Sept. 18, 1956 H. W. ENGLISH 2,763,302

ADJUSTABLE HOLDING FLOOR VISE

Filed March 10, 1952 2 Sheets-Sheet 1

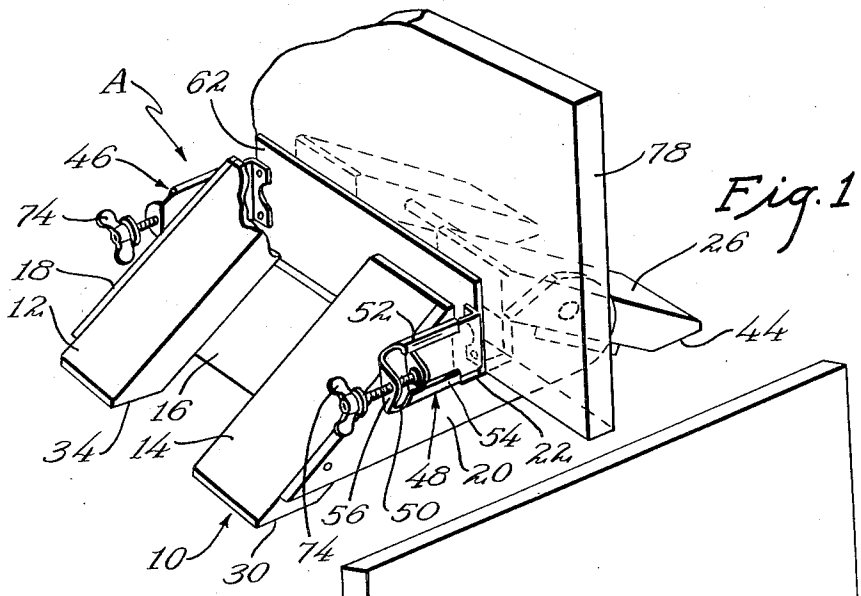


Fig. 1

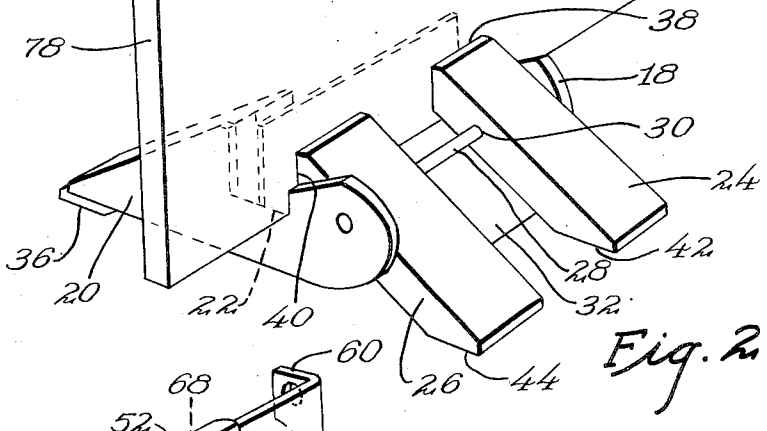


Fig. 2

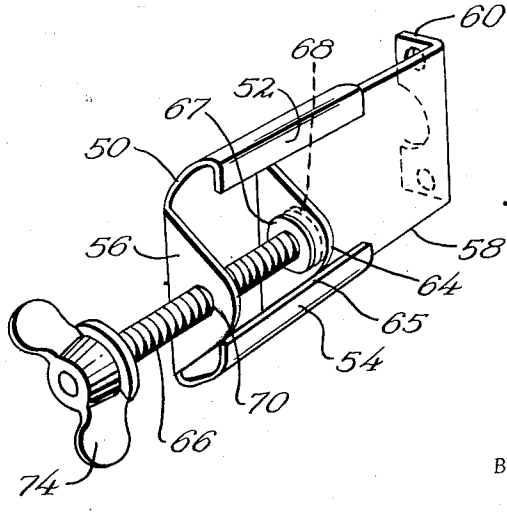


Fig. 3

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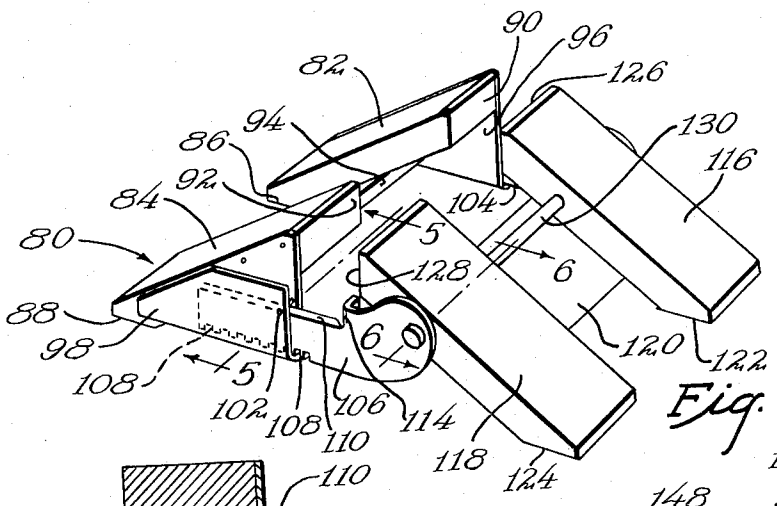


Fig. 4

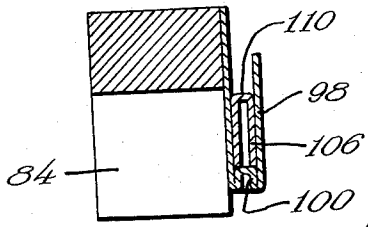


Fig. 5

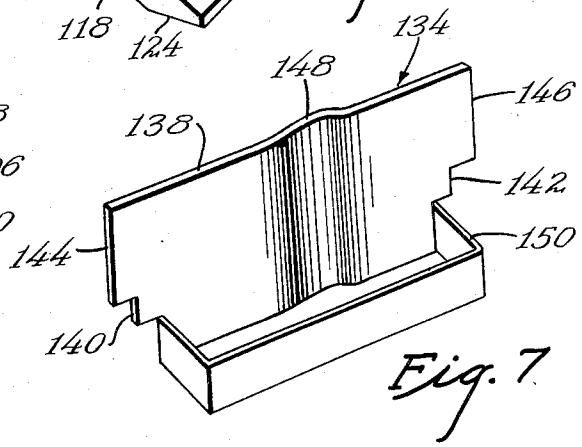


Fig. 7

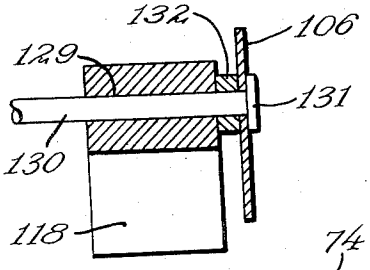


Fig. 6

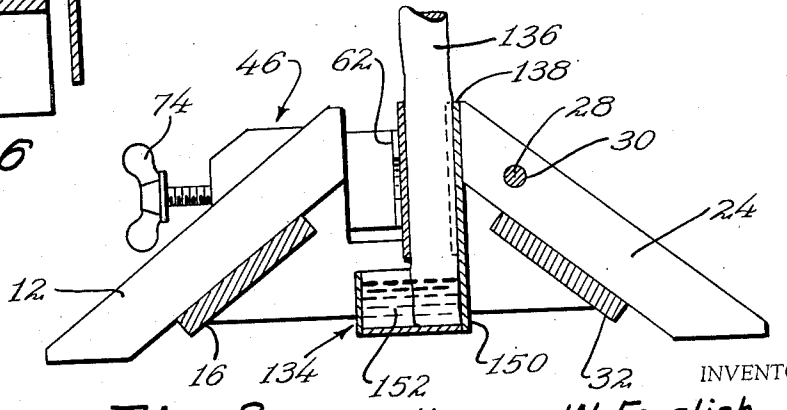


Fig. 8

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2,763,302

ADJUSTABLE HOLDING FLOOR VISE

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Application March 10, 1952, Serial No. 275,700

1 Claim. (Cl. 144—296)

This invention relates to floor vises capable of supporting doors, windows and similar objects in an upright position, and pertains more particularly to a vise of this general class that is adjustable for the stable accommodation of different width objects.

Accordingly, a principal purpose of the invention is to provide a facile means of adjusting my device for any width object to be worked upon, the device being adjustable over a given range best determined for the particular work for which the vise is designed. For instance, in carpentry work, where the vise will be used primarily for holding doors and windows, the vise may be suitably designed to accommodate an object having any thickness or width up to two inches. However, it will be understood that this maximum width is only suggestive.

While my invention contemplates the use of a certain amount of metal, another object of the invention is to permit the vises forming the subject matter of the instant invention to be made from both wood and metal, it being possible to minimize the quantity of metal employed, if desired. Stated otherwise, it is within the province of this invention to permit mass production of my vises in a manner best suited to the plant equipment of the individual factory making the item, some factories being equipped for only metal work and others primarily for wood working operations.

Another purpose of the invention resides in the provision of flexible clamping means for satisfactorily clamping tapered objects.

A further object of the invention is to provide adjusting mechanism for my vises that are relatively inexpensive and which may be conveniently adjusted in a short period of time.

A still further object, this object being of a comparatively restricted nature, is to provide an auxiliary attachment that will permit the holding of a Christmas tree, a flag pole or other article having a rounded lower end in a vertical fashion.

The above objects, and other objects to be made more apparent hereinafter, are obtained by means of apparatus subsequently to be described and shown in the accompanying drawings, wherein:

Figure 1 is a perspective view of one form of vise which my invention may assume;

Figure 2 is a view similar to Figure 1, but taken in a direction to show the opposite side of the vise from that shown in Figure 1;

Figure 3 is a detail perspective view of the mechanism employed in making the initial adjustment for the size of work to be held;

Figure 4 is a view similar to Figure 1 of another embodiment of the invention;

Figure 5 is a sectional view taken in the direction of line 5—5 of Figure 4;

Figure 6 is a sectional view taken in the direction of line 6—6 of Figure 4;

Figure 7 is a perspective view of an accessory member utilized for holding cylindrical objects; and

Figure 8 is a transverse sectional view taken through the center of the vise pictured in Figure 1, the accessory of Figure 7 being shown in actual use to brace the trunk of a small tree.

Referring first to Figures 1–3, the depicted vise A is adapted to rest upon a relatively flat surface, and to facilitate the describing of the vise A the numeral **10** represents what is termed a base or frame which includes the leg elements **12** and **14** rigidly joined together by a connecting brace **16**. Secured fast to each of the outermost opposite sides of each leg element **12**, **14** is a pair of identical end plates **18** and **20**, these end plates forming a further part of the frame **10** and each having a rectilinear notch **22** (the notch in the plate **20** being the only visible one).

Pivotally carried by the end plates **18** and **20** is a pair of leg elements **24** and **26**. A bar or rod **28** has its ends fixedly anchored to the plates **18** and **20** and passes loosely through apertures (the location of one aperture being visible at **30**) formed in the leg elements **24** and **26**. This bar or rod **28** provides a recommended pivotal mounting for these leg elements. The leg elements **24** and **26** are preferably joined for movement in unison by a connecting brace **32** corresponding to the brace element **16**.

The leg elements **12** and **14** need be provided with only the lower faces **34** and **36** for aiding in the support of the vise A, whereas the leg elements **24** and **26** are provided with work engaging faces **38** and **40** as well as similar vise supporting lower faces **42** and **44**. Thus, it will be seen that the vise A rests upon the faces **34**, **36**, **42** and **44** when placed upon a flat surface.

For a purpose later to be clarified, a pair of adjusting mechanisms or units generally indicated by the numerals **46** and **48** are made fast against the end plates **18** and **20**. Since the parts constituting each unit **46** and **48** are functionally the same, only those elements comprising the unit **48** will be described in detail. From Figure 1 it will be seen that the assemblage **48** includes a channel element **50** having inturned marginal flanges **52**, **54** and an out-turned end flange **56**. Slidably retained by the flanges **52** and **54** is a substantially Z-shaped member **58**, one flange **60** of which is riveted or otherwise secured to a clamping plate element **62** and the other flange **64** of which serves as a bearing for the threaded element **66**, there being an aperture in the flange **64** for this purpose. To assure movement of the member **58** in either direction, a pair of spaced collars **67** and **68** is provided adjacent each side of the flange **64**, these collars being fixedly mounted on an unthreaded portion of the element **66**. An aperture situated at **70** in the flange **56** is threaded and cooperates with the threads on the element **66** to propel the slidable element **58** in a direction determined by the particular direction in which the wing nut **74** is rotated. While the clamping plate **62** has been shown as a separate element which has been fixedly connected to each Z-element **58**, it will be appreciated that such plate **62** could be made integral with the elements **58** of the units **46** and **48** when the elements **58** and **62** are made of the same material.

In use, assuming that a plank or other object **78** is to be clamped in the vise A, the wing nuts **74** of the adjusting units **46** and **48** are turned until the clamping plate **62** is contiguous with, or slightly spaced from, the plank **78**. In that the leg elements **24** and **26** press against the other side of the plank **78**, such engagement will urge the plank **78** against the plate **62**, this action being attributable to the fact that a force is transmitted via the faces **42** and **44**, through the elements **24** and **26** to the faces **38** and **40**, due to the combined weight of the vise A, the plank **78** and any downward force applied to the plank in the course of working thereon.

Although the pivotal action of the leg elements **24** and **26** can compensate to a certain extent for different thicknesses of work or planks **78**, it should be explained that by initially adjusting the plate **62** for the approximate thickness of work to be accommodated any tendency for the work being held to wobble is practically eliminated. This stems from the fact that in effect the notches **22** in the end plates **18** and **20** are made smaller so that the opposite surfaces of the plank are in contact, or approximately so, with the plate **62** and the side edges of the notches **22**, i. e., the sides of the notches **22** subjacent the clamping faces **38** and **40**, of the leg elements **24** and **26**. In this way, the work **78** may always be easily removed without disturbing the adjusted condition of the units **46** and **48**, yet the work or plank **78** will remain steady during a planing or other work performing operation, since any tendency to tilt will be effectively resisted by the combined efforts of the clamping faces **38** and **40**, the notches **22**, and the clamping plate **62**.

Describing now a modified version of my invention, reference should be had to the vise illustrated in Figures 4, 5, and 6. In this embodiment the frame means indicated generally by the numeral **80** includes a pair of leg elements **82** and **84** having lower faces **86**, **88** and upper faces **90**, **92**, the upper faces **90**, **92** in this embodiment being designed to engage one side of the work to be clamped. As in the previously described embodiment A, the frame means **80** further includes a brace **94** holding the leg elements **82** and **84** in a longitudinally spaced relation. Also included as part of the frame means **80** are a pair of end members **96** and **98**, essentially triangular in elevation and channel shaped in cross-section (as seen in Figure 5).

The channeled end members **96** and **98** are respectively secured fast to the sides of the leg elements **82** and **84**. As best seen from Figure 5, the member **98** is provided with an inwardly sheared and bent tooth **100** for a purpose presently to be described. The tooth **100** may assume a variety of forms, but may be conveniently made by a simple stamping process when using sheet metal, as pictured here. Positioned above the tooth **100** and nearer to the plane containing the clamping face **92** is a pin **102**. The purpose of the tooth **100** and the pin **102** will be explained shortly, but it should be understood at this point that these elements are only duplicated on the member **96**, since the members **96** and **98** both function in the same manner.

A pair of transverse arms **104** and **106** are displaceably embraced by the members **96** and **98**, these arms having a series of notches **108** distributed along their lower edges. As will be seen from an inspection of Figure 4, only two of the notches in arm **106** are visible, the other notches in this arm **106** being shown in dotted outline. None of the notches in the arm **104** can be seen, however, but it will be appreciated that the notches on both arms **104** and **106** function in the same manner to retain the arms **104** and **106** in a telescoped or embraced relation with reference to the channeled end members **96** and **98**, the tooth **100** being selectively engageable in any of the notches **108**, for a purpose later explained in more detail. If desired, more than one tooth **100** may be utilized, provided the spacing corresponds to the spacing of the notches **108**. Of course the pin **102**, actually one for each end member **96** and **98** as hereinbefore stated, is positioned at an elevation corresponding to the height of the arm **104** and being that the pin **102** is off-set from the plane on which the section view shown in Figure 5 is taken, it will be quite apparent that the tooth **100** (or teeth, if desired) may be engaged with other notches than the particular one shown by merely tilting the notched portion of the arm **98** upwardly, the pin **102** permitting such manipulation, so that the arm **106** may be moved relative to the end member **98** and a different notch **108** then selected.

Describing the arm **106** in more detail, it will be noted

that this arm **106** is generally channel-shaped with the base web **110** being uppermost for the purpose of supporting the work (not shown) which could be the plank **78** or other object, such as a window or door.

Equivalent to the leg elements **24** and **26** of the vise A is a pair of leg elements **116** and **118** connected rigidly together by a brace **120** and having lower supporting faces **122**, **124** and upper clamping faces **126**, **128**, respectively. Loosely passing through an aperture (one being indicated at **129** in Figure 6) in each leg element **116** and **118** is a pivot bar or rod **130**. The ends of the bar **130** may be each equipped with an enlarged head as shown at **131**, or the ends may be merely welded to the end members **104** and **106**. Since the fabrication of the flanges **112** on each arm **104** and **106** renders it unfeasible to make the ends of the arms **104** and **106**, which carry the rod **130**, channel-shaped, a spacer **132** preferably circumscribes the rod **130** to hold the arm **106** in spaced relation to the leg element **118** and consequently in alignment with the channeled end member **98**.

The use of the vise B is thought to be obvious from the foregoing description. In order to prevent undesired wobbling or tilting of the work, the arms **104** and **106** are first moved inwardly or outwardly relative to the end members **96** and **98**, the particular notch **108** employed governing the actual width of the notch **114** which cradles the lower edge of the work to be clamped. By adjusting the two arms **104** and **106** to provide a notch **114** equivalent to the approximate thickness of the work, it will be apparent that the pivotal mounting of the leg elements **116** and **118** will thereafter cause the jaw faces **126** and **128** to grip tightly one side of the work, whereas the jaw faces **90** and **92** will effectively engage or confront the other side of the work. In other words, once having adjusted the arms **104** and **106** for the work to be held, the leg elements **116** and **118** perform in the same manner as do the leg elements **24** and **26** at the first described vise A.

While the vise B could be readily adapted for the special use about to be referred to, this being by the use of a shim or clamping plate, said special use will be explained in conjunction with the vise A. Accordingly, reference should now be had to Figure 7, where an auxiliary clamping member **134** is pictured, this member **134** being especially designed to render the vise A suitable for supporting a Christmas tree in an erect position, the trunk **136** thereof being illustrated in Figure 8 when being so held by the vise A. The upper region **138** resembles to a certain extent the clamping plate **62** and is intended to be engaged by the clamping faces **38** and **40** of the pivotal leg elements **24** and **26**. At locations **140** and **142** the member **134** is notched so as to provide projecting end portions **144** and **146** which can be supported in the notch **22** at each end of the vise A. Particularly where the member **134** is fairly rigid, it is most desirable to provide a vertical groove **148** for the purpose of partially encircling the trunk **136**, the groove **148** serving to steady the tree. At the bottom of the member **134** is a tray or receptacle **150** into which the trunk **136** depends and in which a quantity of water **152** is contained whereby the tree may be kept as fresh as possible.

In using the vise A as a Christmas tree holder, the auxiliary member **134** is first lowered into the position illustrated in Figure 8 when the clamping plate **62** is backed as far away from the jaw faces **38** and **40** as is necessary to eliminate interference between the tray **150** and the clamping plate **62**, the clamping plate **62** being movable by turning the wing nuts **74** on the actuating units **46** and **48**. After setting the plate **62** for the approximate size of trunk **136**, said trunk is placed between the upper portion **138** of the member **134** at the situs of the groove **148** and the clamping plate **62**, further adjustment of the wing nuts **74** then being made, if necessary, to obtain a snug grip on the trunk **136**; the action of the pivotally mounted leg elements **24** and **26** is then the same as when the plank

78 is being held. As a practical matter, it is preferable that both members 62 and 134 be capable of flexing, thereby better to grip the trunk 136. Any resiliency of the plate 62 in no way lessens the effective clamping action of this member during the normal usage represented in Figures 1 and 2, and actually any inherent ability to flex permits tapering objects to be clamped in that either the adjusting unit 46 or 48 may be farther advanced than the other to compensate for the particular taper that might be encountered.

The foregoing description is furnished by way of illustration and not of limitation, and it is therefore my intention that the invention be limited only by the appended claims or their equivalents wherein I have endeavored to claim broadly all inherent novelty.

I claim:

A floor vise comprising a pair of longitudinally spaced leg elements at one side of the vise provided with foot portions adapted to engage a supporting surface and clamping portions adapted to engage one face of a member to be clamped, and means rigidly connecting said leg elements in spaced relation, a channel member fixedly connected to each leg element at the ends of the vise, said channel members carrying notch-engaging means in the base thereof, an elongated member receivable in each of said channel members and provided with notch means cooperable with the said notch-engaging means of said channel members, fixed means carried by each channel member above said respective elongated members for holding said elongated members from lateral movement

in said channels, a second pair of longitudinally spaced leg elements at the other side of the vise provided with foot portions adapted to engage a supporting surface and clamping portions adapted to engage the other face of the member to be clamped, and means pivotally connecting said second pair of leg elements to said elongated members, whereby said cooperable notch means permit approximate adjustment of said pairs of leg elements for the accommodation of the particular thickness of the member to be clamped and said pivotally mounted legs thereafter urge said member to be clamped against the other pair of leg elements.

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