

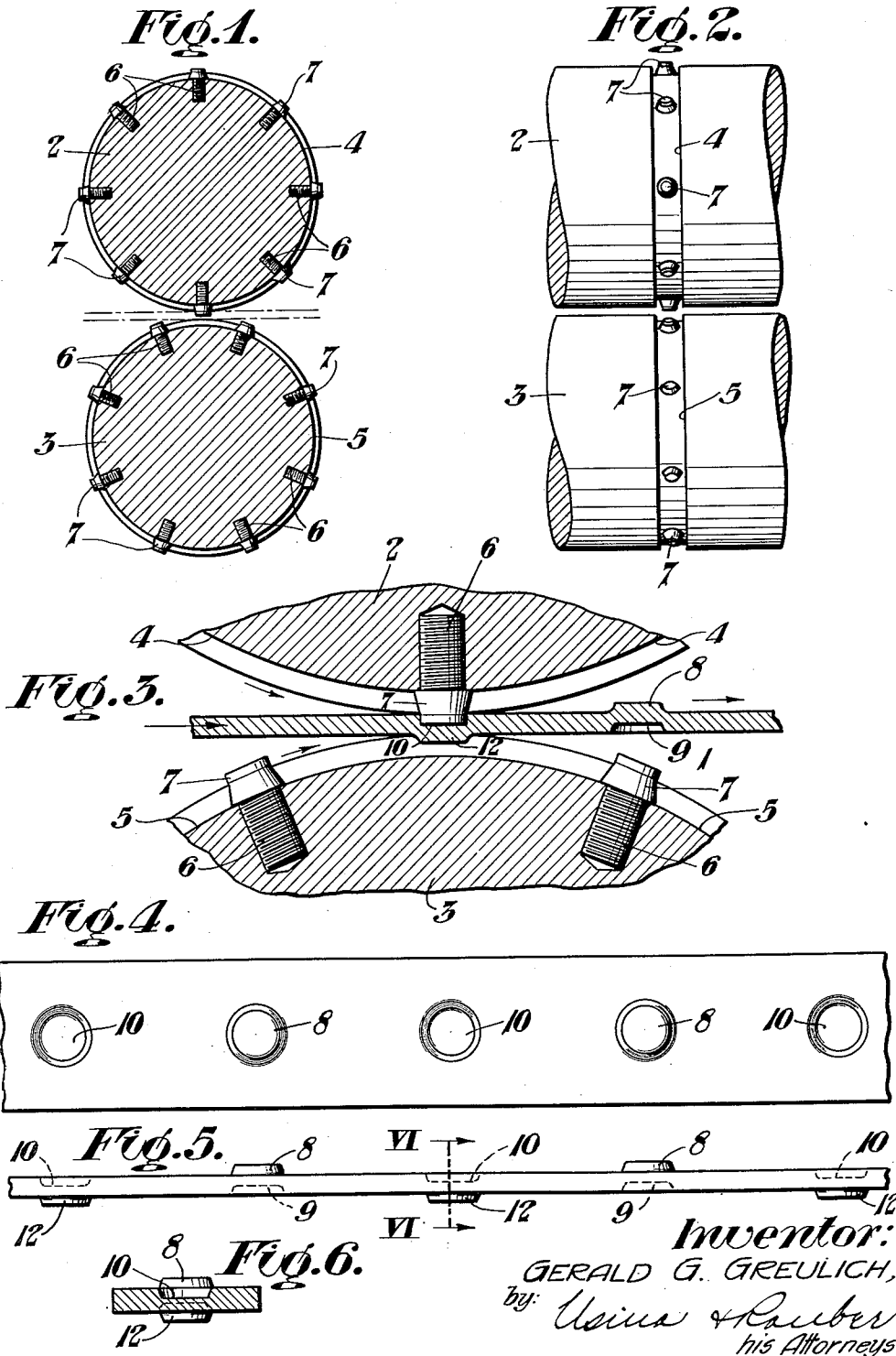
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APPARATUS FOR FORMING PROJECTIONS OR DEPRESSIONS IN FLAT METALLIC STOCK

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3 Claims. (Cl. 80—24)

The present invention relates to a method of and apparatus for forming projections or depressions in metallic strips or sheets and more particularly resides in passing material between revolving rolls carrying die members adapted to deform the material at spaced intervals.

Other objects and advantages will become apparent as the description proceeds in which:

Figure 1 is a sectional elevation showing the cooperation of the superimposed rolls,

Figure 2 is a side elevation of the same,

Figure 3 is a detailed sectional view of the pass,

Figure 4 is a plan view of the material showing the depressions and projections formed therein,

Figure 5 is a side elevation of the same, and

Figure 6 is a section on line VI—VI of Figure 5.

In the drawing, 2 and 3 represent the cooperating superimposed rolls adapted to carry the die studs for forming the depressions or projections in the sheet or strip metal. Each of these rolls is provided with aligned grooves 4 and 5 within which are positioned one or more die studs 6 threaded into openings formed in the rolls 2 and 3. Each of the die studs 6 is provided with a head portion 7 projecting the desired distance beyond the peripheral face of the rolls 2 and 3 to indent the material passing between the rolls.

In carrying out the present method of indenting the material on alternate sides thereof at spaced intervals, the material is fed, in the direction indicated by the arrows in Figure 3, between the rapidly revolving superimposed rolls 2 and 3. In so passing, the die studs 6, which are carried by the rolls and project beyond the peripheral face thereof, indent the material so as to form projections or depressions upon the opposite sides of the material. The alternate relation between the studs on the rolls 2 and 3 is maintained by controlling the relative rotational speed of said rolls by any conventional gear ratio or driving means attached thereto, but not shown in the drawing as such construction forms no part of the present invention.

Under the present invention, a very rapid formation of projections or indentations may be made in sheet or strip material by feeding the material through the rapidly revolving rolls which are so timed that one of the die studs 6 will engage the material at a point between the studs on the opposite roll so that, upon deformation of the material by the stud 6, the pressed portion will project into the grooved area 5 and result

in forming the depression or projection on the material depending on which side of the material the die stud 6 contacts. Therefore, under the present invention, there is produced an article of manufacture, having spaced projections and depressions alternately positioned on each side of the material.

In Figures 3 to 6 inclusive, there is shown the completed article having a projection 8 formed on one side and a depression 9 formed on the opposite side by the die stud, while the succeeding impression formed by the die stud is a depression 10 on the side of the material having the projection 8 and a projection 12 on the side having the depression 9. Therefore, there is provided alternate projections and depressions on each side of the material with the projections of one side being oppositely disposed to the depression on the other side or disposed between the projections of the other side, as clearly shown in Figures 4 to 6 inclusive.

The alternate projections formed on the strip serve as bosses or raised portions which facilitate its adherence to an adjacent section as secured thereto, as by spot welding, etc. Thus these bosses not only facilitate welding together the two strips usually of different thicknesses or sections, but also serve to eliminate the use of contact lugs often placed between adjoining sections and at the point of welding.

While I have shown and described one specific embodiment of the invention, it will be understood that I do not wish to be limited exactly thereto, since various modifications may be made without departing from the scope of the invention as defined by the following claims.

I claim:

1. An apparatus for forming depressions and projections on material comprising superimposed cylindrical rotating rolls, aligned grooves formed on said rotating rolls, said rotating rolls having a relatively wide supporting area on each side of said grooves and die members carried by said rotating rolls in said grooves and projecting beyond the peripheral surface of said rolls, said die members so spaced and arranged as to alternately contact the material to depress and project said material out of its normal horizontal plane to produce alternate depressions and projections on opposite sides thereof.

2. An apparatus for forming depressions and projections on material comprising superimposed cylindrical rotating rolls, aligned grooves formed in the periphery of said rotating rolls, said ro-

tating rolls having a relatively wide material supporting and holding area on each side of said grooves and die members carried by said rotating rolls in said grooves and projecting beyond the peripheral surface of said rolls, said die members so spaced and arranged as to alternately contact the material to depress and project said material out of its normal horizontal plane to produce alternate depressions and projections on opposite sides thereof, with the depressions on one side being opposite the projections on the other side of said material.

3. An apparatus for forming depressions and projections on metallic stock comprising superimposed cylindrical rolls, relatively narrow aligned grooves formed in the periphery of each

of said rotating rolls, said rotating rolls having a relatively wide material supporting area on each side of said grooves to maintain said metallic stock in position as it is passing between said rolls; die members carried by said rotating rolls in said grooves, the die members on each of said rolls so spaced and arranged that one of said die members engages said material at a point between two die members on the other rotating roll to depress the material out of its normal horizontal plane into the groove on said rolls to produce an article having alternate projections and depressions on opposite sides thereof, with the depressions on one side being opposite the projections on the other side of said material.

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