

Aug. 26, 1924.

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N. E. GRANDAHL
SHEET METAL WORKING TOOL

Filed July 16, 1920

Fig. 1.

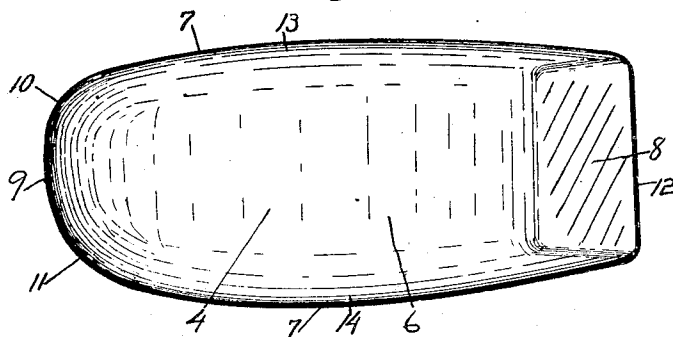


Fig. 2.

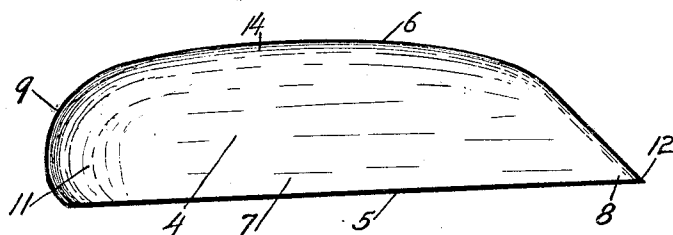
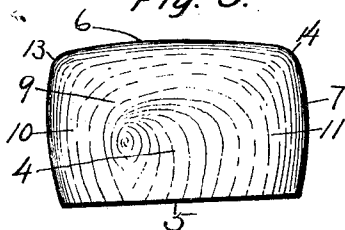


Fig. 3.



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UNITED STATES PATENT OFFICE.

NILS E. GRANDAHL, OF HARTFORD, CONNECTICUT.

SHEET-METAL-WORKING TOOL.

Application filed July 16, 1920. Serial No. 396,820.

To all whom it may concern:

Be it known that I, NILS E. GRANDAHL, a citizen of the United States, and a resident of Hartford, in the county of Hartford and State of Connecticut, have invented a new and Improved Sheet-Metal-Working Tool, of which the following is a specification.

My invention relates to that class of tools employed more especially by sheet metal workers for shaping sheet metal, or for restoring it to shape, and an object of my invention, among others, is to provide a tool of this kind that shall be particularly efficient and that may be employed for producing any of the intricate shapes in sheet metal working that may be required.

One form of tool embodying my invention and in the construction and use of which the objects herein set out, as well as others, may be attained, is illustrated in the accompanying drawings, in which—

Figure 1 is a top view of my improved sheet metal working tool.

Figure 2 is a side view of the same.

Figure 3 is a view looking at the rounded end thereof.

My improved sheet metal working tool, illustrated and described herein, is designed for use by grasping it with the hand in such way as to enable that part of said tool desired to be applied to the sheet metal to be readily employed, that is, as commonly constructed, no handle will be attached to the tool, although the supplying of the handle would not be considered by me as a construction which would avoid the invention.

This tool may be composed of any suitable material and comprises a tool body 4 that has a flat bottom 5 and the top 6 of which is of curved form both laterally and longitudinally of said body, as are also the sides 7, all of these longitudinal curves being of different form and all of said lateral curves being also of different form. One end 9 of the tool body is curved in the direction of its depth, this curve varying in shape and as to its radius from the bottom to the top and gradually merging into the curve of the top part of said body. This end is also curved crosswise of the body this curve also varying in shape and as to its radius from one side of said body to the other side thereof and gradually merging into the curved surfaces of the side. One side 10 of this curved end is formed on a radius that is quite small, the other side 11 of this curve

being formed on a somewhat larger radius.

That end of the tool opposite the curved end above described is beveled in the direction of depth of the tool body, this beveled surface 8 terminating in a comparatively sharp edge 12 at the intersection of the bottom and beveled end, and said beveled end opposite this edge gradually merging into the curve of the rounded top 6. The sides of this beveled end are also gradually merged by means of curves into the curves of the sides both lengthwise and in the direction of depth thereof, and the sides are connected with the curved top by means of curves, that on one side being smaller than that on the other side, and these curves being smaller than any of the curves hereinbefore described as shown at 13—14 in Figure 3 of the drawings.

By the use of this improved tool it will be found that any of the intricate shapes that may be desired in sheet metal working may be readily imparted to a piece of sheet metal, the different forms of the tool enabling any convex shape to be imparted to the sheet and the different forms of the tool readily lending themselves to any concaved shape, however small, that may be required and ranging from an acute angle to an obtuse angle and therefrom to a curve of small degree and from such small curve to a curve of any degree and therefrom to a flat or straight surface.

I claim:

1. A sheet metal working tool comprising a body having curved sides and with an end curved in transverse directions, each of said transverse curves gradually merging into the curves of the sides, and also gradually increasing in radii from one point to another.

2. A sheet metal working tool comprising a body having opposite sides formed on curves with arcs of different radii, said curved surfaces gradually merging into curved surfaces at the end of the tool, said curved surfaces at the end of the tool being curved in transverse directions, each gradually increasing in radii from one edge to the other of the tool.

3. A sheet metal working tool comprising a body with a curved top and with one end curved in transverse directions, each of said transverse curves being on gradually increasing radii and gradually merging into the curved surface of said top.

4. A sheet metal working tool comprising

a body with a top formed on a comparatively long curve lengthwise thereof and with one end formed on curves both of shorter radius than the top and one of shorter
5 radius than the other, on opposite sides of a plane passed vertically through the tool lengthwise thereof, all of said curves gradually merging one into another.

10 5. A sheet metal working tool comprising a body with oppositely arranged curved sides, one of which is of a curvature greater in radius than the other, an end comprising a curved surface extending from one curved
15 side to the other on a curve gradually increasing in radius, said end also being formed on a curve in the direction of depth of the body of gradually increasing radii from one end of the tool toward the middle portion of its length, all of said curves gradually
20 merging one into another.

6. A sheet metal working tool comprising two sides and a top all formed on compara-

tively long curves, each of different curvature than another, said tool also having a flat bottom, an end curved in transverse
25 directions, each of said curves being of gradually increasing radii from one edge to the other and gradually merging into the curves of the side and top, and the end of said tool opposite said curved end being formed with
30 a flat beveled surface intersecting said flat bottom.

7. A sheet metal working tool comprising a body with one end curved in transverse directions, said tool having opposite sides
35 formed on curves with arcs of different radii, said curves extending lengthwise and in the direction of depth of the tool, the top of said tool also being curved both lengthwise and crosswise in transverse directions, which
40 curves gradually increase in radii from end to end of said curves.

NILS E. GRANDAHL.