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FLOOR VISE FOR HOLDING DOORS AND THE LIKE

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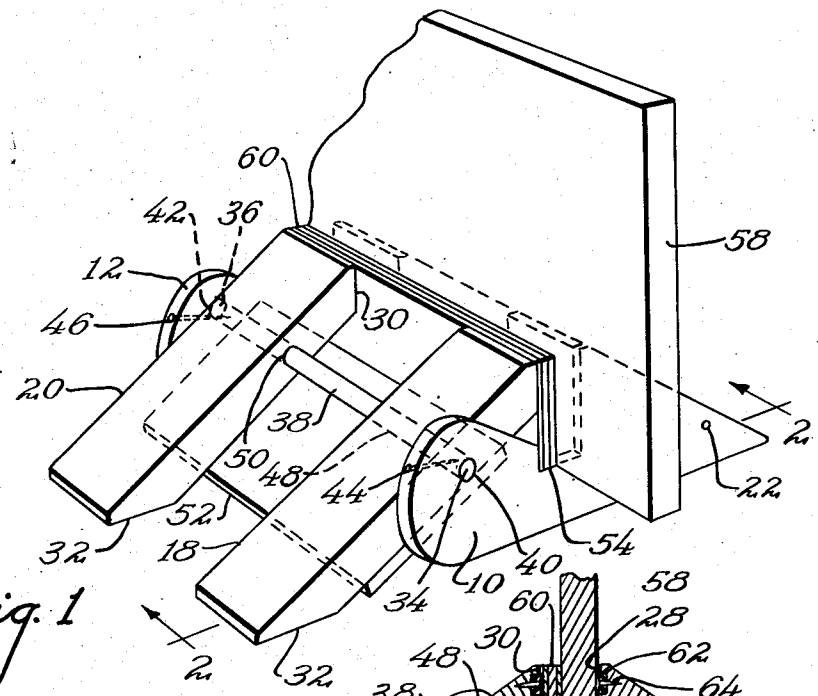


Fig. 1

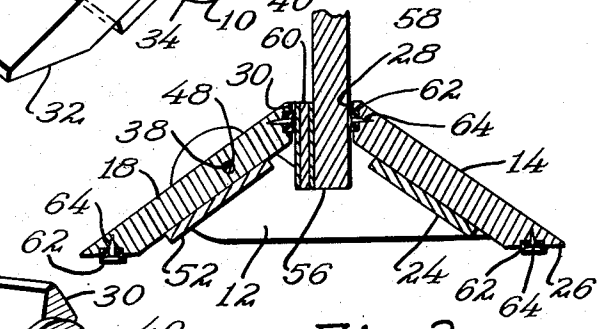


Fig. 2

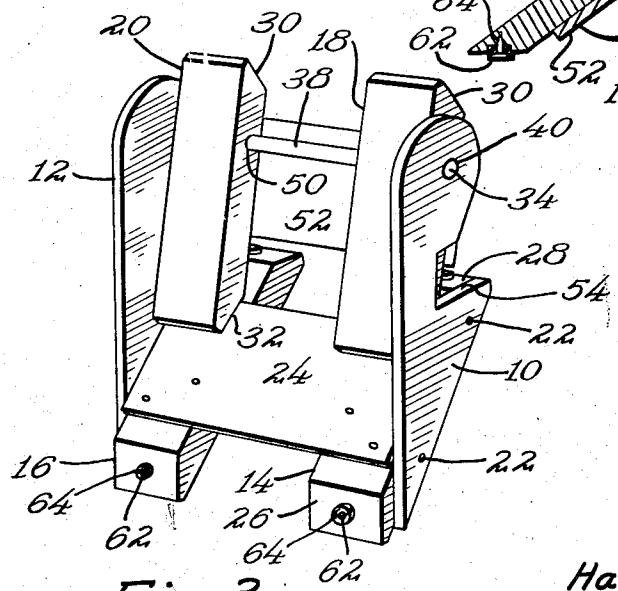


Fig. 3

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FLOOR VISE FOR HOLDING DOORS AND THE LIKE

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2 Claims. (Cl. 144—296)

This invention relates in general to vises and pertains more particularly to an improved clamping device of this character for supporting doors, windows and the like in a vertical position.

One important object of the invention is to provide a clamping device adapted to rest upon the floor which will firmly support an article such as a door or window in an upright manner while such article is being planed, weatherstripped, etc.

Another object of the instant invention is to provide a vise of the foregoing type that is sturdy, light weight and completely portable in nature. Also, my vise is easily collapsed into a compact condition when not in use. In this connection, it is within the purview of my invention to provide means for pivoting one set of clamping jaws relative to a second set, such means serving as a handle for transporting the device from one location to another.

A further object resides in the provision of structure that will readily release its grip on the clamped article without the user having to stoop over to effect such release.

Another object of the invention is to employ anti-slip means for preventing skidding of the vise across the floor and also to prevent slippage of the dumped article relative to the vise.

A still further object of the invention is to provide a floor vise that can be inexpensively produced, both from a labor and materials standpoint. With reference to the use of low cost materials, it is to be noted that my device is susceptible to being made entirely from wood. Thus it will be seen that my vise avoids the use of metals which are sometimes found to be in short supply.

With the foregoing and other objects in view, which will be manifest in the following detailed description and specifically pointed out in the appended claims, reference is to be had to the accompanying drawing for an illustrative embodiment of the invention, wherein:

Figure 1 is a perspective view of my floor vise in actual use,

Figure 2 is a vertical section taken in the direction of line 2—2 of Figure 1, and

Figure 3 is a perspective view of my device in a collapsed or folded condition.

Referring now to the drawing, my floor vise comprises a pair of end members or irregularly shaped plates **10** and **12** which extend in transverse fashion to support a pair of fixed jaw elements **14** and **16** and a pair of pivotally supported jaw elements **18** and **20**.

The jaw elements **14** and **16** are respectively secured to the plates **10** and **12** by a plurality of nails **22** or similar fastening means. Although I have disclosed mechanical fastening means, it is to be understood that my entire device lends itself readily to being held together by an adhesive, this latter expedient sometimes being preferred. A longitudinal strip **24** is secured to the underneath side of the elements **14** and **16** and provides desirable reinforcement for said elements. As may be best seen from Figure 2, the jaw elements **14** and **16** are disposed in an inclined relation with respect to a horizontal surface, and therefore have their lower ends angled at **26** to provide a resting face for the jaw elements, the jaw elements in this way also serving as legs for the vise. The upper ends of the jaw elements **14** and **16** are angled at **28** in order to provide a vertical clamping face for these elements.

From the several figures of the drawing it will be seen that the jaw elements **18** and **20** have their upper and lower ends angled in a similar manner to the fixedly positioned jaw elements **14** and **16**, the upper ends thereby presenting clamping faces **30** which oppose the faces **28** and the lower ends presenting floor engaging faces **32** which cooperate with the faces **26** in supporting the vise. As previously indicated, the jaw elements **18** and **20** are pivotally supported. Pivotal support for these elements is provided by anchoring the opposite ends **34** and **36** of a bar or rod **38** in the two end plates **10** and **12**. This is preferably accomplished by providing the plates **10** and **12** with aligned apertures **40** and **42** which receive the ends **34** and **36**, a pair of nails **44** and **46** driven radially into the ends **34**, **36**, assuring retention of said ends.

Apertures **48** and **50**, which are slightly larger in diameter than the bar **38**, are drilled through each of the jaw elements **18** and **20**. The bar extends loosely through each of these apertures to pivotally carry the elements **18** and **20**. As will presently be made clearer the apertures **48**, **50** are placed closer to the upper ends **30** of the elements **18** and **20** than to their lower ends **32**. Corresponding in function to the strip **24**, a strip **52** has its end portions affixed to the underneath sides of the elements **18** and **20**. The strip **52** also acts to move the jaw elements **18** and **20** in unison.

At respective loci **54** and **56** submediate the opposed faces **28** and **30**, and having a width co-extensive with the transverse spacing between these clamping faces, I notch the plates **10** and **12** to form a means for cradling a panel, door, window, or other objects **58** to be worked upon. If the object **58** is of relatively short length, then the object may be supported in a parallel relation with the floor; on the other hand, when the object is quite long, as would be the case if the object were a clothes closet door, then one end may rest upon the floor, my vise supporting the other end; or if desired, two vises may be employed, one at each end. It will be observed from Figures 1 and 2 that a plurality of varied thickness shims **60** are illustrated, these being desirable when a relatively thin object is being clamped. Thus, it will be appreciated that the notches **54** and **56** can be made wide enough to accommodate the thickest material likely to be worked upon, and that any excess space may be filled with the shims **60** when thin stock is to be clamped. Of course it will be recognized that the pivoting action of the jaws **18** and **20** permit the clamping of various sizes of objects over a fair range without the utilization of any shims.

In view of the fact that my device is particularly suitable in carpentry work and in further view of my experience in dealing with all grades and types of woods, I have discovered that some of the hard woods, particularly if their side surfaces have already been finished, are sometimes difficult to hold, there being a propensity for these woods to edge their way along the vise, for instance, when being coarsely planed. In the case of the softer and more resinous woods this problem is not of any great importance. Nevertheless, it is within the contemplation of the instant invention to provide means for overcoming the above mentioned problem. Accordingly, I propose to recess the faces **26**, **28**, **30** and **32** sufficiently to receive a small rubber grommet or suction element **62**. Such elements **62** possess a concave face **64** and may have a non-circular screw head embedded therein, the threaded shank **64** thereof extending into the jaw elements **14**, **16**, **18** and **20** as shown. While the threaded top of the drill used in forming the recesses for the reception of the resilient elements **62** produces a good starting hole for the pointed end of the shank **64**, it may sometimes be desirable to omit the use of screws, utilizing in their stead a firm bonding cement for retaining the grommets **62** in place.

It is thought that my floor device is of such simple construction as to be self-explanatory from an operational standpoint. However, it will be appreciated that after the vise has been placed on a floor or other substantially horizontal surface, the article **58** to be worked upon is cradled into the vise as shown in Figures 1 and 2, and if circumstances so dictate, the proper number of shims **60**

can be added. Assuming that the fragmentary object **58** is a door that requires planing, it will be appreciated that the downward pressural force exerted upon the plane by the artisan, plus the conjoint action due to the weight of the door, will cause the jaws **18** and **20** to be pivoted about the bar **38** and their upper ends to tightly grip or clamp said door, the fixedly positioned jaws **14** and **16** cooperating in absorbing the clamping reaction thus produced. When the planing operation has been completed, the door is easily lifted from the vise, and should the suction elements **62** be utilized, then a slight oscillation of the door from side to side will readily break the suction grip produced by these elements.

As previously indicated, the pivot bar **38** passes through the jaw elements **18** and **20** more closely neighboring the upper ends **30** of the elements **18** and **20** than their lower ends **32**. Not only does this arrangement produce an enhanced leverage of the jaw elements, but affords an additional advantage in the form of producing a more compact condition of the entire device when it is folded or collapsed into the relationship depicted in Figure 3, for the lower ends **32** then nest well within the confines of the plates **10** and **12** and abut the reinforcing strip **24**. The bar **38** may then serve in the capacity of a convenient handle for carrying the folded structure.

Still further, it is within the scope of the invention to lengthen the jaw members of my device over those dimensions normally found necessary in order to render the vise suitable as a saw horse. When the jaw members or legs are so lengthened, a cross piece may be inserted in the vise upon which the lumber to be sawed may be supported. Preferably, such cross piece should be T-shaped in cross-section to provide a relatively wide horizontal surface upon which the work can rest.

In accordance with the patent statutes, I have described the principles of construction and operation of my floor vise for holding doors and the like, and while I have endeavored to set forth the best embodiment thereof, I desire to have it understood that obvious changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A floor vise including two relatively pivotable vise elements, each element including a pair of substantially parallel legs designed to incline upwardly at an acute angle to a horizontal plane when in operative position, the lower supporting ends on said legs extending substantially horizontally and the upper ends extending substantially vertically when in operative position, a connecting member holding said legs in spaced substantially parallel relation, transverse plates secured to opposite sides of one vise element and spaced from the lower ends of said legs, said plates extending substantially parallel horizontally from said one vise element when said elements are in opposed upwardly converging relation, and a pivot bar connecting said plates to the other vise element, said upper ends of said legs of the two elements being opposed and movable toward and away from each other upon pivotal movement between said vise elements and the lower ends of the legs of said other vise element being movable into juxtaposition intermediate the upper and lower ends of the legs of said one vise element.

2. The structure defined in claim 1 and in which the upper edges of said plates are below the level of the upper ends of the legs.

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