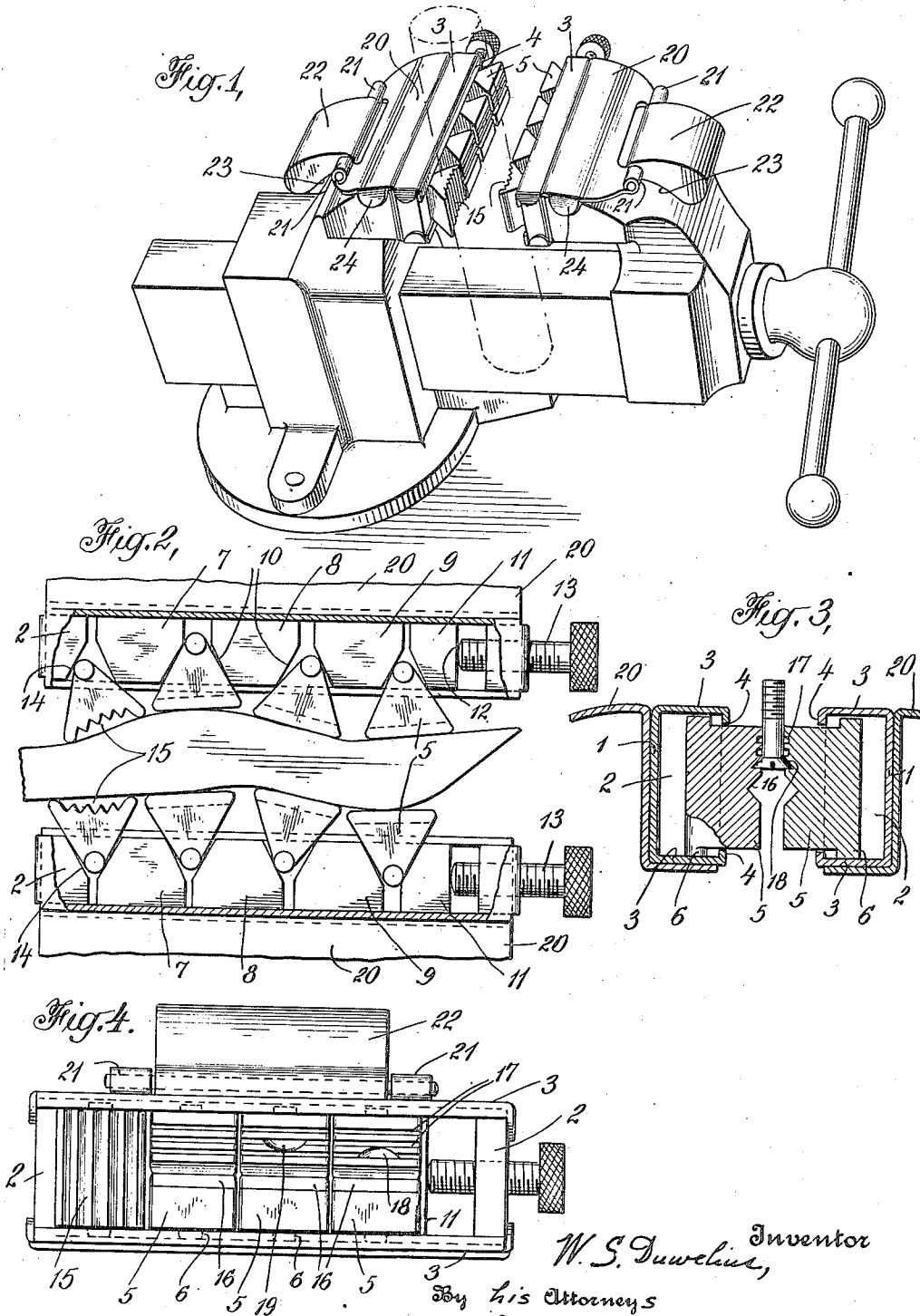


W. S. DUWELIUS.  
EQUALIZING ATTACHMENT FOR VISE JAWS.  
APPLICATION FILED OCT. 5, 1918.

1,397,409.

Patented Nov. 15, 1921.



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# UNITED STATES PATENT OFFICE.

WALTER SCOTT DUWELIUS, OF CINCINNATI, OHIO.

EQUALIZING ATTACHMENT FOR VISE-JAWS.

1,397,409.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, WALTER SCOTT DUWELIUS, a citizen of the United States, residing at Cincinnati, in the county of Hamilton, State of Ohio, have invented certain new and useful Improvements in Equalizing Attachments for Vise-Jaws; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention which relates to equalizing attachments for vise jaws is based upon the general principles of the inventions forming the subject matter of my Patents Nos. 1,149,037 issued August 3, 1915, and 1,169,533 issued January 25, 1916.

The devices for applying pressure disclosed in these patents comprise in general a casing slotted lengthwise and containing a plurality of contacting devices arranged in line within the casing and so shaped that when they are moved in the direction of the length of the casing, certain of them will be caused to project through the slotted opening and thus apply pressure upon two surfaces between which the device may be placed.

It is an object of the present invention to improve the construction of the devices of the above-mentioned patents in order to adapt them particularly for use upon the jaws of vises of ordinary construction to hold articles which can not be readily clamped between the usual parallel jaws. To this end the casing which contains the equalizing members is so constructed that it may be placed on the vise jaw and held securely thereon by an extension at the end of which there is a swinging weight adapted to rest on the sloping top of the jaw and to conform to various shapes of jaws by virtue of its pivotal connection to the extension. To increase the utility of the devices of the invention, the equalizing or gripping elements which adjust themselves to the contour of any article which may be held between them are so formed and constructed as to permit them to be used for more securely holding articles of various shapes such as rods, pipes, screws and the like.

The particular nature of the present invention, as well as other objects and advantages thereof, will appear more clearly from a description of a preferred embodiment as

shown in the accompanying drawings, in which Figure 1 is a perspective view showing a pair of devices applied to the jaws of a vise of ordinary construction; Fig. 2 is a plan view of a pair of the devices with portions of the casing broken away to show the relation of the equalizing members when holding an object of irregular shape; Fig. 3 is a transverse section through a pair of the devices showing them in position for holding a screw; and Fig. 4 is an elevation of the working face of one of the devices.

In the drawings in which similar characters denote similar elements in the several views, 1 is an elongated casing of rectangular cross section, provided with end portions 2 and sides 3 which are turned inwardly at their upper edges to form inwardly directed flanges 4 along each longitudinal edge of the casing. Within the casing are work-gripping blocks, 5 each shaped substantially like a triangular prism and each provided near its rear apex with lugs 6 adapted to engage the inner sides of the flanges 4 to prevent the blocks from dropping out of the casing. In the present embodiment of the invention, four such triangular blocks have been shown, but it will be understood that any desired number may be used according to the size of the device, and the number of equalizing surfaces desired.

Between the triangular blocks are actuating members, having a length approximately equal to the width of the casing so that they are held in place therein by the flanges 4. The actuating members or cams 7, 8 and 9 which lie between adjacent triangular blocks are formed with oppositely inclined faces as at 10 adapted to cooperate with the correspondingly inclined bearing faces of the triangular blocks. The actuating member 11 which engages the triangular block at one end of the device is formed with one inclined face and a flat face 12 against which a screw 13 mounted in the corresponding end 2 of the casing is adapted to engage. At the other end of the device the end portion 2 is formed with an inclined face 14 adapted to cooperate with the corresponding face of the triangular block lying at this end of the device.

The working faces of the triangular blocks may be given any desired configuration to adapt them for particular purposes. For

instance, the block at one end of the apparatus may be formed with a curved face, as at 15, provided with vertical serrations, thus constituting a gripping member which in co-  
 5 operation with the corresponding member of a companion device, may be used for holding a circular rod or pipe, as shown in Fig. 1. Some or all of the other blocks of the device may be provided with horizontal,  
 10 triangular grooves 16 for holding, in conjunction with a companion device, a rod or tube in horizontal position. The portion of each face of these blocks lying above the grooves 16 may be provided with horizontal  
 15 channels 17 to better adapt these blocks to hold an irregular-shaped object. As a further provision for increasing the utility of the device, one or more of the blocks may be provided with indentations, as shown at 18  
 20 for receiving the flat head of a screw which may be clamped between opposite blocks, while another of the blocks may be provided with an indentation 19 adapted to receive the round head of a screw. It will be under-  
 25 stood that the above formations of the working surfaces of the blocks are but typical of the many possible shapes which may be given them, depending upon the purpose for which the device is to be used, and to adapt  
 30 the device for holding finished work without marring the same, the triangular blocks may be faced with soft material such as copper, raw hide or the like.

For the purpose of holding the casing  
 35 upon the jaw of a vise, there is attached to the casing a supporting member which is formed with an extension 20 preferably curved to correspond substantially to the curvature of the top of a vise jaw. The  
 40 outer end of the extension is provided with ears 21 bent over to form bearings for the pivots of a weight 22, preferably formed with a curved lower face 23 to adapt it to conform to the curved, sloping top of a vise  
 45 jaw, on which it rests when the device is in place. By pivoting the weight, as shown, the adaptability of the attachment to vises of different shapes and sizes is increased, and the weight also serves to more closely hold  
 50 the casing of the device against the face of the jaw, and also to counter-balance the weight of the casing and the members mounted therein. In addition to the above advantages, the provision of the simple  
 55 weight avoids the use of tension springs, screws or other fastening devices, all of which are more or less insecure, or are so arranged that they become a fixed part of a particular vise, thus, not possessing the  
 60 adaptability of the present construction.

As shown most clearly in Fig. 1, one side of the extension 20 is provided with a depending flange 24 which fits over the side of the vise jaw, and by providing only one  
 65 of these flanges, the attachment may be

fitted on jaws of any width. In order to position corresponding blocks opposite each other, the flanges 24 on two companion devices are placed so that when the devices are in place on a vise, the flanges will engage  
 70 corresponding ends of the vise jaws, thus permitting the two attachments to be quickly set in place and insuring that corresponding triangular blocks shall be disposed opposite each other. For further convenience, in  
 75 manipulating the device, the screws 13 of companion attachments are arranged to come at the same end of the attachments when they are in place so that both screws may be conveniently manipulated from the  
 80 same side of the vise. While the work-gripping blocks 5 have been shown as triangular prisms, it should be understood that applicant does not intend to strictly limit himself to a block provided with plane faces  
 85 as would be the case if the blocks 5 were true geometric prisms. The working faces of the blocks may be serrated or indented as shown and the bearing faces could be varied from a strictly plane form.  
 90

While one preferred embodiment of the invention has been shown and described, it will be understood that various changes in the details of construction of the apparatus and the number and shape of the gripping  
 95 blocks and actuating members may be made, without departing from the principle of the invention.

What I claim is:

1. An equalizing attachment for vise jaws  
 100 comprising an elongated casing provided with an inwardly directed flange along each longitudinal edge, and a plurality of substantially triangular members protruding from the casing and provided with lugs at  
 105 their inner ends adapted to engage the flanges to retain them within the casing, one of said triangular members being formed with a curved outer face having vertical serrations therein, and others of said members  
 110 being formed with flat outer faces having horizontal channels therein and also indentations to receive the heads of screws that may be held by the triangular members.  
 115

2. In a vise, a pair of jaws, a substantially triangular gripping block associated with one of the jaws and provided with a work gripping face and two bearing faces, said block being adapted for bodily and pivotal  
 120 movement relative to the jaw, thereby permitting said gripping face to assume positions in various non-parallel planes, cams engaging the bearing faces, and manually operated means for actuating said cams.  
 125

3. In a vise, a pair of jaws, a plurality of triangular gripping blocks associated with one of the jaws, each block being provided with a work gripping face and two bearing faces, cams placed between the grip-  
 130

ping blocks and engaging the bearing faces for permitting bodily and pivotal movement of said blocks relative to the jaw, thereby permitting the gripping faces of said blocks to lie in various non-parallel planes at relatively great angles with the direction of extent of said jaws.

4. In a vise, a pair of jaws, a plurality of triangular gripping blocks associated with one of the jaws, each of said blocks being mounted for pivotal and bodily movement relative to said jaw and provided with a work gripping face and two bearing faces, cams placed between the gripping blocks and engaging the bearing faces, said gripping faces forming a substantially continuous gripping surface along the length of the vise, and manually operated means for actuating said cams.

5. In a vise, a pair of jaws, a hollow frame member carried by one of said jaws and comprising a plurality of cam members and triangular gripping blocks arranged alternately in said frame member, each of said gripping blocks being provided with a

work gripping face and two bearing faces, and each of said cam members provided with two bearing faces and being narrower at the front than at the rear, thereby permitting the gripping faces of said blocks to lie in close succession and form a substantially continuous gripping surface along the length of the vise.

6. In a vise, the combination of a pair of jaws and a plurality of gripping blocks independently associated with said jaws, said blocks being mounted for both pivotal and bodily movement relative to the jaws.

7. In a vise, the combination of a jaw, and a gripping block associated with said jaw having a work gripping face, said block being mounted for bodily movement substantially transverse to the direction of extent of said jaw and for pivotal movement about a vertical axis whereby said gripping face may assume positions in various non-parallel vertical planes.

In testimony whereof I affix my signature.

WALTER SCOTT DUWELIUS.