W. L. SIMMONS.

UNIVERSAL RIGHT ANGLE IRON.

APPLICATION FILED JAN. 8, 1915.

1,148,196. Patented July 27, 1915.

Fig. 1.

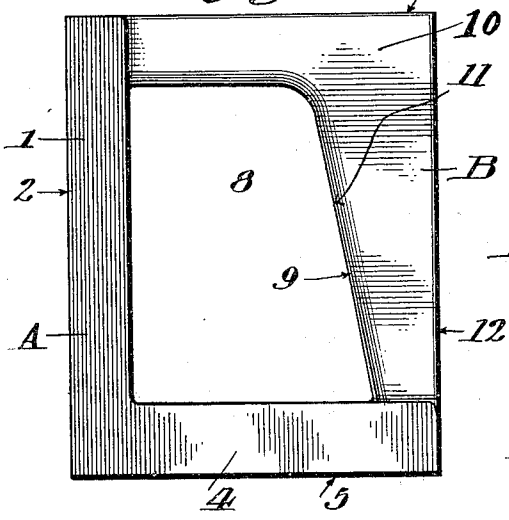


Fig. 2.

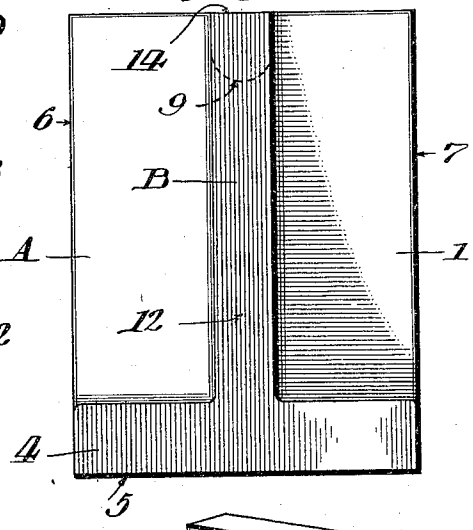


Fig. 3.

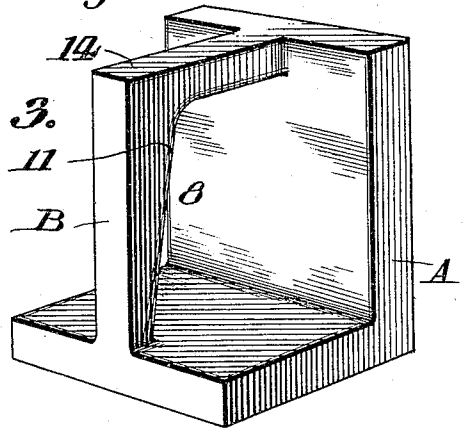
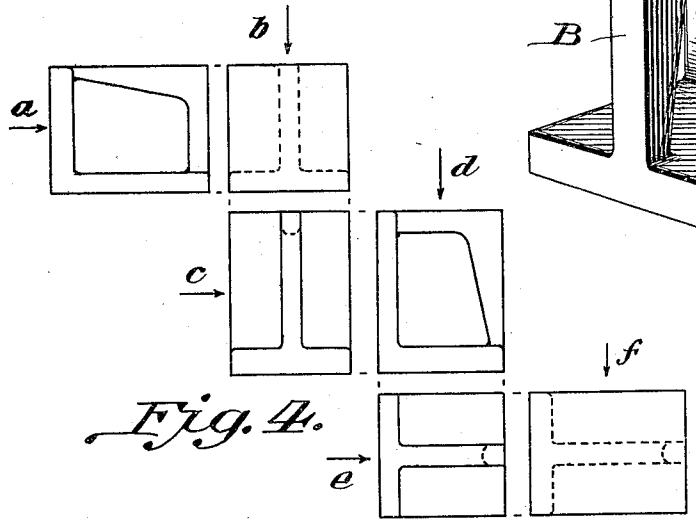


Fig. 4.



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UNIVERSAL RIGHT-ANGLE IRON.

1,148,196. Specification of Letters Patent. Patented July 27, 1915.

Application filed January 8, 1915. Serial No. 1,162.

To all whom it may concern:

Be it known that I, WILLIAM L. SIMMONS, a citizen of the United States, and a resident of the city of Woonsocket, in the county of Providence, State of Rhode Island, have invented new and useful Improvements in Universal Right-Angle Irons, of which the following is a specification.

This invention relates broadly to tools, and more specifically to devices known as angle irons.

The principal object of this invention is to provide a universal right angle iron with the right angle face plates thereof supported at their outer ends by a web forming a bracket or truss.

A still further object of this invention is to provide a universal right angle iron comprising a body portion having rectangular plane surfaces meeting at a right angle and a strengthening web located at substantially the middle of said body portion with the plane of said web at substantially right angles to the said plane surfaces. The exterior parts of said web comprising narrow rectangular planes which meet at a right angle and are substantially perpendicular to the plane surfaces on said body portion.

A further object of this invention is to provide a universal right angle iron having a body portion provided with rectangular plane surfaces meeting at a right angle, the sides of said body portion being constructed to lie in parallel planes and a strengthening web on the inner side of said body portion; said strengthening web being formed with exterior plane surfaces meeting at a right angle and parallel respectively to the plane surfaces on the body portion, said web being provided with an opening to constitute a hand grip and to facilitate securing said angle iron in position as may be desired.

A still further object of this invention is to provide a universal right angle iron having a body portion provided with relatively large plane surfaces meeting at a right angle and a strengthening web having its exterior edges formed on planes parallel respectively to the faces specified, the construction being such that a projection of the boundaries of said device will represent a rectangular figure for any position of rest of said iron on the plane of projection.

Other and further objects of this invention will in part be obvious and will in part be pointed out hereinafter in the specification by reference to the accompanying drawings wherein like parts are represented by like characters throughout the several figures thereof.

Figure 1 is a side elevational view. Fig. 2 is an elevational view looking at the back of the device. Fig. 3 is a perspective view. Fig. 4 is a view illustrating the outlines of the device in all positions in which the device will lie at rest on a horizontal plane.

Heretofore angular devices known as "elbows or angles" have been used for holding work in place on the beds of planers, milling machines, etc., and have in some cases been used in testing and determining accuracy of angles on manufactured articles. When used as a testing device such tools are usually used in connection with surface plates. So far as applicant is aware these angle irons have comprised a body portion having face surfaces meeting at right angles, and having substantially an L-shaped cross-section. So far as applicant is aware angle irons have never been produced with a supporting member integral therewith for strengthening the iron and capable of supporting the iron in various positions as may be desired.

The present invention relates to an addition, or an improvement, to the foregoing specified angle irons, which improvement resides more especially in a supporting web having its exterior surfaces lying in planes parallel to the surfaces on the body portion. This type of angle iron is universal, in that it may be effectively used in any one of six positions, as represented by the six faces of a parallelepiped.

Referring now to the drawings, and more particularly to Figs. 1, 2, and 3, the present invention comprises a body portion A, which includes a member 1 having a relatively long rectangular plane surface 2, and a member 4 having a relatively short plane

surface 5. The edges of the body portion, as at 6 and 7, form an L shaped outline and lie in parallel planes which are perpendicular to the plane faces 2 and 4. A supporting web B is preferably formed integral with the body portion, by casting or otherwise, and is located in substantially the middle part of the body portion, as is clearly illustrated in Figs. 2 and 3. The web B may be provided with an opening 8, the edges 9 of which are preferably rounded, as is shown in the dotted lines of Fig. 2. This opening is disclosed as having an irregular outline to provide sufficient metal, as at 10, to give strength and rigidity opposite the right angle of the body portion, and includes a slanting edge, as at 11, to provide a convenient handle for lifting and moving the device when in upright position, as shown in Fig. 1. The exterior edges, 12 and 14, of the supporting web, are surfaced to lie in planes parallel respectively to the surface plane faces 2 and 4.

Fig. 4 is a diagrammatic representation of the plane of the device when viewed from the top as it is placed in any one of the six possible positions, in which it will lie at rest on a plane surface. The characters *a*, *b*, *c*, *d*, *e*, and *f*, indicate the six planes which form the parallelepiped in which the outermost surfaces of the device lie. This diagrammatic view clearly illustrates the adaptability of this device to positioning and testing work wherein right angles are an element of the operation or calculation.

The device while intended primarily for use in metal working, is equally useful in the carpenter or pattern shop, and as a matter of fact, is useful wherever calculations or operations deal with surfaces whose planes are substantially right-angled, one to the other.

The device specifically described and illustrated is a right angle iron, namely, having all working angles thereon lying in planes which intersect at ninety degrees. This disclosure is capable of a broader interpretation, and the invention may include angle irons other than those of ninety degrees, and it is also physically possible to vary the specific construction included in my invention without departing from the scope thereof, so therefore I desire that the specific disclosure herein set forth be considered as illustrative and not in a limiting sense.

Having thus described my invention what I desire to claim is:—

1. As an article of manufacture a universal angle iron, comprising a body portion provided with plane surface faces intersecting at a right angle, the sides of said body portion being plane surfaces lying within parallel planes perpendicular to the planes of the said faces, and a web secured to said body portion at substantially the mid-part thereof and extending substantially parallel to said side planes, the exterior edges of said web being plane surfaces meeting at a right angle and lying within planes parallel to the planes of the said faces, said web being provided with an opening substantially as described.

2. As an article of manufacture a universal right angle iron, comprising a body portion having plane surface faces meeting at a right angle, and a web integral with said body portion and extending at right angles to said plane surfaces, said web being provided with an exterior right angle opposite the right angle formed by the meeting of the said faces.

3. As an article of manufacture a universal right angle iron comprising a body portion having plane surface faces meeting at right angles, and a web extending from said body portion substantially perpendicular to said faces, the exterior edges of said web comprising plane surfaces parallel respectively to said faces and meeting at a right angle opposite the right angle formed between said faces.

4. As an article of manufacture an angle iron having a body portion provided with plane surface faces meeting at an angle, and a strengthening web, said web being substantially perpendicular to said plane surfaces, the exterior edges of said web being plane surfaces meeting at an angle of the same number of degrees as the degrees in the angle between the said plane surface faces.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."