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(54) **Manufacture of anti-slip decking**

(57) This invention relates to a method of manufacturing sheet material suitable for use as anti-slip decking. Known processes are relatively expensive. The present invention provides a method of manufacturing sheet material having a pattern of projections 10, 11 on one surface thereof, comprising using a punch and die on a punching machine to form said projections 10, 11, the projections 10, 11 being formed either one at a time or a limited number at a time.

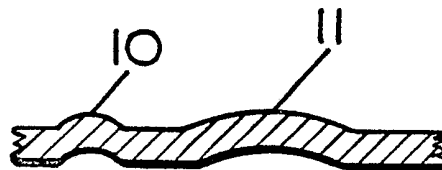


FIG. 2

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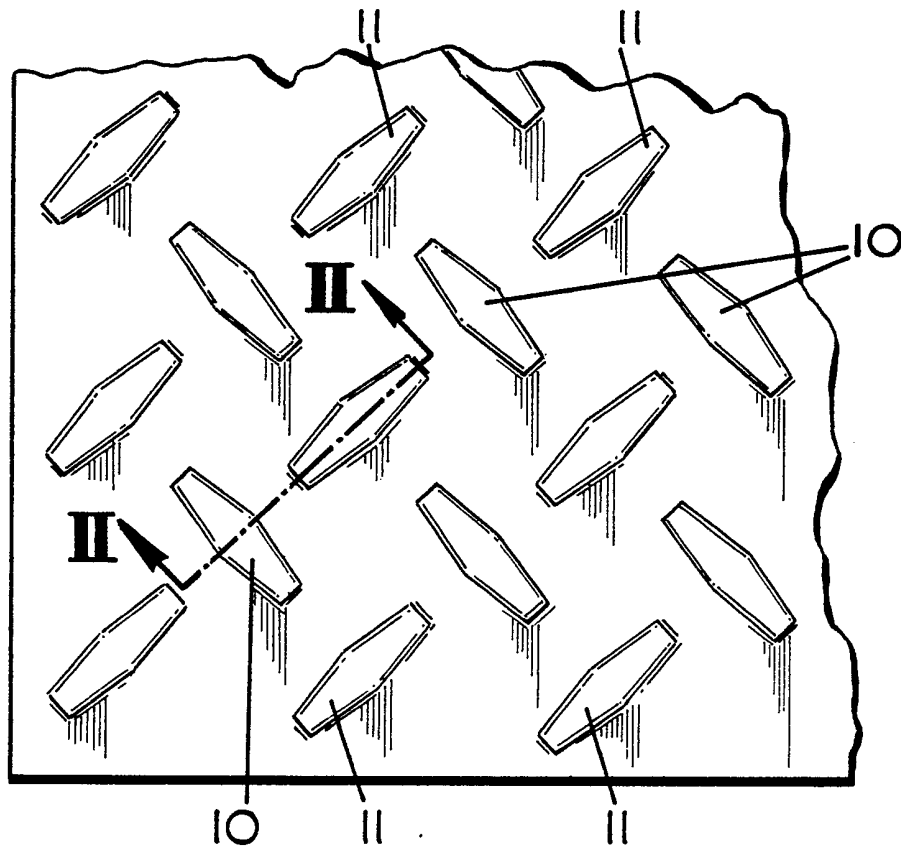


FIG. 1

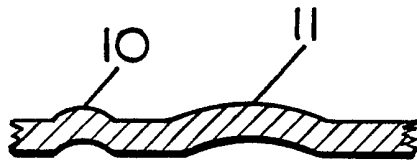


FIG. 2

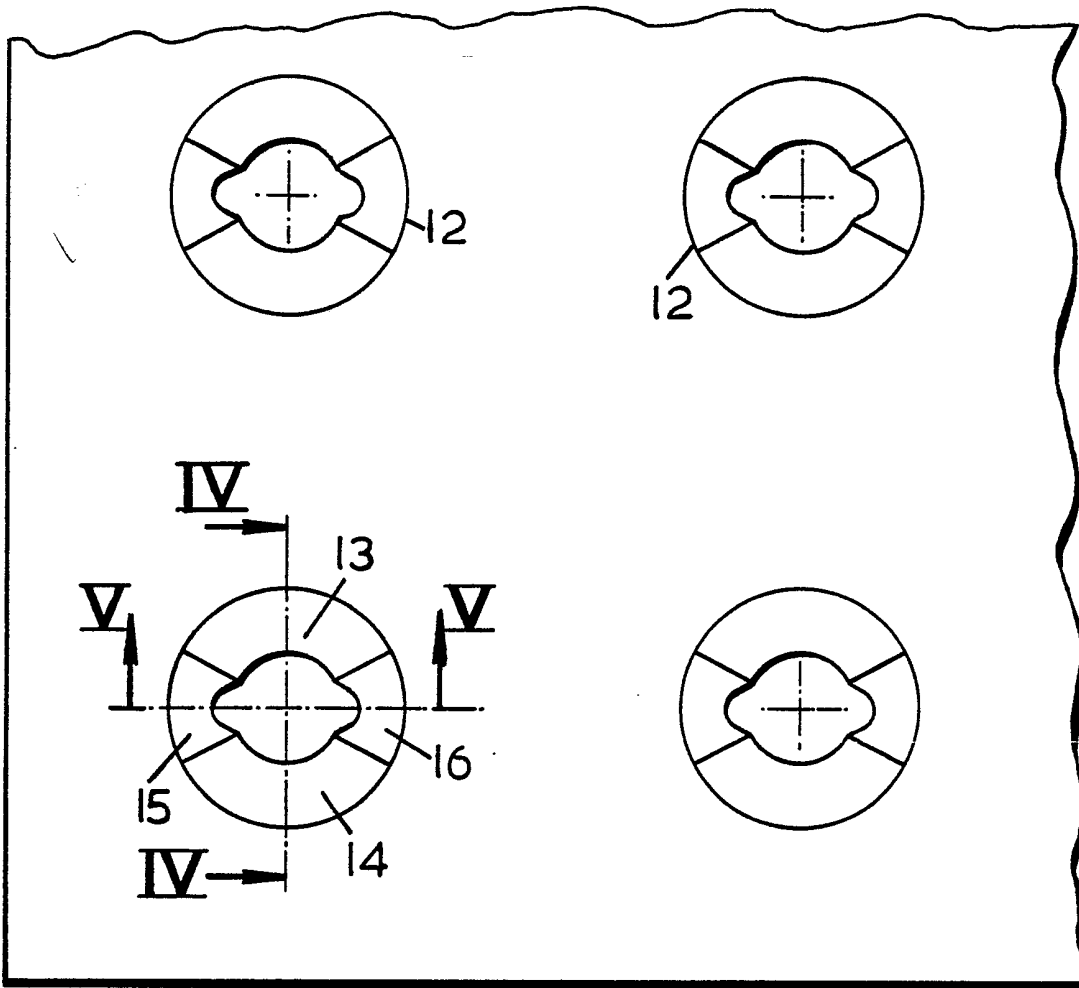


FIG. 3



FIG. 4

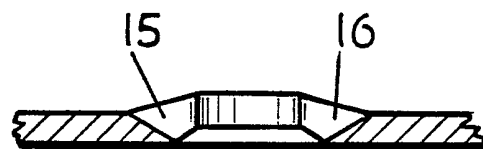


FIG. 5

## SPECIFICATION

### Manufacture of anti-slip decking

5 This invention relates to a method of manufacturing a sheet material and to the material so made, which material is capable of use as an anti-slip decking material. Such material is presently made by thinning down, as by rolling, a sheet of the requisite metal when one of the rollers has indentations in it so that projections are left upstanding in the thinned down material. This material is then sold in standard sheets, usually 2.4m by 1.2m and there is often much waste when the required pieces are cut from the standard sheets.

10 The present invention enables a pattern of projections to be formed in plain sheet metal which is of the final thickness required. This material is clearly cheaper than a material which was originally thicker and which has had to be rolled down to the required thickness in such an additional operation. The operation of adding projections to the thinner plain sheet metal still produces a cheaper product.

15 According to the present invention there is provided a method of manufacturing sheet material which has a pattern of projections on one surface thereof, comprising using a punch and die on a punching machine to form said projections, the projections being formed either one at a time or a limited number at a time.

20 A feature of the invention is a sheet material capable of use as an anti-slip decking material, comprising a sheet of metal, such as aluminium or steel, having a pattern of projections formed in one side thereof and a corresponding pattern of indentations formed in the other side thereof.

25 Embodiments of the invention will now be described, by way of example only, with reference to the accompanying drawings in which:

30 *Figure 1* is a scrap plan view of a sheet of decking material constructed in accordance with the invention;

35 *Figure 2* is a section along the line II-II of *Fig. 1*;

40 *Figure 3* is a scrap plan view of a different design of sheet decking material;

45 *Figure 4* is a section along the line IV-IV of *Fig. 3*; and

50 *Figure 5* is a section along the line V-V of *Fig. 3*.

55 *Figs. 1 and 2* show a sheet of aluminium into which a pattern of projections has been formed on a punching and nibbling machine. The projections consist of a series of parallel rows of projections 10 with the projections in one row off-set in relation to the projections in the two adjacent rows so as to produce a diamond pattern. The projections also include a series of parallel rows of projections 11 extending perpendicularly of the rows of pro-

jections 10. The projections 11 in one row are similarly off-set in relation to the projections in the two adjacent rows so as to produce a further diamond pattern.

70 The material has been formed with these projections using a punching and nibbling machine. Such a machine can be set up with a punch and die and by rapid repetitive punching the projections can be formed into a shape dictated by the punch and die. The punch and die can be arranged to produce a single projection in one operation or a series of projections, such as four adjacent projections, can be formed in one operation.

75 *Fig. 2* shows a longitudinal cross-section through a projection 11 and a transverse cross-section through a projection 10. It can be seen that the punch and die produce an indentation in one side of the sheet which corresponds to the projection in the other side of the sheet. The working of the material on the punching and nibbling machine is carried out with the material cold and this cold working of the material improves the strength of the material so that it has been found that the sheet material produced by the method of the invention is stronger, for example in bending, that the corresponding material produced by rolling.

80 Computer controlled punching and nibbling machines can be programmed to position the material relative to the punch and die so as to produce any pattern of projections required, such as the regular diamond shape pattern shown in *Fig. 1*.

85 Referring now to *Figs. 3, 4 and 5*, a sheet of steel has been formed with a series of substantially circular projections. Each projection has two diametrically opposed upstands 13, 14 and two diametrically opposed areas 15, 16 from which the metal has been relieved. In addition, the central area of the projection has been removed entirely and this configuration provides an anti-slip surface which is self-draining of any oil or water which runs across the surface of the sheet. The shape of the projections 12 is again formed by punching and nibbling and again there is an indentation in the reverse side of the material to match the projections in the upperside.

90 It will be appreciated that the present invention may be practised with various forms of punching machine, including punching and nibbling machines, depending on the particular shape and configuration of the desired projection and whether or not this is required to include an aperture.

### 125 CLAIMS

1. A method of manufacturing sheet material which has a pattern of projections on one surface thereof, comprising using a punch and die on a punching machine to form said projections, the projections being formed

either one at a time or a limited number at a time.

2. A method as claimed in claim 1 wherein the sheet material is advanced relative to said machine between successive projection forming machine operations.

3. A method as claimed in claim 1 or claim 2 wherein part of the material in the area of at least one projection is removed entirely so as to produce an aperture in the sheet material within said at least one projection.

4. A method as claimed in any one of claims 1 to 3 wherein the projection forming operations are carried out on the sheet material at ambient temperature.

5. A method according to claim 1 substantially as described hereinbefore with particular reference to Figs. 1 and 2 or Figs. 3 to 5 of the accompanying drawings.

6. A sheet material when produced by a method according to any one of the preceding claims.

7. An anti-slip decking material comprising a sheet of metal having a pattern of discrete projections formed in one side thereof and a corresponding pattern of indentations formed in the other side thereof.

8. A decking material according to claim 1 substantially as described hereinbefore with particular reference to Figs. 1 and 2 or Figs. 3 to 5 of the accompanying drawings.