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TEMPORARY POSITIONING AND HOLDING MEANS FOR APERTURED MEMBERS

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Fig. 1.

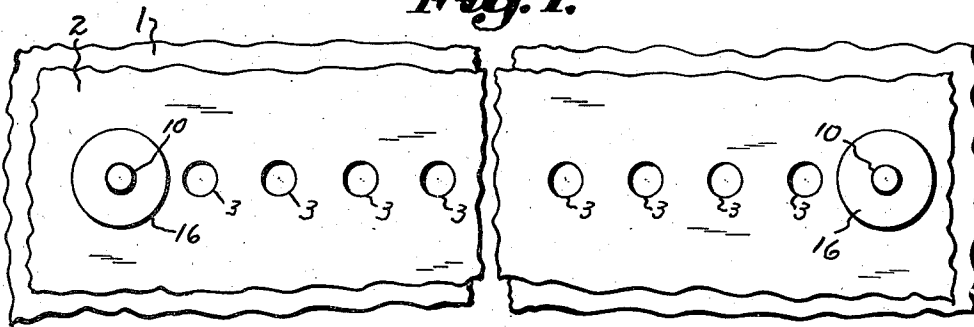


Fig. 2.

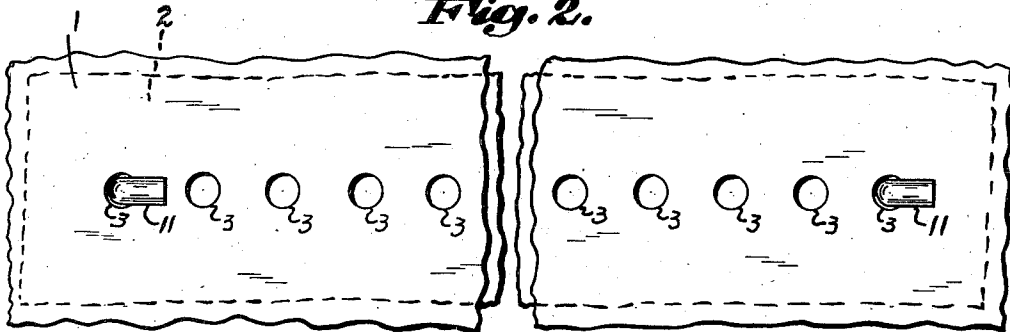


Fig. 5.

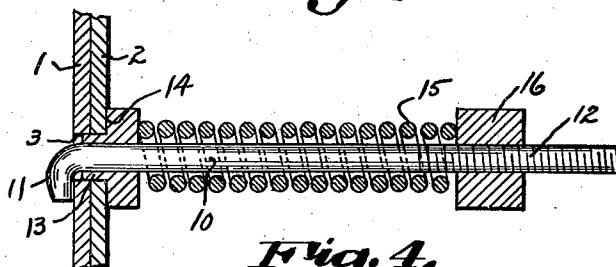
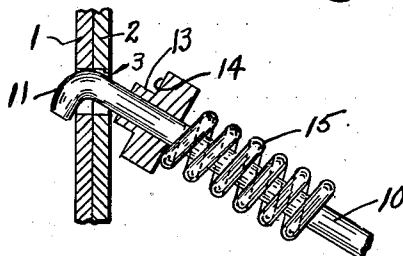


Fig. 4.



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UNITED STATES PATENT OFFICE

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TEMPORARY POSITIONING AND HOLDING
MEANS FOR APERTURED MEMBERS

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1 Claim. (Cl. 85-5)

The present invention relates to positioning and holding means for temporarily positioning and holding together a plurality of apertured members for predetermined aligned positioning preparatory to and during certain mechanical operations on the members, such as punching, drilling, and riveting them together.

More specifically the invention relates to improved holding means that may be readily attached and detached with relation to a plurality of apertured sheets which are to be fastened together by rivets and the like.

The invention has for its principal aims and objects to improve the simplicity of construction, the ease of attachment to and detachment from the sheets, as well as the efficiency of operation over existing devices of this kind.

Illustrative of one embodiment of the invention, reference is made to the accompanying drawing wherein

Fig. 1 is a front elevation of two sheets of metal held in predetermined position by the improved holding means;

Fig. 2 is a rear elevation thereof;

Fig. 3 is a central sectional view thereof taken on the line 3-3 of Fig. 1; and

Fig. 4 is a similar view of the holding means with the parts in released position ready to be disengaged from the supporting members.

Referring to the drawing, a pair of sheets or plates 1 and 2 may be punched or suitably apertured to provide openings 3 for rivets or like fastening means for securing the sheets together.

To facilitate accuracy and speed in the riveting or other fastening operations it is necessary to accurately position the plates or sheets 1 and 2 in superposed relation, with the apertures 3 properly aligned, and to hold them in such predetermined position during such times as are required to effect the permanent fastening operations. For this purpose the invention provides an improved, simplified, and efficient temporary fastening and holding means.

Referring to Figs. 3 and 4, the improved positioning and holding means comprises an elongated rod 10 of substantially less diameter than the openings 3, which rod is formed at one end with a hook or angular extension 11 and is threaded, as at 12, at the other end. A sleeve 13 of a diameter substantially equal to the diameter of the openings 3 and of a length preferably greater than the thickness of one of the sheets is freely slidable on the rod and is formed with an enlarged shoulder portion 14 adapted to bear against a face of one of the plates, for ex-

ample the face of the plate 2 opposite the hooked end 11. Preferably, the shoulder portion 14 is maintained under pressure against the plate 2 by resilient clamping pressure, for example, as provided by a coil spring 15 surrounding the rod and placed under compression by suitable means 16, as, for example, an adjusting nut threaded on the portion 12 of the rod.

When the parts are in clamped position, as illustrated in Fig. 3, the sleeve portion 13 is seated in the apertures 3 of both plates and engages the aperture walls thereof, and a clamping action is effected between the adjacent faces by the hook 11 and shoulder face 14. In this position the engagement of the sleeve 13 in the walls of the openings 3 of both plates prevents any tilting action of the rod with reference to the plates.

My temporary fastening and holding means is particularly useful when it is desired to fasten two sheets of metal together as by riveting. In such a case, it is usual to punch or drill aligned holes in overlapping portions of the sheets. With my device, it is easy to punch or drill the first holes at the opposite ends of the sheets and then insert my temporary fasteners. In this way the sheets will be held in proper positioning and then other holes may be drilled or punched in a row between the holes with the fasteners. If the sheets are large and the holes numerous, other fasteners may be inserted as the hole-forming proceeds. Thus, it will be seen that everything is held in proper alignment for riveting or otherwise fastening the sheets and the temporary fasteners may be removed last and rivets inserted to take their place.

When the permanent fastenings to be applied to the sheets or plates are rivets or the like the resilient pressure on the outer face of the shoulder sleeve, as produced by the spring 15, holds the plates securely against a release of the pressure while the plates are being fastened by the rivets or other fastenings not shown. This is due to the fact that the compression of the spring is effected by the nut 16 which is out of contact with the plates.

The device may be readily applied to or removed from the plates by merely relieving the compression on the spring 15 sufficiently to permit the shouldered sleeve 13 to be freely slidable on the rod 10 out of engagement with openings 3 when the rod may be tilted as in Fig. 4 and the hooked end moved through the openings 3.

It will be apparent that the invention is extremely simple of construction and application and efficient in operation and is not restricted to

the specific details shown and described but includes equivalents as well.

While I have illustrated and described a preferred embodiment of my invention, I do not wish to be limited thereby because the scope of my invention is best described by the following claim. I claim:

A hand-operated device for holding two apertured sheets in assembled position comprising a one-piece elongated rod, an integral lateral extension on one end of said rod forming a hook passable through the apertures of said sheets for engagement with one exposed face of said assembled sheets, a sleeve member freely slidable on said rod for engagement with the opposite exposed face of said assembled sheets, a nut adjustably threaded near the end of said rod re-

5 mote from said lateral extension, and a spring around said rod interposed between said nut and sleeve member for exerting a resilient pressure on said sleeve to clamp the sheets between the sleeve and extension, and tubular means integral with said sleeve entirely surrounding a portion of said rod and adapted to extend into the aperture of at least one of said sheets for preventing tilting of the rod relative to said sheets sufficiently to permit the extension to be passed through the apertures of said sheets when in holding position, said sleeve being movable away from said hook to permit insertion and removal of said hook relative to the apertures in said 10 sheets. 15

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