

LIQUID BRAZING.—Referring to the subject of liquid brazing, which has come into such general use in the cycle trade, an English writer says that many classes of work are really done best by liquid brazing, in which the brass is maintained in the molten state in a crucible, either by means of converging blowpipe flames or a type of reverberatory furnace, and this process deserves to become more popular for all "end" work, such as liners, stay rod and fork ends; it is quick, sure and clean; burning is impossible, and there is no scaling, because there is no oxidization.

The drawback, however, appears to be the perishable nature of the plumbago crucibles, as they will rarely stand more than two heats, and the system is not adapted for odd jobs, but for long, continuous lots of work, though for some work the plumbago crucible may be dispensed with; and the writer has seen ordinary fire-brick, with a hollow scooped out, give excellent results.

Such a furnace is cheaply and easily constructed with a few fire-brick and iron gas piping for the blowpipes, the flames being projected downward at an angle from the sides, and meeting on the surface and in the centre of the bath of spelter, oxidization of the liquid mass being prevented by strewing a few lumps of sal ammoniac on the surface, and a few bits of zinc may occasionally be added to replace that which is dissipated by the heat. Liquid brazing, however, requires a high-pressure fan, constant blast and nice regulation.—The Bicycling World.

A SYMBOL OF GOOD LUCK.—One explanation of the use of the horseshoe as a talisman, is that the Russian peasants used to paint outside their doors a picture of the Blessed Virgin. The halo round the head they gilded. The rains and snows washed off the paint eventually, but the gilding remained in the shape of a horseshoe, and the peasants regarded it with the same reverence as they had the whole picture. From Russia the travellers brought stories of the peasants having horseshoes at their doors as a protection against evil fortune, and so the superstition of the horseshoe spread over the world. The other explanation, and probably the true one, is that the symbol is of a far more ancient origin. The Greeks and Romans, who pinned their faith to the goddess Diana, used to wear as a symbol of their loyalty to the divine huntress her symbol of the crescent moon. As the ages rolled on the crescent became a horseshoe. Whatever the origin of the belief in the horseshoe as a portent of good luck, there are hundreds of thousands of people throughout the world who would "never take the horseshoe from the door."

TESTING STRENGTH OF GLUE.—In making tests of the quality of glue and the adhesive strength of joints made with the glue at different states of fluidity, a good test is to take two pieces of the wood being worked, 1x4 inches in size, and glue them together with a lap of 4 inches. When set and dry, stand the block on end and try to break the joint

by striking with a heavy hammer, says the Wood-Worker. The fracture produced will determine if it is the glue or the wood that has let go and will give a fairly correct idea of the strength of the glue used.

THE PERFECT WELD.—The secret of a perfect weld lies in securing the proper temperature for a complete fusion of the metal. The blacksmith well knows that if the parts are in this state but little force is required in completing the union, whereas if the pieces have not been brought to the proper heat no amount of hammering will suffice to join them.

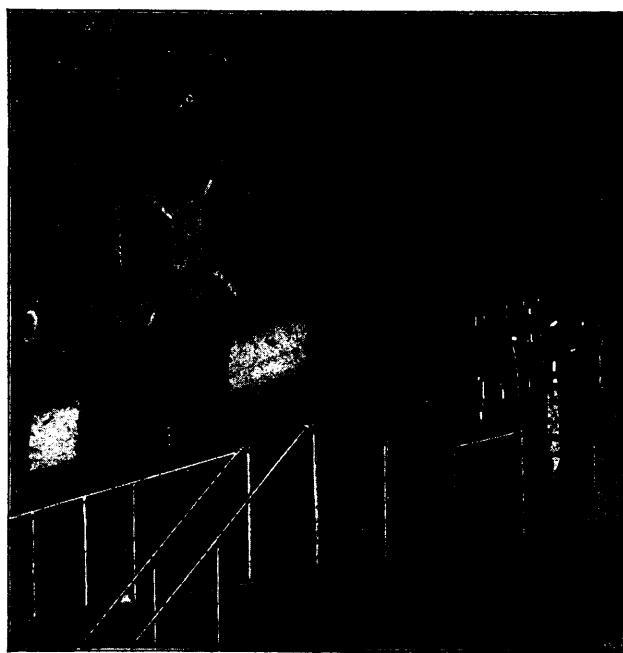
Comparative tests have shown that the strength of a weld depends upon the completeness and success with which it has been made. A good weld, as might be expected, is found to be quite as strong as the parts not welded. A poor weld is weak just in proportion as it is defective. A poor weld also may to all appearances be perfect, and it is this which leads the engineer or mechanic to distrust the weld in iron work. Since the ultimate strength of a weld then depends principally upon whether it is well or poorly made, there is but little difference in the strength of butt, lap and split welds, where each is perfect.

In practice it is found that the electric butt weld is superior to others, showing that strength results less from the kind of weld than from the perfect fusion of iron. In this process the welding temperature is attained by the transformation of electrical energy of high current

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