

**HOME MADE GRILLS AND GRATINGS.**

A dwelling house without ornamentation of the class mentioned above indicates one of two things, either the owner or occupant does not appreciate the value of this kind of home decoration or he does not possess the skill to make or the ability to purchase it. It is true, the beautiful metal and wood work now manufactured for this purpose is very expensive; but it is also true that something equally as beautiful may be had without much trouble or expense.

The grills shown in Figs. 1, 2, and 3 are made of rope, sized, bent into shape, dried, glued in a wooden frame and finally painted an appropriate color or gilded or bronzed. These ornaments when placed in a doorway or window or across a hall from the stairway to the wall, or in some corner in the library, add wonderfully to the appearance of the room.

The materials required are some  $\frac{1}{8}$  in. sash cord, glue, round sticks or doweling  $\frac{1}{8}$  in. in diameter, paraffine, (a paraffine candle will do), some strips of wood, and paint or varnish.

There are in the present case only two fundamental forms for the spindles or bars, but these are combined in several different ways, as shown in Fig. 6. The spindle most used is shown in Fig. 4. It is formed by winding the sash cord—which has been previously steeped in the glue size—upon the wooden rod. The rod is coated with melted paraffine before use, to prevent the size from adhering, and equidistant marks are made upon the rod as guides for the winding. These marks are  $1\frac{1}{2}$  inches apart. The winding can be easily done by placing one end of the wooden rod in a vise, driving a tack through the end of the rope into the rod. If every turn of the rope around the rod is made to coincide with one of the marks, the spindle will be true enough for all purposes. A tack should be driven through the end of the finished spiral into the rod to prevent the rope from unwinding. A number of rods will be required. Part of the spindles should be wound in a right-handed direction and the remainder in a left-handed direction. The rope should be allowed to stand for a day or so dry. It is well, especially in warm weather, to add to the size some oil of cloves or carbolic acid to prevent it from souring while drying.

The other form of spindle is shown in Fig. 5. This is made by bending the sized rope around pins driven



Fig. 4.—SPIRAL SPINDLE.

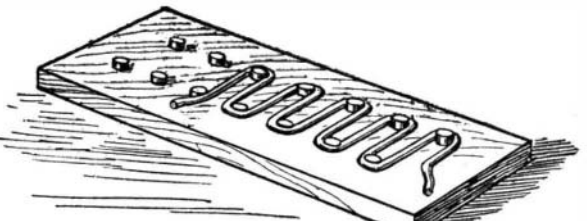


Fig. 5.—ZIGZAG BAR.

into a board in two rows, the pins of one row alternating in position with those of the other row. The board and pins are covered with paraffine, as in the other case.

The spiral spindles may be combined with each other, as shown at *a*, *b*, *c*, *d*, and *e* in Fig. 6, and with a straight rod, as shown at *f*. At *g* they are shown in combination with the zigzag rope. At *h* the zigzag rope is shown in combination with straight rods.

The circles and segments of circles shown in Figs. 2 and 3 are made by winding the sized rope around a tin pail, a can, or some other cylindrical body and allowing it to dry. To form a complete ring, one turn of the rope is cut off, its ends are cut off diagonally and fastened together with strong glue.

The spindles are cut by means of a sharp knife. The various parts of the work are fastened together and attached to a light wooden frame, and, as a rule, no fastening other than glue will be required. If, however, a stronger fastening is necessary at some points, small brads or wire nails, or even screws, may be used.

In Fig. 3, the rosette, *d*, is formed of a circular ring filled with segments of a similar ring in the manner shown. Each pair of spirals, *a*, consists of one right-handed one and one left-handed. The spindles, *b*, *c*, are spirals.

Grills made in this way may be finished in the same manner as wood. They may be stained or painted to match the work into which they are fitted, or they may be painted white and relieved by a little gilt on the projecting part.

It is obvious that a large number of patterns may be

worked out by the aid of these suggestions. Different kinds and sizes of rope may be used alone or in combination.

These grills may be placed in windows, doorways, across halls, above mantels, across niches, between

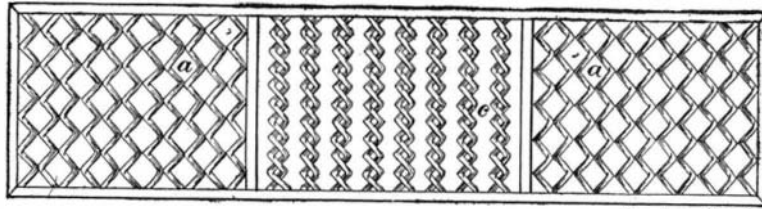


Fig. 1.—GRILL FOR DOUBLE DOORS.

windows, and in many other places which will suggest themselves. Like many other household ornaments, if well and carefully made, they will repay the labor and trouble of making.

**Electrical Workers will Please Report.**

We are constantly in receipt of letters from interested

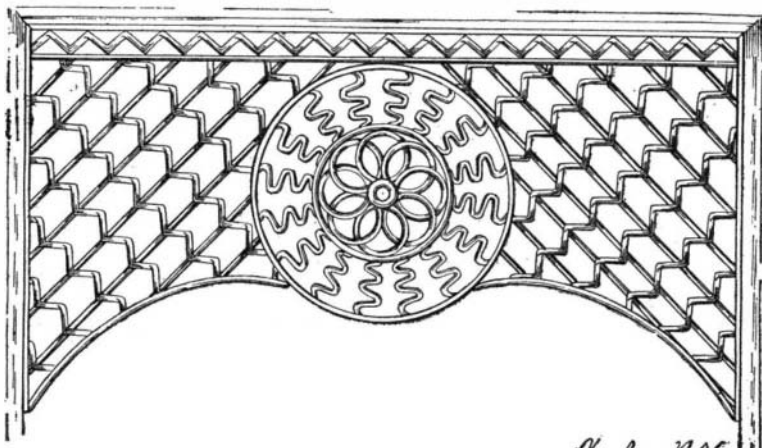


Fig. 2.—ROPE GRILL FOR WINDOW, DOOR, OR HALL.

readers of our articles on electrical machines and apparatus for amateurs, which indicate that a very large number—we might almost say an army—of amateurs, as well as many electricians, are in some manner following our instructions in these matters. We are pleased to know that many of them have done some very creditable work.

We have in mind a plan of mutual exchange of ideas on these subjects, and therefore request any reader of the SCIENTIFIC AMERICAN, or of the SUPPLEMENT, who has made electrical machines or apparatus of any sort after instructions given in either of our papers, to send us a brief description of the same, giving size and amount of wire, size, weight, and material of various parts, the amount and kind of current; if a battery is used, the kind and quantity; and finally, an account of the performance of the machine or apparatus. State exactly what it will do.

We refer to dynamos, motors, electro-magnets, galvanometers, batteries, induction coils, static machines; in fact, anything in the electrical line made after the instructions given in either of our papers.

A CANAL which will afford a cheap and more direct means of communication between the west of France and the north is that which was formally opened on June 1, by M. Yves Guyot. It connects the Oise with the Aisne. Its length is 48 kiloms., or 30 miles, and it saves a detour of 58 kiloms., about 36 miles.

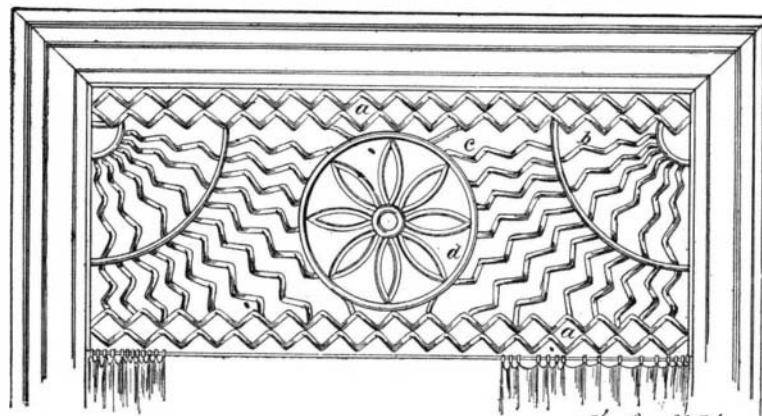


Fig. 3.—GRILL FOR WINDOW.

Many serious difficulties have been encountered in carrying out the work, notably in the construction of the subterranean portion of the canal. This tunnel is 2365 m.,  $1\frac{1}{2}$  miles, in length, and the cost of boring was about 10,000,000 f. or \$2,000,000. In this work both fire and water had to be contended with, and six years ago eighteen men were suffocated in the workings. The canal, which was made under the direction of M. Bœswilwald, has occupied ten years in construction.

**The Pool of Bethesda.**

Consul Henry Gilman, writing to the state department from Jerusalem, gives the following account of the discovery of the pool of Bethesda: Of the more remarkable discoveries in the ancient city during the year, that of the Bethesda is of paramount interest and importance. As is well known, the Birket Israel has in the past been considered as the site of the Bethesda; but the excavations of the Algerine monks under the ruins in the rear of the Crusader Church of St. Anne have gradually transferred opinion in favor of the latter locality. This was strengthened by the discovery of a rock-hewn pool containing water beneath three successive structures. Subsequent excavations revealed the remains of two tiers of five arched porches, the lower tier being in the pool. The intelligent labors of the monks who are in charge of the property have been further rewarded by the recent discovery of another pool containing a good supply of water to the westward of that first discovered, the entire agreeing with the descriptions of the Bethesda as given by the fathers of the church and Christian

pilgrims and writers as early as the fourth century. The correspondence in number of the five porches to those mentioned in the gospel of St. John (v: 2) will not escape notice. Steps cut in the rock lead down into the water. An ancient Christian church in ruins surmounts the whole. The remains of the upper tier of porches extend above the pool at right angles from the north wall of the crypt beneath the church, in which the apse, at the east end, though dilapidated, is still distinctly defined. On clearing away the debris that choked the fifth porch westward of the apse all these discoveries culminated in revealing the remains of a painting or a fresco upon the plaster of the wall in the rear. This discovery was made just before Easter, or about April 18, last. The fresco represents an angel as if descending into and troubling the water, which latter is depicted by conventional zigzag and

wavy lines of an olive green, shaded with black, more suggestive of Egyptian hieroglyphics than of modern art, and surrounding the figure on every side. The right hand of the angel was shown as uplifted; but this has been carefully destroyed, probably by the Moslems, after their habits, in the early days of their power. So, also, the face of the angel, which has been battered so as to be completely obliterated. The glory or nimbus

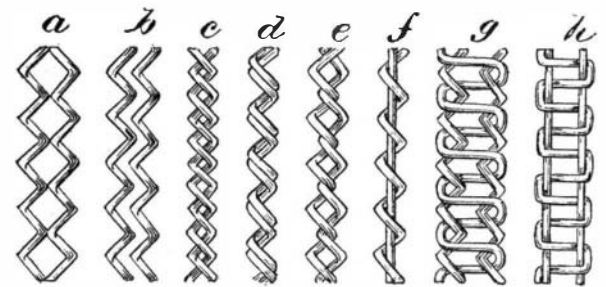


Fig. 6.—FORMS OF SPINDLES AND BARS.

above the head, painted an orange yellow, still remains, but little injured. The edge of the pool appears to be indicated by a broad red line inclosing the painting, and having an occasional rectangular projection into the water, perhaps representing steps or the piers for the porches. On the east of this fifth barreled arch (the wall extending at right angles) are remains of another figure, also in fresco, much defaced, and supposed to represent the Saviour. Above the head, evidently intentionally mutilated, is a portion of the nimbus, and in the lower outer corner of the painting, part of a blue robe. It is to be regretted that these frescos, the colors of which were quite bright when first uncovered, have since greatly faded, so that the blue is now a dull, ashy gray. The reds and yellows, however, though lowered in tone, preserve their hues somewhat better. To summarize, these discoveries are as follows: First comes the rubbish covering the ruins, and built upon by the more or less modern Turkish houses; next beneath is the small church, with apse; under this the crypt, with five porches, containing the frescoes; and fourth and last, underneath all is the pool itself, cut in the solid rock.

and with five arches of well preserved masonry. This last, from the historical and other evidence, I have not the slightest doubt is the veritable pool of Bethesda.—*Boston Herald.*

To fill up cracks in a boat, melt equal parts of pitch and gutta percha in an iron pot; thoroughly mix by stirring. Make up in sticks and melt into the cracks with a warm iron.