

fect a curve as possible to the other side, when it was again fastened.

Fig. 4, a peach gatherer, was made by attaching a circular piece of board to the end of a long pole and fastening to this a can. Inside of the can there was a bag to receive the fruit without bruising. The bag was sewn inside of the can through a circle of small perforations. The rim of the tin was sharpened, so that when pressed against the stem of the fruit it would cut through it.

Fig. 5 shows a liquid measure or a water bailer. A hole is made in a can two inches below the edge; through this hole a handle is inserted which presses against the opposite side and is secured with a nail or screw.

Fig. 6 represents a fruit can converted into a respectable looking flower-pot. The can to be operated on was first dipped in the hot asphalt. A piece of well-seasoned white birch bark was cut out of the same height as the can and sufficiently long to reach around it. This piece of bark was so shaped that it flared out from the bottom of the can, leaving considerable space between the can and the bark. This space was filled in with hot asphalt. For ornamentation of the pots burrs of the liquid amber, black alder, and acorns were used. A hole must always be made in the bottom of the pots for the drainage of surplus water.

Fig. 7 is a hanging pot, planted with ferns. This was also covered with white birch bark, fastened on the straight sides of the can with asphalt. Three wires, by which it was suspended, were fastened to the rim of the can. In using cans for flower-pots or hanging baskets care should be taken to thoroughly coat the insides and outsides with the asphalt; this secures the tin from rusting.

Fig. 8, a hanging leg, was made by partially telescoping two cans together, after the opened end had been entirely removed. A section of the side of each can was cut out, to leave an opening for the reception of the soil and plants. The cans were then heavily coated with asphalt, particularly where the cans joined, so as to strengthen the joint. Barks of chestnut and oak trees were used for covering the cans.

Fig. 9 is a standard for plants and flowering bulbs. Having secured an old centre-table, two cheese-boxes of different sizes were placed one on top of the other, the smaller one on top. Around the side of the lower box fruit can flower-pots were ranged, above these ranged another circle of pots, which stood on top of the largest cheese-box and against the side of the smaller one. On top of the smallest box more pots were placed, so that but little of the cheese boxes could be seen. All the pots were ornamented with burrs, cones, lichens, or barks. The spaces left between the boxes were filled in with wood mosses. Around the rim of the table was nailed hooping from a flour barrel. The inner angle formed by the hooping and the top of the table was patched with putty. Over the entire top of the table, the hooping, and the putty, hot asphalt was applied with a brush. This rendered the top of the table watertight, so that when watering the plants water could not run on to the floor. A hole bored through the top of the table afforded an escape for surplus water. The cheese boxes were coated inside and outside with asphalt, to prevent them from warping. The open space between the first circle of pots and the rim of the table was filled in with earth, on top of which moss was built up to the first circle of pots. The plants used were tradescantia, German ivy, English ivy, vincas, saxifraga, hyacinths, and calla lily.

Fig. 10 shows the complete plant standard. In hanging baskets, pots, and standards, where the plants are planted closely together and in a comparatively small bulk of soil, they require frequent watering and occasional applications of liquid manure. Our fowls provide us with a very fair article of "domestic guano," from which we make good liquid manure of sufficient strength by mixing one shovelful to a barrel of water. Still there is danger in a too generous use of liquid manure; if too strong or too frequently used the tender roots of the plants are injured and the leaves begin to fall.

Fig. 11 is a fern rockery for table or Wardian case. For the rock-work the most picturesque of rocks in form and color were selected. The rocks were fastened together with plaster of Paris, which was mixed with dry colors, grays and browns predominating. As fast as the plaster was applied sand was thrown on it. The effect of the coloring and sanding of the plaster was to destroy its whitely glaring look, and to harmonize it with the general colors of the rock work. The cans used for the flower-pots were first wrapped in wet paper, to increase them in size, before applying the plaster against them when building the rock work. In a few hours the paper wrappings

had so dried that the pots were easily withdrawn, after which the paper was removed and the pots put back in their places.

Fig. 12 is a vase for dried grasses and autumn leaves, which was constructed as follows: To the top of a broken-off lamp standard of glass was fastened a fruit can that had been previously dipped in asphalt. The outside of the can was then carefully covered with selected lichens and tufts of "saling wax moss." Shells and parts of pine cones were used for ornamentation.—*Scientific American*.

Architecture and Building.

IS IT ADVISABLE FOR A BUILDER TO MANUFACTURE HIS OWN JOINERY?

The question as to whether it is more economical for a builder to buy ready-made joinery, or to manufacture it himself, is very important, and is one on which great diversity of opinion exists: so that we do not feel sanguine of being able to decide in such a manner as to attach to our opinion the whole or even any great majority, of those who may care to discuss the views advanced in this article.

The question indeed is, after all, one of opinion rather than of clearly definable fact, and yet so is it one which is regulated by circumstances. That the question—or at least the economical part of the question—is one more of opinion than of fact is assured by the reason that no builder can accurately know what his joinery work does cost him when he manufactures it himself. He may indeed be able to make a pretty shrewd guess at the cost; but, after all, his calculation is nothing more than a guess. We will occupy a little space by pointing out our reasons for urging this.

A builder buys a parcel of deals, which he intends to use for the making of joinery work, and when he has them piled in an open manner (so that the wind can season them) for some time, he selects out a number, and has them sawn into boards and reared on his "perches" to dry. Here, as a rule, we have two elements of cost entirely lost sight of; first, the cost incurred by the lapse of time whilst the process of seasoning was being conducted; secondly, the increased value of the selected deals, which follows by reason of the incurrence of loss arising through the rejected deals being eventually employed for purposes for which an inferior and less valuable brand would do equally as well.

The deals, now boards, being "perched," a precisely similar cost is added to the joinery work constructed from them, when the seasoning and selecting processes have been repeated. Considerable labor will now have been spent upon the wood—we do not refer to the labor of sawing, because this work may have been, as it mostly is, done at a public saw-mill, and therefore the cost is to be reckoned (although we strongly suspect that in counting the cost of an article of joinery work the cost rarely is accurately reckoned)—but the labor of piling, selecting, removing, and repiling will have necessitated some expenditure. It may have been 2½ or 5 per cent. upon the first cost of the wood; it is more likely to have been 7½ or even 10 per cent.; however, as in no two instances is it likely to have been precisely the same, it can only be guessed at roundly.

When, however, the labor charges of the joiner for making the required articles have to be formed into an item of the cost of the production, the estimator in the generality of cases, is in a very hopeless position. It may be argued that the workman would willingly engage himself on piecework, but as against this must be placed the fact that not only has the builder no time to spend over making a number of special contracts with his workmen, but there is also to be considered that a builder is constantly requiring his men to leave off their work, and undertake some other task of immediate necessity. It also happens that it is an exceedingly rare circumstance for builders to engage their joiners on piecework terms. Thus, as a matter of fact, the cost of the labor of constructing joinery work is not reckoned out. It is guessed at sometimes, and at other times, and very often, it is "lumped."

This being the case, the data for argument as to the comparative cost of home made and bought joinery work are destroyed, or rather are not fully furnished, and so the difficulty of comparison in this respect is very materially enhanced.

One more item of cost may, however, be noted, and that is that the joiner takes ready money every week in the shape of wages, and does not allow any discount to be deducted therefrom. Of course, it is not expected that he should; but the point of cost is worth noting, as we are of opinion that in