

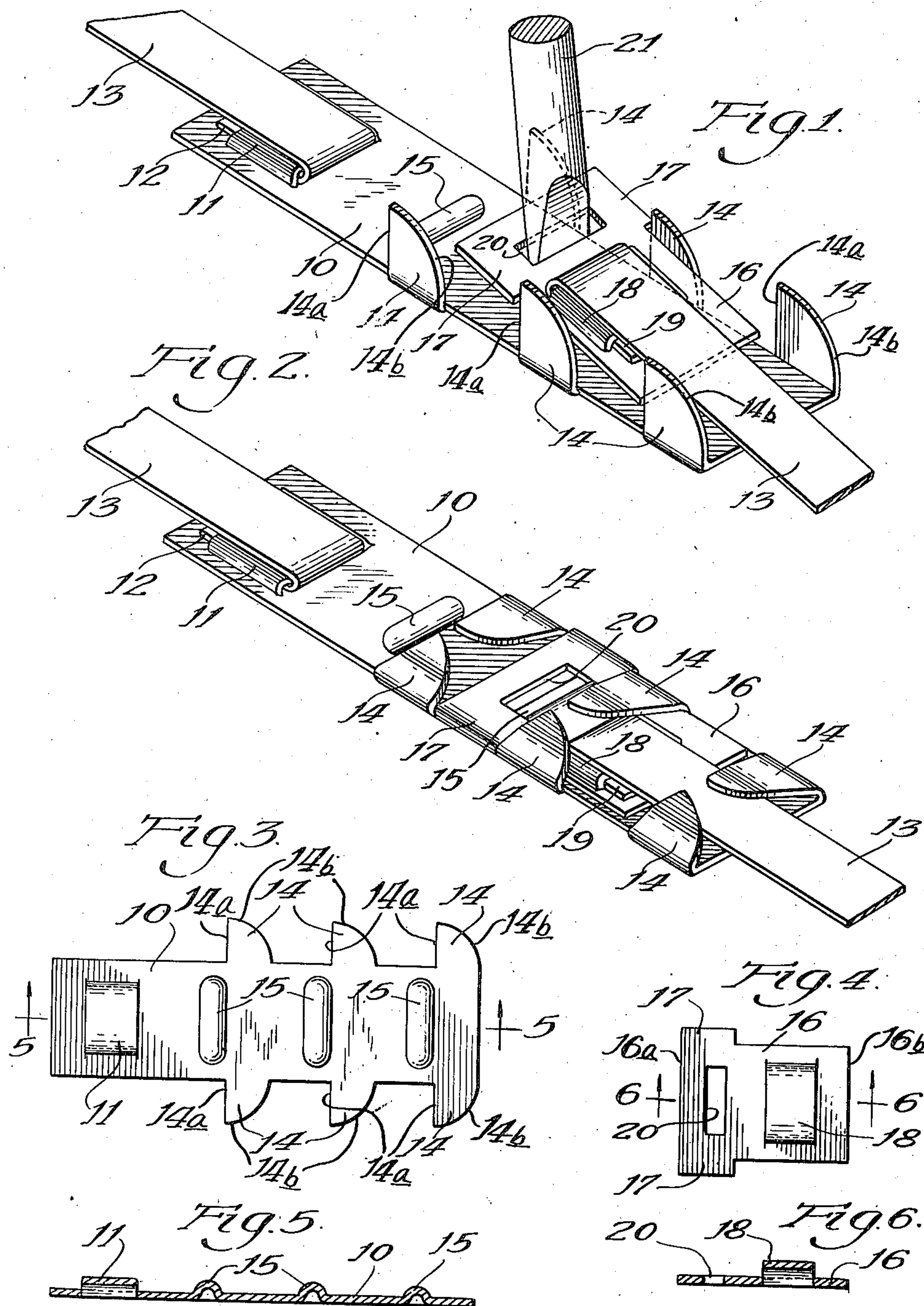
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RELEASABLE STRAP CLAMPING MEANS

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# UNITED STATES PATENT OFFICE

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## RELEASABLE STRAP CLAMPING MEANS

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3 Claims. (Cl. 24—21)

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My invention relates to releasable strap clamping means of a type adapted for use in connection with flexible bands for binding bundles or the like, and it has for its object the provision of a new and improved form and arrangement of parts which can be produced rapidly and easily by stamping operations in such condition as to be readily applicable to a band of leather, paper, metal or other material for tightening the band about a bundle and securing the band in tight condition, the arrangement preferably being such as to enable an operator by an easy operation to release the parts for repeated use.

For the accomplishment of my several objects, I have provided two members adapted to be given sliding movement longitudinally with respect to each other, means being provided on each of the two members for connecting it releasably with one end of a flexible band. In the preferred form of device, means is provided by engagement with which one of the members can be adjusted longitudinally with respect to the other for tightening the band, and latching means is provided for holding the adjusted parts against movement in the reverse direction, together with means for clamping the parts in their latched positions. The latching means is made releasable so as to enable an operator readily and quickly to loosen the band when desired and so as to leave the parts in condition for repeated use.

It is another object of my invention to improve devices of this type in sundry details hereinafter pointed out. The preferred means by which I have accomplished my several objects are illustrated in the accompanying drawings, in which

Fig. 1 is a perspective view of my improved clamping device connected with opposite ends of a band, with a tool in position for adjusting one of the members with respect to the other;

Fig. 2 is a perspective view of the parts as shown in Fig. 1, but with the parts in their final position after a tightening operation;

Figs. 3 and 4 are face views of the two members of my improved device;

Fig. 5 is a cross-sectional view taken substantially at the line 5—5 of Fig. 3; and

Fig. 6 is a cross-sectional view taken substantially at the line 6—6 of Fig. 4.

In the several figures of the drawing, corresponding parts are indicated by the same reference characters. A plate 10 stamped out of sheet metal is provided at one end portion with a cross-bar 11 pressed into slightly offset position so as to receive the turned-back end portion 12 of a strap 13, as shown in Figs. 1 and 2. As is clearly

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shown in Fig. 3, the plate 10 is provided with a plurality of pairs of lugs 14 which are normally turned upwardly into upright position as shown in Fig. 1. As shown in said figure, the edges 14a of the lugs 14 facing toward the cross-bar 11 stand at right angles with respect to the plate 10, while the edges 14b of the lugs facing away from the cross-bar are in oblique position. Across the plate 10 adjacent to each pair of the lugs 14, I have provided ribs 15 which extend upwardly a substantial distance above the level of the adjacent face portions of the plate 10 so as to act as bearings for engagement by a tool, as hereinafter described. A second plate 16 of substantially the same width as the plate 10 is provided, having laterally extending lugs 17 at opposite sides at one end 16a, and having a cross-bar 18 pressed into slightly offset position thereacross at its opposite end 16b, the cross-bar 18 being in position to receive a turned-back portion 19 at the opposite end of the flexible band 13, as is clearly shown in Fig. 1. At the opposite end portion 16a of the plate 16, between the laterally extending lugs 17, I have provided an opening 20 extending

across parallel with the cross-bar 18. In use, with opposite end portions of the band 13 threaded into engagement with the cross-bars 11 and 18, as shown in Fig. 1, and with the intermediate portion of the band 13 preferably wrapped about a bundle or other part to be gripped, a screw driver 21 or other suitable tool is inserted through the opening 20 which acts as a bearing for the tool on the plate 16, such tool being brought into engagement with one of the bearing ribs 15, whereby the plate 16 may be forced by a lever action toward the left in Fig. 1. In this operation, the lugs 17 of the plate 16 serving as outwardly extending bearing portions ride upwardly on the obliquely disposed edge faces 14b of the lugs 14 and are then moved downwardly into latching engagement with the vertically disposed faces 14a at the opposite edges of the lugs acting as stops so as to hold the plate 16 from movement in the opposite direction. In the operation of applying the parts to the bundle to be gripped, the band 13 is preliminarily adjusted with respect to the offset cross-bars 11 and 18 so as to be of approximately the correct effective length so that when the plate 16 is thereafter given one or two steps of movement toward the left in the drawings with respect to the plate 10, the band 13 will be brought to its desired degree of tightness. After the tightening operation, the lugs 14 are bent downwardly into position for holding the plate 16 firmly in posi-



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tion, as shown in Fig. 2. I have found in practice that my clamping means is effective in use with a band of metal, leather, paper or fiber, the crease in the band at the edge of the cross-bar being effective for preventing slippage of the band with respect to the cross-bar when the parts are held clamped in their binding position. In any case where the tension of the band is to be particularly heavy, the turned-back end portion of the band can be increased in length so as to provide a greater area at which a frictional grip is applied to the band. I have found also that the lugs 14 can be very readily bent upwardly again out of their gripping engagement with the plate 16 and the band 13 when it is desired to loosen the band, and that the plates 10 and 16 can be used a considerable number of times ordinarily before the lugs 14 become broken so as to interfere with the operation of the device.

While I prefer to employ the form and arrangement of parts as shown in my drawing and as above described, the invention is not to be limited thereto except so far as the claims may be so limited, it being understood that changes might well be made in the arrangement without departing from the spirit of the invention.

I claim:

1. In a device of the type described, the combination of two plates, means for connecting said plates to opposite end portions of a flexible band, bearings on said plates for engagement by a tool for moving one plate edgewise with respect to the other, and lugs on one of said plates adapted in one position to act as stops for an adjustable engagement of the plates with each other, and adapted when bent into changed position to hold the plates in fixed position with respect to each other.

2. In a device of the type described, the com-

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ination of two plates, means for connecting said plates to opposite end portions of a flexible band, lugs on one of said plates having vertically positioned edge portions facing in one direction and obliquely positioned edge portions facing in the opposite direction, and laterally extending bearing portions on the other plate at opposite sides thereof adapted to ride up the obliquely positioned edges of the lugs into latching engagement with the vertically positioned edges of the lugs, such lugs being adapted when bent into changed position to hold the two plates in fixed position with respect to each other.

3. In a device of the type described, the combination of two plates, means for connecting said plates to opposite end portions of a flexible band, one of said plates having an opening therethrough in transverse position, a series of ribs in transverse position in the other plate adapted to act as bearings for a tool inserted through said opening for moving one plate edgewise with respect to the other, and lugs on one of said plates adapted in one position to act as stops for an adjustable engagement of the plates with each other, and adapted when bent into changed position to hold the plates in fixed position with respect to each other.

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