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Smith

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[54] **HAND VISE**

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[52] **U.S. Cl.**..... **269/254 R,** 248/49, 269/275, 269/296, 269/321 N

[51] **Int. Cl.**..... **B25b 1/20,** F16l 3/00

[58] **Field of Search**.... 269/254 R, 289, 296, 321 N, 269/100, 101; 248/49, 50, 54 R, 60, 65, 71, 248/201, 251, 300, 309; 211/69.8, 120

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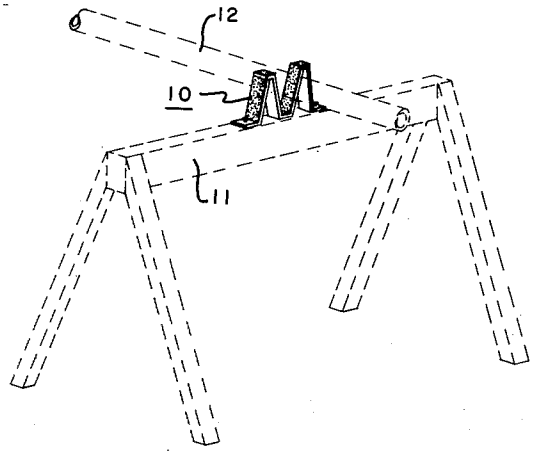
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[57] **ABSTRACT**

The hand vise comprises a substantially M-shaped framework, mounting leaves fastened to the outer leg portions, and a frictional laminate disposed over the upper portions of the framework. An object is locked into the vise by tension of the outwardly inclined jaw portions and by the frictional laminate.

6 Claims, 3 Drawing Figures



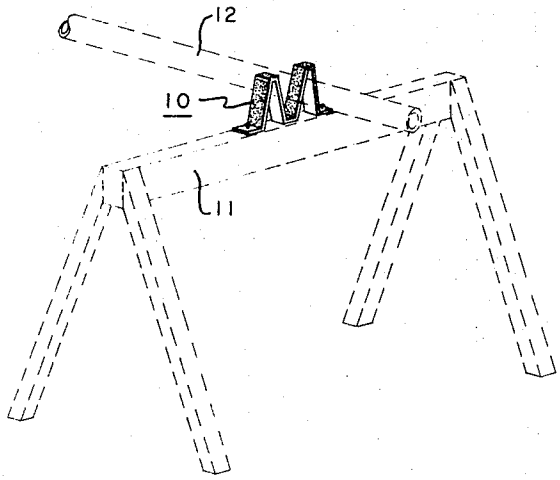


fig. 1

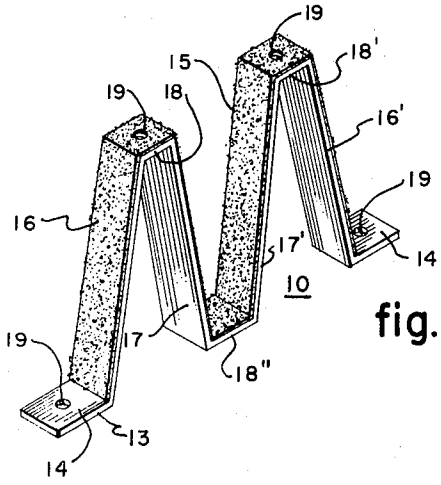


fig. 2

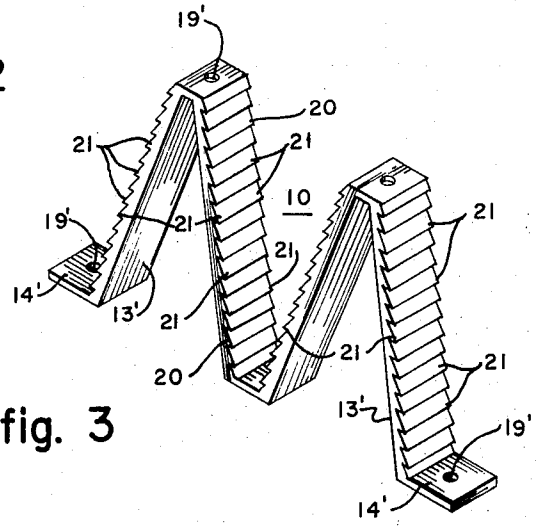


fig. 3

HAND VISE

FIELD OF INVENTION

The present invention relates to vises, and more particularly to vises having static jaws which are operable to develop suitable compressive force to support and retain piecework.

DESCRIPTION OF THE PRIOR ART

Vises commonly used and employed usually consist of a pair of jaws which can be brought together by means of a screw, toggle, or lever, used for holding work that is to be operated on. It has been found that opening, closing, tightening, and loosening a vise about a workpiece may require considerable agility and skill because the operator usually is handling the workpiece while simultaneously operating the vise. Various sorts of quick-releases, toggles, and other hinged locking means have been offered to permit the operator to swing one of the jaws over the workpiece into engagement with the opposite jaw assembly. These only reduce a portion of the work and agility required to operate the vise, and may include complex and sometimes delicate mechanisms and assemblies.

Accordingly, it is an object of the present invention to provide a vice having static jaws which are operable to develop suitable compressive force to support and retain a workpiece.

A further object of this invention is to provide the vice having static jaws with a suitable frictional laminate to inhibit release of the workpiece from the jaws.

It is another object of this invention to provide the vice having static jaws with a suitable frictional laminate having a suitable resilient cerated surface to inhibit release of the workpiece from the jaws.

These and other objects shall become apparent from the description following, it being understood that modifications may be made without affecting the teachings of the invention here set out.

SUMMARY OF THE INVENTION

The hand vise comprises a substantially M-shaped framework, mounting leaves fastened to the outer leg portions, and a frictional laminate disposed over the upper portions of the framework. An object is locked into the vise by tension of the outwardly inclined jaw portions and by the frictional laminate.

A more thorough and comprehensive understanding may be had from the detailed description of preferred embodiment when read in connection with the drawings forming a part of this specification.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of the hand vise of this invention including a sawhorse on which it is mounted, and a cylindrical workpiece both shown in broken lines for illustrative purposes.

FIG. **2** is a perspective view of the apparatus of the FIG. **1** drawn to a larger scale.

FIG. **3** is a perspective view of a further embodiment of the hand vise.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings and more particularly to the FIG. **1**, the hand vise of this invention is shown

to advantage and generally identified by the numeral **10.** The hand vise **10** may be mounted on any of a number of support structures such as a common sawhorse **11.** The vise **10** is operable to support and retain any of a number of workpiece objects such as a cylindrical workpiece **12.**

Referring to the FIG. **2,** the hand vise **10** comprises a framework **13,** mounting leaves **14,** and a frictional laminate **15.** The framework **13** is an upstanding, substantially M-shaped structure having a pair of leg portions **16** and **16'** which are inclined centrally from their respective lowermost terminal ends. The framework **13** also includes a pair of jaw portions **17** and **17'** which are fastened to the uppermost terminal ends of the legs **16** and **16',** which are inclined centrally from their respective uppermost terminal ends and which are fastened to each other at their lowermost terminal ends. It may be seen that the jaws **17** and **17'** are operable to form a saddlelike region in which the workpiece **12** may be carried. The intersects of the portions **16** and **17, 16'** and **17',** and **17** and **17'** may be spaced apart by web members **18, 18'** and **18''.** It has been found that the capacity of the size of the cylinder **12** may be predeterminately modified by varying the interior angle of the jaws **17** and **17',** and by varying the length of the web member **18''.** The framework **13** is fastened to the sawhorse **11** by mounting leaves **14** which are dependently disposed in a horizontal juxtaposition from the lowermost terminal ends of the leg portion **16** and **16'.** Each of the mounting leaves **14** includes fastener receiving holes **19** as do web members **18** and **18'.** It is to be understood that the framework **13** may be fabricated of a single metal strip having suitable brakes forming the M-shaped structure with its respective portions **16** and **16'** and **17** and **17',** or from separate, suitably fastened sections.

The frictional laminate **15** is intended to resist torque on, and retain the workpiece **12** in, the jaws **17** and **17'.** The frictional laminate **15** is provided over the upper surfaces of the framework **13** and particularly in the upper surfaces of the jaws **17** and **17'** and the web member **18''.** The frictional laminate **15** may be constructed of a resilient, high-adhesion elastomer. The elastomer material for the laminate **15** may include such materials as rubber, neoprene, polypropylene and the like. It may be seen that the object **12** will tend to be retained in the jaws **17** and **17'** by the sticky, frictional characteristic of the laminate **15** and, thus, will not rotate between the jaws **17** and **17'** and the tension of the jaws **17** and **17'** on the cylinder **12** will not tend to eject the workpiece **12.** It may also be seen that as downward force, or force applied to the cylinder **12** during work will further force the cylinder **12** downwardly between the jaws **17** and **17'** tending to cause the frictional laminate **15** to further cohere about the cylinder **12.**

As shown in the FIG. **3,** a further embodiment of the hand vise **10** includes a framework **13'** having mounting leaves **14'** and including mounting fastener holes **19',** which is substantially identical to the framework **13** and **14.** The vise **10** also includes a frictional laminate **20.** The frictional laminate **20** may also be fabricated of an elastimer or other resilient material and is configured in a multiplicity of serrations **21.** The serrations are operable to gather about a cylinder **12** to retain and embed the cylinder **12** in the vise **10.** It has been found to advantage to configure the serrations **21**

in a downwardly disposed tooth-like configuration to permit easy insertion of the cylinder **12** while inhibiting withdrawal of a cylinder **12** from between the jaws **17** and **17'**.

As shown in the FIG. **1**, the cylinder **12** is placed in the satellite region formed by the jaws **17** and **17'**. The cylinder may be locked into the vise **10** by downward force applied on the cylinder **12**. The cylinder **12** is retained by tension of the walls **17** and **17'**, and by the effects of the frictional laminate **15** set out above. Thus, it may be seen that advantage may be had in a hand vise **10** which has the walls **17** and **17'** fabricated of a semi-elastic, high tensile strength material which may readily conform about the cylinder **12**. The cylinder **12** may be withdrawn from the vise **10** by merely lifting the cylinder **12** with sufficient force to overcome the compressive forces developed by the jaws **17** and **17'** and the laminate **15**.

Having thus described in detail a preferred apparatus which embodies the concepts and principles of the invention and which accomplishes the various objects, purposes and aims thereof, it is to be appreciated and will be apparent to those skilled in the art that many physical changes could be made in the apparatus without altering the inventive concepts and principles embodied therein. Hence, it is intended that the scope of the invention be limited only to the extent indicated in the appended claims.

I claim:

1. A vise, comprising:

an upstanding, substantially M-shaped framework having a pair of leg portions which are inclined centrally from their respective lowermost terminal ends, and jaw portions joined at their respective uppermost terminal ends to the uppermost terminal ends of said leg portions, said jaw portions being inclined centrally from their uppermost terminal ends and being joined to each other at their lowermost terminal ends;

mounting leaves disposed in a horizontal juxtaposition from said lowermost terminal ends of each of said leg portions; and

means disposed on the upper side surfaces of said framework, for providing fractional gripping force on an object disposed between said jaw portions.

2. The apparatus of claim **1** including a web member fastened between said lowermost terminal ends of said jaw portions spacing said lowermost terminal ends of said jaw portions apart.

3. The apparatus of claim **1** wherein said means for providing frictional gripping force is disposed on the upper side surfaces of said jaw portions.

4. The apparatus of claim **1** wherein said means for providing frictional gripping force is an elastomer material.

5. The apparatus of claim **1** wherein said means for providing frictional gripping force includes serrations made of a resilient, high adhesive material.

6. The apparatus of claim **5** wherein said serrations are disposed in a downwardly disposed tooth-like configuration.

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