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ARRANGEMENT FOR INTER-CONNECTING AND STRETCHING OF METAL BANDS

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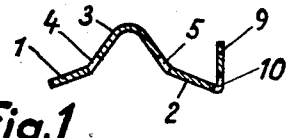


Fig.1

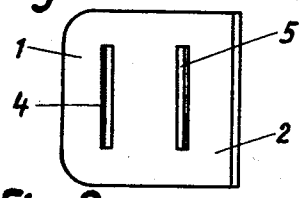


Fig.2

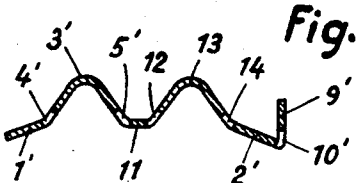


Fig.3

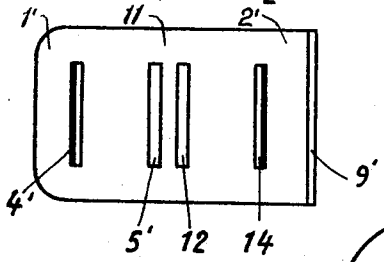


Fig.4

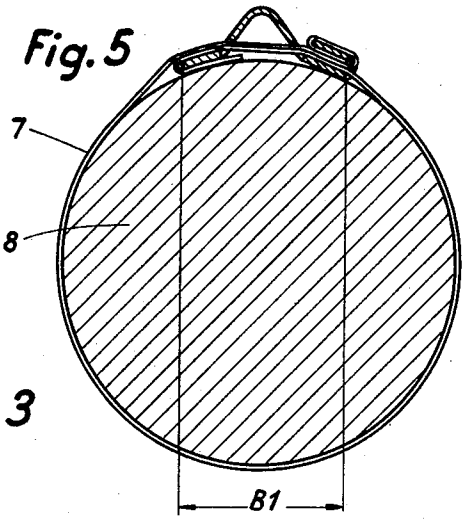


Fig.5

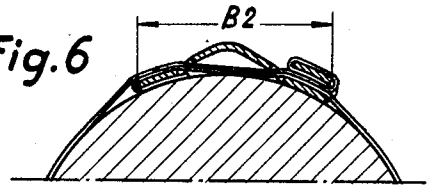


Fig.6

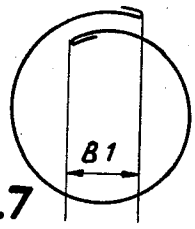


Fig.7

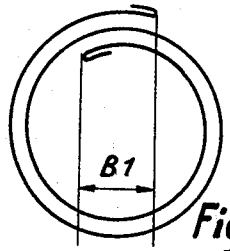


Fig.9

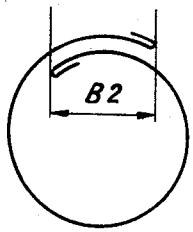


Fig.8

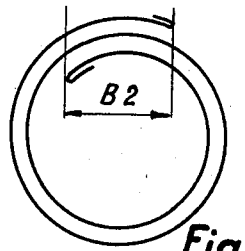


Fig.10

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ARRANGEMENT FOR INTER-CONNECTING AND STRETCHING OF METAL BANDS

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3 Claims. (Cl. 24—23)

The invention refers to an arrangement for connecting two ends or parts of a metal band with each other and for the stretching of the band e.g. around an object. The purpose may be to keep the object together (a box, a mould etc.) or to fix an armature or the like to an object or body which may consist of a pole in an electric pole line or a pole for a street sign. Locks used up to now for this purpose have been constructed in such a way, that a special tool was used to stretch the band around the object and to fasten the lock to fix the fastening.

According to the invention a lock is arranged in combination with the band in such a way that the ends of the band are connected and the band stretched without using any other tool than a hammer. This is obtained by means of an arrangement of a metal band in combination with a lock which contains at least one curved part of a material allowing a certain permanent deformation and on either side of the curved part a fastening arrangement by means of which each part of the metal band in mounted position is fixed in such a way, that both of the parts overbridge the curved part, the stretching of the band being obtained by the straightening of the curved part and the increasing of the distance between the fastening arrangements.

The invention will be described more closely in connection with the attached drawing.

Figs. 1 and 2 show a section and a view of a lock with one curved part.

Figs. 3 and 4 show a section and a view of a lock with two curved parts.

Figs. 5 and 6 show sections of an arrangement containing the combination of a metal band and a lock.

Figs. 7 and 8 show schematically the stretching of the metal band when laid in one turn around an object, and Figs. 9 and 10 show schematically the stretching of the band by using two turns of the metal band around the object.

The Figures 5, 6, 7, 8, 9, 10 showing the combination of a metal band and a lock are all referring to a metal band 7, stretched around a cylindrical body or object 8. The purpose may be to keep the object together, e.g. if it is a casing or wrapping or a concrete moulding, or to fasten an armature to the object. Such an armature is not shown in the drawing. In the shown arrangements both ends of the same band are fixed together, however, the arrangement can be used for fixing different bands together.

The lock in Figs. 1 and 2 is made out of plate and the material may be stainless steel. The lock is formed as a clamp with two flat parts 1 and 2 which are arranged to rest against an object 8 (in Figs. 5 and 6), and interconnecting said flat parts, a curved part 3 which forms an arch protruding from the object. The curved part 3, which may be formed as a circular arch or, as shown in the drawing, as a curve similar to a sine curve, is provided with two rectangular apertures 4 respectively 5 close to each of the flat parts 1 and 2. The flat part 2 is provided with a flange 9 and close to said flange a rectangular aperture 10 which has the same form and size as the apertures 4 and 5 and is parallel to these apertures.

When connecting two parts of metal band with each other and when stretching said metal band the conditions and wants may be very different. In certain cases, e.g. when the metal band has to surround a large object, it is to be desired, that the increase in length of the band at the stretching operation (the difference between B2 and B1 in Figs. 7–10) shall be especially large. In order to avoid the using of a lock with a very large curved part 3 which would require an increased thickness for a certain stretching power, the lock shown in Figs. 3 and 4 is provided with two curved parts 3' and 13. Each of these curved parts are provided with two apertures 3', 5' and 12, 14 and are inter-connected by a flat part 11. This lock is also provided with a flat part 1' on one side and a flat part 2' on the other side and the latter part 2' has also, as the lock shown in Figs. 1 and 2, a flange 9' and an aperture 10'.

When fastening a metal band 7 around an object 8 by means of a lock shown in Figs. 1 and 2 the free part of a band from a supply roll is pushed through the apertures 10, 5 and 4 in the mentioned order and the end of the band is bent around the edge of the flat part 1, the band will then be led round the object 8 and cut off to a suitable length. The free end of the band, thus obtained, is pushed through the apertures 4, 5 and 10, the band tightened by band as much as possible and the end bent round the upper edge of the aperture 10 and also a little around the free edge of the flange 9. In this condition the band is temporarily secured. The length of the band is then adjusted and the part of the band definitely fixed by bending the end of the band farther down round the edge of the flange 9 and by bending the latter down against the flat part 2 by means of a hammer or similar tool. The state shown in Fig. 5 is then being reached. In this condition the band is stretched around the object only with such a power, that it just stays in place and holds an armature, if placed under the band. The distance between the bendings around the edge of the flat part 1 and around the edge of the aperture 10 is indicated on the drawing by B1. In order to get the band stretched it is only necessary to straighten the curved part 3. This can easily be done by some hammer-strokes on top of the curved part 3. Thus the height of the arch is decreased as a lasting deformation as shown in Fig. 6, the flat parts 1 and 2 are pushed apart and the distance B1 between the bendings is increased to B2. In this way the metal band is stretched and secured around the object.

By using a lock with two curved parts, as shown in Fig. 3, the metal band is inserted in the same way as described above by using a lock with one curved part. Thus one end of the metal band is fixed to the flat part 1' and the other end is fixed to the flat part 2' by means of the aperture 10' and the flange 9', whereby the metal band passes the apertures 5' and 12. The stretching of the band is obtained by hammer-strokes on the top of the two curved parts 3 and 13 thus straightening out said parts.

We claim:

1. A lock for connecting the opposite ends of a metal band together and for tightening said band around an object, said lock comprising a plate having a central deformable arcuate portion offset in one direction from a plane defined by the opposite longitudinal ends of said plate, a pair of end portions each at one longitudinal extremity of said deformable arcuate portion, each one of said end portions defining a transversely extending slot slidably and guidingly receiving the opposite ends of a metal band therethrough in opposite directions, one of said end portions lockingly receiving one end of the band thereupon, the other one of said end portions including a terminal reentrant lip portion, said other one of said end

portions and said terminal lip defining a transversely extending slot therebetween for receiving the opposite ends of the band therethrough in opposite directions, said lip portion lockingly receiving the opposite end of the band thereupon and extending from said plane in the same direction as said arcuate portion, and said lip portion being bendable back upon and into clamping engagement with one side of said other one of said end portions in said one direction.

2. A lock for connecting the opposite ends of a metal band comprising a deformable metal plate of substantially rectangular outline and including two longitudinally spaced arcuate portions transversely extending and extensible longitudinally of the plate, a pair of flat end portions one at each longitudinal extremity of said plate and a flat intermediate portion between said two arcuate portions, one of said end portions terminating in a transversely extending reentrant lip rising in the same direction as said arcuate portions, a transition edge between adjacent arcuate and flat portions, each said transition edge defining a transverse slot, and an additional band receiving transverse slot between said lip and said one end portion.

3. A lock for connecting the opposite ends of a metal band comprising a deformable metal plate of substantially rectangular outline having a transversely extending arcuate central portion extensible longitudinally of the plate and two flat side portions, each of said side portions including a band receiving transverse slot, one of said side portions terminating in a transversely extending reentrant lip rising in the same direction as said arcuate central portion, the transition edge between the lip and the respective side portion being formed with a third band receiving transverse slot.

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