March 6, 1928. 1,661,251

R. E. FREY

FASTENER

Filed April 14, 1926

Fig. 1.

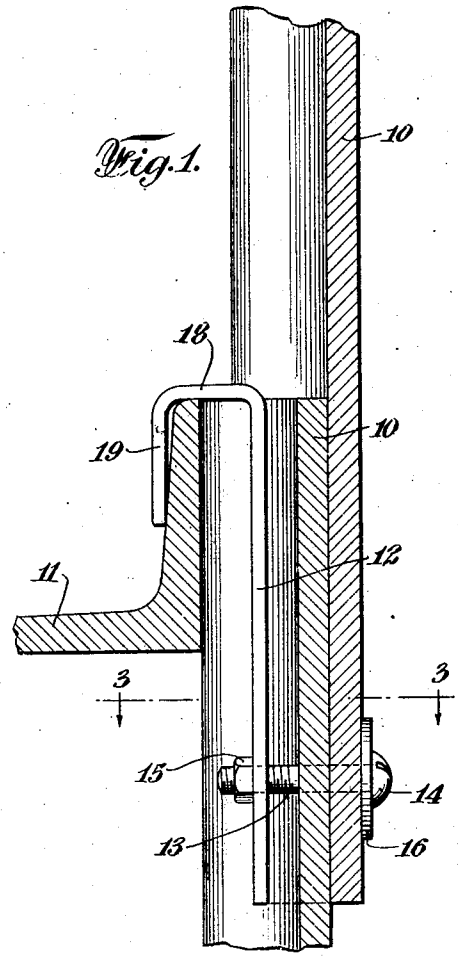


Fig. 2.

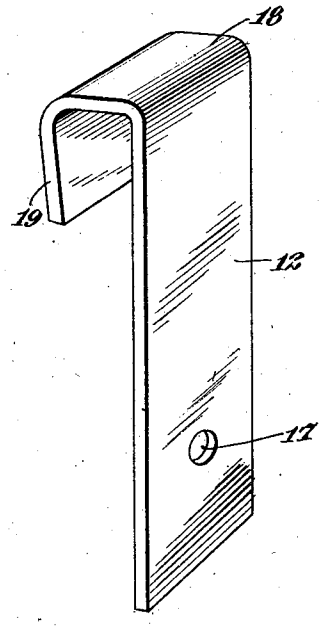
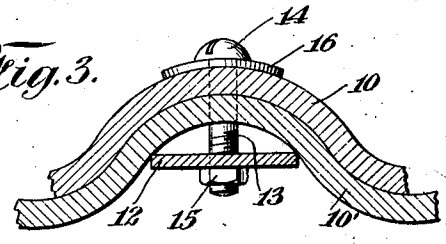


Fig. 3.



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UNITED STATES PATENT OFFICE.

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FASTENER.

Application filed April 14, 1926. Serial No. 101,883.

This invention relates to corrugated sheet building structures in which the sheets are assembled on a frame, and particularly to an improved sheet fastener whereby the assembling of the sheets is facilitated and the sheets are held securely to the frame.

Corrugated materials, such as metal and composition, have been used heretofore for roofing, siding and partitions in buildings. The sheets are assembled upon a suitable frame, usually of metal. To fasten the sheets in place it has been necessary to employ a plurality of bolts, and this has necessitated the drilling of numerous bolt holes in the frame. These holes must register with similar holes in the sheets, and unless the holes are drilled as the sheets are applied the lack of alignment between the holes in the frame and in the sheets usually causes considerable trouble. The drilling of the frame after it has been erected requires a great deal of costly labor and the insertion and securing of the numerous bolts is costly and tedious.

It is the object of this invention to avoid the difficulties and some of the expense in assembling structures by providing a fastener which can be secured to the sheets before the latter are placed in position on the frame to securely hold the sheets in place by resiliently gripping the frame elements.

Further objects and advantages of the invention will be apparent as it is better understood by reference to the following specification and accompanying drawings, in which

Fig. 1 is a vertical sectional view through sheets of corrugated material and a supporting angle iron showing a fastener embodying the present invention;

Fig. 2 is a perspective view of the fastening member, and

Fig. 3 is a sectional view on line 3—3 of Fig. 1.

In carrying out the invention each sheet is provided with a plurality of fasteners secured thereto in suitably spaced relation. Preferably the fasteners are made of metal strap or similar material, and are bent to form a body portion in which a bolt hole may be provided with a resilient section depending from a bent extension of the body. The fastener can be secured to the sheet by a bolt. The width of the strap should be such that it will rest approximately midway between the crown and base of a corrugation in the sheet. The bent extension should be of such length that the section is spaced from the base of the corrugations sufficiently to permit it to slip over a support such as an angle iron. By bending the section inwardly at an acute angle to the extension it may be made to resiliently grip the flange of the angle iron so as to draw the sheet against the support and to hold it securely in place.

In the embodiment of the invention shown sheets 10 and 10′ of corrugated material, such as sheet metal or composition material, serving as a roofing, siding or partition, are secured by the fastener 12 to the angle iron 11. A bolt 13 having head 14 and nut 15 on the threaded end secures the fastener 12 to the corrugated sheets 10 and 10′, with a washer 16 passed over the bolt under the head where the bolt passes through a hole in the corrugated sheets. The fastening member 12 is formed from strap or bar iron or steel of a sufficient width to lie midway between the base and crown of a corrugation of the sheet material and perforated at 17 to receive the bolt 13. The opposite end 18 of the strap is bent at right angles to the perforated section and section 18 is bent in the same direction and at an acute angle to the end 18, forming section 19. The section 19 forms an acute angle with section 18 and will have a wedging action upon its downward movement for securing the sheet material in position. As the section 19 proceeds downward with the sheet material attached thereto its wedging contact with the angle iron will yieldingly draw the sheet material against the outer surface of the angle iron, the fastener lying between the corrugations as clearly shown in Fig. 1. The section of the fastener lying between the corrugations due to the slight flexibility of the metal will be drawn away from contact with the sheets if the wedging action proceeds to extreme. The slight spring of the metal described and the inclination of section 19 permits the adjustment of the fastener to various thicknesses of angle iron. It will be readily seen that the mere lifting of the sheet material will detach it from the angle iron without the necessity of removing the fastening device from the sheet material.

The fastener is usually secured directly

to the roofing, siding or sheathing before it is held in place over the flange of the angle iron 11, but may be secured to the angle iron during the operation of securing the roofing thereto by aligning the holes of the sheets 10 and 10′ with the hole 17 of the fastener so as to slip the bolt 12 therethrough.

The resilient action of the relatively long body portion of the fastener provides a self-adjusting device. If the fastener is bolted to the sheet before it is fastened to the angle iron support, upon fastening the section in place the section 19 will grip the support with a wedging action drawing the sheets against the support with a yielding grip caused by the resiliency of the body portion in the section 19. If as in some cases it is necessary to place the fastening device on a support as the sheet material is attached, the tightening of the bolt will draw the fastener to the sheet material and the fastener in turn will resiliently draw the sheet material against the support.

The fastener can be manufactured from strap material, perforated, bent to required shape and galvanized or otherwise coated to preserve it from corrosion.

I claim:

1. The combination with corrugated sheet material, and a metal support, of a fastening member attached to the corrugated sheet material between the corrugations by a bolt passing through a perforation in the crown of a corrugation, said fastening member comprising a resilient body portion extending beyond said metal support provided with a perforation adjacent its outer end to permit said bolt to pass therethrough, a section bent at a right angle to said body portion, and a second section bent at an acute angle to said first mentioned section to provide a wedging member for engagement with said metal support, said bolt and said wedging member being located at opposite ends of said body portion.

2. The combination with corrugated sheet material, and a metal support, of a fastening member attached to the corrugated sheet material between the corrugations by a bolt passing through a perforation in the crown of a corrugation, said fastening member comprising a resilient body portion having a perforation at its outer end beyond the metal support to permit said bolt to pass therethrough, a section bent at a right angle to said body portion, and a second section bent at an acute angle to said first mentioned section to provide a wedging member for engagement with said metal support, said wedging member contacting with the metal support with a wedging action to resiliently draw the corrugated material into contact with the metal support.

3. The combination with corrugated sheet material and a metal support of a fastening member attached to the corrugated sheet material between the corrugations by a bolt passing through a perforation in the crown of a corrugation, said fastening member comprising a relatively long resilient body portion substantially parallel to said sheet material and located within a corrugation, said body portion extending beyond said metal support and provided with a perforation at its outer end beyond said metal support to permit said bolt to pass therethrough, a section at the opposite end of said body portion bent at a right angle to said body portion and a second section bent at an acute angle to said first mentioned section providing a wedging member for engagement with said metal support, the said wedging member adapted to draw the corrugated sheet material into binding contact with said metal support.

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