

PRACTICAL SHEET

AND

PLATE METAL WORK

CHAPTER I.

INTRODUCTORY.

EVERY workman whose aim it is to become a proficient sheet or plate metal worker should at least have a fair knowledge of practical geometry, mensuration, and the properties of metals. Whilst no attempt has been made in the following pages to treat these subjects separately, yet their application has been shown and explained in all suitable cases.

It is impossible to become an expert in the striking out of patterns or templates except the basic principles are thoroughly grasped. The learning of pattern-cutting by attempting to remember the methods applicable in a number of articles is to be deprecated as it gives only a parrot-like kind of knowledge which invariably fails when dealing with an object whose shape is a little out of the ordinary run. Nearly all patterns come from the development of the surfaces of a few geometrical models, either singly or in combination, such as the cylinder, prism, cone, pyramid, and in the following chapters the objects have been grouped with this classification in view. To become a

good pattern-cutter then it is essential that a careful study should be made of the methods followed in developing the surfaces of the solids above-named and their interpenetrations. From the above statement it will thus be seen that the first thing to do in the making of a pattern is to carefully examine the shape of the article for which the pattern is required, and having determined from what geometrical solid or portion of solids the surface is built up, then to develop the pattern by the method peculiar to those surfaces.

The only way to gain confidence in the marking out of patterns or templates for sheet and plate metal work is by continued practice, not only in drawing the patterns out on paper, but more particularly in cutting them out of thin sheet metal and bending into shape to test accuracy of work.

For work of double curvature, such as hollowed or raised articles, pipe bends, etc., it is particularly desirable that the beginner should experiment by the working up of parts of an object whose pattern has been set out to some definite scale before attempting to mark out a full-sized plate and shearing into shape. In this way by careful examination and measurement of the model plate any errors in the pattern may be detected and allowed for in marking out the full-sized plate.

Particular care must be taken in fixing the shape and size of notches, also in the allowances for wire, joints, and thickness of metal if an article is to be made accurately and without giving undue trouble in the making up. Patterns without proper allowance, it should be remembered, are useless.

Particular attention is called to the general method of "triangulation" used in the setting out of patterns, and every ambitious mechanic would do well to strive to thoroughly understand its principle as explained in Chapter XIII.

There is no particular reason why any one classified group of articles should be taken first, but it is generally found by experience that the setting out of patterns for simple pipe joints is easily followed by the beginner, hence these are dealt with first in the next chapter.

Before passing on to the setting out of patterns there is one important point that should be borne in mind, and that is whether a pattern is being made for a single article or many, or perhaps for a stock article. After some practice in pattern-cutting the smart workman should be able to mark out a pattern for a single job with a few lines, but where the pattern is to be used for many articles more lines should be used so as to ensure the greatest accuracy.

A good pattern, it should never be forgotten, means a saving of time in making up an article.