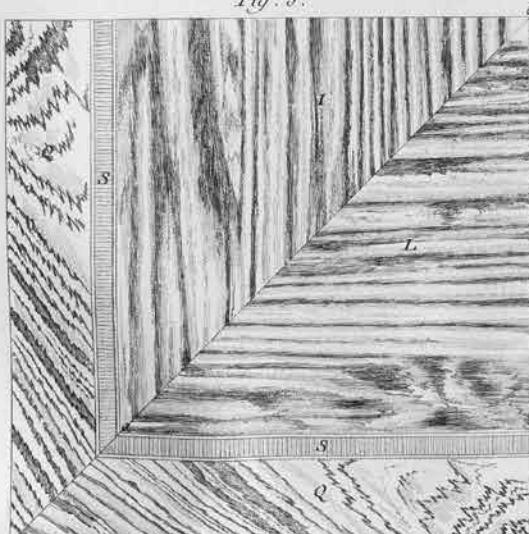
*Fig. 3.*



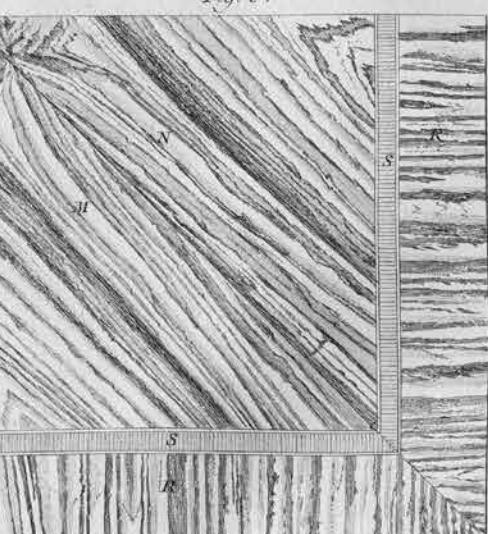
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



*A. J. Roubo Inv. Del. et Sculp.*

Plate 284. *Different Ways to Position Veneer Woods*

one, which is not viewed but geometrically on line *h-l*, instead of being on that of *i-l*, which, finally, makes nothing at all [meaning there is nothing usable left].

This matter of having sheets perfectly similar among themselves is very good, imposing no difficulty in the execution, and is not subject to uneven changes. If one wishes to make the cuts from the center of the piece, as indicated by the dotted lines, the form of the leaf *Fig. 5* will always be the same, and will redouble against [or create a mirror image of] line *l-2*, which is only natural given that this last one passes by the center of the tree. There are occasions where this last manner of splitting [sawing] sheets is very good, because it makes elliptical figures very elongated, which makes a very good effect in certain lopsided compositions where one can use them as appropriate.

The wood of a hard quality and a small diameter is used sometimes as end woods ["oyster cut" veneer ovals], not for cutting them as horizontal slices, but by angling their cut a bit, as for example, *kerf A-B*, *Fig. 3* [plate 283], which gives them more solidity, changing their form only a bit, which becomes a bit more elongated on the length *A-B* than the ordinary diameter of the piece [square to the main axis], but as I just said, this difference is a very minor thing.

Plate 283

When, on the contrary, the obliqueness of this slice is considerable, as that of *C-D*, the figure changes considerably and round though it be, cut horizontally or almost, becomes an ellipse as I have represented in *Fig. 2*, which is taken on the diagonal *C-D*, *Fig. 3*.

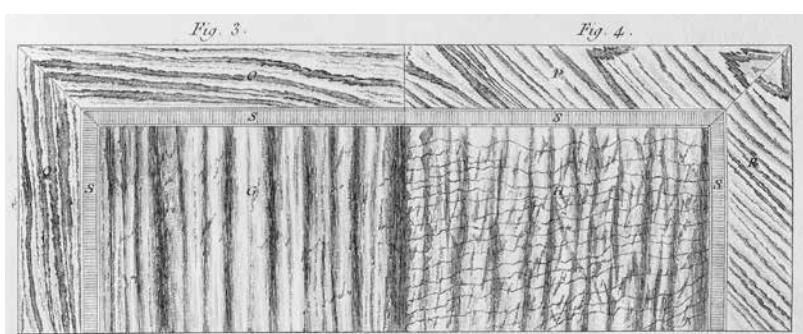
When one makes slices or laminates of wood on end grain or horizontally, which is the same, one should take care to make them thicker than the ordinary sheets, of one-half the thickness of the last [he is almost certainly referring to making the sheets thicker by an additional one-half or one-third]; and of only a third when the branches are taken obliquely, which is only natural. The wood, even though very flexible, is always less strong on end grain than along the grain.

The cutting of wood veneer, such as I just succinctly described, requires great attention and practice on the part of the worker to make them appropriately, to choose the pieces of a size and an appropriate quality according to different needs, and also requires much experience, which is not acquired but with time and practice.

As to the arrangement of wood veneers, that depends mostly on the taste and the wishes of those who use them rather than any certain rule. However, one can consider four different manners of arranging [laying out] veneer woods; namely, the first and most simple, which is to put them on grain that is parallel or perpendicular [to the grain], as in *Figs. 3 and 4*, side *G-H*.

Plate 284  
Different Ways  
to Position Veneer  
Woods

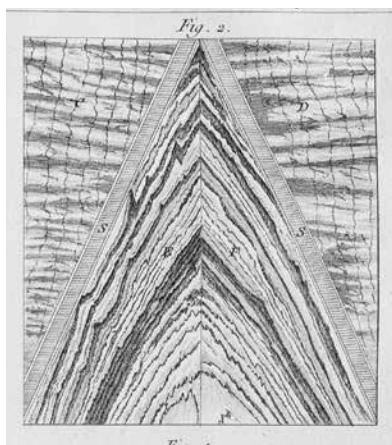
Page 821



The second is to put the grain of the wood vertical and horizontal, creating a joint on the diagonal *a-b*, *Fig. 5*, which we call "miter joints," or, the "points of diamonds," and one should take care in gluing woods in this manner, that their grains be similar as much as possible, and to put the light or dark woods together, as I have made in this figure.

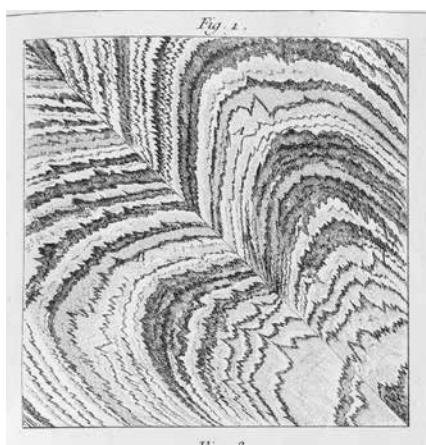
One glues wood also in the form of a lozenge, as in *Fig. 2*, side *E-F*, which comes back to the same thing as the points of diamonds, with the exception that the grain of pieces, which form the lozenge, are not and cannot even be parallel with the sides of the work, which form voids *C-D*, which one refills with other veneers, whether wood on end or wood on grain, or even the same direction as the lozenges, which is sometimes practiced, especially when this last one is separated by a flat band or stringwork, as in this figure.

The third method of laying out wood veneers is to put their grain diagonally, so their perpendicular and horizontal



joints cut the grain obliquely, as in *Fig. 6*, side *M & N*. When the wood is thus positioned, one puts the middle of the sheet on the diagonal *b-c*, and one takes what remains to fill in the angles with pieces of a nuance a little similar; or even when the middle of sheets are not exactly from the middle of the tree (as happens when one makes a removal), in this case one makes the fill of two pieces exactly the same, observing to well position their joints on the diagonal, whether the piece that is to be covered be perfectly squared, or better, that it be of the form of a parallelogram [the grain of the substrate has diagonal grain], which is a general rule for all sorts of works. See *Fig. 6*, which is laid out in this manner.

The fourth manner to lay out wood veneer is to put them in hearts or rosettes, as in *Fig. 1*. In this case one aligns the grain of each piece of veneer at the center of the work; one cuts each piece perfectly equal with each other, and one takes great care that they be truly equal in nuance, so that they meet together as much as it is possible. Look at what I have said above on this subject, speaking of the cutting of wood veneers.



In general, whatever manner is used to lay out wood veneers one should take great care that they be nuanced equally on each opposing side, and that these nuances correspond with each other as much as possible, which will add much to the perfection of the work. One should also have the same attention for the edge bands, *OO*, *PP*, *QQ*, *RR*, *Figs. 3, 4, 5 and 6*, whether these last be placed on grain, as in *Fig. 3*, or at an angle or mitered, as in *Figs. 4 and 5*, or finally on end grain, as in *Fig. 6*, which depends on the taste

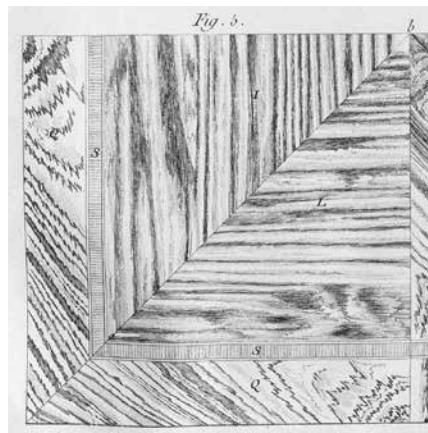
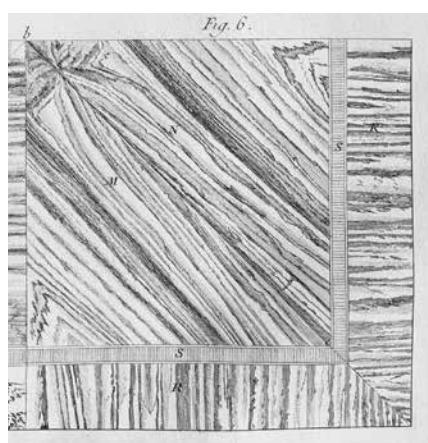


Plate 284



Page 822

of the worker, or better said, on the manner in which the large sheets of veneer are placed, the grain of which the edge bands should be opposite.

The edge bands are ordinarily separated from the panels by simple strings of holly or willow (or other species of light-colored wood along the grain), or better, with flat bands *SS* or “*seder bands*” [edge bands with cross grain in the center flanked by strings on grain] as the cabinetmakers say, with two strings on each side, as I have shown in *Figs. 2, 3, 4, 5 and 6* of this plate.

The edge bands are ordinarily face grain, at least if they are not of a considerable size, like 4–6 lines, because although one puts them sometimes on end grain, especially when they are of a nuanced grain and they form diverse contours; but the manner most typical is to make them from uniform wood color and place the wood on grain as I have said before.

The placement of wood on end grain is a bit the same as that of veneer in heart, *Fig. 1*, because whatever manner in which one arranges them they cannot form anything but rosettes, or better said, many concentric circles one to the other, or a totally different circle, for which one orients to the center the seams of the pieces that make the composition, observing always to mirror the patterns, whether regular or irregular, with one facing the other.

This should be the same thing for the position of knots or gnarls [burl], of whatever species they be if the pieces are not large enough to make an entire panel; then, one sees no regularity, at least, one never finds in the same work [a way] to achieve two equal panels; so that it is necessary to fill in symmetrically, placing the various irregularities of the veneers one opposite the other.

There you have it, in general, all that one can say about the placement of wood veneers: the taste, the experience and the various occasions for using them. Those are the surest rules that one can consult in order to understand well this part of woodworking, which as I have already said, depends greatly on the taste of the worker, current style, and use received in each century.

Plate 284

### *Various sorts of Compositions, straight as well as circular*

Plate 285  
Sections  
Appropriate for  
Different Cabinetry  
Work

The different divisions of pattern in veneer work are of two types, as I said above, namely, large ones and small ones. Both are made by the symmetrical arrangement of joints and grain lines in the veneer, or by various figures that one gives to friezes, frames or flat banding that one adds to these last ones, that is to say, to the compositions formed simply by the joints and grain lines, which in simple works are often made of the same specie.

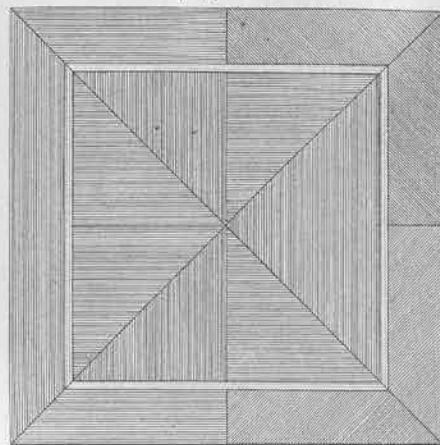
*Figure 1* represents a composition of a squared form, the most simple, surrounded by a uniform frieze and flat banding, which separates this last with the panel in the middle. The wood of this panel is positioned in two different manners, with joints diagonal [on the right side of the panel] and in opposition with the direction of the friezes [on the left side of the panel], which are placed whether on grain, or on end grain, or even diagonally, all according to the interior placement of the panel.

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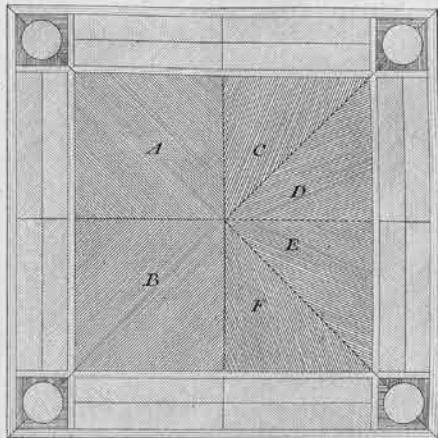
*COMPARTIMENTS PROPRES AUX DIFFERENTES OUVRAGES D'EBENISTRIE.*

*Pl. 285.*

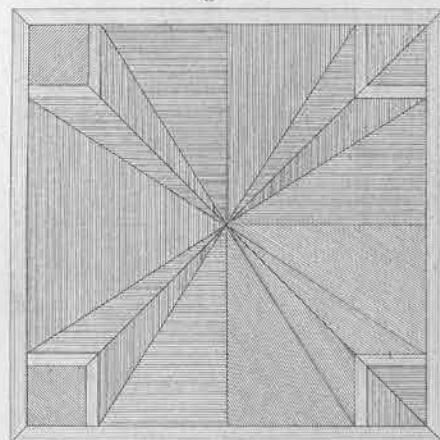
*Fig. 1.*



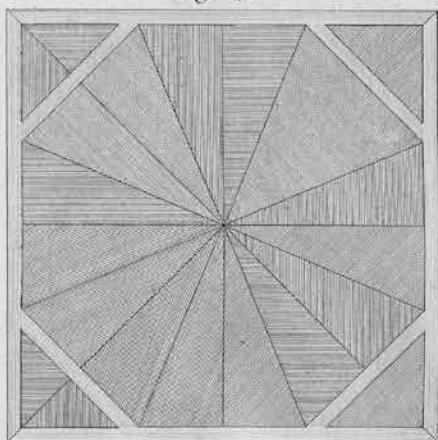
*Fig. 2.*



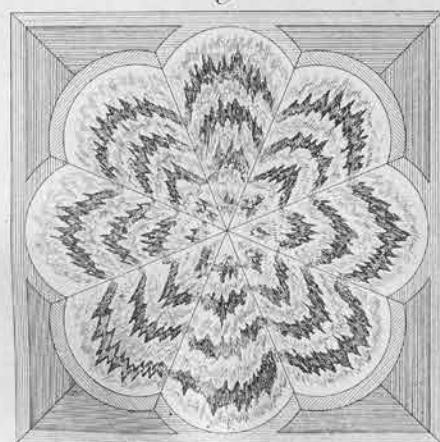
*Fig. 3.*



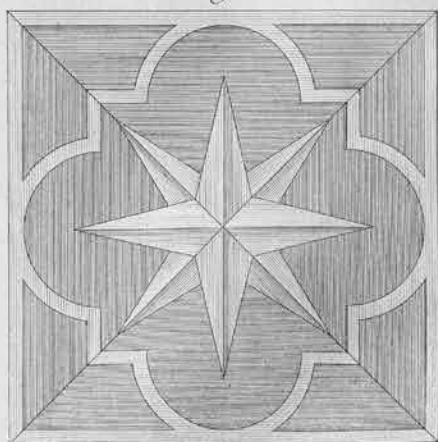
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



*A. J. Roubo Inv. Del. et Sculp.*

Plate 285

*Figure 2* represents another composition of a squared form, surrounded by a framed frieze, of which the infill is made diagonally, and in two parts on its width. The wood of the interior of this figure is positioned in two manners: namely, diagonally and with squared joints, as those of *A* & *B*, and with squared joints diagonally, as those of *C*, *D*, *E*, *F*, of a manner that the grain line is found in the middle of each piece, which works rather well. The flat banding that surrounds the friezes of this figure, and which separates them from the middle panel, are all accompanied by stringwork, which I could not mark here because of the small size of these elements, which would have been required [to be] as large as the actual execution for the stringwork to be perceptible [in this figure].

*Figure 3* represents a composition squared without friezes, with squared ears in the four corners, which produces 12 angles [the illustration shows more than 12], which wrap around the joints that are angled in the center of the piece, and according to which

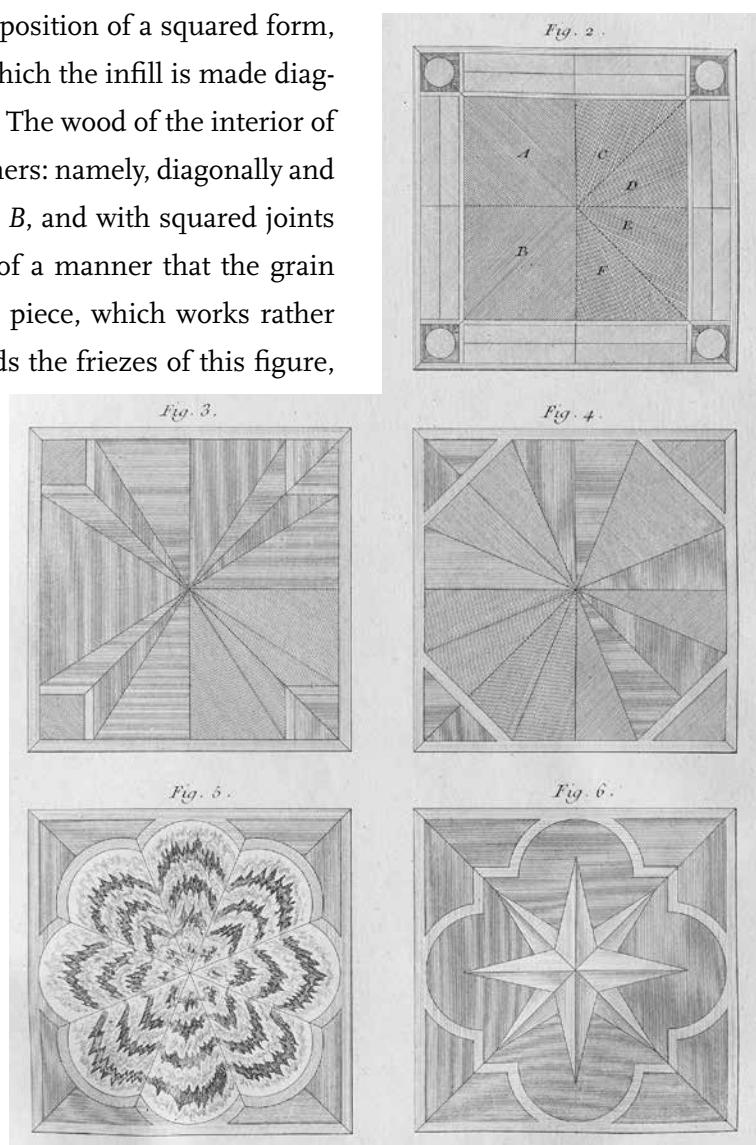
one adjusts the veneer wood in the direction that one judges appropriate, observing nevertheless to do this symmetrically, as I have done in this figure where the veneer wood is placed in three different manners, so that one can choose which one is appropriate.

*Figure 4* represents an octagonal composition, or eight sides, the angles from which start the joints that separate the veneer, or according to which their grains are positioned, so that one can see in this figure, of which a single inspection should suffice for making known all the possible ways of positioning the grain line in a figure of this type.

*Figure 5* represents a circular composition in the form of a rosette with eight sides, surrounded by a flat band and stringwork. This composition makes a very beautiful effect and requires much care to produce all the perfection with which it may be accomplished.

*Figure 6* at last, represents another composition with straight sections and circular sections, of which the middle is filled by a star with eight points made from a wood of a different color from the background in order to make a better contrast.

The compositions that I just presented here, while small in number, give a general idea of the



manner of placing the seams and the grain lines in all possible cases, which constitutes the first part of composition. It is necessary, however, to observe that when the work to be veneered is more of a rectangular form (instead of being square, as in the figures of this Plate), it is always necessary that the joints or the wood grain adapt to the angles in the work, without being concerned whether it is squared or not.<sup>2</sup>

It is hardly possible to give the precepts touching the second type of composition, that is to say, those that are formed by the different shapes that one gives to friezes and to flat bands that surround the panels, given that they depend on the general form of the work and the elaboration which one wants to give, and still more than that, of the creativity of the artist. I will content myself here therefore to give some examples of compositions, both the interior of the panels and the friezes that surround them. I will emphasize those patterns that are the most in use, based on which one can invent others, or make use of those here, as one judges appropriate, the choice of these different compositions being purely a matter of taste.

In making the description [above] of the sections of the first type of veneer work, I supposed they are of a uniform wood, that is to say, of the same color and quality; to the contrary, those of which I am going to speak now are made not only of a wood of a color and quality that is opposite, but also in which one makes the choice of nuance, to make mismatched sections less apparent.

*Figure 1* represents the type of section the most simple of all, and is named *en échiquier* – checkered. It is composed of many squares of wood of different colors, placed alternately side by side, so that a white square is found surrounded by four black squares, and a black square is surrounded by four white squares. This sort of composition, although very simple, requires much attention so that all the joins of each piece align and meet perfectly. It is also necessary to observe that when one makes this sort of composition that the number of squares that comprise them be unequal so that one finds four of the same color on angle, which could not be if the number of squares were equal, as one can see in this figure [this translated text is correct, though confusing]. If it happens that the piece that one would cover with this sort of composition were rectangular, little different from a square, one would divide the two sides of the piece in an equal number of parts, and always in odd number, in order to have the same number of squares on each side; and that these same squares for filling be rectangular, matching with that of each piece to be covered.

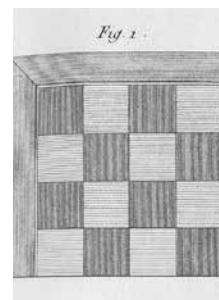
If, on the contrary, the difference in the sides of the piece to be covered is too considerable, one fills it with ordinary squares, to which one adds or subtracts the number as much as necessary, always observing to have an odd number on both the large and the small side of the piece.

As to the color of wood of the type of composition of which I speak, it is unimportant provided that

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Plate 286

Plate 286  
Different Sorts  
of Sections  
Appropriate for  
Infilling Panels



2. This observation, however simple, is very essential, given that it is neglected by many cabinetmakers, who, when they make works of a rectangular form, place the grain line or the joints, commonly, that is to say, squarely, or following the diagonal of a square, which makes a very bad effect because the angles of the compartments of the veneer do not match up with those of the veneer piece, and elongate more or less, according to whether the parallelogram is of a form more or less elongated.

DIVERSES SORTES DE COMPARTIMENTS, PROPRES aux remplissage des Paneaux

Fig. 1.

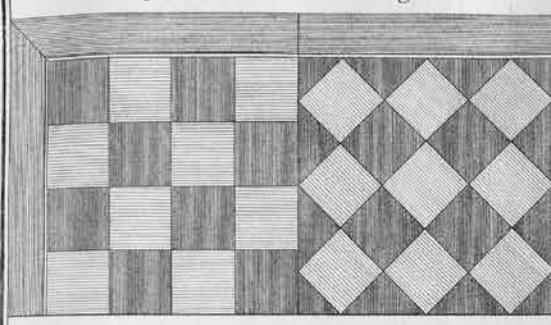


Fig. 2.



Fig. 3.

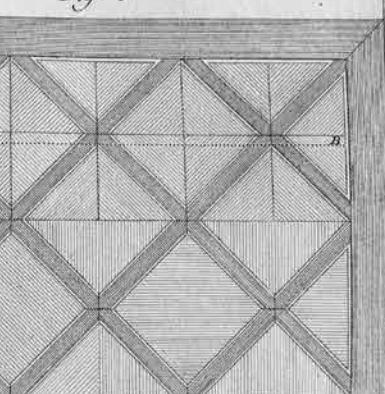


Fig. 4.

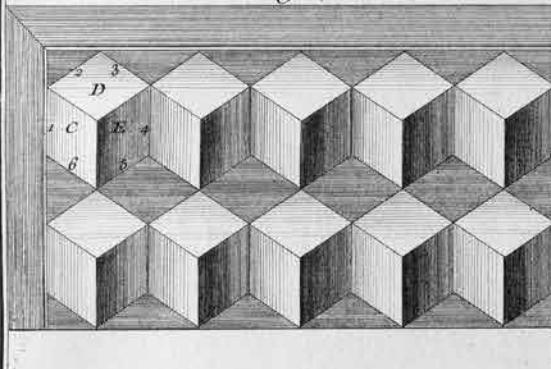


Fig. 5.

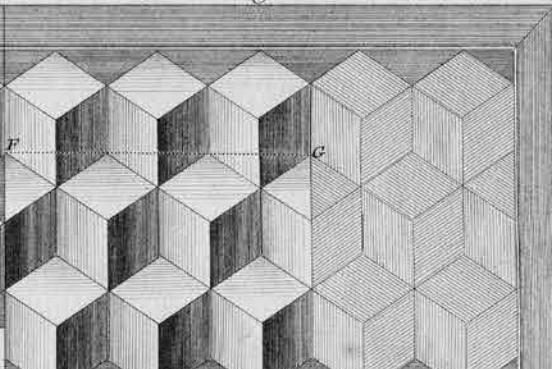


Fig. 6.

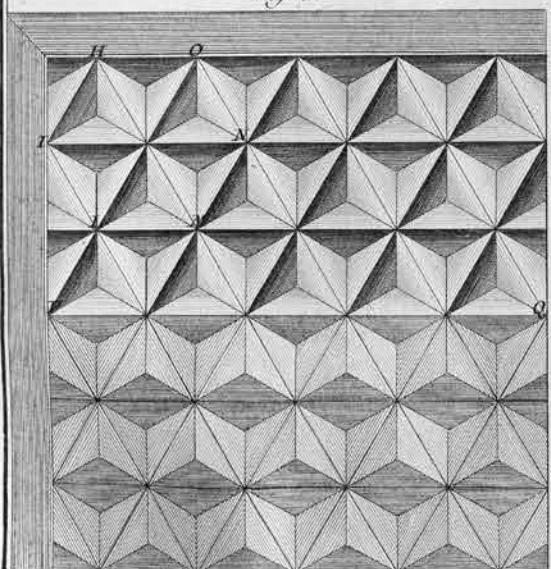
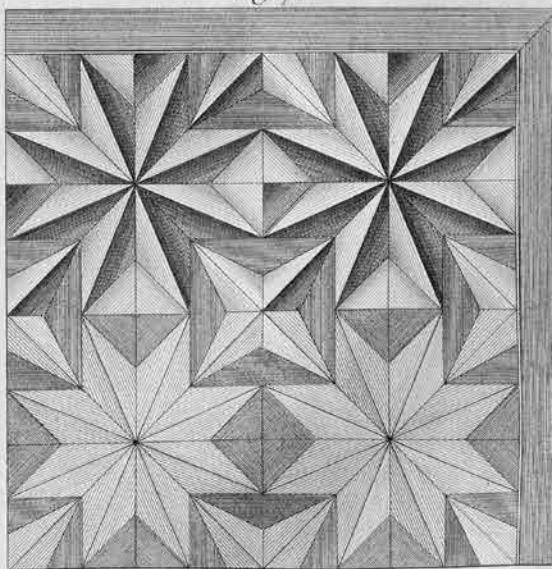


Fig. 7.



A. J. Roubo Inv. Del et Sculp.

Plate 286. Different Sorts of Sections Appropriate for Infilling Panels

the infill squares be of a color distinct from each other and of all the friezes and flat bands that surround them. If it happens that one is obliged to make the friezes or flat bands of the same color as that of one of the two types of squares, it will be necessary to separate them with stringwork extended to the outside edge of the work, as I have shown in the different diagrams of this plate.

*Figure 2* represents another section composed, as with the preceding, of squares of different colors placed alternatively side by side. This second composition differs from the first in that the squares of which it is composed are placed on an angle, which gives them the name “*lozenge pattern*.” This composition works well enough, and is convenient that one can put the squares of which it is composed in an even or odd number, according to how one judges appropriate, observing all the while that a quarter of a square be found in an angle, so that all the squares of the same type touch their points on the flat band or the stringwork of the outer edge, and that the others be all cut in the middle of their length, as I have shown in this figure.

When the space to be covered is found to be a little longer in one direction than the other, one always divides the squares of infill into an equal number on each side, which then will change the form, which, formerly squared, now becomes a lozenge, whether on the length or on the width; and one will always make the divisions with great care, whether of squares or of lozenges. The reason for the divisions is the size of the space to be covered, so that one never finds an irregular cut [presumably meaning that the divisions *should result in whole-number parts, not a fraction*. You cannot have two-thirds of a half of a lozenge when everything else is a full half; does not look good], which is a very great defect, and is absolutely to be avoided in all sorts of divisions regardless of the space, as I have shown in the different divisions represented in this plate.

The divisions of which I just spoke are normally employed in sections of an average size, but when the sections to be covered become too large one makes no use of these divisions but rather surrounds them with flat bands and stringwork, which makes types of frames as in *Fig. 3*, and which gives the option of making for larger squares or lozenges, as much as one judges appropriate.

When one makes these sorts of compositions, their division is made from the inside of flat bands, which serve as frames, without having any regard to the size of the stringwork, so that the angle of this last touches the node of the flat band that surrounded the work, as I have observed in this figure. As these compositions are large, it is necessary to take care that they are very regular, whether they make a perfectly squared or lozenge form, which is equal, provided that one finds at the four corners two half-squares, as in this figure, or even only a quarter of a square supposing that the division ends at line *A-B*, *same figure*.

The interior squares of these compositions may be filled in different manners, as I have shown here. Sometimes one inlays rosettes or other ornaments, which makes a very pretty effect, as I will explain later.

*Figure 4* represents a composition with dice or cubes, placed on a background of whatever color; these dice or cubes are hexagons, placed side by side, in a manner such that their points touch each other, as you can see in this figure.

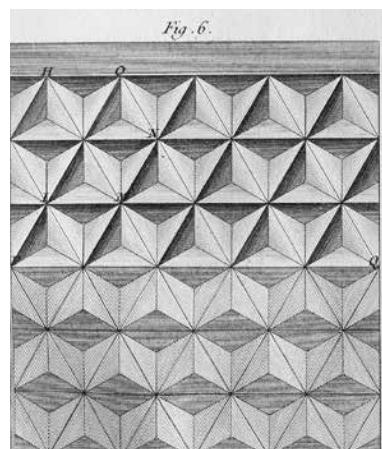
Each of these hexagons, or figures with six sides, is composed of three lozenges of any colors assembled together to make the dice or cubes appear in relief. Lozenge *C* (which is the daylight side) is an example of the shape in question and is made in rosewood. Lozenge *D*, which is the top of the cube, is of grey or yellow wood. Lozenge *E*, which is the shade side, is of violet wood. The remaining space [unmarked but primarily horizontal] is of some other wood that one judges appropriate, provided that it differs in the color of wood that forms the cubes. The cubes should not only differ in color from that of the bottom, but also each lozenge comprising the cube should all be different from each other. One accomplishes this by choosing pieces darker in color from one side to the other, or even by passing them over hot sand, as I will teach later.

*Figure 5* represents another section, which does not differ from that of which I just spoke, except that it does not have any remaining space or background like the last one. To the contrary, all the dice or cubes fit one inside the other without leaving any void space, which works quite well. However, it is good to observe when making this last type of section, to make a space or background between the cubes on top and on the bottom, as I have shown in this figure, which works much better than to see the ends of cubes cut up, as one does ordinarily, and which I have indicated by line *F-G*.

In general, whether the sections of which I am speaking are with a background as in *Fig. 4*, or without a background, as in *Fig. 5*, it is necessary to take great care when making the section that a whole number of cubes is found on the length, and that the uppermost end of these same cubes reach the banding or stringwork that surrounds them, as I have shown here. This is very easy to do since it is only necessary to adjust the proportions of the cubes according to the need, it not being absolutely necessary that the hexagon of the cubes be perfectly regular. Whatever way it can be done is the better way, and is so much easier to do when the three lozenges that compose the hexagon are of a similar shape, which does not ordinarily happen when the hexagon is of an irregular shape.

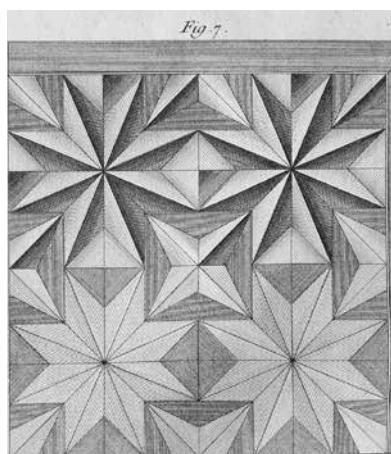
If one does not wish to make dice or projecting cubes, as in *Fig. 5*, one could make sections of cubes to fill the lozenges in a unified wood, which does not work badly when the joints are well made, as one can see in this figure. [This is in fact my favorite manner of preparing a composition such as this. I find the subtlety much more to my taste, especially when using a wood with a fine grain pattern with a noticeable difference from early wood to late wood, such as bald cypress on the radial plane.]

*Figure 6* represents a section with mixed stars, which is a section that is very complex in appearance; however, it is only hexagons, as that of *H, I, L, M, N, O*, which approach and penetrate each other, so that the point of whichever star, becomes the center of another. It is necessary to observe in making these sorts of sections that one finds, as much as possible, a number of hexagons complete in height as is found in this figure, so that the bottom or void remaining at the points of the



stars be similar at the bottom as at the top, which could not be if the section bordered by the line *P-Q*, of which the distance to the top-most stringwork of the section, contains only one-and-a-half hexagons in height. As for the length of this type of section, taken in the direction that is represented in *Fig. 6*, it is not important only that the number of hexagons be complete. It suffices that no points of the stars be cut along the same line, so that this section be as perfect as is possible to be.

These sorts of sections can be made with a projecting appearance, or be filled with segments of the same wood, which is equal for the form and disposition of the joinery, which is always given by the parallel lines, horizontal and perpendicular, and [rather than being comprised of lozenges] by equilateral triangles, of which the tops are opposite one another. Inspecting this illustration alone is by itself better than all the explanations that one can give.



*Figure 7* represents another section, composed of octagons or figures with eight sides, placed in stars with eight sides, which all come to a point in the center. The stars that compose these sections touch each other on their perpendicular and horizontal faces at two points, which produces between them a squared space. This space is filled with the point of a diamond, as in the height of this figure, made from the background veneer. The other squared voids, which produce the return of the points of these same stars, being larger than those of which I just spoke above, are filled in by other stars with four points or some other element placed on the base, which distinguishes them from the rest of the work, as I have shown in the upper part of this figure, of which the stars as much as the points of the diamonds have an obvious [apparent] relief.

Plate 286

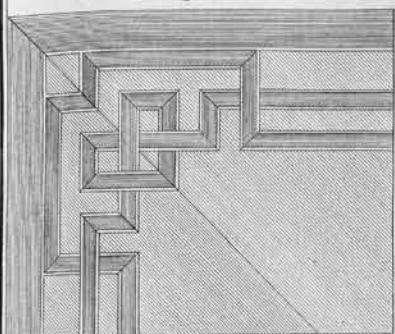
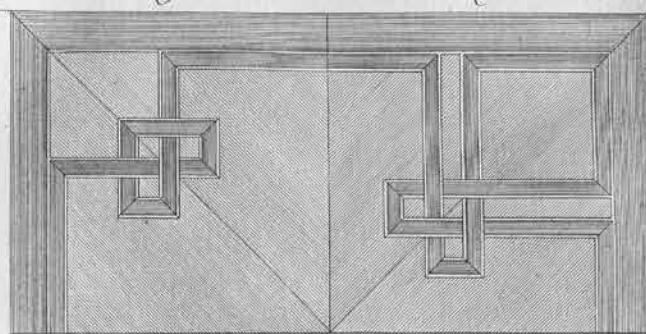
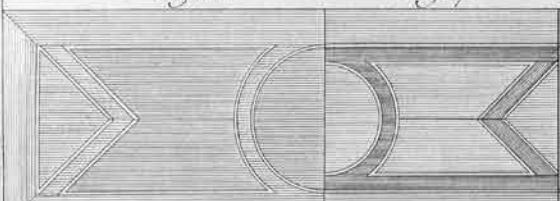
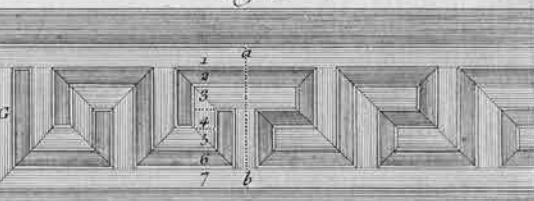
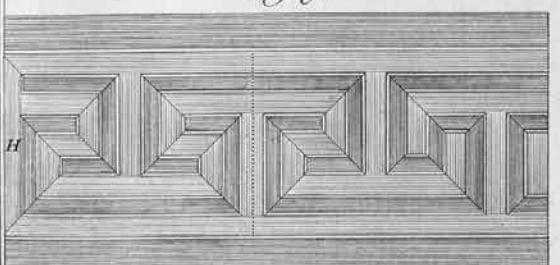
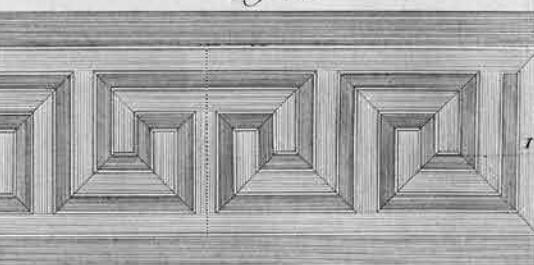
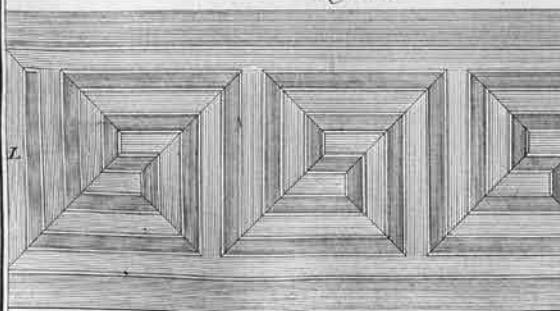
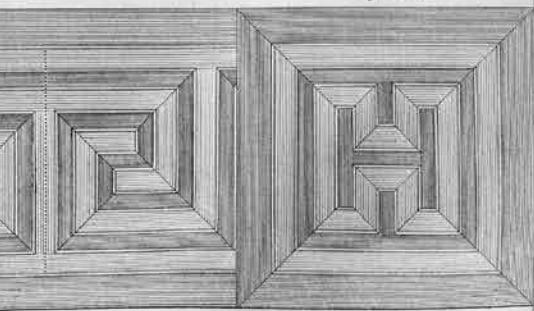
These sorts of sections can also be made entirely of a uniform wood, the stars as well as the background, or even the stars of one color more or less darker than the background, which is made in the same technique.

There are still many more sections appropriate for application to cabinetry panels, the details of which I will not go into here beyond the small number of examples that I just gave in this panel, the explanation that I just made being sufficient to aid in the regular tracing of such sections as one would like. It is important to always make the sections for the space and not the space for the sections, as happens very often. It is also critical to avoid – above all – to infill the panels with sections that are either too large or too small, making it necessary to mutilate their frames or flat bandings on the edges of the panel. This happens only by the negligence of the workers, who once they have made their design for a section and the appropriate tools have been adjusted for the different pieces, do not want to change them. This might be due to laziness or inability, or, which is more accurate, by the impossible situation they are in when the merchants pay only half the amount necessary for it to be well made.

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Cabinetry panels are ordinarily surrounded by friezes, whether of the same wood oriented in different directions, or in compositions, which is the same thing; in one or the other case, one

*COMPARTIMENTS POUR LES ANGLES DES PANNEAUX, ET POUR Les Frieses.*

*Fig. 1.**Fig. 2.**Fig. 3.**Fig. 4.**Fig. 6.**Fig. 7.**A**Fig. 5.**Fig. 8.**Fig. 9.**Fig. 10.**Fig. 11.**Fig. 12.*

*A. J. Roubo, Inv. Del. et Sculp.*

Plate 287  
Sections  
Appropriate for  
Angled Panels  
and for Friezes

sometimes puts banding of different colors, surrounded by stringwork, as I have already said. These bandings form a second frame around the panel, the four angles of which one makes various crossovers [where the banding crosses over itself at 90°], as represented in *Figs. 1, 2 and 3*, which are positioned in the same manner, although different in form, one from the other.

Whether the bandings are simple, as in *Figs. 2 and 3*, or they are doubled, as in *Figure 1*, it is always necessary that they be surrounded by stringwork, which separates them from the rest of the work, which is a general rule in all cases. This stringwork is ordinarily white; however, one can make them of other colors, which is not important, provided that their color makes a break with the woods that separate them, and that they be of a wood very flexible [pliable] and along the grain, so as to be able to work them very easily, as I will teach in a moment. See *Fig. 4*, which represents a banding with its two strings, which are glued there, showing as much of the face as the side.

When the colors of the frieze are very different from that of the panels, it happens that the stringwork does not distinguish enough from one or the other color, which obliges putting a double stringwork of two different colors, which are in opposition with the background of the work, which is a different color. Look at *Fig. 5*, which represents stringwork of five types, namely a double stringwork, side A-B; a triple stringwork, of which the middle is black, side C; another triple stringwork of which the middle is white, side D; a triple stringwork of which the middle is half black and white, side E; finally another type of triple stringwork, of which the three parts that make it are all half-colors, and in opposition one to the other, side F.

Friezes are sometimes made of sections with woods of different colors, which form simple frames, or are filled in across their whole width, by whichever composition. The first way to make friezes, represented in *Figs. 6 and 7*, is the simplest, and does not require any more care than to trace regular circles or lozenges, whether these friezes be without bandings, as in *Fig. 6*, or with bandings, as in *Fig. 7*.

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The second way to fill in the interior of friezes is much more complicated than the first, because the space of these last ones being ordinarily limited, the parts that compose the composition of which they are filled in can only be very small. This makes their perfect execution very difficult, especially since one normally puts Greek keys or broken bands there, which are comprised of a large number of different small pieces, as one can see in *Figs. 8, 9, 10, 11 and 12*.

The Greek keys or broken bands, represented in these different figures, are more or less composed according to the size of the friezes, and are traced in the same manner, as I am going to explain.

When one wishes to trace this sort of ornament, it is necessary first of all, after having traced the middle of the frieze, as line *a-b*, *Fig. 8*, to divide the width of the frieze in as many equal parts as the composition requires, seven being the number in this figure [the filled being equal to the empty; in other words, there is balance between the positive and negative space]. This being done, one traces as many parallel lines as there are points in the given division; then one traces these same spaces or divisions perpendicularly, observing that one finds one in the middle of the work, as in this figure; after which one determines the shape of the broken bands, to which one makes

as many turns as are necessary to fill in the length of the frieze, observing that at the end, one has made an entire revolution, or at least a happy ending, without having seemed to have been cut, as I had to do in *Fig. 8, side G*; in that of *Fig. 9, side H*; that of *Fig. 10, side I*, and that of *Fig. 11, side L*.

One inconvenient observation is that if the width of the frieze is bordered, its length cannot be made until after dividing this same width in as many pieces as one judges appropriate, as one could see above. If, on the contrary, it is the length of the frieze that is given, as happens ordinarily, one cannot determine the width until after having made the choice of composition that one wants to use, and of the number of turns that half of the length of the frieze could contain, which will give a number of whichever parts, on which one divides the middle of the length of the frieze, observing still to put one of these divisions in the middle of the length. The division of the length of the frieze once made, one will easily have the width, since the division is already made, repeated as many times as necessary, according to the adopted composition that is given.

What I just said touching on the division of *Fig. 8* is applicable to all the others of such types as they can be; that is why I do not speak any further of this, given that only an inspection of the figures can, and even should suffice, for as much as one wishes to pay attention.

*Page 830*

*Figure 12* represents a type of composition appropriate for filling boxes or squared sections, separated one from the others, as is found sometimes, especially in the corners of friezes, where they can take the place of rosettes or other ornaments.

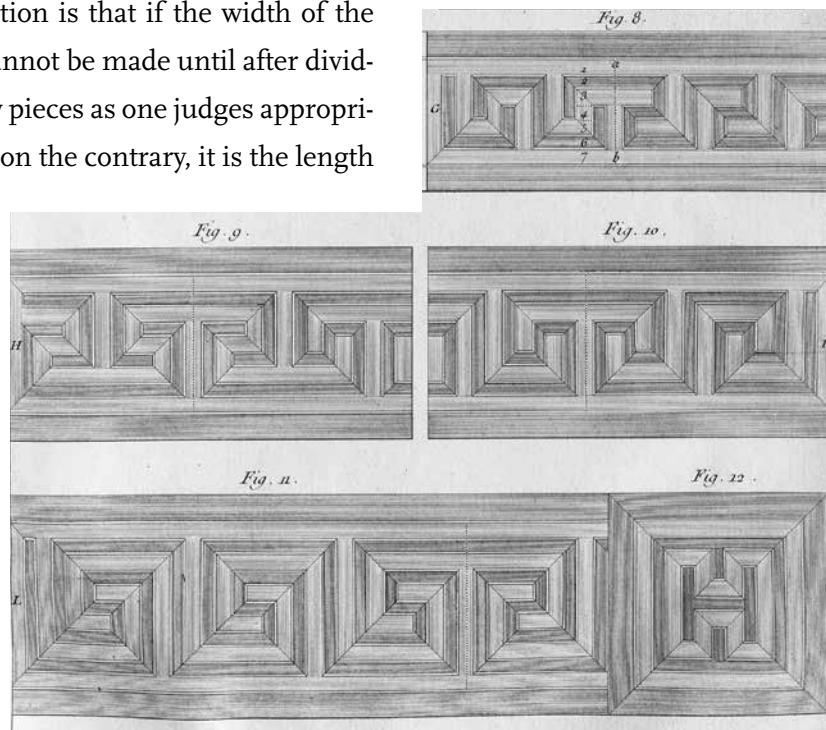
In general, all parts that compose these compositions of which I am speaking should be fitted by miters in all their angles; and one should take great care that they align well one with the other in all directions, the tightness of their fit making the principal beauty of these sorts of compositions, and of all others in general.

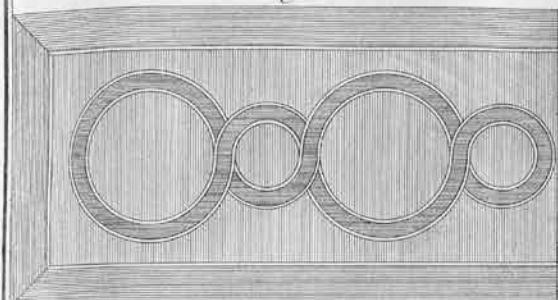
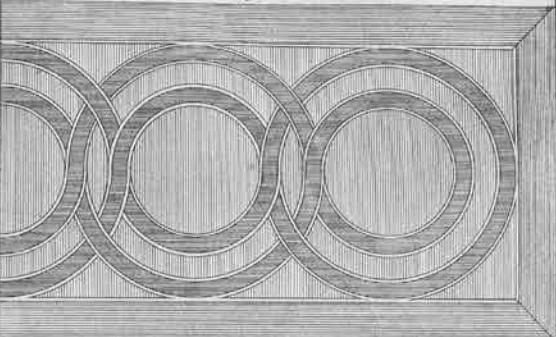
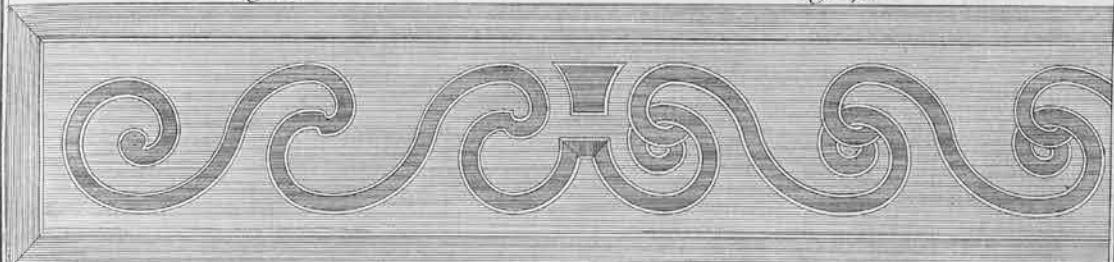
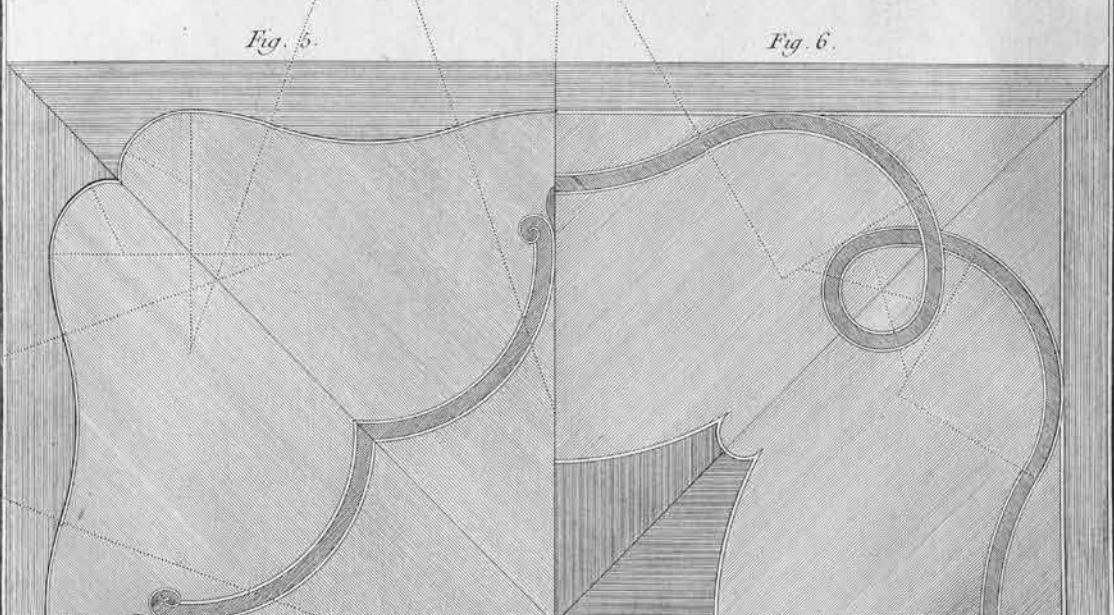
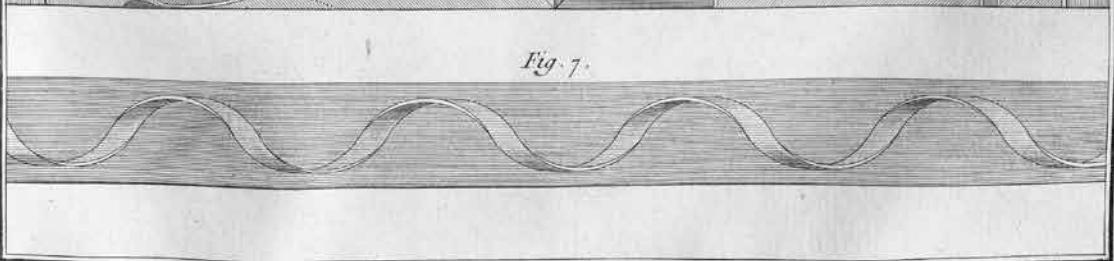
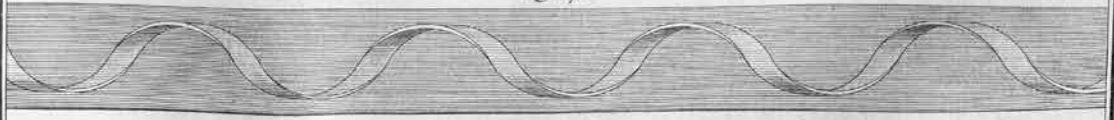
*Plate 288  
Circular Sections  
for Friezes and  
Panels*

Friezes are filled also with circular compositions, such as round interlaced ribbons, or ovals, simple or double, which are always surrounded by stringwork and are inlaid on a solid background, whether of plain wood or in a harmonious manner. See *Figs. 1 and 2*.

Sometimes instead of round interlacing, one puts simple relays of equal size in the entire contour, as in *Figs. 3 and 4*.<sup>3</sup>

3. There are occasions where the interlacings are filled with rosettes and the flourishing relays, that is to say, ornamented with flourishes of ornaments; but now is not the place to talk about this given that this description belongs to the second type of veneer work, to which I will not proceed until after having exhausted all there is to say on this topic.



*COMPARTIMENTS CIRCULAIRES POUR LES FRISES ET LES PANNEAUX.**Fig. 1.**Fig. 2.**Fig. 3.**Fig. 4.**Fig. 5.**Fig. 6.**Fig. 7.*

*A. J. Roubo Inv. Del. et Sculp.*