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MANUAL  
OF  
BUHL-WORK & MARQUETRY.

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MANUAL

OF

BUNN-WORK

AND

MARQUETRY

WITH PRACTICAL INSTRUCTIONS FOR LEARNERS,

AND

NINETY COLORED DESIGNS

BY

W. BEMROSE, JUN.,

AUTHOR OF "MANUAL OF WOOD CARVING," "FRET CUTTING," ETC., ETC.

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## INTRODUCTION.

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“Patience and ingenuity  
The want of natural gifts supply.”

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S a sequel to the two works, “Manual of Wood Carving” and “Fret-cutting,” which have been so well received as to call for several editions, the writer has been induced to add another Manual, for the Sister Arts of Buhl-work and Marquetry.

Neither of these arts have been practised to any great extent by amateurs, the class for whose instruction in particular the present volume is issued. Excellence is obtainable in Buhl-work and Marquetry in no less degree than in Wood-carving and Fret-cutting, and not only are they arts which are rapidly reviving as contributing to the elegance and adornment of home, but they present openings for remunerative employment which are so much needed for many who have cultivated taste and leisure.

It has been the aim of the writer to give the instructions in clear and simple language—free from trade technicalities and lectures on art matters—accompanied by a series of progressive designs, which will guide the Student to the attainment of considerable excellence in the art, and place him in a position to carry out larger works, whether copies of well known examples from the museums or private collections, or from special designs.



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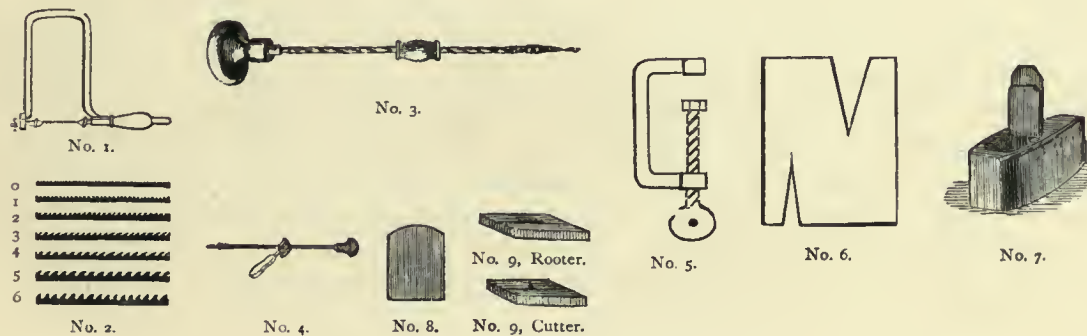
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## T O O L S .

**T**HE tools required to cut Buhl-work or Marquetry are few and inexpensive, and the same tools are also adapted for either arts, and consist of the following :—



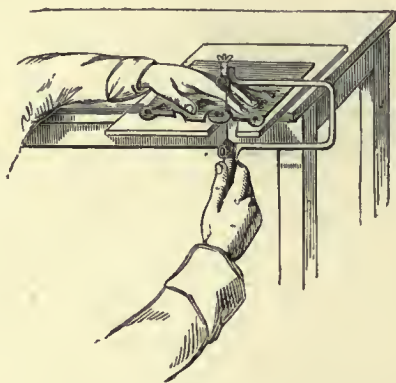
No. 1 is a saw frame, made with either steel or wood. The saw is inserted first at the handle end, between the clips, and screwed tight, then placed between the clips at the opposite end and screwed up. The screw at the extreme end is then turned to tighten the saw, which will bend and break unless properly tightened.

No. 2 shows the width of the saw blades, these can be had per post, 7d. per doz., post free.

Nos. 3 and 4 are Drills. No. 3 is best adapted for heavier work. No. 4 for Buhl and Marquetry.

No. 5 is a holdfast, useful for fastening No. 6 to the table, and for pressing work when glued together.

No. 6 is what is termed a "horse," and consists of a piece of wood half an inch in thickness, a useful size is 15 by 20 inches; with the saw cut out a piece near



to one corner, the shape of the letter V, one inch at the wide end, and two and a half inches deep at the point. The saw works in this opening, the part not cut away acting as a support. The "horse" should project over the edge of the table, and be held firmly thereto by a holdfast, No. 5. The illustration shows the position of the hands and work. The right hand moves the saw up and down, and turns it in the required direction. The left hand presses the work against the saw, and also turns it to assist the saw in keeping on the line of the design.

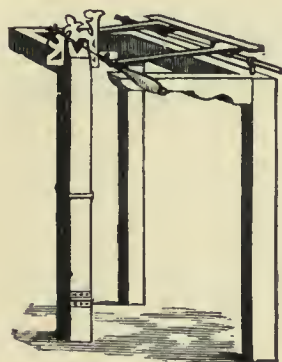
No. 7 is a tothing plane for roughing or "tothing" the work, so as to cause it to adhere the better to the foundation. When the tothing iron requires sharpening the bevelled side *only* must be rubbed on the oil-stone, or ground, and be "set," or project very little beyond the face of the plane.

No. 8 is a scraper, for cleaning off the tothing marks, before the work is polished. The method of sharpening this tool is to hold the scraper in an upright position, and rub the edge on the oil-stone, and then give a slight rub on each side. Now take the steel sharpener, and, resting one corner of the scraper on the bench, rub the steel up and down smartly, with pressure, until there is a burr on the scraper, then rest the work against some object, as in planing, or fasten it to the table by the holdfast, hold the scraper in both hands, the thumbs behind and the fingers before the scraper, lean it forwards and scrape the surface from you, until all the tothing marks are removed.

No. 9 is called a "rooter," from the fact that it roots up a narrow groove, in which is inserted a "string," which consists of a narrow strip of wood cut from a veneer. The rooter is easily made and consists of a piece of hard wood 2 inches by 1 inch and 3 inches long. Make a sawgate lengthways of the wood, in which insert tightly a piece of broken saw, the width of the "string," letting it project exactly the depth of the "string" beyond the face of the wood. The method of using it is as follows, get a strip of wood planed true, fasten it on the work at each end by means of hand-screws, at the exact distance the line is required, then move the "rooter" steadily backwards and forwards, pressing the "rooter" against the strip of wood until the "rooter" has cleared its way to the depth at which it is set. This applies to the *long way* of the grain. In cutting *across* the grain a small steel cutter must first be used in a similar manner, moving the strip of wood which acts as a gauge, to cut the second line exactly the same width as the "rooter" blade; the "rooter" is then used as before, when the piece between the two lines made by the cutter will be neatly removed without leaving a burr, which would not be the case if the "rooter" was alone



No. 10.  
Bemroses' Improved Fret-Holder.



No. 11.  
Bemroses' Improved Saw-Frame.



No. 12.  
Fret-Cutting, Sawing, and Boring  
Machine.

used across the grain. The cutter can be made in a similar manner to the "rooter" by inserting a flat-pointed piece of steel instead of the saw.

For cutting circles or ovals, a piece of wood cut to the required shape must be used as the gauge, and rooter and cutter must also be made to fit the gauge, the saw will require bending to the same shape for the rooter.

Some persons prefer to cut their work when in an upright position, to meet the wants of such the improved holder will be found a most useful invention; it can be screwed to any ordinary table. The wood is placed between the clips, and is held there by an India-rubber spring, which admits of its being turned about in any direction. The saw is held in the right hand in a horizontal position. For *heavy work* the knee is pressed against the holder to assist the spring.

Machines are not requisite, but are convenient for those who can afford them, as a larger amount of work, and that of a superior character, can be obtained by their use. There are a variety of machines for the purpose. The cheapest is the "Improved Saw Frame," (No. 11,) which ensures the saw being maintained in the same position throughout. The work is held perpendicularly by the "holder," and is turned about by the left hand. The right hand moves the saw frame backwards and forwards. The saw frame being held in the horizontal position by its working on a bar at the bow end of the frame, also by the same means at the saw end of the frame. The saw can be set at an angle, which is maintained without any effort on the part of the operator, and very great regularity of work obtained.

This illustration (No. 12) shows one of the more expensive perpendicular motion machines, to which is affixed a small circular saw and a boring apparatus. The power is obtained by the foot working on a treadle, both hands are at liberty to move the work in the required direction.

After describing the tools, a few words must be said on the subject of the bed or foundation on which the Buhl or Marquetry is to be laid. It is not supposed that the amateur will prepare these, but will employ the cabinet maker. The material employed for this purpose may be a cheap wood, as it

will be entirely covered, but must be well seasoned. There are in most houses work-boxes, small tables, cabinets, or other objects, which have done good service and now look shabby. Providing they are otherwise in good repair, nothing could be better on which to lay the Buhl or Marquetry. The only preparation required being the application of the tothing plane.

It often occurs that a joint has to be made in laying down veneers, in such woods as walnut, or other figured woods. The best method is to lay one piece on the other in the position they are to occupy, and to run the saw in a wavy line across the two pieces, so that when laid down the one piece fits into the other to the greatest nicety. The joint is thus less perceptible than if cut straight across.







BUHL-WORK.







## BUHL-WORK.

**S**O called after André Ch. Boulle, a French carver in wood, born 1642, died 1732, who first brought this particular style of work to great perfection. It consists of a design cut out in gold, silver, brass, or other metal, by means of a very fine saw, and then let in, or inlaid into ebony, or other wood, ivory, tortoiseshell, &c. The two materials of "veneer" thickness are fastened together and cut at the same time, so that there are two complete designs obtained, one being the *reverse* of the other. Thus—in one case the design is in brass, and the ground-work ebony; while in the *reverse* the design is in ebony, and the ground-work brass. The metal is further improved by the aid of the graver. A chapter is devoted to engraving, giving the necessary instructions for carrying this part of the subject to a successful issue. But as considerable practice is required, the beginner is recommended to go to a practical engraver for some instruction, as indifferently executed engraving spoils the best Buhl cutting.


The designs mostly partake of a delicate and complicated character, and have a rich and substantial appearance. It is only within the last few years that public taste has revived for this neglected art, and its seat of manufacture has been hitherto confined to the continent. The English manufacturer is now turning his attention to this branch of art manufacture, with good results, but we are still in a great measure dependent upon the foreign workman. This difficulty will soon be overcome by training the English workman to this class of work.

The art is of considerable antiquity, and is supposed to have been brought from the East by the Romans, and it attained considerable excellence in the 15th century in Italy.

When tortoiseshell is used it is sometimes gilt, or coloured red, &c., at the back, so that when laid down a richer effect is gained. In the one instance the gilder is employed, in the other, vermillion, or some other other color is mixed with varnish and a thin coat brushed on. Of course in both instances, the gilt or coloured side is laid downwards.

Tortoiseshell is not obtainable in very large pieces, so that it is often necessary to join them together, thus: place the two pieces one on the other, and with a sharp knife cut the edges even, then lay them flat, and put a strip of glued paper on the joint, at the same time pressing the two edges together, place under a weight until dry.

## HOW TO CUT BUHL-WORK.

AVING fixed upon a design, procure a piece of ebony or tortoiseshell and a piece of brass of the same size as the design. The brass is specially prepared for the purpose, and the wood veneer should be of the same thickness. Before fastening the brass and wood together, they should be "toothed" over by tool No. 7 on *both sides*, they will then require less tothing when completed. This is accomplished in the following manner. Place the brass or wood on a level surface, having previously rubbed it over with chalk to prevent the brass slipping forwards. Now place the left hand behind the tothing plane to hold the brass, use the tool as an ordinary plane, until the surface is covered by the tooth marks, then turn it round and tooth the other end. When all sides are toothed, warm the brass and glue it on one side, placing a piece of newspaper on it, and rub well down, then glue the paper and place the wood veneer on it, and rub down. Now glue the back of the design and place it upon the brass, and put the glued pieces under a weight until dry. A copying press, if at hand, will answer admirably to press the pieces together until dry.

With a drill as fine as the saw about to be used drill several holes, choosing a spot where they will be least observed. Place the metal and wood, which are for the present to be treated as if one piece, upon the "horse," "holder," or machine. If the design is a continuous one, i.e., one that the saw can follow until completed, only one hole need be drilled. If the design is one requiring openings inside, drill a hole in each of such openings, so that the saw can make a start. In some designs where one part wraps over another part and will require lines engraving, the saw may be run through on one of those lines, and so economise time. The other line will be cut by the graver. See design No. 1 as an example.

Having inserted and tightened the saw, which should be as fine as the thickness of the material will allow to be used, proceed to saw out the design, turning the brass so as to assist the saw in keeping on the line of the design. A beginner should first try on a bit of brass, without any design, merely turning the brass about at fancy, so as to acquire steadiness and command of the saw, afterwards choose a simple design, and try to follow it with the saw; when coming to a sharp corner, shorten the strokes of the saw-frame, so as to have it under perfect command, and cease to press it against the saw, at the same time turn the brass round until the saw is in the required new direction, then proceed as before.

Some little practice is required to accustom the saw in the right hand to act in unison with the work in the left hand, so that they each help one another to keep the saw on the design.

To ensure close fitting work, the saw should be held in a slanting direction, the angle to be the thickness of the "sawgate" so that when cut, the brass and ebony or



other material shall be on a bevel, the design when fitted into the ground work will be found to fit without any "gapes." In the illustration the "sawgates" are represented by the black lines; it will be readily understood that No. 1 will fit tightly into No. 2, in consequence of its being cut on a bevel; and this ensures good fitting Buhl-work.

Another method adopted by some professional Buhl and Marquetry cutters is to lay the design—which is in outline and often engraved on steel or copper-plate, to ensure all the designs being exactly alike—on one or more thicknesses of the ground-work, and cut carefully *on the line* of the design. Then one or more thicknesses of the material to be inlaid are cut, a similar copy of the design being fastened on the top, and the design cut just *inside the line*, so that when separated the design will fit very accurately into the ground-work. To accomplish this successfully requires considerable practice. The saw in this instance does not cut on a bevel.

The splendid old Buhl-work still in existence was, no doubt, cut without the aid of machinery, so that the amateur need not despair of producing good work, if skill, perseverance, and aptitude, are combined.

But then comes the question whether those who can afford a machine for cutting do not possess great advantages over those who use the hand saw frame.

As a cheap and useful machine we strongly recommend the one shown on page 11, No. 11, which can be set at any required angle, that angle being maintained throughout, thereby producing regularity of work.

If one of the more expensive perpendicular motion machines is adopted, (No. 12), the angle can easily be obtained by having a loose board placed upon the table of the machine, raising *one* side or end of the board to the desired angle, boring a hole for the saw to work in.

We will suppose the design is cut, the next operation is to separate the two materials by carefully inserting a knife between them; on pressing it forward the paper will be found to split. In some instances the pieces are separated by exposing them to steam or hot water. Lay the ground-work on a flat surface, and drop the design therein, then glue a piece of newspaper, or other soft paper, and place the glued side on to the Buhl-work, rubbing it well down with the hand, and place it under a weight until dry.

The next operation is to lay the Buhl-work on to its bed, or foundation. This requires great care to ensure the Buhl-work adhering to the bed, and it will be a question for the amateur to decide, whether this mechanical part of the process would not be better done by a cabinet maker. However, for those who prefer to lay down their own work, we give the following instructions.

Having well "toothed" the foundation, warm it and the Buhl-work by repeatedly

passing a hot smoothing iron over them, to prevent the glue setting too quickly; now apply an even coat of well boiled glue to the unpapered side of the Buhl-work, working the glue into the "sawgates" by giving a circular motion to the glue brush, and also glue the foundation; rub well down and place under heavy pressure, taking care to place a board on the top of the work which has been slightly tallowed, or greased with lard. This prevents the work from being injured by sticking to the board.

In laying down larger works a "veneering hammer," or a "caul," would be used, which latter consists of a piece of wood cut to the shape of the work, and being made hot, applied with considerable pressure until the glue has set. The designs in this volume being of small size, the method before described will suffice.

When the glue has thoroughly set (for which allow twenty-four hours), the Buhl-work is ready for cleaning off. It is essential that the glue should be hot, of good quality, not too thick, and only mixed in small quantities, as glue which has been repeatedly warmed up loses its tenacity. The scraper will soon remove the paper, if a damp sponge is previously passed over it. The surface now requires levelling; this is done by using a *fine* flat file, always in one direction, until the surface is perfectly even, and free from all scratches, then examine the Buhl-work, to see if there are any "gapes" or holes, if so they must be filled up with a stopping, made by mixing very fine sawdust of the wood or other material with clear glue. When this stopping is thoroughly dry clean off the excess with the scraper. Now put a piece of No. 1 emery cloth round a flat piece of cork or wood and rub the surface backwards and forwards, in the same direction as the file marks, then change the emery cloth for No. 0, or the finest, and use this until a smooth level surface, *free from scratches*, is obtained.

The next process is to polish. Fine pumice-stone, ground to a level surface on a piece of sand or grit stone, in the direction of its fibre, must be rubbed backwards and forwards, with some pressure, on the Buhl-work, until all scratches have disappeared. If an extra good surface is desired, procure a piece of stick charcoal, with a knife cut the end on a bevel, put a few drops of oil on the Buhl-work, and rub the charcoal backwards and forwards until a fine surface is obtained. Make a polishing-rubber by rolling up tightly and evenly a strip of fine flannel or cloth three or four inches wide, and two to three feet long, then secure it in the roll shape by stitching it. On one end of the "rubber" apply a few drops of linseed oil, and sprinkle the surface of the Buhl-work with tripoli powder, sold by most Ironmongers and Druggists; rub the Buhl-work, applying occasionally a fresh supply of oil and powder, until a fine polished surface is obtained. If the materials being polished are ebony and brass, a still finer polish is got by using finely-powdered charcoal.

Buhl-work is kept in a bright and good condition by being rubbed with a clean wash leather once or twice a week.

## HOW TO ENGRAVE ON METAL AND IVORY.

**L**ITTLE instruction, but plenty of practice, and few tools, will enable the amateur to add much to the appearance of his work. Ordinarily but two tools need be used, an etching point and a square graver; the former to mark on the brass the lines to be engraved, such as the curves in scrolls (Fig. 1) and the veins in leaves, the latter to cut them deeply into the brass. The work to be engraved must first be sawn and then be glued firmly to a piece of wood, a piece of paper being between the brass and the wood, so that it may be more easily removed when the engraving is finished. The graver should not be held at any great angle, or else it will dig into the brass and soon lose its point. The diagram will show how it should be held, the handle being pressed forward by the centre of the hand, and the tool guided by the first finger and the thumb (Fig. 2). The handle is represented here (Fig. 3), and



Fig. 1.



Fig. 2.



Fig. 3.

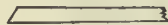


Fig. 4.



Fig. 5.

the best mode of sharpening is as follows:—The graver must be rubbed on its end until the required sharpness is obtained, but it will be advisable not to make the angle too great, as although by this means it will cut more easily, yet in the hands of one not practised it would soon break and require to be again sharpened. It will be found that the point will keep longer in good condition if the graver is ground to about the slope shown in Fig. 4, which gives a section of the tool. Fig. 5 shows the angle to be avoided until greater expertness has been acquired. The graver to be used should be a square one, a lozenge being open to the same objection as a square one sharpened at too great an angle. Gravers can be had of any thickness to suit work, however large. The larger the graver, the coarser or thicker the line. To obtain the gradually increased thickness in the curved lines, greater pressure must be used, and the tool may be passed through those parts of a line requiring more breadth several times, as it is not a good plan to get up the effect by crossing the lines, as is done in etching. The effect of Buhl-work will be better if single lines only are used, cut of increased thickness to secure effect.

When the engraving is completed, the lines require filling up with melted mastich, to which is added black, vermilion, or other colour. This is rubbed carefully in, and left to dry, then cleaned off.







MARQUETRY.







## MARQUETRY,

**D**ERIVED from the French *marqueter*, to checker, inlay; from *marque*, mark, sign, is the term used to describe work inlaid with different pieces of divers coloured woods, shells, ivory, &c. The ground-work is often dark in colour, and the design, which mostly partakes of the character of scrolls, or geometric designs, is of one or more lighter shades of wood, or other material. At other times this order is reversed. Marquetry, unlike ordinary "fret-cutting," throws nothing away; for in cutting a table top, for instance, two tops are obtained, the one the reverse of the other, or to speak photographically, the result is a negative and a positive. In the one instance the ground-work would be dark, and the design in lighter colours; the other would have a light ground and the design in darker colours. The examples below will best illustrate the subject, as it will be at once seen that the second design is really what was cut away in forming the first.



Marquetry may be likened to a coat which a man puts on to clothe his body, for marquetry is always put on to a body or foundation, be it a table, cabinet, or other object. The body is mostly made of a cheaper wood, and the marquetry is glued on to this foundation, the joints being cunningly put together, thus giving a solid appearance to the work when completed.

### W O O D.

**V**ENEERS vary in substance, and can be obtained from the thickness of a sheet of paper upwards, of the width of the tree, and of considerable length. Many woods are suitable for marquetry, and are always obtainable in veneers, such as walnut, mahogany, sycamore, ebony, lime, oak, rosewood, and many other natural coloured woods. The various *fancy* coloured woods are dyed, and are principally used to represent groups of flowers, &c., these are also to be met with in veneer thickness.

There are ordinarily two thicknesses of veneer kept by most dealers, the one called "knife-cut," which are thinner than those which are "saw-cut." The latter give more substance to work upon, but are necessarily dearer in price.

Veneers being of a fragile nature are apt to split; a good plan to prevent this is to glue a narrow strip of calico, and place it across each end of the veneer, turning it over to the back. Paper will do, but not so well as calico. The amateur must not think that the veneer is ruined if it is cracked, or in some woods a small hole or two, as in the former case the crack disappears when properly put down, and in the latter case the holes are neatly stopped with a proper coloured cement, or a piece of veneer is let in.

It is well to glue a strip of paper on a crack as it prevents the crack extending whilst the wood is being cut. If the veneer rolls up and seems likely to crack in trying to lay it flat, place it on a damp floor for several hours, it will then lie flat without splitting. Veneers should be kept between two pieces of wood, or inside a large book.

In choosing woods a good contrast is wanted, suitable to the subject of the design. The veneers should be all of the same thickness, so that when cut, and the design fitted into the ground-work, the surface will be level, so as to facilitate its being laid down.

#### HOW TO CUT MARQUETRY.



THE *modus operandi* of marquetry is very similar to that of Buhl-work. Instead of metal and wood, we have now to deal with other materials than metal.

Four or five veneers are often cut at one time, indeed it is well to have a few pieces of common wood, to put with the work, when there are only two veneers, as it helps to strengthen the work whilst being cut, and for a beginner it steadies the saw by not allowing it to cut too quickly.



Marquetry, like Buhl-work, should be cut on a bevel to ensure its fitting without any gapes or misfits. We will suppose four veneers are cut at one time, it is evident from the illustration that No. 1 will fit into No. 2, and No. 3 into No. 4, without a "gape," whereas if cut without a bevel there would be a "gape" the width of the "saw-gate." So that it is at once apparent that, whether the hand-saw or machine is used, it is necessary to cut the work on a bevel to obtain perfect results.

Having decided upon a design, obtain pieces of wood of the required colours and size, "tooth" these over on both sides with tool No. 7, place them one upon another, pasting or glueing the design on to the top one. Insert at each corner a pin, and bend it down at each end; some prefer to file off the ends level with the veneer. These pins can be made by filing the heads off some ordinary pins.

If the design is very elaborate, it will be best to fasten all the veneers together, by pieces of soft newspaper, glued or pasted on both sides, laying the veneers one on the other, and the design on the top one, the whole will then feel like a thick veneer; then place under a weight until quite dry, otherwise the damp glue will prevent the saw working properly; the delicate parts of the design will not be so liable to break as they would be if they were in single veneers. When disunion is desired, insert between the veneers the edge of a thin bladed knife, gently pressing it forward; the paper will be found to split, and the pieces separate with ease.

Now drill one or more holes as required, or if there are only two or three veneers, with the point of a penknife make a small nick or cut on the line of the design, always cutting *across* the grain, or the veneers might split; this latter method is superior to the round hole made by the drill, as the nick made by the penknife is about the width of the saw blade, and is almost imperceptible when the work is made up. Place the veneers upon the "horse" or machine, insert the saw blade, and having tightened it proceed to cut out the design. As each part is cut and falls out, lay it on one side until the whole design is cut. Then separate the various colours by the insertion of a penknife between the veneers, laying each colour by itself. Then lay the ground-work on a flat surface, and fit into it the various pieces according to the colour of the design. Now glue a piece of soft paper and lay it on the completed work, rubbing it down and put under a weight until dry, placing a greased board between it and the weight. We will suppose that four different coloured woods have been used, namely, black, green, white, and red. At present only the black ground-work and portions of each of the other colours have been used. We had a ground-work and a complete design of *each* colour to start with, so that we can now use for the second, the white ground and black design. The third can be green ground and red design. The fourth, the red ground and green design, except where some of the pieces were used in the first design, these can be changed about so as to form four complete designs. In some instances it will not be advisable to attempt to make four complete designs; much depends upon the colours used and the nature of the design.

If the design is a floral one in natural colours, or any design composed of several colours, providing the paper designs are exactly alike, *i.e.*, either printed designs or the requisite number of designs have been drawn at one operation, so as to ensure their being facsimilies one of the other, the groundwork is cut by itself. Then the various different colours are cut separately, using another or two of the designs as required to cut up for fastening on to the different colours, taking care to cut the groundwork *on the line* of the design, and the inlaid parts just *inside the line*, so that the latter will fit into the former. If this method is adopted, the saw should not cut on a bevel because the design is cut so as to fit exactly into the groundwork. In cutting the parts that are to be inlaid, no holes need be drilled, as the saw can be run up to the part of the design required from the edge of the material.

The Marquetry, when laid down, sometimes requires again tooting over, this occurs when all the veneers have not been of the same thickness. Marquetry is laid down in a similar manner to Buhl-work (see page 17), with the exception that no file is required, the tooting plane and scraper removing any inequalities of the surface, (see page 18). The scraper, No. 8, must now be used after the work is laid down on the foundation; then apply No. 2 glass cloth, and finish off with the finest, placing the cloth round a piece of cork as before described. Pumice stone is often used for this purpose. It should be rubbed to a flat surface on a piece of sandstone, in the same direction as the fibre. The marquetry is then ready for polishing. See chapter on Polishing.

### SHADED MARQUETRY.



GOOD effect is easily produced by artistically browning or shading a light coloured wood; for instance, the round part of a musical instrument forming part of a design (see plate XI.), if carefully browned by the following simple process, will give it a rounded appearance.

A design consisting of white wood can thus be sawn out, and certain parts requiring shade can then be treated so as to obtain the most delicate gradations of light and shade.

In treating a group of flowers on this method, the centre of a rose would be of the darkest shade, therefore the pieces forming the centre would require browning the most, those next would require a degree less shade, and in some leaves where the high lights are required, as in the case of a curled leaf, the curl would be left of the natural colour, whilst the part immediately underneath the curl would require shading.

Those who possess correct ideas of light and shade would be able to produce capital effects by this simple process. Holly and box wood are well adapted for shaded marquetry. Better results are obtained if the wood is well baked or dried before it is sawn. This is done by placing the veneer between two pieces of sheet iron, and binding them together, expose them to heat, either in an oven or before the fire. It will prevent shrinking when undergoing the shading process.

We will now describe the process of shading. Procure a piece of sheet iron about 18 by 12 inches, bend up the sides about one inch, to form a tray or dish, or a small old iron tray will answer the purpose well. Put some dry sand into the tray, and place it upon the fire or stove. When the sand is sufficiently heated, with a pair of pliers take hold of the part of the design which requires shading, placing the edge requiring the deepest shade downwards, pressing it gently into the hot sand, withdrawing it repeatedly to watch the effect, so as not to overdo it. The heat of the sand is tested by inserting a bit of thin waste wood into it.

A little practice is required to enable the amateur to know the proper place in which to dip the piece of wood into the sand. If for a dark shade, the wood must be placed in the hottest part of the sand, and remain there until the desired shade is obtained. For the lighter shades the sides or cooler parts of the sand must be used, and in both cases the wood must be repeatedly examined. This method will not burn the wood, and if ordinary care is used, the effect being to char it, the outer edge being the darkest, with a delicate gradation of shade fading away to the natural colour of the wood. It is then laid down as described on page 17. Plates XII. and XIII. contain examples of this process.

### DESIGNS, AND HOW TO OBTAIN THEM.



WE have given designs which are of a simple character and easily worked; more elaborate ones would be out of place in a manual for a beginner. After an amateur has executed most of these he will be in a position to attempt more difficult examples, designs for which are easily to be met with.

Nearly all the following designs are equally adapted to either Buhl or Marquetry.

It was thought desirable to give designs in such a form as would be most useful and interesting to the amateur; viz., a series of borders applicable to many purposes, as, for instance, borders to drawers, tables, picture frames, boxes, cabinets, mirrors, ink-stands, watch-stands, and numberless small objects of ornament and utility. Again, drawer fronts, centres of panels, and various made up designs are given; so that a great variety is obtained by changing the borders, the amateur thus having some choice rather than a stereotyped pattern for one and all.

In choosing colours for a design much discretion is often required, care being taken not to have the changes of colour too abrupt. Two or three shades of a similar colour, with border lines of a more decided colour, will be more agreeable than two or three gaudy and ill-assorted colours.

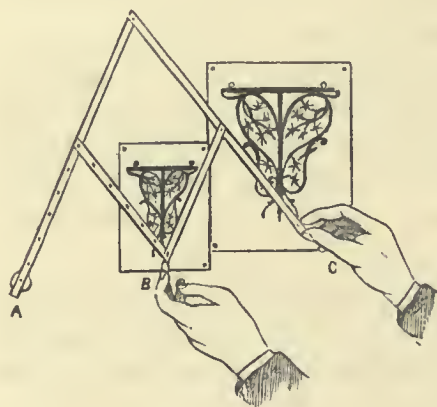
These remarks do not apply to such designs as flowers, &c., where the only true guide as to colour is nature, which may be followed as closely as possible.

Supposing the amateur has not obtained a loose copy of the design to fasten on the work, which can be bought for the purpose for a trifle, a copy of the one chosen must be made. There are several methods for accomplishing this, and we must leave the choice with the amateur.

One is to trace the design from the original on tracing paper, in pencil or ink, and fasten the tracing on to the top veneer.

Another method, by which several designs exactly alike can be produced at one operation is the following :—obtain several sheets of carbonic paper, to be had from any stationer, place two or three pieces of white paper, the size of the design, and upon each of them put a piece of carbonic paper, then lay the design on the top and pin all together at the two top corners, then with a piece of pointed hard wood, or steel point, trace over the whole of the design, putting enough pressure on to ensure the transfer of the design on to the bottom sheet of plain paper. Designs thus produced are very useful where many colours are used, as only that part of the design wanted for a particular colour is cut out and fastened to the veneer, and cut separately ; the other parts of the design being used in a similar manner for other colours, the groundwork being cut by itself.

If the wood is not too dark in colour to show the pencil marks, the design may be pinned upon the wood, having previously placed a piece of carbonic paper underneath, proceed to trace over the design, with a steel point, or piece of hard wood sharpened to a point. On removing the design and carbonic paper, a duplicate design will be found upon the wood. This method avoids the use of gluc or paste, and also the extra trouble of removing the paper when the work is cut.



The Pentagraph will be a most useful adjunct to the amateur, in producing working drawings, as by this useful instrument any design can be drawn the same size as the original, or larger or smaller, as desired. It is purely a mechanical operation, so that no artistic knowledge is required.

The method of using the pentagraph is as follows:—Pin the copy and a sheet of paper on to a drawing board. If an enlargement is desired, insert the pivot in the hole at C, and press the point into the drawing board. Insert the tracing point in the hole at B, and the pencil over the blank sheet of paper in the hole at A. With the fingers of the right hand on the tracing point, move it carefully over the design, at the same time place the fingers of the left hand on the pencil, merely putting enough pressure on to ensure the marking of the pencil on the blank paper, taking care to let the pencil move along as directed by the right hand. If the design is required to be reduced place the pivot at A (see illustration), the pencil at B, and the tracing point at C, over the design, and proceed as before described. The drawing can be done to scale by moving the slider to the proper position for the tracing point and pencil marked on the gauge. The pivot always remains at either A or C.



There are numbers of suitable designs to be seen on all sides now, since art has been so extensively introduced into manufactures. Many pretty borders are also to be found in the illustrated books of the present day.

#### CARVED MARQUETRY.

**T**HIS term is applied when one material is let into another and afterwards carved. It is altogether a higher branch of art than is likely to be attained by most amateurs, yet a few words may be said on the subject. We will suppose the two materials about to be operated upon are ebony and ivory. The ivory will be two or three times as thick as the ebony, they will be sawn together, and when the ivory design is inserted in the ebony ground it will project. With a fine pointed pencil or steel point mark how high the ebony comes up the ivory, then glue the ivory on to a rough piece of wood with paper between, and proceed to carve the ivory, taking care not to cut lower than the pencil mark. For instructions in wood carving we must refer our readers to the Manual\* on that subject. Ivory carving is principally done by a scraping and filing process rather than a cutting one.

#### LAI D O N B U H L O R M A R Q U E T R Y .

**T**HIS style is sometimes useful to use up parts of Buhl or Marquetry, which are not required in a design. Thus, some leaves may have been cut out of a piece of brass or wood, and it is not desirable to use the reverse; if this is laid on a piece of wood of a different colour, a good effect is obtained, without the trouble of further sawing out. Some borders look very well, laid on; but as a rule the inlaid work is preferable.

#### IMITATION OR STENCILLED MARQUETRY.

**T**HERE are some persons who would object to the introduction of a spurious style of Marquetry in this volume. Our plea is, that genuine Marquetry is necessarily expensive, and therefore beyond the reach of many. Further, why not improve upon the present style of "cheap furniture," oftener than not painted *stone* colour, when with but little additional cost an artistic effect is produced, that is undoubtedly far preferable, and is of a character to promote a taste for something better than the present tasteless style of modern "cheap furniture."

Manufacturers use what is called a stencil plate, which consists of a thin piece of soft metal in which the design is cut out, so that when placed upon the wood, and the stain carefully applied by a short stiff brush, called a stencil brush, only that part where the metal has been removed to form the design receives the stain.†

\* Manual of Wood Carving, with designs and full instructions, 4to., 5/-.; Bemrose & Sons, London and Derby.

† See Chapter on Stains.

Before applying the stain, the wood should be brushed over with size, made in the following manner:—Procure a few parchment cuttings from a stationer's, and boil them in a little water. This size must be used thin, and applied with a brush, evenly and lightly. It prevents the stain from running into the grain of the wood beyond the edge of the stencil plate.

A cheap substitute for the stencil plate can be made by drawing or pasting the design upon a thin cardboard, and with a sharp knife (or, where curves occur, with a gouge) removing the design, according to the colour desired. This will require a little practice to accomplish neatly, but when the stencil card is once cut, and has received a thin coat of varnish on both sides, it will, with care, be available for some time.

In the case of a white border line, a simple plan is to cut a strip of paper the width of the required line, and, fixing it with paste in its position, applying the stain and removing the paper. If a black line is wanted, cut two strips and fix them with a space the width of the required line between them, then apply the stain and remove the paper.

The great art in stencilling is to press the stencil plate close to the work with the fingers of the left hand, the brush to be in the right hand. Put a few drops of the stain on a spare piece of clean wood, rubbing the brush round on it until nearly dry, pass it over the plate with a circular motion, until sufficiently stained. The brush should never be used when very moist, and the smaller the quantity of stain used the more clear and perfect will be the result.

The metal plates, after use, should be immediately steeped in a solution of equal parts of warm water and vinegar, and allowed to remain several minutes, then taken out and rinsed with cold water, and placed to dry between blotting paper.

The stencil cards should be wiped clean and put between blotting paper to dry.

It is much the fashion now to stain the floors of rooms for about two feet round the outside of the carpet. A good effect is produced by stencilling a bold design which serves as a border to the carpet. For this purpose cut out the design in paper, and paste it in its position on the floor, apply the stain, and lift up the paper design; the ground will be stained, and the pattern in the natural colour of the wood. The same design can be used several times, when a fresh one must be used.

All work for stencilling must be scraped and finished off with glass cloth before the stain is applied.

When dry, the work may be bees-waxed or varnished.

Designs specially adapted for this process are on Plate VII.

## S T A I N S .



ALTHOUGH woods can be obtained of almost any colour, it is useful at times to be able to stain any desired colour. For instance, there may be only several red berries wanted in a design, and it is a pity to cut a few holes in a large piece of red wood to obtain them, when they can be so readily produced by staining the white wood, which is generally one of the colours used in a design.

The stained woods obtained from the veneer dealers are stained throughout by a process that cannot be followed by the amateur. All amateur staining penetrates but little below the surface, therefore the stain must be applied when the Marquetry has been scraped and cleaned off, and before it is finally put together, otherwise one stain would run into another. Where possible, finish the work off before the Marquetry is cut when any staining has to be done. If not, the work must be laid on glued paper, and then on a rough piece of wood, whilst it is being cleaned off. Afterwards separate the pieces to stain them, and lay them down on the unstained side on glued paper, and proceed as before directed.

Oak and many other stains can be bought at most colourmen's, but for the brighter colours we recommend Judson's dyes, which are kept by most druggists. If a lighter shade is desired, pour a few drops of the dye into a saucer and add a drop or two of hot water until the shade is attained.

As black and a few other colours may be required in rather large quantities for ground-work, we give a few recipes to enable those who wish to make their own stains.

*Black.*—Boil a half-pennyworth of log wood chips in six ounces of soft water; when cold put into a bottle. Into another bottle put some iron filings, to be obtained at any whitesmith's, fill up the bottle with vinegar, let it stand for several days before it is used. Brush the wood over first with the logwood decoction, and afterwards with the vinegar solution; if a very dark stain is required apply two coats of each.


*Green.*—Dissolve verdigris in vinegar, and brush over with hot solution until a proper colour.

*Red.*—Boil half-a-pound of Brasil wood, and half-an-ounce of pearlash in half-a-gallon of water; and while hot, brush over the work until a proper colour. Dissolve one ounce of alum in a pint of water and brush the solution over the work before it dries.


*Yellow.*—Brush over with the tincture of turmeric.

*Blue.*—Boil two ounces of indigo, quarter of a pound of woad, half-an-ounce of alum in a pint of water, brush well over until thoroughly stained.

## POLISHING.

O polish well requires considerable practice, and, as the operation is neither clean nor pleasant, the amateur is recommended to employ a polisher. However, if he desires to polish his own work, the method is as follows:—In the first place see that the flat surfaces are perfectly smooth; if not sufficiently so the glass-paper must be again applied, as it is impossible to varnish on a rough surface. Having obtained the polish—light or dark, according to the colour of the wood—soak a small bit of tow, or cotton wool, in the polish, and apply it, *evenly*, to the wood; then add more polish to the cotton wool, but before applying it to the wood, place it inside a piece of linen rag, on which put a drop or two of sweet oil—this prevents the rag from sticking—then rub the wood, giving a circular motion to the rag, and repeat the supply of polish and oil as required, until the whole surface is uniformly polished. As little oil as possible must be used; the exact quantity can only be learnt by experience. As a rule, the rag should feel *slightly* “tacky,” or sticky, when touched by the finger in applying the oil. Some woods receive the polish better by applying it at two or three different times, allowing some hours to intervene between each application. As only flat or other surfaces which can be got at freely can be French polished, the other parts must be “brush polished,” that is, have what is called brush polish applied with a camel hair brush, as thin and evenly as possible; care must be taken to avoid the application of this polish on the French polish already on the flat parts of the work.

## EXPLANATION OF DESIGNS.

HESE designs are mostly adapted for either Buhl or Marquetry, and being of simple characters are easily enlarged or reduced if the size given is not suitable. Borders are improved by the addition of the “string” on one or both sides, as shown on Plate I. Any of the designs in this book can be obtained from the Publishers, ready for fastening down on to the material, at 6d., 9d., or 1s. each, according to size.

## PLATE I.

No. 1, is a border in which there are inside pieces which require sawing; it is not requisite to drill holes in each of the inside pieces, but run the saw through on *one* of the stalks where it crosses the other, and so gain access to the interior of the design. The other line in each case is cut with the graver in Buhl-work, in Marquetry the lines are cut by the saw.

Nos. 2, 3, 4, 5, and 6, need no special remarks, except the latter, which is a double design; either can be used independently.

No. 7 shows the same design in Buhl and Marquetry; the latter being in ebony on a white ground. Two different coloured woods may be used with good effect in this design, by putting the part that overlaps in a different colour to the running part of the design.

No. 8 is best adapted for Buhl-work, as the graver adds to the good effect.

Nos. 9, 10, 12, 13, and 16, being leaf designs, look well if cut in green wood, black or walnut ground, and white “strings;” they are also adapted for Buhl-work.

Nos. 11 and 13 are best adapted for Buhl-work, although very pretty in Marquetry if the centre bar is of a different colour. No. 13 is still further improved if the back of the band is of a darker colour than the front.

Nos. 16, 17, 18, 19, and 20, are suitable as corners to many of the borders as they are not adapted to join, but look better if run up to a square placed at the corner. If for Buhl they will be cut in brass, and if for Marquetry, in some colour to suit the border.

## PLATE II.

No. 21. Corner, suitable for many purposes, the opposite corners being connected by a "string."

No. 22. A Frame for picture or mirror in Buhl, which requires very careful engraving; would look well in coloured Marquetry.

Nos. 23 and 24. Corners for small Articles, improved by a "string" running from one corner to the other.

Nos. 25, 26, 27, and 28. Borders of a simple character adapted for both Buhl and Marquetry.

No. 29. Corner for a table or box top, easily enlarged if required.

No. 30. Centre for a box top, if enlarged adapted for a centre of a small table or panel. The two centre pieces, if in Marquetry, may be in a different colour to the other four.

No. 31. Suitable for a miniature frame, it is laid on a foundation of about quarter-of-an-inch in thickness; if a glass is required, a hole quarter-of-an-inch wider in diameter than the centre of frame should be bored out of the foundation for the reception of glass and picture. If enlarged it will make a very neat watch-stand. In this case it would want supporting at the back by two small struts or legs, or by cutting the foundation to that shape.

## PLATE III.

No. 32 is a design for a book-side suitable for a Bible or Prayer Book. A monogram might be substituted for the cross if desired. The design looks very intricate, but is not really so if the saw is run through where shown, as it would require a line engraving, and the saw gate answers the same purpose.

When cut, the Buhl-work should be laid on a foundation of some hard wood that will not warp, and the edge bevelled or moulded and stained.

A neat rim and clasps would add much to the appearance. A bookbinder will easily attach the sides to the book, which should have a leather back of a suitable colour.

This design looks very well if cut in Marquetry, or ivory and ebony.

No. 34 is an example of a fretted ivory basket of eight sides, No. 35 forming the bottom; it is put together by narrow ribbon being passed through the holes made for the purpose, and tied in neat bows. The ivory should be of veneer thickness, and two sides might be cut at one time.

Nos. 33 and 36 are borders suitable alike for either Buhl or Marquetry.

No. 37 is suitable for a cabinet drawer front, or lid of a box, &c., and looks well in either Buhl or Marquetry, if the latter, the leaves might be green, stalks brown, and grapes purple, with a white border line.

No. 38. Alms box. If an ordinary monogram is used instead of the sacred monogram, it is adapted for a letter box, to be hung up in an entrance hall; in this case, the slit in the lid would require lengthening, and a little more depth obtained by giving more margin round the panels.

Two designs for panels are given, whichever is chosen, the other panel must correspond. The small perspective view shows how the box is put together. The foundation should be about  $\frac{1}{4}$  of an inch in thickness Buhl-work will be best adapted for an alms box.

#### PLATE IV.

No. 39. Bed and watch pocket, a useful and ornamental article of bed furniture. The hook is for the purpose of hanging the watch upon; the box beneath for the reception of the chain, pocket handkerchief, or medicine, &c., that may be required during the night.

The drawing is of full size. Two designs for side panels are shown; whichever is chosen the other one must correspond. The centre panel can be filled with either monogram or crest.

The design is suitable for either Buhl or Marquetry, and in both cases the veneers would be laid on to the separate pieces of foundation before they are put together. The foundation should be of some hard wood that will not easily warp or bend, and be about  $\frac{1}{4}$  of an inch thick. When the pocket is completed, the edge of the foundation should be stained black, or left the natural colour according to the material used. It is a good plan to insert a string on the edge of the foundation when in sight, as it gives a finished appearance to the work.

As this article requires carefully putting together, a cabinet-maker should get out the pieces for the foundation, and put them together when the design is cut.

Nos. 40 and 41 are suitable for tops of boxes, or for corners of larger articles, and are equally applicable to Buhl or Marquetry.

No. 42. A Fan. In getting out material for a fan, it is well to have the two outside pieces somewhat thicker than the pieces used for the inside. Several veneers can be cut at one time.

Some persons may prefer to have the outsides solid, either in Buhl or Marquetry, and the interior pieces fretted or open work. Or a paper inside to the fan can be used, and only the two outside pieces cut. It is well adapted for being cut in either bone or ivory.

#### PLATE V.

The whole of the designs on this plate are shown for Buhl-work, but many of them look remarkably well when cut in coloured Marquetry. They are well adapted for centres of small boxes, sides of books, card cases, jewel boxes, cigar cases, and a variety of purposes. If let in on the lid of small turned boxes they look well; in this case they are faced up and polished in the lathe.

As an application of Marquetry, we might instance No. 44. The coat might be green, waistcoat scarlet, black hat, white stockings, walnut ground, &c. The saw should run round the arm and hand and on the flap of the pocket. By so doing, a better effect is produced, as it breaks up the otherwise dead effect of one level colour.

No. 55. The boy in similar colours to above, the stalk of grass green, snail black, and shell another colour. Several good complete designs can be obtained from four or five different colours being used, in this and some of the other designs.

#### PLATE VI.

No. 57 is suitable for several purposes, viz., a frame for a portrait or picture, with two doors. If to stand on a table it will require a support at the back. Whether for wall or table use, provision has to be made at the back for holding the picture and glass.

As a key and trinket-cupboard, with lock on doors. In this case a box like part has to be fastened to the front about  $1\frac{1}{2}$  inches deep, and a little larger than the square opening of the doors. The interior should be lined with velvet and fitted up with small hooks on which to hang keys, &c. This hangs against the wall.

Nos. 58, 59, 60, and 61, are frames for carte-de-visite photographs, one half of the design is shown. The sections given with each frame will explain the shape of the foundation. These are alike applicable to either Buhl-work or Marquetry.

#### PLATE VII.

Nos. 62 to 69 are designs specially adapted for Imitation Marquetry; full instructions are given on page 29 for the successful carrying out of this pleasing style of decoration.

Some of these designs are readily adapted for Marquetry.

#### PLATE VIII.

No. 70. A hand mirror, as shown for Buhl-work, brass and ebony. The section shows the thickness of the foundation, and it should be cut out of well-seasoned wood; when the mirror is inserted a thin polished back-board should be screwed to the frame, and the handle screwed on to this, so as to make all strong and secure.

Would look well if cut in ebony and ivory, or coloured Marquetry.

#### PLATE IX.

No. 71 is a design for Marquetry border for larger objects, and requires to be repeated.

No. 72 is a Marquetry border in colours for a table top. The ground need not be black, but of some colour that will show up the leaves and flowers, such as figured walnut.

No. 73. Border for a table top, the design being repeated.

Nos. 74 and 75. Corners to borders, look best if connected by "strings."

No. 76. Marquetry border in colours, for small objects.

## PLATE X.

No. 77. Design for a pilaster in Marquetry for a cabinet or cheffionier, or, if repeated and reversed, for a long drawer front. Pilasters are seldom less than  $4\frac{1}{4}$  inches in width, and have 3 or 4 inches of plain wood above and below the design. This pilaster is meant to be used with Nos. 82 and 83. Pilasters should project  $\frac{1}{4}$  an inch to an 1 inch beyond the panels.

No. 78. End for a book-slide, in coloured Marquetry. For strength, size, and mode of putting together, see some existing example, now to be found in most houses, or purchase a plain one and use it as the foundation for the Buhlwork or Marquetry to be put upon.

No. 79. Corner design for Marquetry, adapted for small objects.

No. 80. Half of design for small cabinet drawer front, in coloured Marquetry.

No. 81. Drawer front or top of box, in brass and tortoiseshell. These materials are cut and polished in the same manner as Buhl-work; and the *reverse* will be liked in some instances better than the design shown. If for a box lid or drawer front a neat moulding placed round adds much to the effect.

## PLATE XI.

No. 82 is half of the design for drawer front, to be used with Nos. 77 and 83.

No. 83 is for a panel for cabinet or cheffionier, the border line shown should be placed several inches further from the design, and 1 to 2 inches of plain wood outside it; there are nine colours of wood used in this design. The shading on the musical instrument and on the leaves is obtained by shaded Marquetry, for instructions see page 26. A good ground work for this and 77 is walnut.

Nos. 84, 85, and 86 are suitable for various small objects, as centres of box tops, table mats, &c.

## PLATE XII.


No. 87. A Lady's Card Case, in 3 colours of wood, the monogram can be replaced by crest if desired. The foundation can either be an old case, or be purchased ready for laying on the Marquetry. The saw must be used to divide the design at the proper distance, so that the lid can be pulled off; the top and sides may be ebony.

The design is also well adapted for ebony and brass, or ebony and German silver or ivory, mother of pearl, &c.

No. 88. Gentleman's card case. The particulars to 87 are equally applicable to 88. The difference being in the size.

No. 89 is an example of shaded or burnt Marquetry; a figured walnut wood ground would look well. As shown, the design is meant for a panel to a small cabinet, with and without a neat moulding round it. Other designs, shown in several colours, are well adapted for shaded Marquetry. See Instructions on page 26.

## PLATE XIII.

No. 90, is for a blotting-case side in shaded Marquetry; it should be laid on a well-seasoned board, and the foundation to have a mould worked round, thus— which can be stained black, the veneer being cut square and laid on the foundation as shown above. The bookbinder will add the back and pockets and insert the blotting-paper.



1



2



3



4



5



6



7



8



9



10



16



13

11



12



14

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19



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20



15

Table with multiple columns and rows of text, likely a ledger or record book. The text is extremely faint and illegible.











32



34



36



35



33



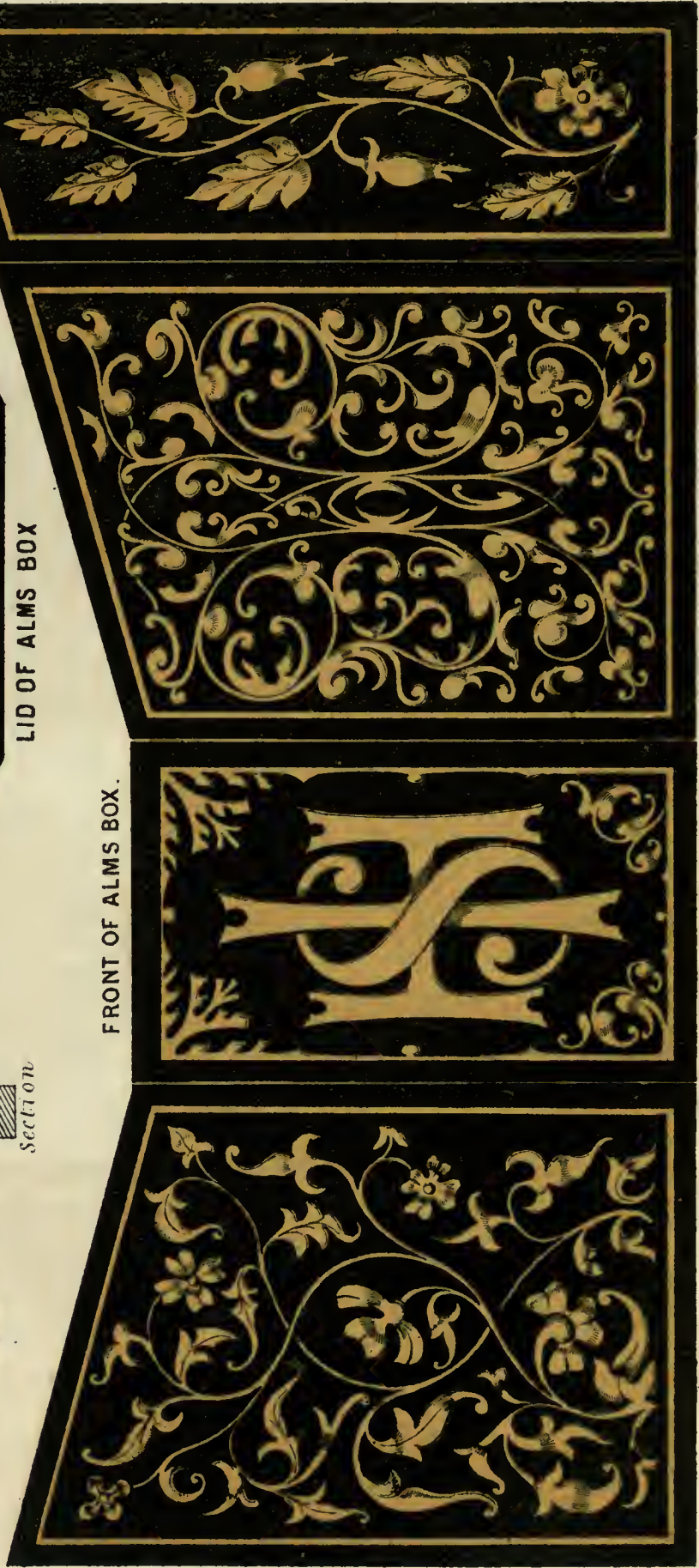
37

BACK OF ALMS BOX.



END PANEL

LID OF ALMS BOX



FRONT OF ALMS BOX.



38



SECTION

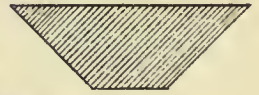




BED POCKET



Section

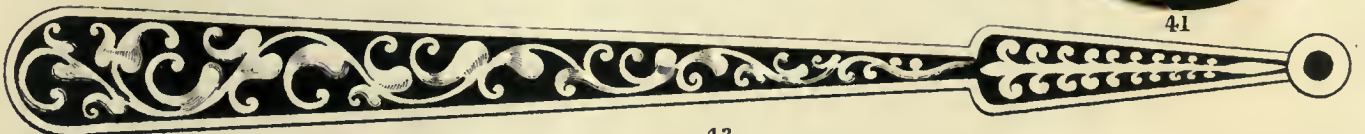


40

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41



42





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47



46



48



49



45



54



50



51



52



55



53



56

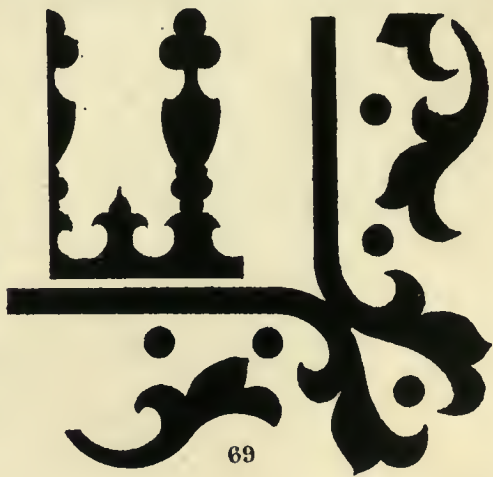
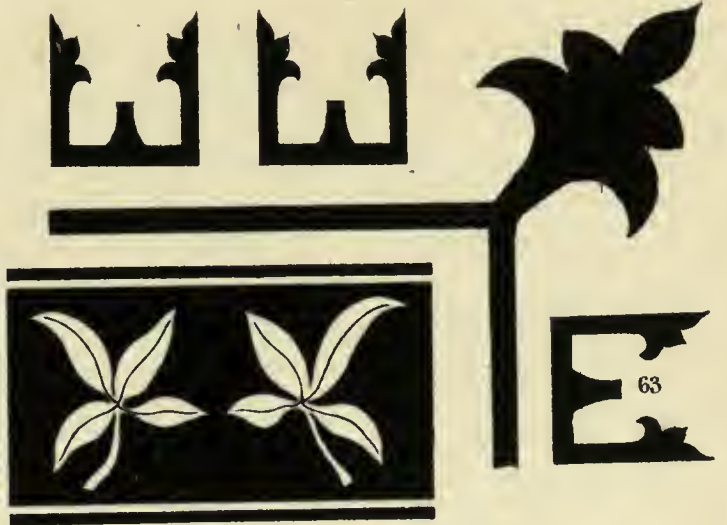
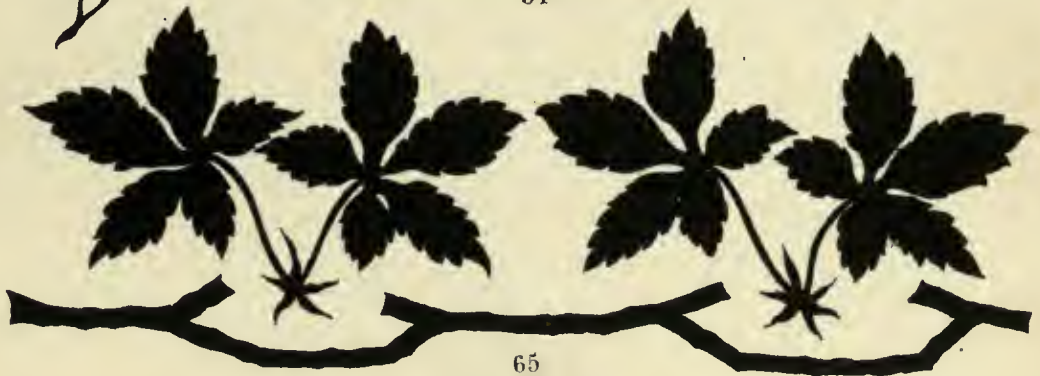




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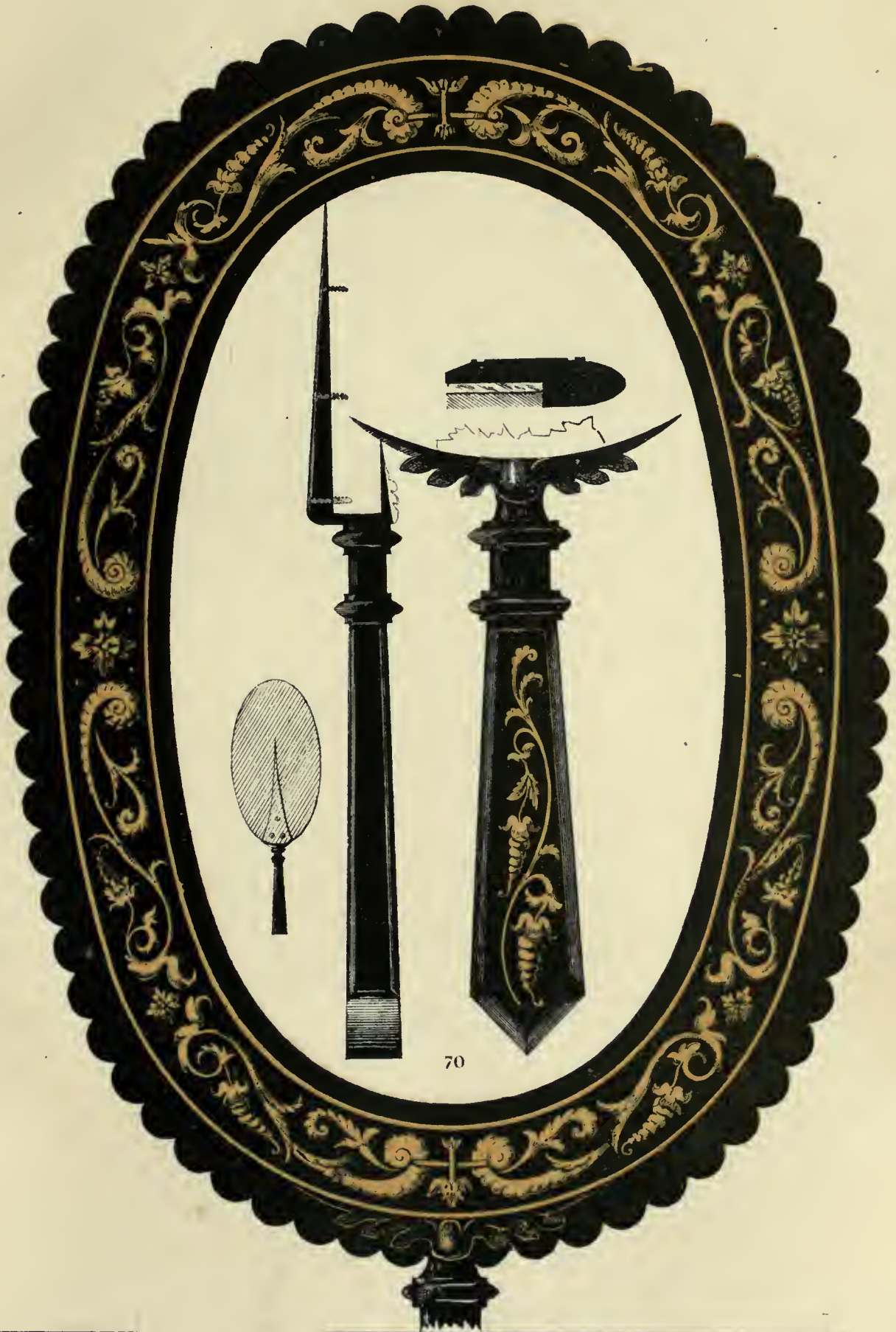












70





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72



73



74



75

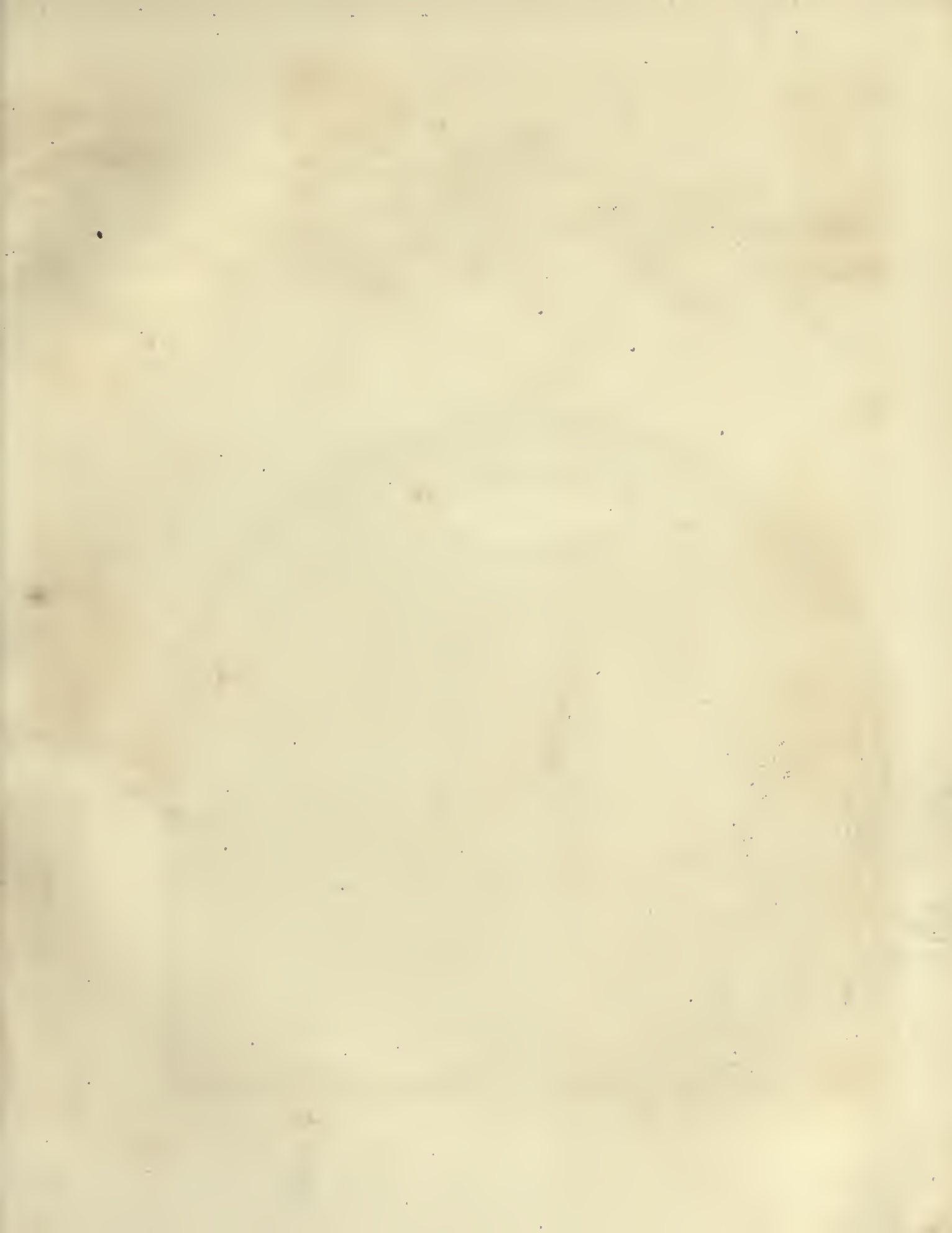


76



77







77

78



END OF BOOK SLIDE.





80



81









82

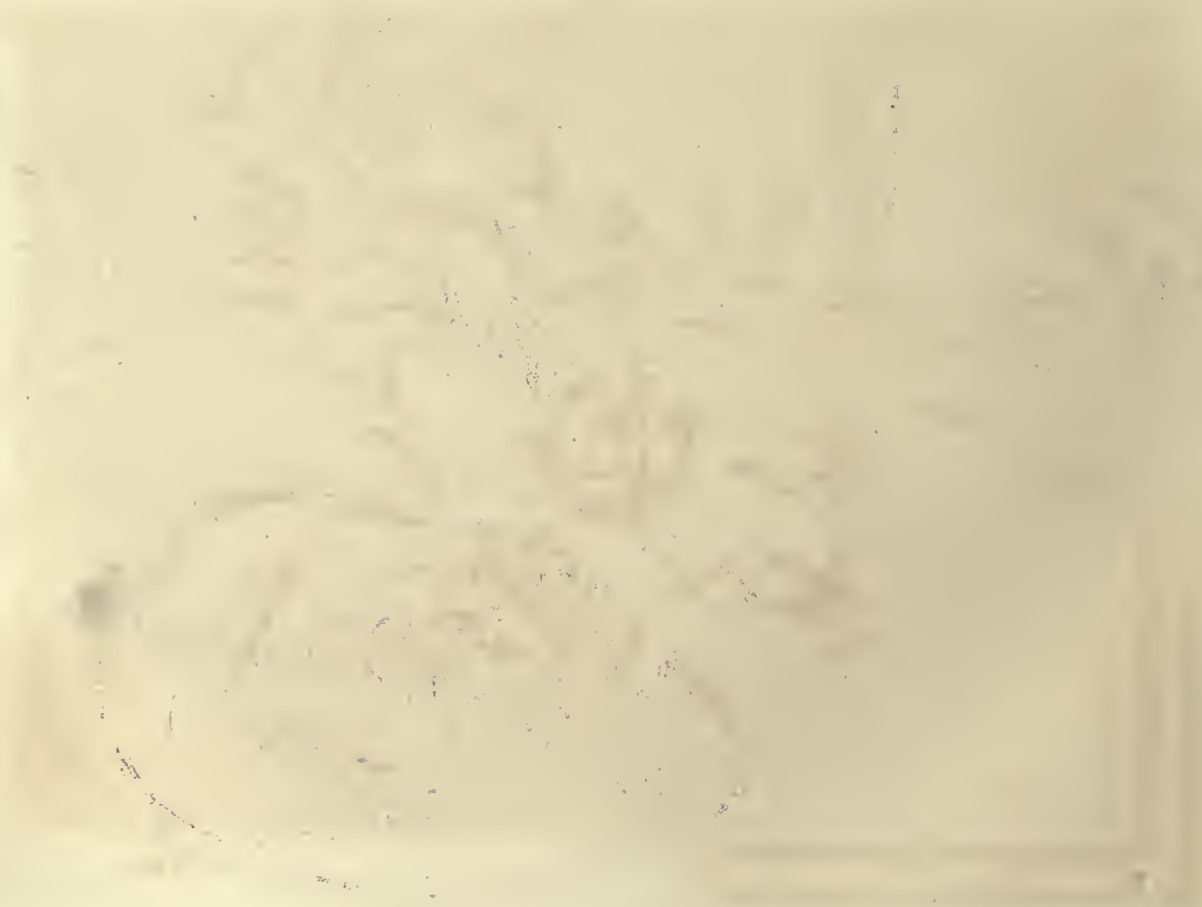
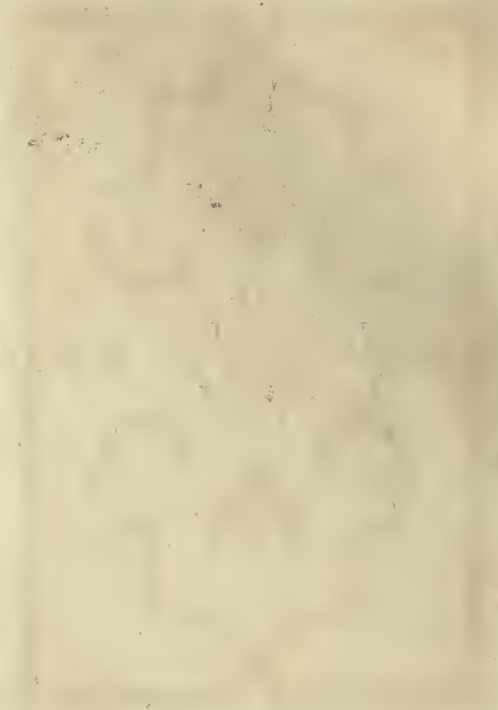


83

84

85

86





87

LADY'S CARD CASE



88

GENTLEMAN'S CARD CASE



89

PANEL SHADED MARQUETRY.









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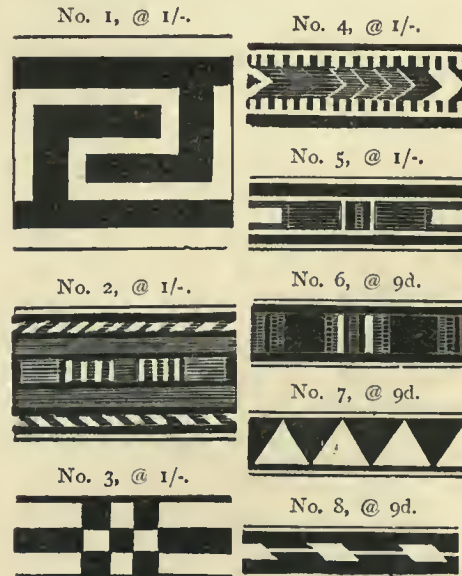
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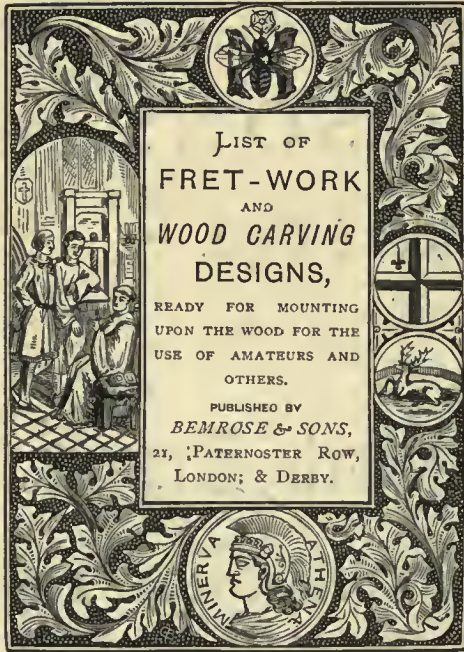
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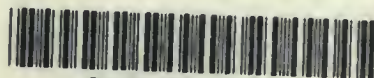
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