

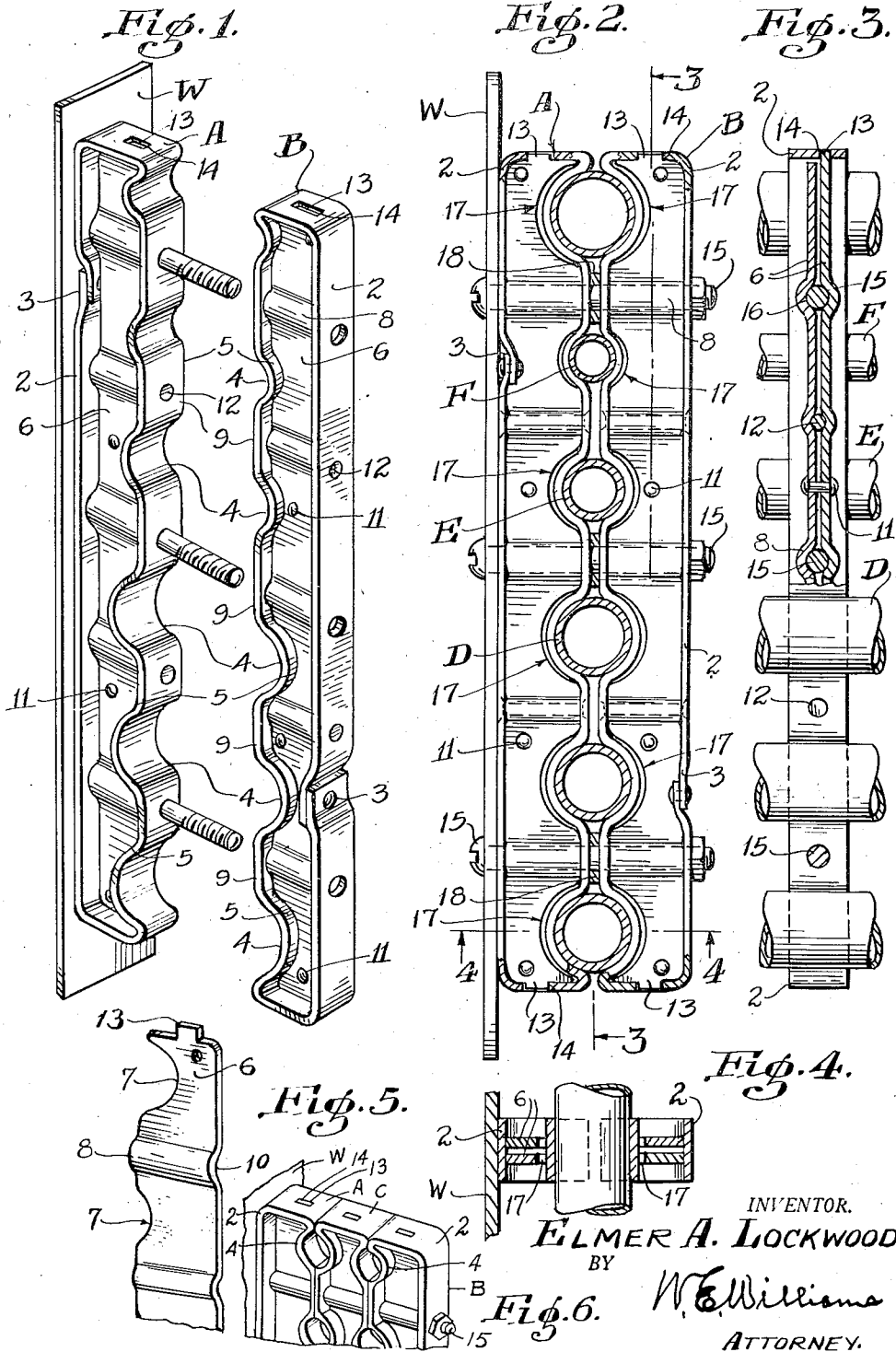
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MULTIPLE CLAMPING DEVICE

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MULTIPLE CLAMPING DEVICE

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My invention relates to a multiple clamping device which is composed of sets of blocks of special construction wherein there is a plurality of seats in which to hold and clamp tubing, piping, conduits, wires and bundles of wires in rigid fixed positions when mounted in an aeroplane or other situations wherein there is provided means for carrying and holding the articles above mentioned.

My blocks are constructed in form wherein the holding seats are provided with elastic resilient clamping means, and yet secure ones, which will not only support the articles to be clamped, but do so in a manner to prevent vibrations, slipping and chafing of the articles within the clamping seats, thus preventing wear or injuries to the articles so clamped.

A special use of my clamp is within aeroplanes and such use is subject to vibrations from the engines and other causes, and my clamping device holds the articles clamped as desired in any use involved wherein my device is mounted. In locations of this sort my clamping device is made of metal of light weight, as and when desired, and thereby becomes an electrical conductor to prevent the accumulation of electrical static charges which might at times result in sparkings, which must be avoided so as to prevent fires and radio interference.

My clamping device is made in special forms and constructions which may be made easily from sheet materials and be assembled together in solid formation for the purposes desired.

An object of the invention is to provide a multiple, elastic and secure clamping means of simple construction and compact for the service described.

Another object of the invention is to provide an elastic clamping device whereby the clamping will securely hold the articles clamped and do so without injury to the insulations of any wires or any distortion or chafing to any tubing or other articles which may be clamped with my device.

Another object of my invention is to provide within single unit blocks a plurality of clamping seats whereby simple clamping adjustment means will clamp at one clamping action a plurality of articles clamped.

Another object of the invention is in relation to the structure of the clamping blocks whereby they may be formed of sheet material and assembled into substantially integral bodies of rigid form.

A further object of the invention is to provide clamping seats for single units of any given kind

which will clamp articles in the secure and elastic forms whereby, when my invention is made for a single unit seat, the construction for that seat will be substantially like any given seat in my multiple construction.

Reference will be had to the accompanying drawing in which—

Fig. 1 is a perspective view of my clamping blocks of my device separated from each other in situations as and when they are open for coverage of any articles to be clamped thereby.

Fig. 2 is a vertical elevation of my clamping device when its blocks are mounted upon the articles to be supported.

Fig. 3 indicates an edge view, partly in section, of what is shown on line 3—3 of Fig. 2.

Fig. 4 is a transverse section of what is shown on line 4—4 of Fig. 2.

Fig. 5 is a perspective view of part of one of the pieces which form the actual contact members which engage the articles being clamped.

Fig. 6 is a perspective view of an assembly of the clamping blocks wherein there is a double faced third block C inserted between the blocks A and B.

In the drawing W indicates the wall or other member of any structure to which my clamping device is mounted. In the case of an aeroplane this might be some section or part of the structure whereat a location of my clamping device would be used for supporting tubular cable or wire means for services such as herein described.

I herein show in the drawing one unit of my multiple clamping device in which through the center thereof there is indicated a variety of clamping seats. This clamping device is shown in these drawings as being composed of two unit blocks A and B. However, there will occur situations where there is desired a double row of clamping seats, which then will require for a single unit of multiple clamping, a third block C which will be mounted in between the blocks A and B, and that third or middle block C will have double faces, one on each side, and those outside faces will match the inner faces of the blocks A and B, thus forming a double row of clamping seats.

While my construction as herein shown provides multiple seats for clamping a plurality of articles, the same general construction may be used for a one unit seat which will clamp only one article, and yet the mechanisms used, as far as the details of the single seat is concerned, will be substantially like any one of the multiple seats as described.

The blocks A and B are each constructed of

flat strips of metal, each block being substantially a duplicate of the other. The strips forming any one of the blocks A and B as herein shown are composed of three flat strips of metal, one strip being the outside enclosure band 2 which is bent around the outside of the block and spliced to itself at the joint 3, see Fig. 3, whereat the ends of the strip 2 are secured together by a rivet, or this may be a weld or any suitable construction. The strip 2 being flat on its outside surface but on its inside surface it is curved to form indentures or curved seats 4.

In the space between the outside or flat side of strip 2 and the inside curved space 5 of the strip 2 there is mounted two strips 6 being made of flat metal and formed into curved serrated edges 7, see Fig. 5, so shaped as to not contact directly the middle or depth of the seats 4, but to actually contact the straight portions 9 of the inner side 5 of the strip 2.

The strips 6 are bent transversely into curved seats 10 and these strips 6 are made as rights and lefts and are located adjacent to each other in each of the blocks A and B and are riveted together at intervals by the rivets 11. Thus forming, as it were, a unitary piece and this unitary piece is mounted in central relationship in the blocks A and B and secured in that relationship by rivets 12, see Figs. 2 and 3. Thus there is provided one of the blocks A and B as a unitary structure each. The top and the bottom ends of the strips 6 are provided with a small projection 13 which is adapted to enter small openings 14 in the top and the bottom of the blocks A and B.

The inner side 5 of the strip 2 at the curved seats 4 contact snugly to the articles being clamped, which are indicated by D, E and F, which may be tubes or bundles or single pieces which are to be clamped by my device.

When desired for adjustment purposes as to the distances between the blocks A and B, there is placed shim blocks 18 of any desired thickness for any purpose, see Fig. 2.

The blocks A and B are bolted together in clamping operations by a series of bolts 15 passing in through openings 16 in the strips 6, and as and when desired, the series of bolts 15 are used to clamp my device to the supporting member or wall W of the structure into which the clamp is mounted.

The strips 6 at the bottom of their serrations, indicated by 7, are so shaped as to allow slight clearance spaces 17 at each clamping seat 4 wherein the articles D, E and F are clamped. Thus this space 17 allows a slight come and go elastic movement of the clamping of the article by the inside wall 5 of the blocks A and B. The inside spaces 5 of the strip 2, being the enclosure band, are spaced slightly apart permitting the bolts 12 to draw together the blocks A and B whereby the curved seats 4 will clamp tightly and in elastic relation with the articles being clamped by my device.

The clamping blocks A and B made in the forms of units as described, are mated together with their clamping seats opposite each other into unitary pieces whereby, when the blocks are drawn together by the bolts 15, they become a complete unit clamping device.

What I claim is:

1. In a clamp of the class described, clamping blocks being composed of an outside flat strip bent around to an enclosure form and its ends connected together, one side of the said form

having a flat surface and the opposite side of that form formed into a series of curved seats shaped to fit one side of the articles to be clamped thereby and the depth of these seats slightly less than half the diameters of the articles to be clamped, a central member interposed between the walls of said block enclosure, said member being composed of two pieces of flat material having transverse curved depressions oppositely opposed to each other and each strip thereby forming passageways between the two strips through which clamping bolts are adapted to pass, the said two pieces of the said central member are riveted to each other and to the walls of the said enclosure form.

2. In a clamp of the class described, clamping blocks being composed of an outside flat strip bent around to an enclosure form and its ends connected together, one side of the said form having a flat surface and the opposite side of that form formed into a series of curved seats shaped to fit one side of the articles to be clamped thereby and the depth of these seats slightly less than half the diameter of the articles to be clamped, a central member interposed between the walls of said block enclosure, said member being composed of two pieces of flat material having transverse curved depressions oppositely opposed to each other and each strip thereby forming passageways between the two strips through which clamping bolts are adapted to pass, the said two pieces of the said central member are riveted to each other and to the walls of the said enclosure form, the said central member unit thus formed provided on one of its edges with a straight edge which contacts the outside flat surface of the said block and the other side of said central member formed with curved serrations of slightly larger depth at their centers greater than the depths of the curved seats of the inside wall of the said block, whereby there are slight clearance spaces in the said central member below the centers of the said curved seats for permission of the bottoms of the said curved seats to create means whereby a slight elastic pressure is permitted for the inward pressing of the said curved seats toward the said central member serrations.

3. In a clamping block of the class described, built up of flat strips of metal and formed with a multiple of curved seats on one edge of said block and a straight wall on the opposite side of curved seats, a central member located between the two said walls and rivets extending through the said vertical member and riveted into the walls of the said block.

4. In a multiple clamping device of the class described, a unitary block having along one edge thereof a flat surface and on the other edge thereof a serrated transverse curved seat, a central stiffening block located between the said walls and riveted thereto, passageways through the said block transversely of the said flat wall and curved seats, and said block mated with a companion block of substantially the same construction, a series of bolts extending through the said block for means of clamping them together in the service of clamping articles supported in between the said blocks.

5. In a multiple clamping device of the class described, a unitary block having along one edge thereof a flat surface and on the other edge thereof a serrated transverse curved seat, a central stiffening block located between the said walls and riveted thereto, passageways through the said block transversely of the said flat wall and curved

seats, and said block mated with a companion block of substantially the same construction, a series of bolts extending through the said block for means of clamping them together in the service of clamping articles supported in between the said blocks, the central stiffening block provided with serrations on its inside edge, said serrations curved in form corresponding to the inside of the curved seats in the said block, the serrations in the said stiffening block at their greatest depth being slightly deeper than the depths of the curved seats.

5 6. In a clamp of the class described, a clamping seat composed of a single unit seat composed of two blocks mated together, each block having an outside flat surface and an inner curved seat composed of a flat strip bent around to an enclosure, a central stiffening member located in between the walls of said enclosure, said central member having a flat surface contact with the inside of said flat side of each of said blocks and said central member having a curved form edge adjacent to the curved seats of the said strip.

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