CARRIER FOR PIN BANDS ON DOOR-OR WINDOW-FRAMES OF STEEL

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Filed July 28, 1964, Ser. No. 385,596

Claims priority, application Austria, Oct. 30, 1963, A 8,705/63; Dec. 6, 1963, A 8,977/63
9 Claims. (Cl. 16—128)

The present invention relates to a carrier for pin bands on door- or window-frames of steel, wherein defined as closure frames.

Lug bands are hardly used any more for steel frames, because they can no more be adjusted for setting the door or the window due to the welding of their lugs to the frames.

The now conventional bands having threaded pins have, however, likewise great disadvantages. Thus, the frame band parts turn very easily in the carrying parts welded to the frame, since the seat of a thread pin in steel is not as rigid as it is in wood. The different measures, which have been proposed by prior art and are supposed to prevent a rotation, as a lock-nut, a conical clamping sleeve and the like, secure by no means a non-rotatable seat, rather they operate at the best only in a braking manner. The resetting of these frame band parts for a tight engagement of the door and of the window, respectively, or for a correction in case of warping of the wood or after applying a layer of paint is cumbersome, since the latter is only possible upon removal of the door or of the window. In addition, it is only possible to adjust for one thread, which forces to the arrangement of a fine thread, whereby the screwing in of the comparatively long thread pin requires a long mounting labor. Furthermore, the band parts can be equipped only with one thread pin, so that the carrying power of these bands is limited.

It is, therefore, one object of the present invention to provide a carrier for pin bands on door- or window-frames of steel, wherein a carrier for bands with pins, which can be driven in, is secured on door- or window-frames of steel, so that the drawbacks of the known methods for securing the lug bands and the bands with threaded pins on steel frames are eliminated.

It is another object of the present invention to provide a carrier for pin bands on door- or window-frames of steel, wherein the carrier comprises two strip-like parts, preferably of steel, which are equipped with oppositely disposed bulges for the formation of sleeves for the reception of the band pin or pins and the strip-like parts are welded together spaced apart from the bulges, in order to obtain a resilient clamping.

The carrier designed in accordance with the present invention permits the use of bands with pins, so that all advantages existing relative to lug bands and bands with threaded pins, as a quick mounting by driving in and later adjustment of the frame-band part without removal of the door or of the window, also by the use for steel frames is retained. Bands with smooth or grooved pins, but under circumstances also thread pins can be driven in. By corresponding arrangement of the bulges, the carrier can receive bands with one or a plurality of pins, whereby the same are set obliquely or perpendicular to the sleeve axis. In an advantageous manner the cross-section of the bulges can be made without any difficulties of a shape deviating from a circular face, whereby a non-rotatable seat is secured also to a band part with a pin, if the pin and the bulge, for instance, has an oval or prismatic cross-section.

By the arrangement of the welding areas connecting the two parts of the carrier spaced apart from the bulges a resilient clamping is obtained, which assures a good seat of the band part. This is particularly the case, when the inner width of the bulges is adjusted to the smallest pin diameter resulting from the manufacturing tolerances.

The effect of the seat can still be improved hereof, if, in accordance with another feature of the present invention, the bulges of the carrier for a band are arranged with at least two parallel pins divergent or convergent towards each other. By this arrangement of the bulges, the pins brace each other during the driving in of the frame band part and are thus kept under tension, so that a particularly good seat of the band part is obtained. The angle between the axes of the bulges can amount 2° to 3°.

The carrier, which in proper manner is to be formed by a bunching or forging process, can be welded to the frame or can be connected with the latter by means of screws. In a particular embodiment of the carrier designed in accordance with the present invention, the free ends of the bulges turned away from the frame are closed up, so that no dirt can enter into the bulges during embedding the frame into the wall.

By means of another particular embodiment of the carrier, its correct position on the steel frame can take place in an advantageous manner compared with the carrying bands. In these bands, difficulties are encountered during the welding of their lugs inserted into slots provided on the frames, since for reasons of tolerances the slots must be longer and wider than the width and thickness of the lugs. With the usual devices for welding of the bands which extend over the entire frame length and are difficult to handle, the exactness cannot be obtained, which would be necessary for the desired exchangeability of the frames and doors and windows, respectively, in order to bring about a rational mounting of the doors.

It is, therefore, another object of the present invention to provide a carrier for pin bands on door- or window-frames of steel, wherein the securing of the carriers to the frame is made possible with greatest exactness such, that the carrier is equipped at its side engaging the frame with two centering pins, the axes of which are disposed, preferably, in the engaging plane of the two strip-shaped parts.

By the arrangement of the centering pins on this carrier, the latter can be easily brought into the correct and exact position relative to the frame in a simple manner and can be maintained immovably during the welding procedure.

The frame has for this purpose bores at the location, on which the carrier is to be secured, corresponding to the distance of the centering pins, in which bores the pins are to be inserted. These bores are made, jointly with the bores for the pins of the band to be driven into the carrier, in a punching process, in which, as it is known, the necessary exactness relative to the distance and diameter of the bores can be obtained. The same degree of exactness is also obtainable with a carrier, the parts of which are likewise made in a punching process, which, in accordance with another feature of the present invention, can be equipped with bulges forming blind holes for the reception of the centering pins.

By this precise setting of the carrier on the frame, an advantageous exchangeability of the frames and of the doors, bored likewise with suitable patterns for the reception of the band pins, is provided. By this method it is possible, to mount rationality and with the exactness required for the exchangeability band parts independently from each other on frames, stocks and wings, and to equip the wings already in the shop with the band parts and to bring them already lacquered to the building site. This means a far reaching rationalization compared with the known working procedure, since the adjustment of these wings at the building site, the drawing of the frames and
wings to be joined, the after lacquering, etc. are avoided.

With these and other objects in view, which will become apparent in the following detailed description, the present invention will be clearly understood in connection with the accompanying drawings, in which:

FIG. 1 is an elevation of a carrier for a band part with two obliquely set pins;

FIG. 2 is an end view of the carrier, disclosed in FIG. 1, seen from the securing side thereof;

FIG. 3 is a section along the lines 3--3 of FIG. 1;

FIG. 4 is an elevation of a carrier for a band portion having pins disposed perpendicularly to the sleeve;

FIG. 5 is an elevation of another embodiment of the carrier; and

FIG. 6 is an end view of the carrier disclosed in FIG. 5, seen from the security side thereof.

Referring now to the drawings, and in particular to FIGS. 1--3, the door- or window-frame 1 has a carrier 2 welded thereto and the latter comprises two strip-shaped parts 3 and 4, which are equipped with bulges 8 and 9 for the formation of sleeves adapted to receive pins 5 and 6 of a band part 7. The parts 3 and 4 are connected with each other at the areas 10 by point-welding, which welding areas 10 have a predetermined distance from the bulges 8 and 9 in order to bring about a resilient clamping effect. The bulges 8 and 9 are of half-cylindrical shape complementary to the cylindrical pins of the band part and converge towards the band part, so that the pins are spread apart during the driving in of the band part. The bulges 8 and 9 are extended beyond the edge of the carrier which points away from the frame and the extensions for the closing of the bulges are of cup-shaped formation. The carrier parts are equipped also with lugs 11, by which the carrier can be welded to the frame or can be screwed thereto by means of screw bolts (not shown). It is, however, possible to weld the carrier parts to the frame without such lugs.

Referring now again to the drawings, and in particular to FIG. 4, a carrier 12 is disclosed for a band part 13 secured to the frame 1 having pins 14 and 15 disposed perpendicularly to the sleeve. This carrier 12 is exactly formed as the carrier disclosed in the embodiment of FIGS. 1--3, with the exception that its bulges 16 and 17 are disposed perpendicularly to the edge of the carrier engaging the frame.

Referring now again to the drawings, and in particular to FIGS. 5 and 6, the parts 20 and 21 of the carrier welded to the frame 22 are equipped with bulges 23 and 24 for receiving the pins of the band part (not shown). These parts 20 and 21 are equipped with bulges 25 and 26 forming blind holes, the bulges being disposed perpendicularly to the side of the carrier engaging the frame, in which blind holes 25 and 26 two centering pins 28 have their seat. The centering pins 28 of the carrier engaging the frame penetrate into bores 27, which are provided in the frame, whereby the position of the carrier relative to the frame is determined prior to the welding of the latter thereto.

While I have disclosed several embodiments of the present invention, it is to be understood that these embodiments are given by example only and not in a limiting sense, the scope of the present invention being determined by the objects and the claims.

I claim:

1. A pin-band and carrier for said pin-bands on a closure frame of steel, comprising two strip-shaped members adapted to be secured to a frame, oppositely disposed bulges formed jointly by said two strip-shaped members and defining jointly sleeves, a band having pins extending therefrom, said pins being received in said sleeves, and said strip-shaped members being welded together along areas spaced apart from said bulges, in order to obtain a clamping effect by said sleeves.

2. The pin-band and carrier, as set forth in claim 1, wherein each of said bulges is closed at one side of said carrier.

3. The pin-band and carrier, as set forth in claim 1, wherein said bulges are extended beyond the edge of said carrier, and said extensions are of cap shape.

4. The carrier, as set forth in claim 1, wherein said bulges are disposed divergent toward each other.

5. The carrier, as set forth in claim 1, wherein said bulges are disposed convergent toward each other.

6. The carrier, as set forth in claim 1, further comprising two centering pins, and the longitudinal axes of said centering pins are disposed within the engaging plane of said strip-shaped members.

7. The pin-band and carrier, as set forth in claim 6, wherein said strip-shaped members have additional bulges forming blind holes and receiving said centering pins.

8. The pin-band and carrier, as set forth in claim 1, wherein said bulges are disposed divergent toward each other, and said pins are substantially parallel prior to insertion into said sleeves defined by said bulges and divergent toward each other after insertion to provide a better fit.

9. The pin-band and carrier, as set forth in claim 1, wherein said bulges are disposed convergent toward each other, and said pins are substantially parallel prior to insertion into said sleeves defined by said bulges and divergent toward each other after insertion to provide a better fit.

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