United States Patent [19]

Nunez

[11] **3,718,327**

[45] **Feb. 27, 1973**

[54] PORTABLE VICE

[76] Inventor: **Hector R. Nunez,** 8618 S. Seventh Place, Phoenix, Ariz. 85040

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[52] **U.S. Cl.**.....**269/37,** 269/96
[51] **Int. Cl.**.....**B25b 1/20**
[58] **Field of Search**.....269/45, 96, 97, 98, 249

[56] **References Cited**

UNITED STATES PATENTS

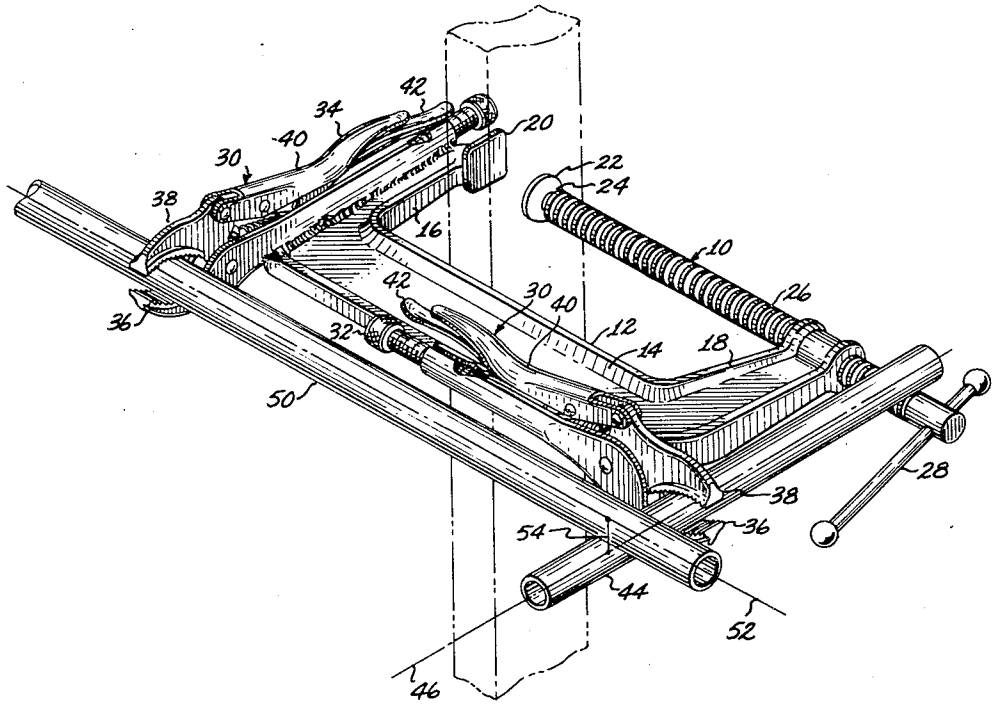
356,937	2/1887	Harding	269/45 X
1,323,127	11/1919	Treuthardt	269/45
2,019,789	11/1935	Mahannah	269/97 X
2,228,593	1/1941	Dibble	269/98 X
2,636,527	4/1953	Schiemann	269/97 X
3,072,396	1/1963	McBurney	269/45
3,024,018	3/1962	Manz	269/97 X
2,836,139	5/1958	Holmberg	269/45
288,035	11/1883	Dixon	269/249 X
1,393,083	10/1921	Campbell	269/97
R25,802	6/1965	Steffen	269/45
2,844,981	7/1958	Steine	269/98 X

Primary Examiner—Granville Y. Custer, Jr.
Assistant Examiner—Eugene F. Desmond
Attorney—Herbert E. Haynes, Jr.

[57] **ABSTRACT**

A portable vice is disclosed which is formed of a C-clamp that is adapted for rigid mounting to a structural member and is provided with auxiliary clamp means which cooperates with the C-clamp to supportingly position and hold a workpiece.

8 Claims, 4 Drawing Figures



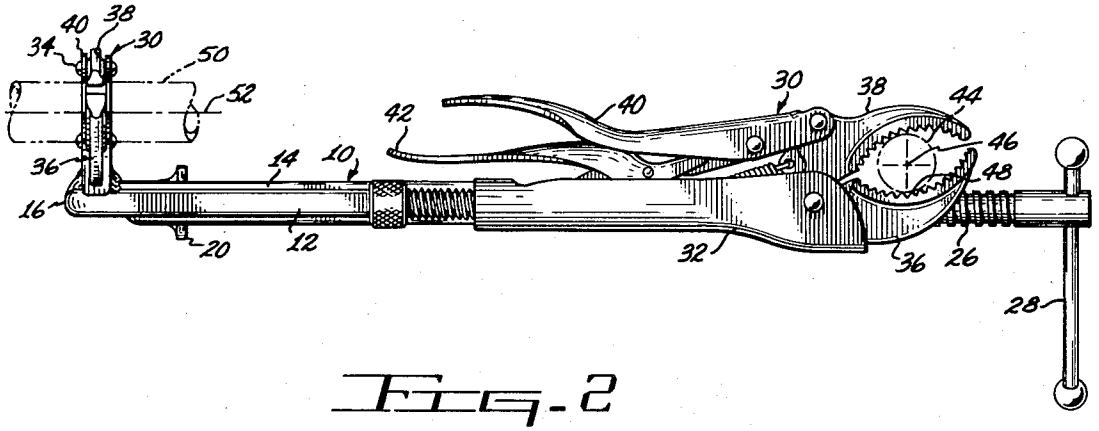


FIG-2

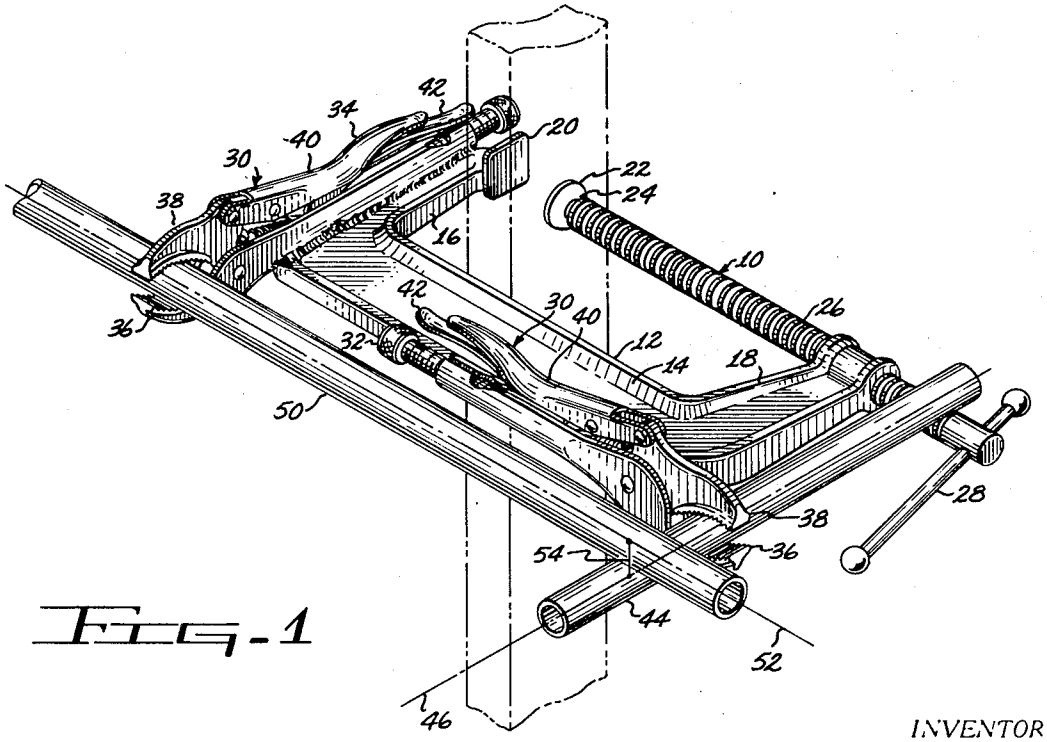


FIG-1

INVENTOR.
HECTOR R. NUÑEZ
BY Herbert C. Haynes Jr.
AGENT

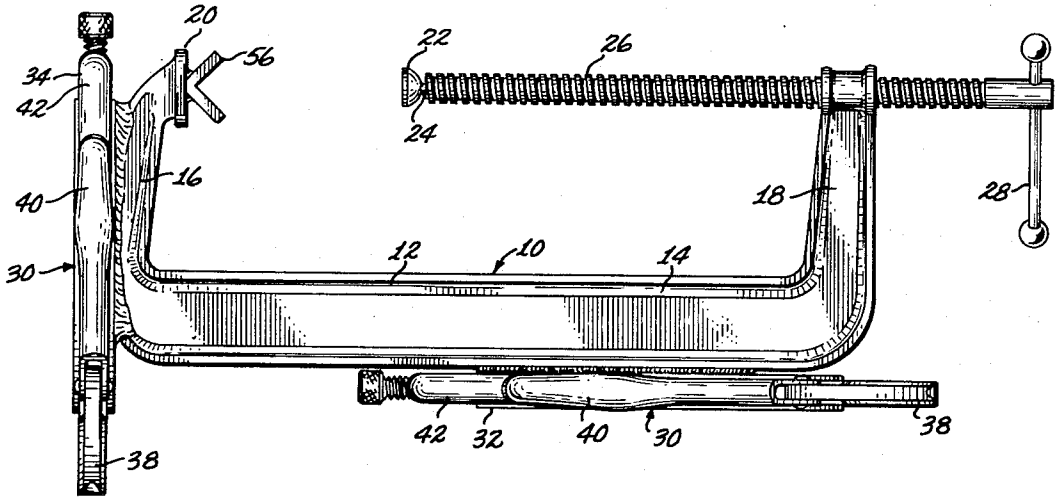


Fig. 3

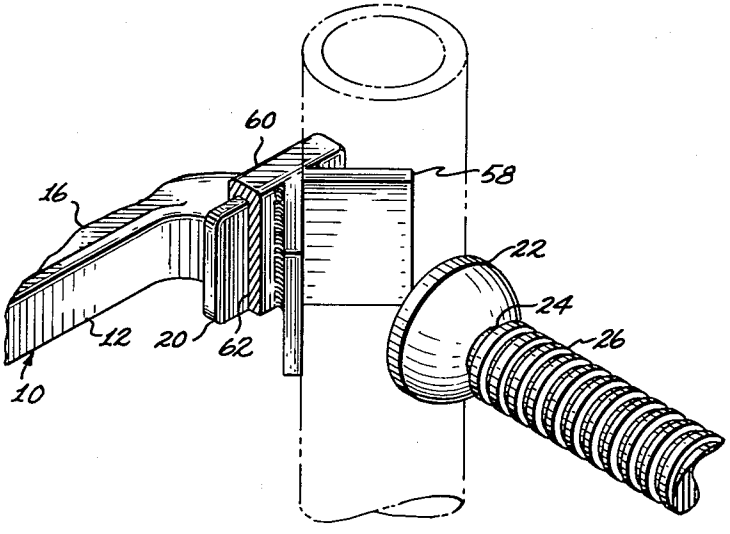


Fig. 4

INVENTOR.
HECTOR R. NUÑEZ
BY
Herbert C. Haynes Jr.
AGENT

PORTABLE VICE

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to vices, and more particularly to a portable vice which is provided with auxiliary clamp means for positioning and holding a workpiece.

2. Prior Art

In the building arts, construction workers are required to handle many types of elongated objects such as bolts, pipes, conduits and the like.

For example, electricians must measure, cut and install rigid or flex-conduits at many different locations throughout a construction site.

The present method of cutting relatively small objects, which may include items up to 1¼ inches in diameter, is to prop and brace the object in any convenient manner and cut it with standard tools such as a hacksaw, tubing cutter, and the like. In some instances, especially if the object is long, it requires two men to perform the cutting operation.

Large objects, such as pipes and conduits having an ID of 1 ⅝ inches and larger are normally cut at a specific work area and carried to the various installation locations.

In either case, building codes require that the cuts be made square and are free of burrs so as not to damage the insulation of wires in electrical installations and to facilitate a water or gas tight joint in plumbing installations.

The hereinbefore described prior art method of cutting elongated objects without mechanical clamping devices results in many out-of-square cuts and large burrs which require time-consuming and thus costly cleanup.

Therefore, the need exists for a portable vice to facilitate cutting of elongated objects.

SUMMARY OF THE INVENTION

In accordance with the invention claimed a portable vice is disclosed having a C-clamp which is adapted to be rigidly mounted to a structural member and is provided with auxiliary clamp means which cooperates with the C-clamp to supportingly position and hold a workpiece.

Accordingly it is an object of the present invention to provide a new and useful portable vice which is simple to construct and inexpensive to manufacture.

Another object of the present invention is to provide a new and useful portable vice which is adapted for rigid mounting to a structural member.

Another object of the present invention is to provide a new and useful portable vice which is adapted for rigid clamping to structural members of various dimensions and different cross-sectional configurations.

Another object of the present invention is to provide a new and useful portable vice which is provided with auxiliary clamp means for releaseably holding a workpiece.

Another object of the present invention is to provide a new and useful portable vice which supportingly positions and holds a workpiece in a square attitude with respect to auxiliary clamp means provided on the portable vice.

Still another object of the present invention is to provide a new and useful portable vice having a C-clamp which is provided with a pair of auxiliary clamp means for supportingly positioning and holding a workpiece in various positions.

The foregoing and other objects of the present invention as well as the invention itself may be more fully understood when read in conjunction with the following drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an isometric view of the portable vice of the present invention illustrating the various features thereof;

FIG. 2 is a front elevational view of the portable vice of the present invention;

FIG. 3 is a plan view of the portable vice of the present invention; and

FIG. 4 is a fragmentary isometric view of a modification of the portable vice of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring more particularly to the drawings, FIG. 1 illustrates a portable vice **10** in a typical working environment. The vice **10** is formed of a C-clamp **12** which may be fabricated of a conventional C-clamp having a main arm **14** with parallel legs **16** and **18** extending perpendicularly from opposite ends thereof.

Leg **16** is provided with a fixed anvil **20**, and leg **18** threadably carries movable anvil **22**. The movable anvil is provided with the well-known swivel mount **24**, elongated clamp screw **26** and handle **28**.

The vice **10** may be fabricated in various sizes and when it is intended that the vice be used in a construction environment, the distance between the fixed anvil **20** and the fully retracted movable anvil **22** is preferably in excess of eight inches. With the span in excess of eight inches, the vice may be clamped to a stud in an unfinished wall or if the wall is finished, the vice may be secured to an opening such as a doorway or window opening.

The vice **10** is provided with auxiliary clamp means **30** which in the preferred embodiment comprises a first auxiliary clamp **32** and a second auxiliary clamp **34**. It may readily be seen that the vice **10** would function quite well with only one auxiliary clamp, but is provided with a pair to provide greater versatility.

It should be understood that it is not intended to limit the scope of this invention to a specific type of auxiliary clamp, as various clamp devices (not shown) would work equally as well for specific applications. Examples of such clamping devices are chain-pipe wrenches, strap wrenches, chain-type pipe vices, C-clamps and the like.

In the preferred embodiment auxiliary clamps **32** and **34** are shown and described as locking plier wrenches which are standard tools having a fixed jaw **36**, a movable jaw **38**, locking handle **40**, and release lever **42**, among other items.

As seen best in FIGS. 1 and 3, locking plier wrench **32** is mounted on main arm **14** and is parallel with respect thereto, and is positioned so that jaws **36** and **38** extend beyond the end thereof. Therefore, with wrench **32** positioned as described the longitudinal axis **46** of a workpiece **44** held therein is positioned substantially perpendicular to the clamp screw **26** of the C-

clamp so that the workpiece **44** is supportingly engaged by the clamp screw. To insure that the workpiece **44** is positioned square with respect to the jaws **36** and **38**, the fixed jaw **36** is positioned so that its workpiece contacting surface **48** is level with the top of the clamp screw **26** as seen best in FIG. **2**.

It is intended that the hereinbefore described method of mounting workpiece **44** will be the most frequently used method. However, if due to close quarters, orientation of the vice **10**, and the like, this mounting method is not satisfactory, an alternate method may be used.

The alternate workpiece mounting method utilizes locking plier wrench **34** which is mounted on leg **16** of the C-clamp so that its jaws **36** and **38** extend beyond the end of the leg **16**. With locking plier wrench **34** mounted in this fashion, a workpiece **50** mounted therein will have its longitudinal axis **52** positioned substantially perpendicular to workpiece **44** held in locking plier wrench **32** so that the workpiece **50** will be supportingly engaged by the workpiece **44**.

To provide square mounting of workpiece **50** in the jaws of locking plier wrench **34**, the fixed jaw **36** of wrench **34** is spaced above the fixed jaw **36** of wrench **32**. This relationship is best understood by considering distance **54** (FIG. **1**) which shows the spatial relationship between the longitudinal axis **46** of workpiece **44** and the longitudinal axis **52** of workpiece **50**.

Distance **54**, and thus the spatial relationship between fixed jaws **36**, is an arbitrary figure which may be decided by the size of a workpiece most commonly handled in a particular field. By way of example, an electrician may be working with conduit of ½ inch ID, this means that the OD of the conduit is ⅞. Therefore, if the fixed jaws **36** are ⅞ inches apart and workpiece **44** of ⅞ inch diameter is used, workpiece **50** will be square with locking plier wrench **34**.

Slight deviations in the square mounting of workpiece **50** may be ignored due to the relatively large span between workpiece **44** and the locking plier wrench **34**. When larger deviations in the diameter of workpiece **50** affect the square mounting thereof, compensation may be made by changing workpiece **44** to one having a smaller or larger diameter.

Should it be desired that vice **10** be adapted for rigid mounting to scaffolding or other tubular structural members, the fixed anvil **20** is provided with an angular anvil **56** welded or otherwise fixedly attached thereto, as seen in FIG. **3**.

As shown in FIG. **4**, a demountable angular anvil **58** is provided which may be removably mounted on the fixed anvil **20** in a number of well-known manners. The demountable angular anvil **58** is provided with sleeve **60** which is fabricated with a slot **62** that is sized to slidingly engage fixed anvil **20**.

While the principles of the invention have now been made clear in the preferred embodiment, there will be immediately obvious to those skilled in the art many modifications in structure, arrangements, proportions, the elements, and the materials used in the practice of the invention, and otherwise, which are particularly adapted to specific environments and operating requirements without departing from those principles. The appended claims are therefore intended to cover and embrace any such modifications within the limits only of the true scope of the invention.

What I claim is:

1. A portable vice comprising:

a. A C-shaped frame having an elongated main arm and a pair of legs extending perpendicularly from the opposite ends of the main arm, the legs being parallel with respect to each other;

b. a fixed anvil mounted on the outermost extending end of one of the legs of said frame and disposed to face the other of the legs;

c. an elongated screw threadably mounted between its ends on the outermost extending end of the other of the legs of said frame and transversely positioned thereon to provide an inner end of said screw extending toward said fixed anvil and an outer end of said screw extending away from said fixed anvil;

d. a movable anvil carried on the inner end of said elongated screw and disposed to face said fixed anvil for demountably attaching said frame to a support structure positionable therebetween; and

e. an auxiliary clamp means in which an elongated workpiece is releasably holdable, said clamp means fixidly mounted on the main arm of said frame and oriented thereon to position the longitudinal axis of the workpiece perpendicular to the longitudinal axis of said elongated screw adjacent to the outer end thereof in a non-intersecting offset relationship, the amount of offset being approximately equal to one-half the diameter of said screw plus one-half the thickness dimension of the workpiece so that when the workpiece is held by said clamp means it may also be supported on the outer end of said elongated screw.

2. A portable vice as claimed in claim **1** wherein said first auxiliary clamp means is provided with a fixed jaw and movable jaw for releasably holding the workpiece, the workpiece contacting surface of the fixed jaw being positioned level with the peripheral surface of said elongated screw so that the workpiece is supportable thereon in a position which is square with respect to the jaws.

3. A portable vice as claimed in claim **1** wherein said fixed anvil is provided with an angular surface for adapting said frame for mounting to tubular structural members.

4. A portable vice as claimed in claim **1** wherein said fixed anvil is provided with an angular anvil demountably attached thereto.

5. A portable vice as claimed in claim **1** therein said auxiliary clamp means comprises a locking plier wrench.

6. A portable vice as claimed in claim **1** further comprising a second auxiliary clamp means adapted to releasably hold a second elongated workpiece, said second auxiliary clamp means fixedly mounted on the one of the extending legs of said frame and oriented thereon to position the longitudinal axis of the second workpiece substantially perpendicular to the longitudinal axis of the workpiece holdable in said auxiliary clamp means in a non-intersecting offset relationship with the amount of offset being substantially equal to one-half the thickness dimension of the second workpiece plus one-half the thickness dimension of the workpiece holdable in said auxiliary clamp means so that when the second workpiece is held by said second clamp means it may also be supported on the workpiece holdable in said auxiliary clamp means.

7. A portable vice as claimed in claim 6 wherein said second auxiliary clamp means is provided with a fixed jaw and a movable jaw for releasably holding the second elongated workpiece, the workpiece contacting surface of the fixed jaw of said second auxiliary clamp means being positioned substantially level with the peripheral surface of the workpiece holdable in said auxiliary clamp means.

8. A portable vice as claimed in claim 6 wherein said second auxiliary clamp means comprises a locking plier wrench.

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