

C. J. CLEMENTS.
 ATTACHMENT FOR SHEET METAL CONSTRUCTIONS.
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1,062,635.

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Fig. 1,

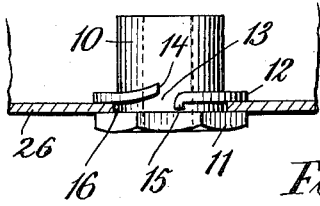


Fig. 2,

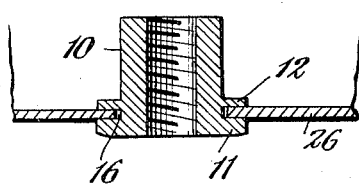


Fig. 3,

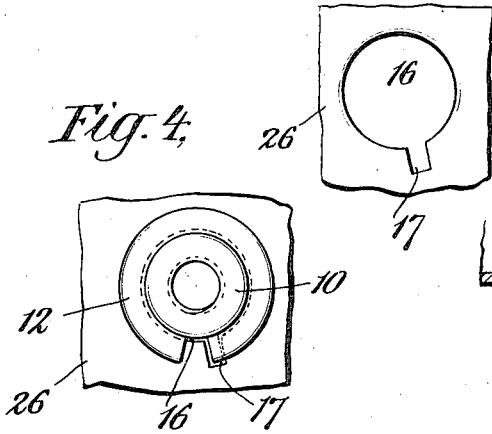


Fig. 6,

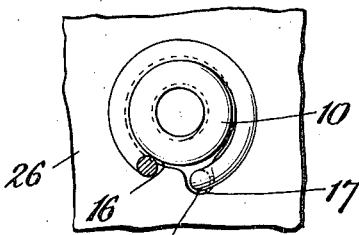


Fig. 7,

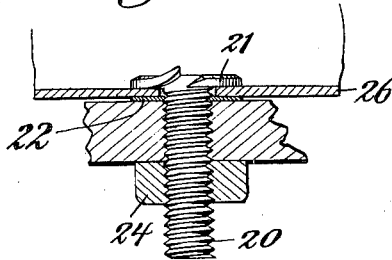


Fig. 8,

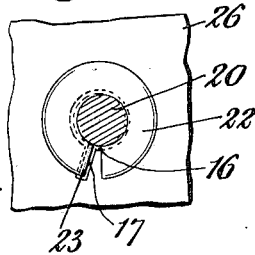
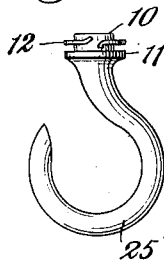


Fig. 9,



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ATTACHMENT FOR SHEET-METAL CONSTRUCTIONS.

1,062,635.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES J. CLEMENTS, a citizen of the United States of America, and a resident of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Attachments for Sheet-Metal Constructions, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

In sheet metal construction work it is often difficult or impossible to obtain access to the rear of the metal plates, and by reason of this, coupled with the fact that the sheet metal is too thin to directly receive a threaded bolt, difficulty is experienced in attaching objects thereto.

In my present invention I provide a device which may be secured to the sheet metal work, the same being in the form of a hub which may be inserted through a cylindrical opening in the sheet metal, the said hub being provided with a non-continuous flange having an inclined portion at one end, arranged to pass through a slot in the sheet metal plate in proximity to the opening, whereby in the rotation of the hub the entire flange will pass to the rear of the sheet metal plate so as to act to retain the hub in position. The opposite extremity of the flange is preferably offset to form an abutment which is adapted to be received within the slot in the sheet metal plate at the completion of the rotative movement of the hub in which the flange passes to the rear of the sheet metal work, whereby at the end of such movement the aforesaid abutment will snap into place and thereafter the hub will be prevented from turning in either direction.

The hub may be in the form of a nut or bolt to constitute an element by means of which another object may be secured thereto or it may be a part of the object desired to be itself attached.

In order that my invention may be fully understood I will now describe certain embodiments thereof, having reference to the accompanying drawings illustrating the same, and will then point out the novel features in claims.

In the drawings: Figure 1 is a view in side elevation of an attachment constructed in accordance with my invention, showing

the same applied to a sheet metal plate, the latter being shown in transverse section. Fig. 2 is a view in central longitudinal section through the attachment. Fig. 3 is a face view of a portion of the sheet metal plate with the attachment removed. Fig. 4 is a rear end view of the attachment showing the same in place. Fig. 5 is a view corresponding to Fig. 1 showing a modified form of the attachment. Fig. 6 is a rear end view thereof similar to Fig. 4. Fig. 7 is a view in part side elevation and part central section showing a further modification of the invention. Fig. 8 is a front face view thereof. Fig. 9 is a detail view of side elevation showing the attachment in the form of a hook.

Referring first to the form of attachment shown in Figs. 1 to 4 inclusive, the device comprises a cylindrical hub 10 provided with a head or collar 11 and a flange 12 in close proximity thereto, the latter being spaced from the former a distance substantially equal to the thickness of the sheet metal plate 26 to which the device is to be attached. This flange is non-continuous, having an interrupted portion 13 as shown. One end 14 of the flange is inclined obliquely to the longitudinal axis of the hub while the other end is provided with an offset portion 15 which projects in the opposite direction.

The sheet metal work is provided with a cylindrical opening 16 therein of a diameter substantially equal to the diameter of the hub 10, and with a slot 17 which projects radially from the said opening. The radial length of the slot 17 is equal to the width of the flange 14, and when it is desired to apply the device the end of the hub 10 is first inserted through the opening 16 and the extremity 14 of the flange 12 is then presented to the slot 17. By rotating the device in a clockwise direction as shown in the drawings, the flange is caused to enter through the slot 17 to the rear of the sheet metal plate 26, the entire flange up to the abutment 15 passes to the rear of the plate as the device is rotated. As one complete rotation is almost effected the abutment 15 will be brought into line with the slot 17, whereupon the said abutment will form a limiting stop to prevent the device from being rotated any farther. Moreover, as the edge of the sheet metal work will necessarily be

deflected slightly by the flange as it is being inserted, and particularly as the extremity 15 reaches the proximity of the slot, the said abutment will snap into position, whereby not only will further movements of rotation in the same direction be prevented but also movements in the opposite direction. Thus the device will be locked in position and it will require special tools to release it.

If the hub be formed as a part of the object to be attached the object will now be so attached and further manipulation thereof will be unnecessary. For instance in Fig. 9 I have shown the device as a part of a hook 25 which is itself to be directly attached to the sheet metal work, but the attachment may, if desired, be internally screw-threaded as shown in Figs. 1, 2 and 4, so that it may constitute a nut to receive a threaded bolt and so serve as an element by which another object may be secured to the sheet metal work.

In Fig. 5 I have shown the flange in helical form, being composed of two turns of spring wire. In this case the forward end 18 is secured in any suitable manner to the hub, while the remaining portion is free therefrom, and is under tension so that it will normally press with a certain force against the rear face of the sheet metal plate 26 when the device is in position. This will tend to steady the structure as will be well understood. In this form the rear extremity 19 is bent over to form the offset portion or abutment by which the attachment is finally held in position against rotation.

In Figs. 7 and 8 I have shown a construction in which the hub is in the form of an externally screw-threaded bolt 20 the flange 21 thereof constituting the head of the bolt. In this case I have shown the means for preventing rotation after the device has been inserted in the form of a spring non-continuous flange or washer 22, the same having an offset extremity 23 which enters the slot in the sheet metal work, this washer being conveniently disposed against the front face of the sheet metal work. The object to be secured in place rests against this washer and a nut 24 is applied to the threaded shank of the bolt to hold the object in place. The washer is made to fit the bolt rather snugly, whereby upon longitudinal pressure being applied thereto a certain frictional hold is obtained upon the bolt, and this frictional hold is sufficient to prevent the bolt from turning as the nut is being tightened when the device is being secured in place, and when the nut is being loosened to permit the removal of the device.

What I claim is:

1. A sheet metal attachment comprising a hub having a non-continuous flange one ex-

trmity of which is oblique to the longitudinal axis of the hub, and the other extremity of which is laterally offset in the opposite direction to form an abutment.

2. A sheet metal attachment comprising a cylindrical hub having a collar thereon and a non-continuous flange spaced from the collar a distance about equal to the thickness of the sheet metal with which the attachment is to be employed, one extremity of the said flange being inclined obliquely to the axis of the hub.

3. A sheet metal attachment comprising a cylindrical hub having a collar thereon and a non-continuous flange spaced from the collar a distance about equal to the thickness of the sheet metal with which the attachment is to be employed, one extremity of the said flange being inclined obliquely to the axis of the hub, and the other extremity thereof being offset in the opposite direction to form an abutment.

4. A sheet metal attachment comprising a hub having a collar thereon, and a non-continuous circumferential flange one extremity of which is longitudinally farther away from the collar than the other, the flange being secured fast to the hub in proximity to the end farthest away therefrom, and the other end being free to move under spring tension toward the said collar.

5. A sheet metal attachment comprising a hub having a collar thereon, and a non-continuous circumferential flange one extremity of which is longitudinally farther away from the collar than the other, the flange being secured fast to the hub in proximity to the end farthest away therefrom, and the other end being free to move under spring tension toward the said collar, the latter end of the flange being provided at its extremity with a laterally offset portion which extends in a direction toward the said collar.

6. The combination with a sheet metal plate having a cylindrical orifice therein and a slot radially extending therefrom, of an attachment comprising a hub fitted to the said orifice, the said hub being provided with a non-continuous flange of a width not greater than the length of the slot, adapted to be inserted in the slot and passed there-through to the rear of the plate by a movement of rotation applied to the hub, the opposite end of the flange being provided with a lateral offset arranged to be received and retained within the slot when the attachment is applied to thereafter lock the same against rotative movement.

7. The combination with a sheet metal plate having a cylindrical orifice therein and a slot radially extending therefrom, of an attachment comprising a hub fitted to the said orifice, the said hub being provided with a collar and a spring flange circumfer-

essentially disposed around the hub, the latter being adapted to pass through the slot to the rear of the plate in a movement of rotation of the hub when the latter is being applied, whereby when the hub is in position the flange will bear with a yielding pressure against one side of the plate, and the collar will rest against the other side of the plate to resist such pressure one end of

said spring flange being provided with a lateral offset arranged to be received and retained within the slot, when the attachment is applied, to thereafter lock the same against rotative movement. 10

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