

Method of securing a cover plate to a steam chamber of an iron and soleplate and iron in accordance with the method.

The invention relates to a method of securing a cover plate to bosses of a soleplate of a steam iron so as to form a steam chamber between the soleplate and the cover plate.

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Such a method is known from US-A-4,277,900. Figure of said Patent clearly shows that ribs or bosses of the soleplate protrude through openings in the cover plate, after which the cover plate is secured to the soleplate by staking the bosses. For this method the cover plate has to be provided with openings. After the staking operation these
10 openings will be closed to a substantial extent but in order to make the steam chamber steam-tight it is necessary to apply a sealant over the staked bosses.

It is an object of the invention to provide a method by means of which a
15 simple and effective connection of the cover plate to the soleplate.

The method in accordance with the invention is characterized by the following steps:

- forming recesses in the cover plate in such a manner that cups are formed which project from the surface of the cover plate,
- 20 - fitting the cover plate onto the soleplate in such a manner that the bosses of the soleplate engage the recesses of the cups, and
- the plastic deformation of the cups and the bosses in such a manner that the cups are connected to the bosses.

The advantage of this method is that it is not necessary to form holes in the cover plate and
25 to use a sealant. A proper sealing construction will be required only near the edges of the cover plate.

The invention also relates to a soleplate for a steam iron having a steam

chamber, which is bounded by a soleplate and a metal cover plate, the cover plate being connected to bosses of the soleplate.

In accordance with the invention the cover plate has been provided with cups which project from the surface of the cover plate and which define recesses, the bosses
5 of the soleplate engaging the recesses defined by the cups and being connected to the cups.

The invention will now be described in more detail with reference to an exemplary embodiment shown in the drawings.

10 Fig. 1 shows a steam iron with the soleplate and the steam chamber shown partly in cross-sectional view.

Figure 2 shows a part of a cover plate with caps obtained by means of an extrusion process, and

Figures 3-4 show two examples of securing the cover plate to the
15 soleplate.

The steam iron shown in Fig. 1 has a housing 1, which is closed by a soleplate 2 at the open side of said housing. At its side which faces the housing the soleplate
20 has a peripheral upright wall 3, which bounds a steam chamber 4. An rim 5 of the wall 3 carries a cover plate 6, which closes the steam chamber at the top. In order to support the cover plate inside the steam chamber the soleplate further comprises upright ribs or walls 7. Such ribs or walls can be, for example, steam directing ribs or bounding walls of steam
ducts 8 provided in the steam chamber. The upper sides of the ribs or walls 7 carry bosses 9.
25 Such soleplates are generally made of cast aluminum. The ribs, walls and bosses are integrally formed during the casting process of the soleplate. Fig. 1 also shows the end portion of a metering device 10 for the supply of water to the steam chamber. The soleplate 2 further has a plurality of steam outlet ports 11.

Figs. 2-4 show in detail two examples of securing the cover plate to a
30 boss. First of all, in all the examples, recesses 12 are formed in the cover plate 6 by means of an extrusion process, in such a manner that cups 13 are obtained, which project from the surface of the plate (see Fig. 2). Subsequently, the cover plate is placed onto the soleplate 2, the bosses 9 engaging the recesses 12 of the cups 13. After this, the cups and the bosses are subjected to plastic deformation by means of a press tool 14. During pressing the boss is

upset so that a part of the boss is upset in a radially outward direction and the diameter at this location is greater than at the base of the boss. A kind of undercut is formed. Moreover, the material of the cup flows around the deformed boss. The examples show press tools of different shapes. In Fig. 3 the tool has a hollow spherical shape 15 and in Fig. 4 it has a
5 hollow conical shape 16. Alternative shapes are also possible. However, the shape of the tool should be such that not only an axial force but also an inwardly directed force are exerted on the cup and the boss.

CLAIMS:

1. A method of securing a cover plate to bosses of a soleplate of a steam iron so as to form a steam chamber between the soleplate and the cover plate, characterized by the following steps:
- forming recesses in the cover plate in such a manner that cups are formed
 - 5 which project from the surface of the cover plate,
 - fitting the cover plate onto the soleplate in such a manner that the bosses of the soleplate engage the recesses of the cups, and
 - the plastic deformation of the cups and the bosses in such a manner that the cups are connected to the bosses.
- 10 2. A method as claimed in Claim 1, characterized in that the bosses are upset during the plastic deformation and the material of the cups flows around the bosses.
3. A soleplate for a steam iron having a steam chamber, which is bounded by a soleplate and a metal cover plate, the cover plate being connected to bosses of the soleplate, characterized in that the cover plate has been provided with cups which project
- 15 from the surface of the cover plate and which define recesses, the bosses of the soleplate engaging the recesses defined by the cups and being connected to the cups.
4. A steam iron comprising a soleplate as claimed in Claim 3.

