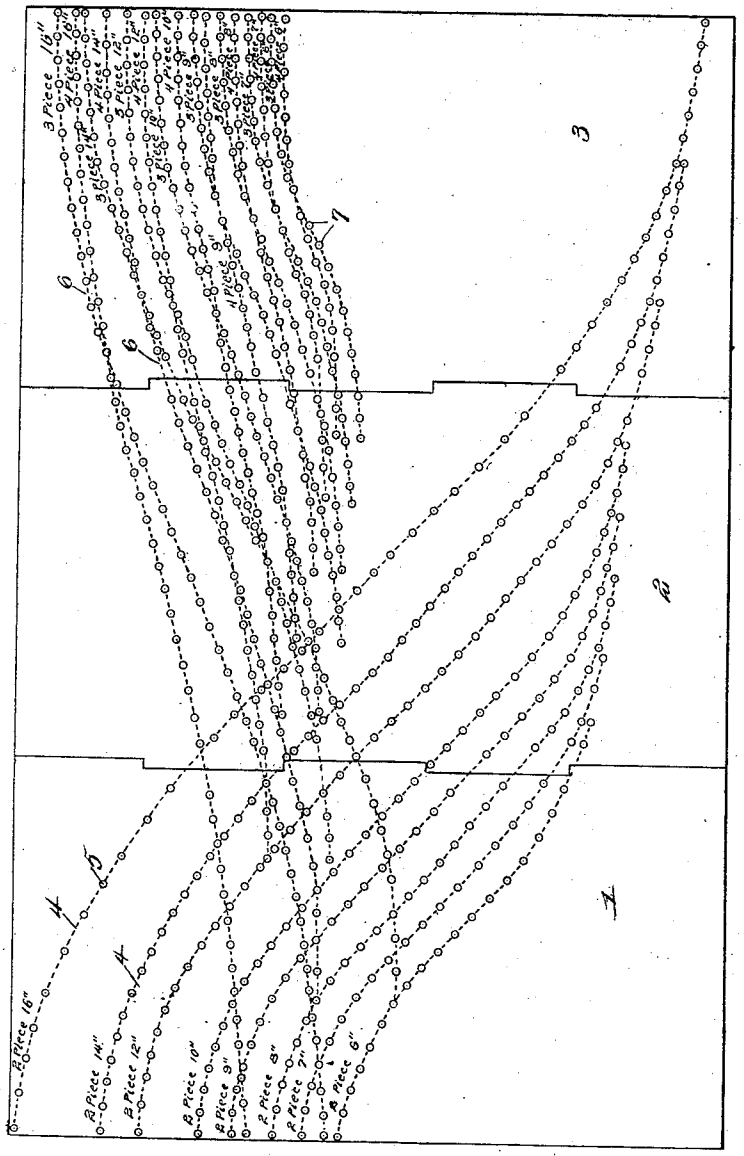
No. 870,520. PATENTED NOV. 5, 1907.

E. PALM.

ELBOW CHART.

APPLICATION FILED DEC. 12, 1906.



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ELBOW-CHART.

No. 870,520. Specification of Letters Patent. Patented Nov. 5, 1907.

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To all whom it may concern:

Be it known that I, EMIL PALM, a citizen of the United States, residing at Kiron, in the county of Crawford and State of Iowa, have invented certain new and useful Improvements in Elbow-Charts; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a pattern for laying off parts of sheet metal elbows such as used with stove pipes, and its object is to provide a device of this character which can be folded into a compact bundle, and which can be used for the purpose of laying off a large number of pieces of different sizes and angles and of any diameter so that various styles of joints can be produced.

Heretofore, it has been necessary for tinners to keep on hand a great variety of separate patterns for use in laying off the pieces of different styles of elbows, and considerable time has often been lost in locating a desired pattern. Moreover, such a large number of patterns take up considerable space and are therefore rendered objectionable.

My invention consists of a sheet preferably formed of several pieces connected together so as to fold one upon the other, and this sheet has indicated upon it the outlines or curves to be cut when producing the different sizes and styles of pieces. A series of apertures is formed along each of the lines, and all of the lines are properly designated so that the proper one can be quickly located by the user. The entire pattern is to be placed upon the sheet of metal to be cut and a prick-punch is used within the apertures on the proper line, so as to outline the curve of the sheet of metal beneath the pattern. The pattern constitutes one-half of the curve, and after said half has been indicated on the sheet of metal, the pattern is turned over and the operation completed so as to complete the curve.

In the accompanying drawing I have shown the preferred form of my invention in plan.

Referring to the drawing, it will be seen that the pattern is formed of three sheets 1, 2 and 3 which are hinged together at their edges and are adapted to fold one upon the other so as to render the sheet very compact when not in use. Extending from the free side edge of the member 1 of the pattern are a plurality of curved lines 4 of various lengths and degrees of curvature, and along each of these lines is produced a series of small apertures 5 arranged close together.

Each of the lines is designated by a heading indicating the size and the kind of elbow to be produced by cutting the sheet metal along said line. For instance, the upper line 4 is designated "2 piece 16″". The next is designated by "2 piece 14″"; the next line by "2 piece 12″", etc. It will be noticed that all of the lines extending from the edge of number 1 are for outlining two piece elbow joints, although the same are for joints of different diameters, as indicated by the number of inches included in the line designation.

Extending from the free side edge of the member 3 of the pattern are additional curved lines 6 of different lengths and degrees of curvature, and these lines are variously designated as being utilized for outlining three or four piece joints of different diameters. Along each line is produced a series of apertures 7 disposed close together.

It will be understood that the hinges used for connecting the members of the pattern are very small so that said pattern can lie practically flat upon a sheet of metal. When it is desired to outline the end of one part of a 10 inch two piece elbow joint, the pattern is laid flat upon a sheet of metal and a prick-punch is used to punch or dot the "2 piece 10 inch" line throughout the length thereof and an impression will therefore be made through the openings 5 upon said line and upon the sheet of metal. The pattern is then reversed and the other half of the curve is duplicated by drawing the marking material along the other side of the pattern, so as to leave an impression upon the sheet metal and indicate the complete curve thereon by means of dots. The metal can then be cut along this line of dots and by rolling the sheet into cylindrical form and securing it, one piece of the joint will be produced. The same operation is followed in producing the pieces of any form or size of joint indicated upon the pattern. When the pattern is not in use, the same can be folded into a compact bundle and will occupy a very small space.

What I claim is:

1. As an improved article of manufacture, a pattern for outlining the parts of elbow joints, the same comprising a series of strips hinged together in the direction of their length, each strip having thereon a plurality of apertured curved lines of different lengths and of different degrees of curvature forming continuities of each other throughout the length of the different strips diagonally from end to end of the strips and across the lines of junction of said strips, for each line extended throughout the series of strips, whereby the shape of pieces required to form a particular sized elbow may be instantly ascertained.

2. As an improved article of manufacture, a pattern for outlining the parts of elbow joints, the same comprising a

series of strips hinged together in the direction of their length, each strip having thereon a plurality of apertured curved lines of different lengths and of different degrees of curvature forming continuities of each other throughout the length of the different strips and across the lines of junction of said strips, for each line extended throughout the series of strips, whereby the shape of pieces required to form a particular sized elbow may be instantly ascertained, said strip having also a second series of apertured curved lines extending in the opposite direction, said two series of lines extending diagonally across the pattern from diametrically opposite corners and intersecting each other.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EMIL PALM.

Witnesses:
PAUL DOBBS,
E. L. MILLER.