Dec. 16, 1952 W. J. FORDON 2,621,687

FOLDABLE DOOR SUPPORTING CLAMP

Filed Dec. 13, 1947 2 SHEETS—SHEET 1

FIG. 1.

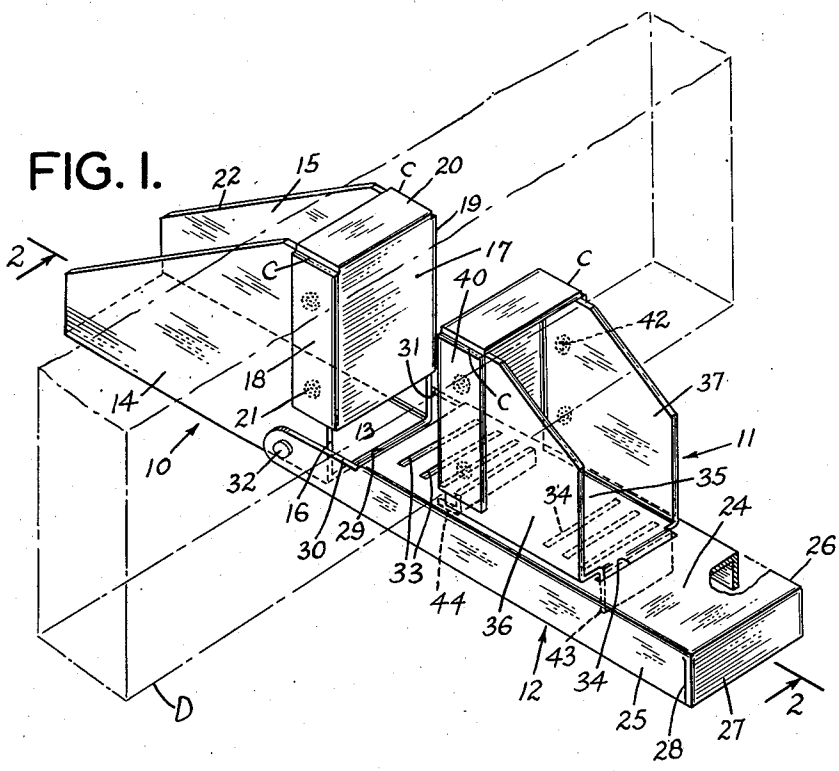
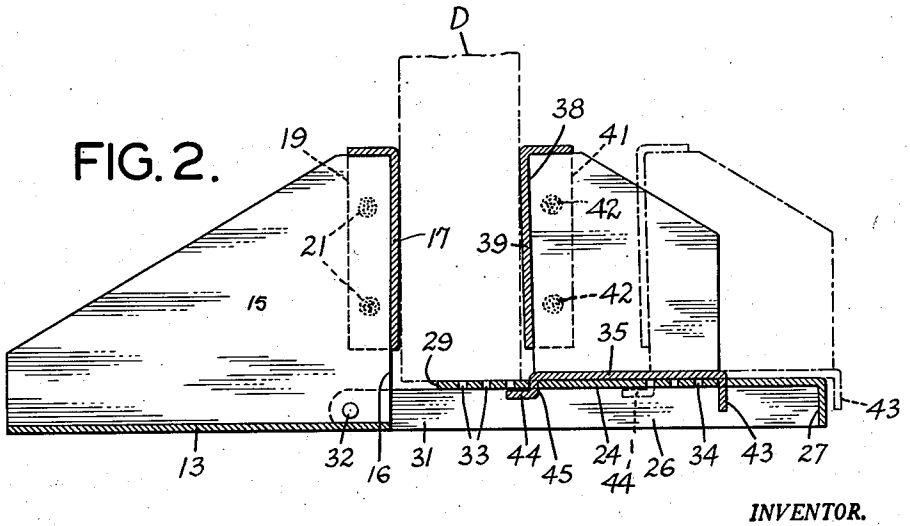


FIG. 2.



INVENTOR.
WILLIAM JOSEPH FORDON
BY
J. Bassuchess
his ATTORNEY.

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FIG. 3.

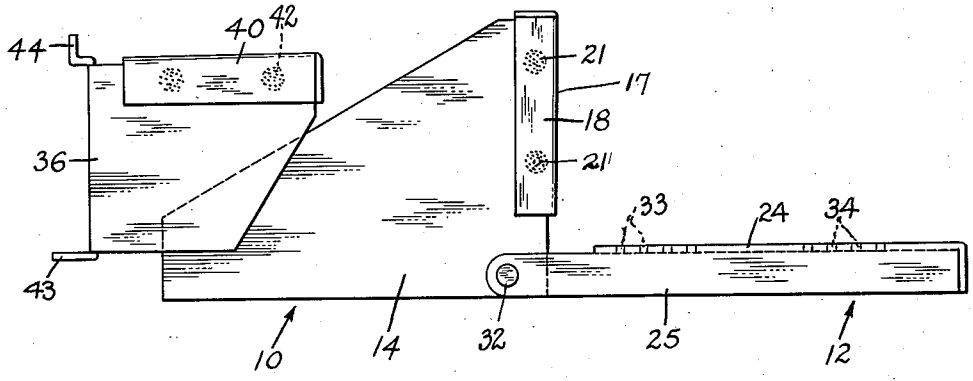


FIG. 4.

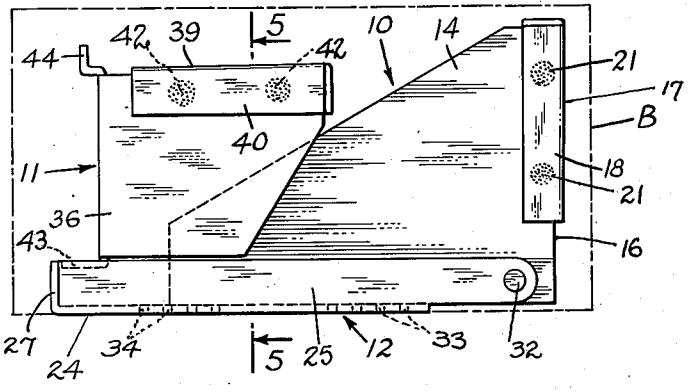
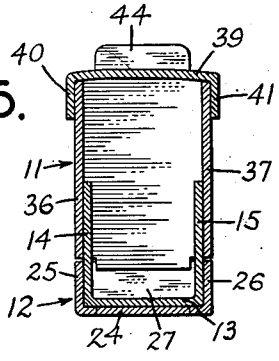


FIG. 5.



INVENTOR.
WILLIAM JOSEPH FORDON
BY
J. Basseches,
his ATTORNEY.

Patented Dec. 16, 1952

2,621,687

UNITED STATES PATENT OFFICE

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FOLDABLE DOOR SUPPORTING CLAMP

William Joseph Fordon, Bronx, N. Y., assignor to Rose Gringer, New York, N. Y.

Application December 13, 1947, Serial No. 791,547

3 Claims. (Cl. 144—296)

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This invention relates to door clamps or floor vises, and more particularly to a door clamp or floor vise which may be adjustably accommodated to varying door thicknesses.

It is an object of my invention to provide a door clamp or floor vise for holding doors in work of morticing, fitting or otherwise characterized by the features that the weight of the door urges the jaws comprising the clamp or vise into engagement with each other, within limits, without tending to mar the surface of the door so held. It is further contemplated by my invention to provide a door clamp which may have a pair of jaws adjustably mounted with relation to each other, wherein varying adjustable positions may be secured quickly and readily, without special and expensive adjusting devices.

It is further contemplated as an object of my invention to provide a door clamp or floor vise which is compact and may readily be stored in a workman's chest to occupy the minimum amount of space and which, in storage, or upon the dealers' shelves, may likewise occupy the minimum amount of space, minimizing the cost of storage, packaging and shipment.

It is still further an object of my invention to provide a door clamp or floor vise which is rigid in construction for its intended use, yet light in weight and compact.

To attain these objects and such further objects as may appear herein, or be hereinafter pointed out, I make reference to the accompanying drawing forming a part hereof, in which—

Figure 1 is a perspective view illustrating my device, with portions thereof broken away to show details;

Figure 2 is a section taken on the line 2—2 of Figure 1;

Figures 3 and 4 show knock-down positions of my door clamp;

Figure 5 is a sectional view taken on the line 5—5 of Figure 4.

Making reference to the drawing, my door clamp comprises a fixed block member or jaw 10, an adjustable jaw 11, and a jaw support 12. The fixed jaw 10 is preferably formed of sheet metal stock to outline a web 13, having upright side branches 14 and 15, comprising a substantially U-shaped channel, with the abutment edges 16 at a slightly greater angle than 90° to the base 13. A jaw face plate 17 spans the edges 16 and includes side flanges 18 and 19, overlapping the branches 14 and 15, respectively and a top flange 20. A plurality of spot welds 21 unite the flanges 18 and 19 to the upright branches 14 and 15, respectively. The top edges 22 taper off toward their outer ends.

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The jaw support 12 is preferably formed of sheet metal stock to provide an upper face 24, with side branches 25 and 26 bent at right angles thereto, to outline a channel. An end flange 27 is folded downwardly in abutment with the edges 28 of the side flanges 25 and 26. The flanges 25 and 26 extend beyond the edge 29, to form side arms 30, 31, overlapping the fixed jaw 10 and engaging the upright sides 14 and 15 near the base 13, at which point rivets 32 within the body of the walls 14 and 15 hingedly connect the jaw support 12 to the fixed jaw 10. The face 24 of the jaw support is formed with two groups of slots 33 and 34, the slots in each group being spaced apart at graduated distances, within limits to take care of standard variations found in door thicknesses.

The construction thus described provides a support for the movable jaw 11, which is preferably likewise made of sheet metal stock having a base portion 35, the sides of which have bent at right angles thereto the uprights 36 and 37 with abutment edges 38 generally slightly greater than 90° to the base portion 35. A jaw face 39 abuts the edges 38 and includes side branches 40 and 41, overlapping the uprights 36 and 37, and connected thereto by spot welds 42.

The base portion 35 is extended to provide a stop tongue 43 which is bent to be downwardly directed and is of a width to enter the slots in the face 24 of the jaw support.

Forwardly, the base 35 is formed with a locking tongue 44, having an offset, vertically directed branch 45, to direct the locking tongue 44 substantially in parallelism with the base 35. Each of the tongues 43 and 44 is of a width to enter the slots 33 and 34, and is spaced from the other for a distance equivalent to the position of the slots of the series in the groups 33 and 34.

With this construction, it will be observed that by first directing the tongue 44 endwise into a slot 34, and then tilting the same backwardly to have the tongue 43 enter one of the slots 34, a fixed position of the jaws 10 and 11 to each other is secured.

Tilting of the jaws away from each other around the hinge provided by the rivets 32 will permit insertion of a door D therebetween, to come to rest upon the face 24 of the jaw support 12. As the weight of the door is brought down upon the support, the jaws are tilted toward each other, to bring them in binding engagement with the door by reason of the small obtuse angular

position of the edges 16 and 38 to the respective bases of the jaws. The extension of the pivot within the body of the jaw 10 provides an uninterrupted door edge engaging surface, minimizing any marring of the door to be held.

It will be observed that a wide range of adjustable positions of the jaws to each other may be secured, without any special tools or adjusting members, and that while the fingers 43 and 44 may both be used in a pair of slots, I may, where it is desired to space the jaws for more extensive objects, utilize an inter-engagement of the locking tongue 44 with one of the slots in the group 34 overhanging the tongue 43 beyond the end 27, when this position of the movable jaw 11 is found desirable.

The construction, by which the various members are channel formed and of sheet metal, makes for a highly compact assembly, as more clearly shown by an inspection of Figures 3 and 4. This compactness of assembly in knock-down condition will be found useful in connection with storage or packaging of the door clamp or floor vise. Upon removal of the separable generally channell-shaped jaw element 11, it is positioned to have the upright walls 36 and 37 span and overlap the upright walls 14 and 15. Thereupon the support 12 is pivoted to nest the channel 13 within the channel formed by the support 12, as more clearly shown in Figure 4. In this position, the vise or clamp is brought within the confines of a box B for packaging purposes, or will occupy this minimum space in the tool chest of a workman.

It will thus be observed that I have provided a door clamp or floor vise which, while made of simple metal stampings by shaping sheet metal, affords the desired rigidity and strength for the purposes intended by a carpenter or workman in fitting doors or like contrivances.

Speedy adjustment without the use of special tools may be effected, and economy both in materials and space is achieved.

It will also be observed that the increased angularity of the jaws above normal to the base and the clearance between the pivot point 32 and a plane to reach alignment with the channel 31 is such that when the weight of the door D is applied to the channel 31, the limiting position or alignment will bring the channel 31 into engagement with the floor, to be supported thereby and to release the stress upon the pivot point and avoid excessive strain or shearing of the pivots.

It will also be observed that while the present construction is intended for operation of doors of wooden construction which may yield under the compressive stress of bringing the jaws to each other, where incompressible articles are used

I may crown the faces of the jaws 17 and 39 as shown, to compensate therefor so that the warping of these crowned faces yields to the compressive forces in bringing the jaws to each other (see Figure 5 of the drawing). The jaw face plates 17 and 39, respectively, may preferably be left unconnected at the corners C. This will permit the channels to yield lightly under this form of compressive stress.

Having thus described my invention and illustrated its use, what I claim as new and desire to secure by Letters Patent, is:

1. A foldable door-supporting clamp comprising an open-channel base member having spaced side walls connected by a web, an open-channel jaw member comprising spaced side walls and a connecting web portion, one of said members having a pair of side walls thereof formed with extended side arms overlapping the side walls of the other member and hinged thereto by pivot pins extending parallel to the webs of said members, one of said channel members being upright and the other channel member being inverted with respect thereto, a second jaw member adjustably and removably connected to and along the web of said base member in opposed relation to said first mentioned jaw member, each of said jaw members having face plates superimposed on their opposing ends, whereby the said channel members may be folded into inter-nested position and in an open and extended position the weight of the door placed upon the base member between the jaws will cause their upper ends clampingly to approach each other.

2. A foldable clamp in accordance with claim 1 wherein said base channel member and said second jaw member are adjustably connected by a series of slot and finger connections on said base channel and second jaw member, respectively.

3. A foldable clamp in accordance with claim 1 wherein the hinge pivot position of said members is wholly to one side of both jaw face plates and within the body confines of the first jaw member.

WILLIAM JOSEPH FORDON.

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