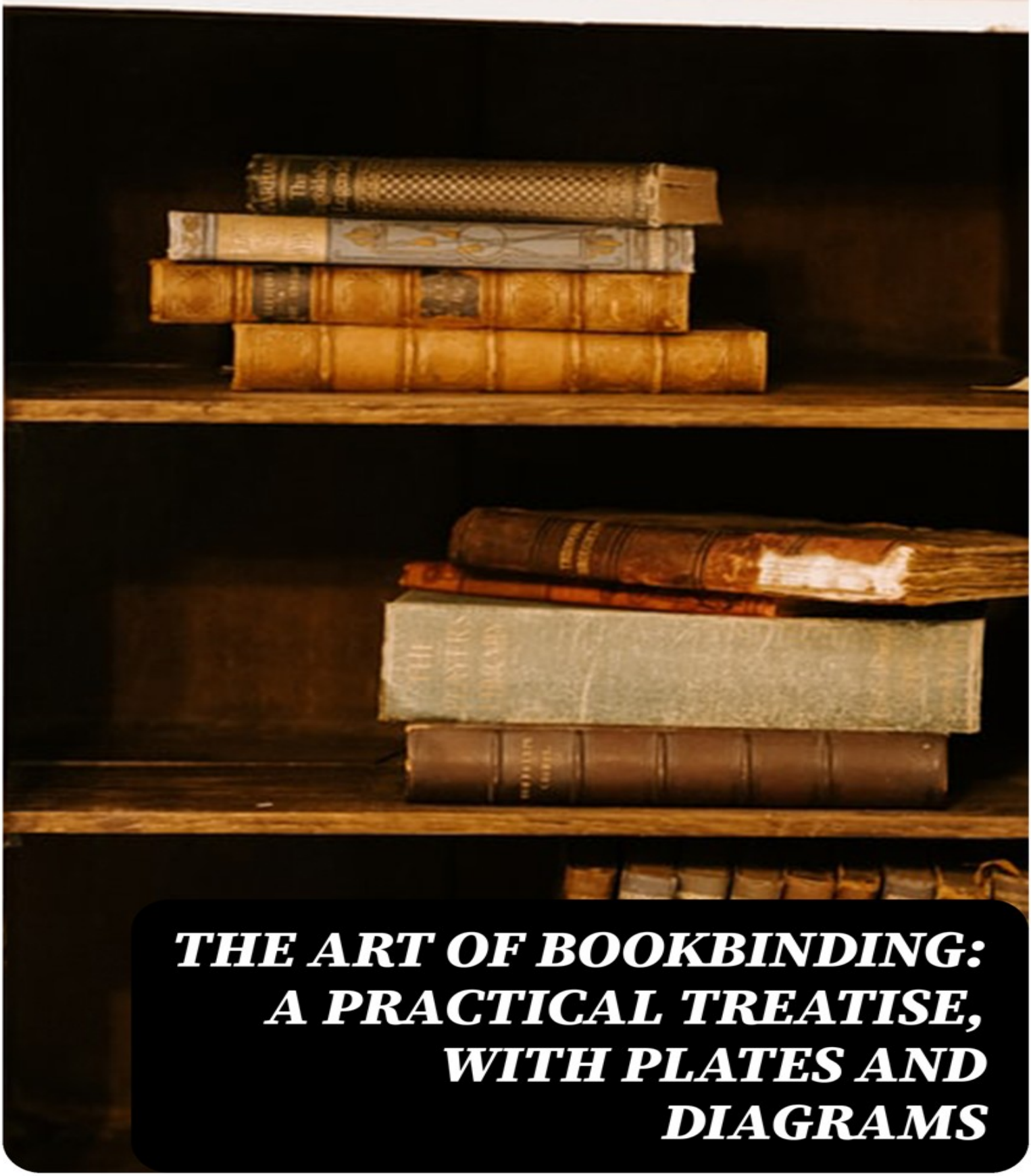
JOSEPH WILLIAM ZAEHNSDORF



THE ART OF BOOKBINDING: A PRACTICAL TREATISE, WITH PLATES AND DIAGRAMS

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The Art of Bookbinding: A practical treatise, with plates and diagrams

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Table of Contents

INTRODUCTION.

Table of Contents

Bookbinding carries us back to the time when leaden tablets with inscribed hieroglyphics were fastened together with rings, which formed what to us would be the binding of the volumes. We might go even still further back, when tiles of baked clay with cuneiform characters were incased one within the other, so that if the cover of one were broken or otherwise damaged there still remained another, and yet another covering; by which care history has been handed down from generation to generation. The binding in the former would consist of the rings which bound the leaden tablets together, and in the latter, the simple covering formed the binding which preserved the contents.

We must pass on from these, and make another pause, when vellum strips were attached together in one continuous length with a roller at each end. The reader unrolled the one, and rolled the other as he perused the work. Books, prized either for their rarity, sacred character, or costliness, would be kept in a round box or case, so that the appearance of a library in Ancient Jerusalem would seem to us as if it were a collection of canisters. The next step was the fastening of separate leaves together, thus making a back, and covering the whole as a protection in a most simple form; the only object being to keep the several leaves in connected sequence. I believe the most ancient form of books formed of separate leaves, will be found in the sacred books of Ceylon which were formed of palm leaves, written on with a metal style, and the binding was

merely a silken string tied through one end so loosely as to admit of each leaf being laid down flat when turned over. When the mode of preserving MS. on animal membrane or vellum in separate leaves came into use, the binding was at first only a simple piece of leather wrapped round the book and tied with a thong. These books were not kept on their edges, but were laid down flat on the shelves, and had small cedar tablets hanging from them upon which their titles were inscribed.

The ordinary books for general use were only fastened strongly at the back, with wooden boards for the sides, and simply a piece of leather up the back.

In the sixth century, bookbinding had already taken its place as an “Art,” for we have the “Byzantine coatings,” as they are called. They are of metal, gold, silver or copper gilt, and sometimes they are enriched with precious stones. The monks, during this century, took advantage of the immense thickness of the wooden boards and frequently hollowed them out to secrete their relics in the cavities. Bookbinding was then confined entirely to the monks who were the literati of the period. Then the art was neglected for some centuries, owing to the plunder and pillage that overran Europe, and books were destroyed to get at the jewels that were supposed to be hidden in the different parts of the covering, so that few now remain to show how bookbinding was then accomplished and to what extent.

We must now pass on to the middle ages, when samples of binding were brought from the East by the crusaders, and these may well be prized by their owners for their delicacy of finish. The monks, who still held the Art of Bookbinding in

their hands, improved upon these Eastern specimens. Each one devoted himself to a different branch: one planed the oaken boards to a proper size, another stretched and coloured the leather; and the work was thus divided into branches, as it is now. The task was one of great difficulty, seeing how rude were the implements then in use.

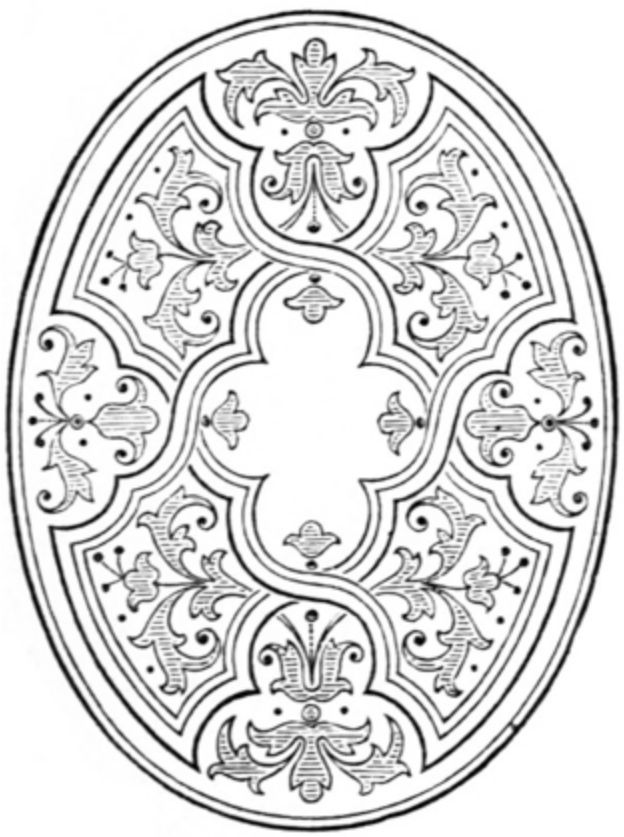
Monastic.

Venetian.

The art of printing gave new life to our trade, and, during the fifteenth century bookbinding made great progress on account of the greater facility and cheapness with which books were produced. The printer was then his own binder; but as books increased in number, bookbinding became a separate art-trade of itself. This was a step decidedly in the right direction. The art improved so much, that in the sixteenth century some of the finest samples of bookbinding

were executed. Morocco having been introduced, and fine delicate tools cut, the art was encouraged by great families, who, liking the Venetian patterns, had their books bound in that style. The annexed woodcut will give a fair idea of a Venetian tool. During this period the French had bookbinding almost entirely in their hands, and Mons. Grolier, who loved the art, had his books bound under his own supervision in the most costly manner. His designs consisted of bold gold lines arranged geometrically with great accuracy, crossing one another and intermixed with small leaves or sprays. These were in outlines shaded or filled up with closely worked cross lines. Not, however, satisfied with these simple traceries, he embellished them still more by staining or painting them black, green, red, and even with silver, so that they formed bands interlacing each other in a most graceful manner. Opposite is a centre block of Grolier. It will be seen how these lines entwine, and how the small tools are shaded with lines. If the reader has had the good fortune to see one of these specimens, has he not wondered at the taste displayed? To the French must certainly be given the honour of bringing the art to such a perfection. Francis I. and the succeeding monarchs, with the French nobility, placed the art on such a high eminence, that even now we are compelled to look to these great masterpieces as models of style. Not only was the exterior elaborate in ornament, but the edges were gilded and tooled; and even painted. We must wonder at the excellence of the materials and the careful workmanship which has preserved the bindings, even to the colour of the leather, in perfect condition to the present day.

GROLIER.
Royal folio



Grolier.

There is little doubt that the first examples of the style now known as "*Grolier*" were produced in Venice, under the eye of Grolier himself, and according to his own designs; and that workmen in France, soon rivalled and excelled the early attempts. The work of Maioli may be distinctly traced by the bold simplicity and purity of his designs; and more especially by the broader gold lines which margin the coloured bands of geometric and arabesque ornamentation.

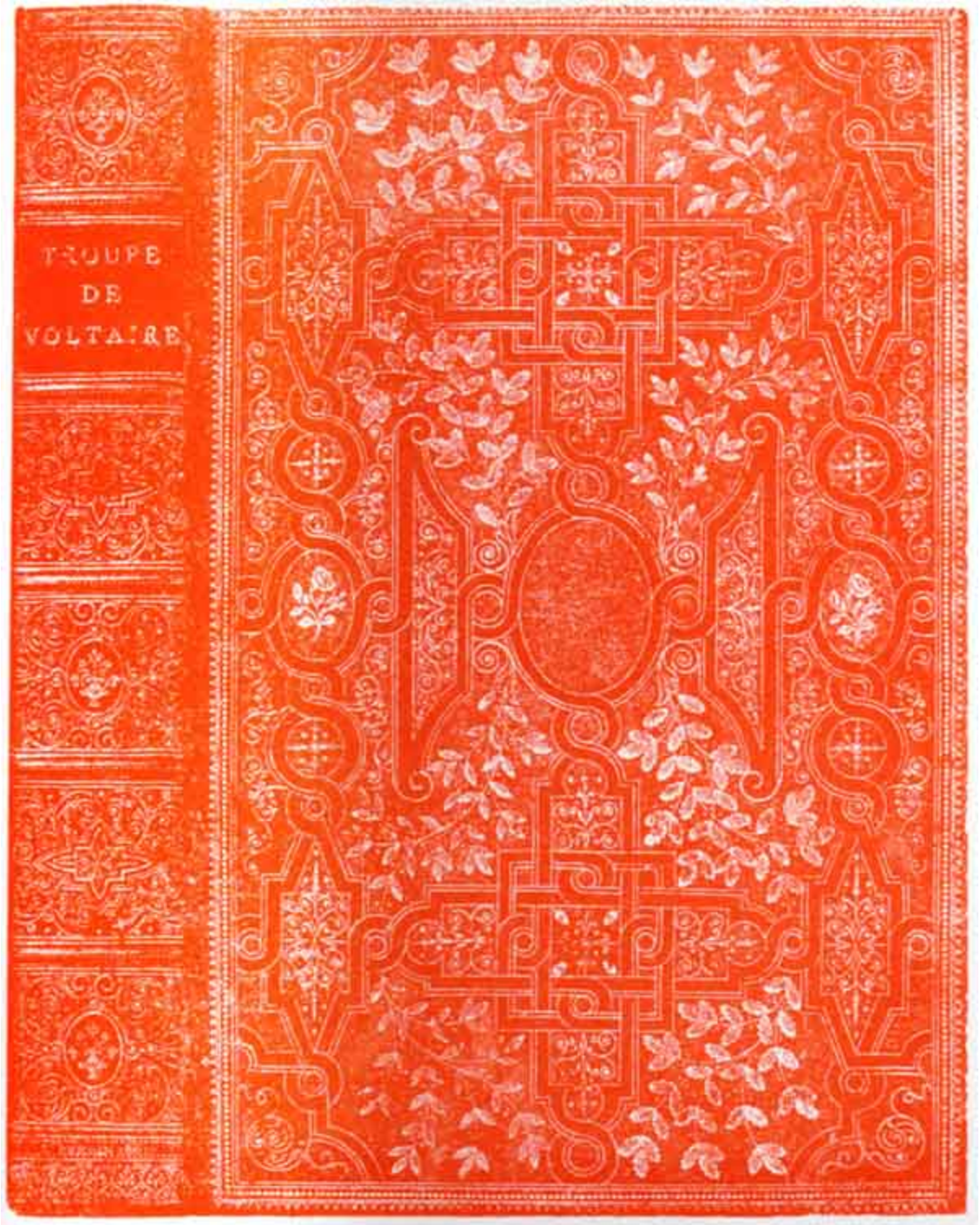
All books, it must be understood, were not bound in so costly a manner, for we find pigskin, vellum and calf in use. The latter was especially preferred on account of its peculiar softness, smooth surface, and great aptitude for receiving impressions of dumb or blind tooling. It was only towards

the latter part of the sixteenth century that the English binders began to employ delicate or fine tooling.

During the seventeenth century the names of Du Sueil and Le Gascon were known for the delicacy and extreme minuteness of their finishing. Not disdaining the bindings of the Italian school, they took from them new ideas; for whilst the Grolier bindings were bold, the Du Sueil and Le Gascon more resembled fine lace work of intricate design, with harmonizing flowers and other objects, from which we may obtain a great variety of artistic character. During this period embroidered velvet was much in use. Then a change took place and a style was adopted which by some people would be preferred to the gorgeous bindings of the sixteenth century. The sides were finished quite plainly with only a line round the edge of the boards (and in some instances not even that) with a coat of arms or some badge in the centre.

Towards the end of the seventeenth century bookbinding began to improve, particularly with regard to forwarding. The joints were true and square, and the back was made to open more freely. In the eighteenth century the names of Derome, Roger Payne, and others are prominent as masters of the craft, and the Harleian style was introduced.

The plate facing may be fairly estimated as a good specimen of Derome. Notice the extreme simplicity and yet the symmetry of the design; its characteristic feature being the boldness of the corners and the gradual diminishing of the scroll work as it nears the centre of the panel. Morocco and calf were the leathers used for this binding.



GASCON.
8vo
T. Way, Photo-lith.

Hand coloured calf was at this period at its height, and the Cambridge calf may be named as a pattern of one of the various styles, and one that is approved of by many at the present day—the calf was sprinkled all over, save a square panel left uncoloured in the centre of the boards.

Harleian.

The Harleian style took its name from Harley, Earl of Oxford. It was red morocco with a broad tooled border and centre panels. We have the names of various masters who pushed the art forward to very great excellence during this century. Baumgarten and Benedict, two Germans of considerable note in London; Mackinly, from whose house also fine work was sent out, and by whom good workmen were educated whose specimens almost equal the work of their master. There were two other Germans, Kalthoeber and Staggemeier, each having his own peculiar style. Kalthoeber is credited with having first introduced painting on the edges. This I must dispute, as it was done in the

sixteenth century. To him, however, must certainly be given the credit of having discovered the secret, if ever lost, and renewing it on his best work. We must now pass on to Roger Payne, that unfortunate and erring man but clever workman, who lived during the latter part of the eighteenth century. His taste may be seen from the woodcut. He generally used small tools, and by combining them formed a variety of beautiful designs. He cut most of these tools himself, either because he could not find a tool cutter of sufficient skill, or that he found it difficult to pay the cost. We are told by anecdote, that he drank much and lived recklessly; but notwithstanding all his irregular habits, his name ought to be respected for the work he executed. His backs were firm, and his forwarding excellent; and he introduced a class of finishing that was always in accordance with the character or subject of the book. His only fault was the peculiar coloured paper with which he made his end papers.

Roger Payne.

Coloured or fancy calf has now taken the place of the hand-coloured. Coloured cloth has come so much into use, that this branch of the trade alone monopolizes nearly three-fourths of the workmen and females employed in bookbinding. Many other substitutes for leather have been introduced, and a number of imitations of morocco and calf are in the market; this, with the use of machinery, has made so great a revolution in the trade, that it is now divided into two distinct branches—cloth work and extra work.

I have endeavoured in the foregoing remarks to raise the emulation of my fellow craftsmen by naming the most famous artists of past days; men whose works are most worthy of study and imitation. I have refrained from any

notice or criticism of the work of my contemporaries; but I may venture to assure the lover of good bookbinding that as good and sound work, and as careful finish, may be obtained in a first-rate house in London as in any city in the world.

In the succeeding chapters, I will endeavour in as plain and simple a way as I can to give instructions to the unskilled workman *how to bind a book*.

PART I. FORWARDING.

Table of Contents

|3|

THE ART OF BOOKBINDING. CHAPTER I. FOLDING.

Table of Contents

We commence with *folding*. It is generally the first thing the binder has to do with a book. The sheets are either supplied by the publisher or printer (mostly the printer); should the amateur wish to have his books in sheets, he may generally get them by asking his bookseller for them. It is necessary that they be carefully folded, for unless they are perfectly even, it is impossible that the margins (the blank space round the print) can be uniform when the book is cut. Where the margin is small, as in very small prayer books, a very great risk of cutting into the print is incurred; besides, it is rather annoying to see a book which has the folio or paging on one leaf nearly at the top, and on the next, the print touching the bottom; to remedy such an evil, the printer having done his duty by placing his margins quite true, it remains with the binder to perfect and bring the sheet into proper form by folding. The best bound book may be spoilt by having the sheets badly folded, and the binder is perfectly justified in rejecting any sheets that may be badly printed, that is, not in register. |4|

The sheets are laid upon a table with the signatures (the letters or numbers that are at the foot of the first page of each sheet when folded) facing downwards on the left hand side. A folding-stick is held in the right hand, and the sheet is brought over from right to left, the folios being carefully placed together; if the paper is held up to the light, and is

not too thick, it can be easily seen through. Holding the two together and laying them on the table the folder is drawn across the sheet, creasing the centre; then, holding the sheet down with the folder on the line to be creased, the top part is brought over and downwards till the folios or the bottom of the letterpress or print is again even. The folder is then drawn across, and so by bringing each folio together the sheet is completed. The process is extremely simple. The octavo sheet is *generally* folded into 4 folds, thus giving 8 leaves or 16 pages; a quarto, into 2, giving 4 leaves or 8 pages, and the sheets properly folded, will have *their signatures outside* at the foot of the first page. If the signature is not on the outside, one may be certain that the sheet has been wrongly folded.

I say *generally*; at one time the water or wire mark on the paper and the number of folds gave the size of the book.

There are numerous other sizes, but it is not necessary to give them all; the process of folding is in nearly all cases the same; here are however, a few of the sizes given in inches.

Foolscap 8vo.	6⅝	×	4⅛
Demy 12mo.	7⅜	×	4⅜
Crown 8vo.	7½	×	5
Post 8vo.	8	×	5
Demy 8vo.	9	×	5½
Medium 8vo.	9⅝	×	5¾
Small Royal 8vo.	10	×	6¼

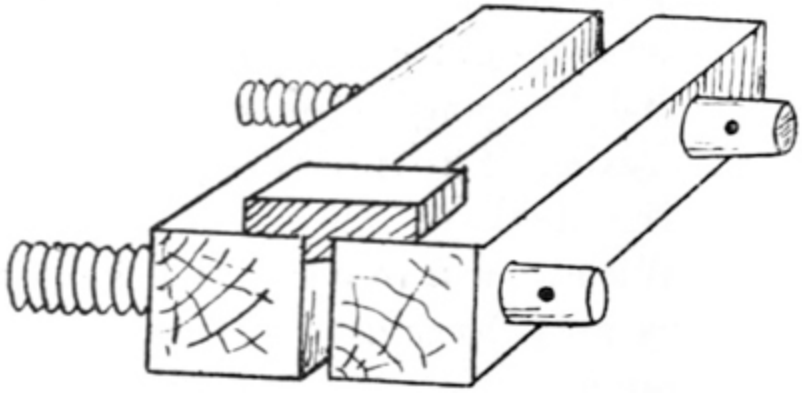
Large Royal 8vo.	10 1/2	×	6 3/4
Imperial 8vo.	11	×	7 1/2
Demy 4to.	11	×	9
Medium 4to.	11 3/4	×	9 5/8
Royal 4to.	12 1/2	×	10
Imperial 4to.	15	×	11
Crown Folio.	15	×	10
Demy Folio	18	×	11

As a final caution, the first and last sheets must be carefully examined; very often the sheet has to be cut up or divided, and the leaf or leaves placed in various positions in the book.

It is also advisable to cut the head of the sheets, using the folding-stick, cutting just beyond the back or middle fold; this prevents the sheet running into a side crease when pressing or rolling. Should such a crease occur the leaf or sheet must be damped by placing it between wet paper and subjecting it to pressure; no other method is likely to erase the break.

Refolding.—With regard to books that have been issued in numbers, they must be *pulled to pieces* or divided. The parts being arranged in consecutive order, so that not so much difficulty will be felt in collating the sheets, the outside wrapper is torn away, and each sheet pulled singly from its neighbour, care being taken to see if any thread used in sewing is in the centre of the sheet at the back; if

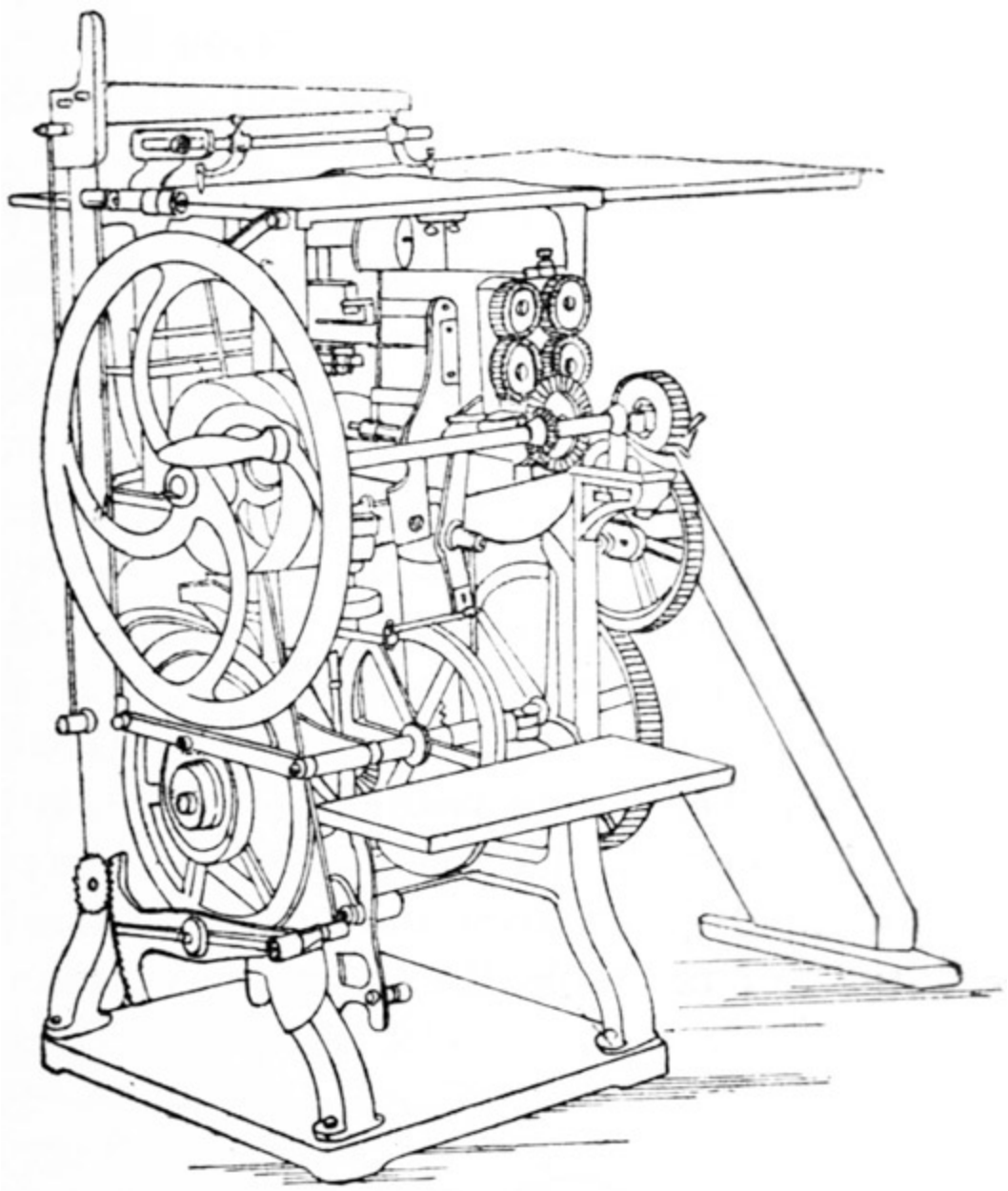
so, it must be cut with a knife or it will tear the paper. As the sheets are pulled they must be laid on the left hand side, each sheet being placed face downwards; should they be placed face upwards the first sheet will be the last and the whole will require rearranging. All advertisements may be placed away from the sheets into a pile; these will be found very handy for lining boards, pasting on, or as waste. The title and contents will generally be found in the last part; place them in their proper places. The sheets must now be refolded, if improperly folded in the first instance. |6| Turn the whole pile (or book now) over, and again go through each sheet; alter by refolding any sheet that may require it. Very often the sheets are already cut, and in this case the section must be dissected and each leaf refolded and reinserted in proper sequence, and placed carefully head-line to head-line. Great care must be exercised, as the previous creasings render the paper liable to be torn in the process.



Knocking-down Iron screwed into Press.

Books that have been bound and cut would be rendered often worse by refolding, and as a general rule they are left alone. Bound books are pulled to pieces in the same manner, always taking care that the thread is cut or loose

before tearing the sheet away; should trouble arise through the glue, etc., not coming away easily, the back may be damped with a sponge lightly charged with water, or perhaps a better method is to place the book or books in a press, screw up tightly, and soak the backs with thin paste, leaving them soaking for an hour or two; they will want repasting two or three times during the period; the whole of the paper, glue, and leather can then be easily scraped away with a blunt knife; a handful of shavings rubbed over the back will make it quite clean, and no difficulty will be met with if the sections are taken apart while damp. The sections must, as pulled, be placed evenly one on |7| the other, as the paper at back retains sufficient glue to cause them to stick together if laid across one another; the whole must then be left to dry. When dry the groove should be knocked down on a flat surface, and for this the knocking-down iron screwed up in the lying press is perhaps the best thing to use. The groove is the projecting part of the book close to the back, caused by the backing, and is the groove for the back edge of the mill-board to work in by a hinge; this hinge is technically called the “joint.”



Martini’s Folding Machine.

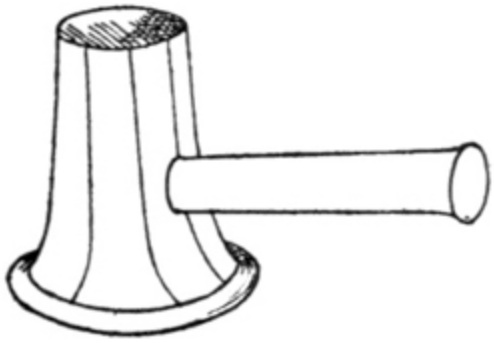
Machines.—There are many folding machines made by the various machinists; the working of them, however, is in nearly all cases identical. The machine is generally |8| fed by a girl, who places the sheet to points, the arm lifting up at given periods to allow placing the sheet. Another arm carrying a long thin blade descends, taking the sheet through a slot in the table, where it is passed between

rollers; another set of rollers at right angles creases it again. The rollers are arranged for two, three, or more creasings or folds. The sheets are delivered at the side into a box, from which they are taken from time to time. The cut is one of Martini’s, and is probably the most advanced.

Gathering.—A *gathering machine* has been patented which is of a simple but ingenious contrivance for the quick gathering of sheets. The usual way to gather, is by laying piles of sheets upon a long table, and for the gatherer to take from each pile a sheet in succession. By the new method a round table is made to revolve by machinery, and upon it are placed the piles of sheets. As the table revolves the gatherer takes a sheet from each pile as it passes him. It will at once be seen that not only is space saved, but that a number of gatherers may be placed at the table; and that there is no possibility of the gatherers shirking their work, as the machine is made to register the revolutions. By comparing the number of sheets with the revolutions of the table, the amount of work done can be checked.

CHAPTER II. BEATING AND ROLLING.

Table of Contents



Beating Hammer.

The object of beating or rolling is to make the book as solid as possible. For beating, a stone or iron slab, used as a bed, and a heavy hammer, are necessary. The stone or iron must be perfectly smooth, and should be bedded with great solidity. I have in use an iron bed about two feet square, fitted into a strongly-made box, filled with sand, with a wooden cover to the iron when not in use. The hammer should be somewhat bell-shaped, and weigh about ten pounds, with a short handle, made to *fit the hand*. The face of the hammer and stone (it is called a beating-stone whether it be stone or iron), must be kept perfectly clean, and it is advisable always to have a piece of paper at the top and bottom of the sections when

beating, or the repeated concussion will glaze them.

The book should be divided into lots or sections of about half an inch thick, that will be about fifteen to twenty sheets, according to the thickness of paper. A section is now to be held on the stone between the fingers and thumb of the left hand; then the hammer, grasped firmly in the right hand, is raised, and brought down with rather more than its own weight on the sheets, which must be continually moved round, turned over and changed about, in order that they may be equally beaten all over. |10| By passing the section between the finger and thumb, it can be felt at once, if it has been beaten properly and evenly. Great care must be taken that in each blow of the hammer it shall have the face fairly on the body of the section, for if the hammer is so used that the greatest portion of the weight should fall outside the edge of the sheets the concussion will break away the paper as if cut with a knife. It is perhaps better for a beginner to practise on some waste paper before attempting to beat a book; and he should always rest when the wrist becomes tired. When each section has been beaten,

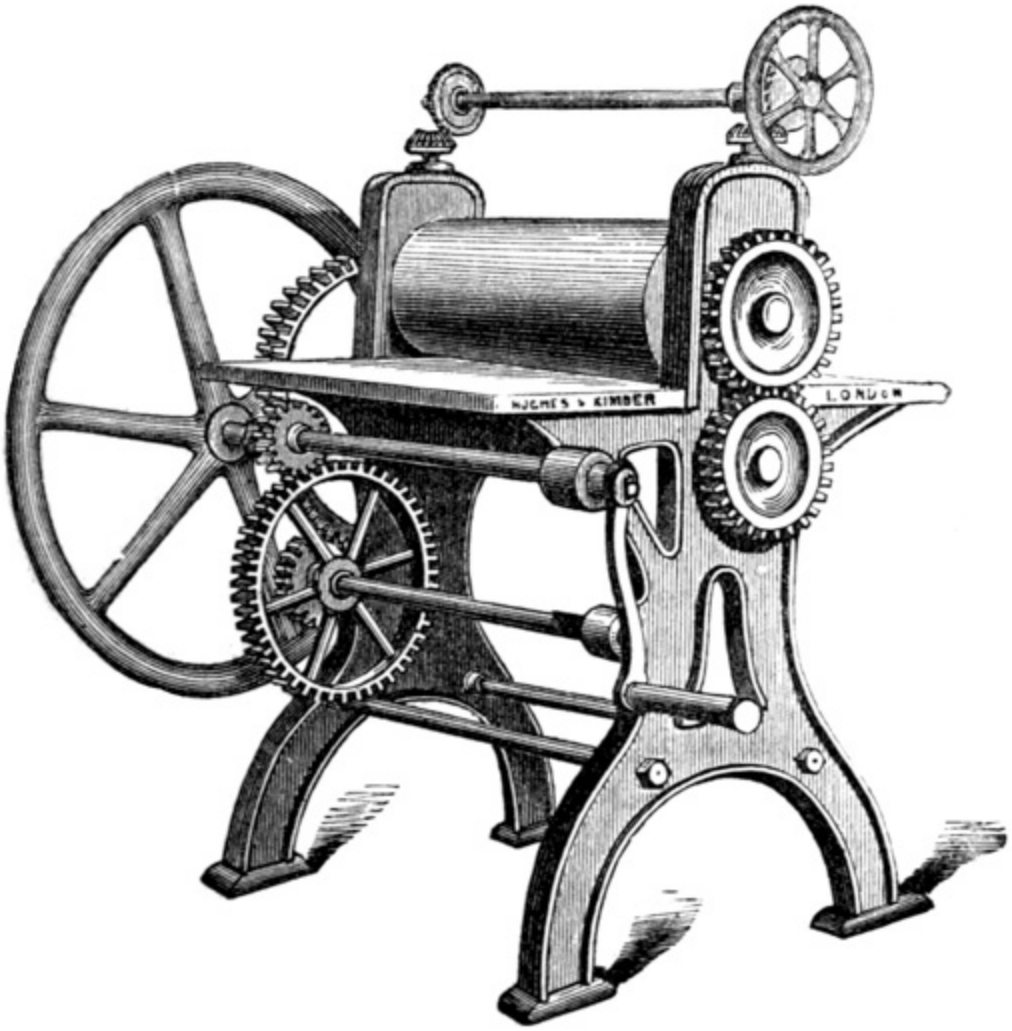
supposing a book has been divided into four sections, the whole four should be beaten again, but together.

I do not profess a preference to beating over rolling because I have placed it first. The rolling machine is one of the greatest improvements in the trade, but *all books should not be rolled*, and a bookbinder, I mean a practical bookbinder, not one who has been nearly the whole of his lifetime upon a cutting machine, or at a blocking press, and who calls himself one, but a competent bookbinder, should know how and when to use the beating hammer and when the rolling machine.

There are some books, old ones for instance, that should on no account be rolled. The clumsy presses used in printing at an early date gave such an amount of pressure on the type that the paper round their margins has sometimes two or three times the thickness of the printed portion. At the present time each sheet after having been printed is pressed, and thus the leaf is made flat or nearly so, and for such work the rolling machine is certainly better than the hammer.

To roll a book, it is divided into sections as in beating, only not so many sheets are taken—

from six upwards, according to the quality of the work to be executed. The sheets are then placed between tins, and the whole passed |11| between the rollers, which are regulated by a screw, according to the thickness of sections and power required. The workman, technically called “Roller,” has to be very careful in passing his books through, that his hand be not drawn in as well, for accidents have from time to time occurred through the inattention of the Roller himself, or of the individual who has the pleasure of applying his strength to turning the handle.



Rolling Machine.

I never pass or hear a rolling machine revolving very rapidly without having vividly brought to my mind a very serious accident that happened to my father. He was feeling for a flaw on one of the rollers, and whilst his hands |12| were at the edge of the rollers the man turned the handle, drawing the whole hand between the heavy cylinders. The accident cost him many months in the hospital,