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VISE MEANS

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FIG. 1

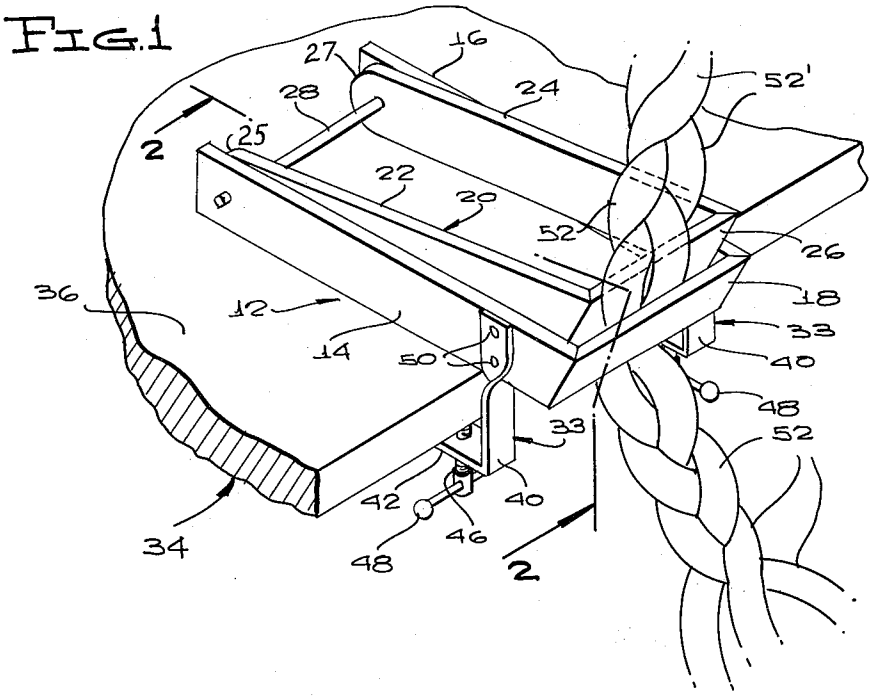
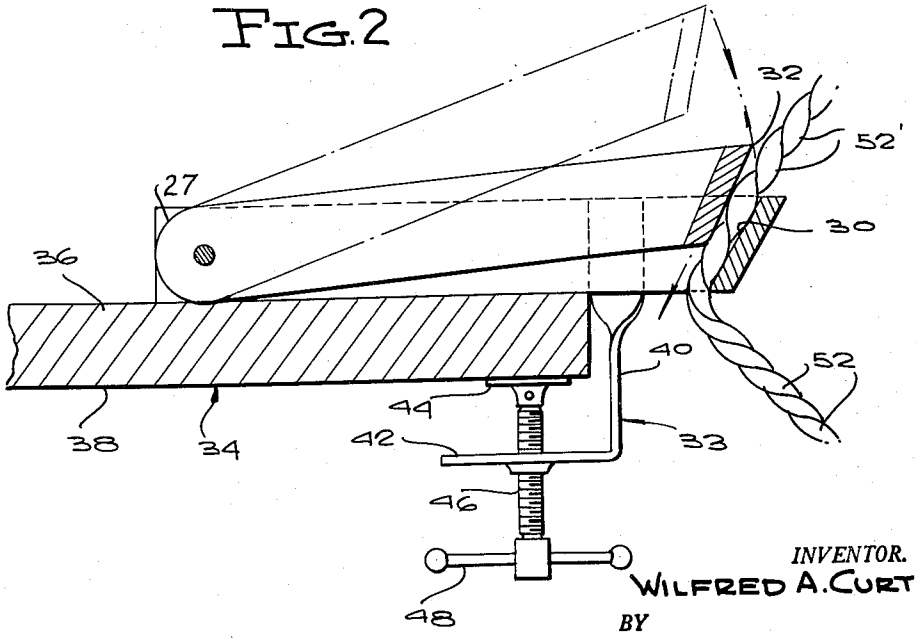


FIG. 2



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VISE MEANS

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1 Claim. (Cl. 87—33)

This invention relates to vise means and, more specifically, the invention pertains to means for releasably securing in fixed position articles, materials or elements upon which work is to be performed.

One of the primary objects of this invention is to provide a vise or releasable clamping means, the holding force of which is developed substantially in proportion to the tension exerted, in one direction, on the material held between the clamping jaws.

Another object of this invention is to provide a vise or holding means for material on which work is to be performed and wherein the material or work is fed sequentially or step-by-step through the jaws of the device and to wherein the holding force developed between the clamping jaws is the resultant of the tension applied to the work as the work is being performed.

A further object of this invention is to provide a vise or holding means for material or work which is fed sequentially or step-by-step through the jaws of the device, wherein the holding force developed between the clamping jaws results from the tension applied to the material on the work side of the vise.

A still further object of this invention is to provide a vise of the type generally referred to supra wherein tension is applied to the material on one side of the vise to effect an increased clamping force to be applied by the vise to the material, and wherein the clamping force is removed by applying tension to the material on the other side of the vise.

This invention contemplates, as a still further object thereof, the provision of a vise of the type referred to above, the vise being non-complex in construction and assembly, inexpensive to manufacture, and durable in use.

Other and further objects and advantages of the instant invention will become more evident from a consideration of the following specification when read in conjunction with the annexed drawing, in which:

Figure 1 is a perspective view of a vise or clamping means constructed in accordance with the teachings of this invention; and

Figure 2 is a longitudinal, cross-sectional view, taken substantially on the vertical plane of line 2—2 of Figure 1, looking in the direction of the arrows.

Referring now more specifically to the drawing, reference numeral 10 designates, in general, a clamping device or vise constructed in accordance with this invention. The vise 10 may be constructed of any desirable material, such as, for example, metal, wood, rubber, plastics, or any other molded material. While the vise 10 is primarily designed to hold fabric strip materials, while the same is being braided, for the purpose of making braided rugs and other similar articles, and while this invention will be described in connection with this environment, it will be understood by those skilled in the art that the device may be utilized in other fields of endeavor.

The vise 10 is seen to comprise an elongated substantially U-shaped open base frame 12 having a pair of

elongated, laterally spaced and substantially parallel rectangular side arms 14, 16 to a pair of adjacent ends of which is secured the ends of an elongated bight forming a first clamping jaw 18. The jaw 18 has a rhomboidic configuration in transverse cross section and extends at an angle transversely across and between the above mentioned ends of the side arms 14, 16.

Reference numeral 20 denotes a second open substantially U-shaped frame which includes a pair of laterally spaced and substantially parallel rectangular side arms 22, 24 to a pair of adjacent ends of which is secured the ends of an elongated bight forming a second clamping jaw 26. The jaw 26 also has a rhomboidic configuration in transverse cross section and extends at an angle transversely across and between the aforementioned ends of the side arms 22, 24.

The side arms 22, 24 at their other pair of adjacent ends are pivotally mounted on a shaft 28, the opposed ends of which are supported on and are connected to the side arms 14, 16. As is seen in Figure 2, the opposed ends of the arms 22, 24 are arcuately shaped at 25, 27 to serve a purpose to be described.

As is seen in the drawing, the frame 20 is fitted within the frame 12 in such a manner as to place the side arms 14, 22 and 16, 24 in juxtaposition. With the jaws 18 and 26 in their respective fully closed positions, relative to each other, the adjacent sides 30, 32 thereof are parallel and are in spaced relation with respect to each other.

Clamping means 33 are provided for releasably securing the vise 10 to a substantially flat support member 34 having an upper side 36 and an under side 38. The means 33 comprise a pair of L-shaped members, each having an elongated leg portion 40 to an end of which is integrally connected one end of a laterally extending foot member 42. A clamping jaw 44 is mounted on one end of a threaded shaft 46 which is, in turn, threaded through the foot member 42, and the other end of the shaft 40 has secured thereto a crossbar 48 to provide manually manipulative means for effecting rotation of the shaft 46. As is clearly shown in Figure 1, any conventional means 50 may be employed to secure the other ends of the leg portions 40 of the clamping means 33 to the remotely disposed sides of the side arms 14, 16, respectively, adjacent the bight ends thereof.

To utilize the above described vise means, the operator backs off the shafts 46 until the distance between the jaws 44 and the adjacent edges of the side arms 14, 16 is greater than the thickness of the support member 34, after which the side arms 14, 16 are engaged against the upper side 36 of the support member 34 with the foot portions 42 of the clamping means 33 disposed in vertically spaced relation relative to the under side 38 of support member 34. The operator then advances the shafts 46 to cause the jaws 44 to close against the under side 38 to clamp the vise 10 to the support member 34.

Thereafter, the frame 20 is pivoted upwardly to the dotted line position shown in Figure 2, and the end portions of a plurality of strands or strips 52 of material to be braided are then fed upwardly between the sides 30, 32 of the jaws 18, 26, respectively, with portions thereof extending beyond opposite sides of the jaws 18, 26. The jaw 26 is now closed against the strands 52, as shown in Figure 1, and in the full line position shown in Figure 2, so that the strands are frictionally held in releasably clamped positions between the jaws 18, 26.

It will be understood by those skilled in this art that as the braiding operations are now carried out on those portions of the strands 52 which depend from the jaws 18, 26, tension is applied thereto which tends to pull the strands 52 downwardly in the jaws 18, 26. This tension and its attendant movement of the strips 52, however

slight, will cause the jaw **26** to pivot further downwardly to increase the clamping force by reducing the distance between the adjacent sides **30**, **32** of the jaws **18**, **26**, and thus prevents the strands **52** from escaping from therebetween.

After a convenient length of strands **52** has been braided, the non-braided end portions which extend beyond one side of the jaws **18**, **26**, are grasped and pulled upwardly which causes the jaw **26** to pivot upwardly to release the clamp portion of the strands from between the jaws **18**, **26**. Further upward movement shifts the braided strands to their position shown in Figures 1 and 2 at **52'**. The jaw **26** is now re-engaged against a portion of the braided strands **52'** and the braiding operation is then continued.

As the jaws **18**, **26** are alternately opened and closed, the tangential engagement of the arcuate ends **25**, **27** with the side **36** of the support **34** offers frictional resistance to the movement of the arms **22**, **24** towards or away from their respective open or closed positions thereby contributing to both the clamping action of the jaws **18**, **26** and to the maintenance of the jaws in their respective open positions to facilitate the shifting of the work therebetween.

After the work has been completed, or if, by chance, it is desired to move the work to another support, the operator merely backs off the shafts **46** to disengage the clamping jaws **44** from the support member **34**, after which the vise **10** may be removed therefrom.

Having described and illustrated one embodiment of this invention in detail, it will be understood that the same is offered merely by way of example, and that this invention is to be limited only by the scope of the appended claims.

What is claimed is:

A vise comprising a first open substantially U-shaped frame, said first frame including a pair of laterally spaced longitudinally extending substantially parallel side arms across a pair of adjacent ends of which extends a bight forming a clamping jaw, a second open substantially U-shaped frame, said second frame including a pair of laterally spaced elongated and substantially rectangular side arms across a pair of adjacent ends of which extends a bight forming a second clamping jaw, said first substantially U-shaped frame being disposed within said second substantially U-shaped frame with said side arms of said first and second frames being disposed in juxtaposition relative to each other and with the clamping jaws being disposed in spaced confronting relation with respect to each other when said jaws are moved to their clamping positions, a shaft extending transversely of said arms of said frames adjacent the outer ends thereof to pivotally connect together the arms of said frames, and means connected with said second frame for releasably securing said vise to a support member, said remotely disposed ends of said first frame having arcuate ends tangentially engaging said support member whereby frictional resistance is offered to the movement of said first frame relative to said second frame.

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