

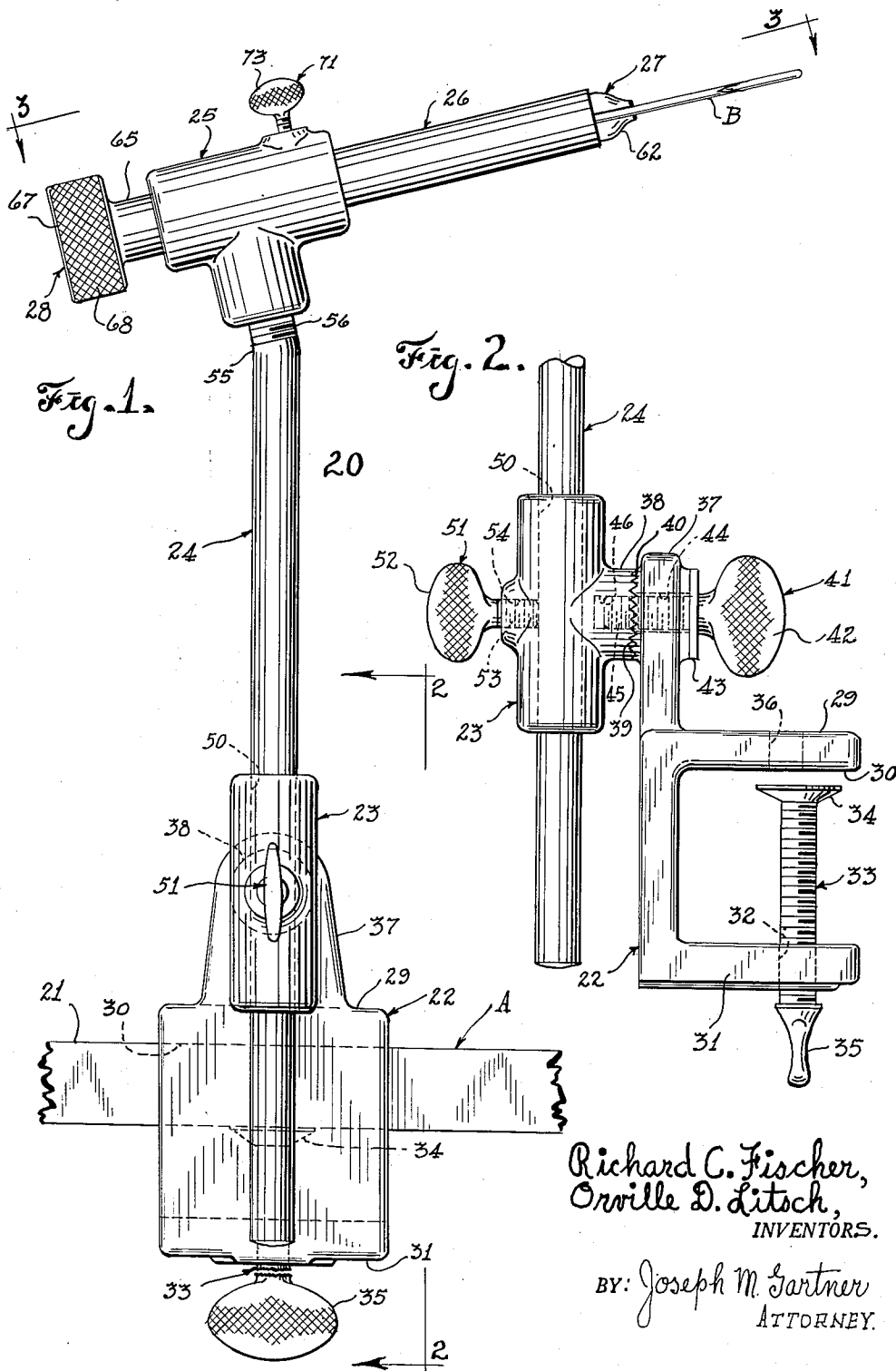
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R. C. FISCHER ET AL
FLY TIER'S VISE

2,586,636

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2 SHEETS—SHEET 1



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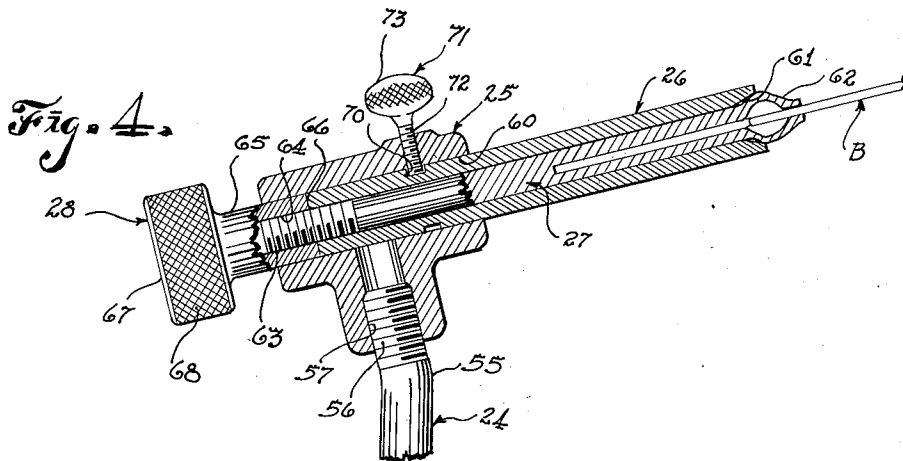
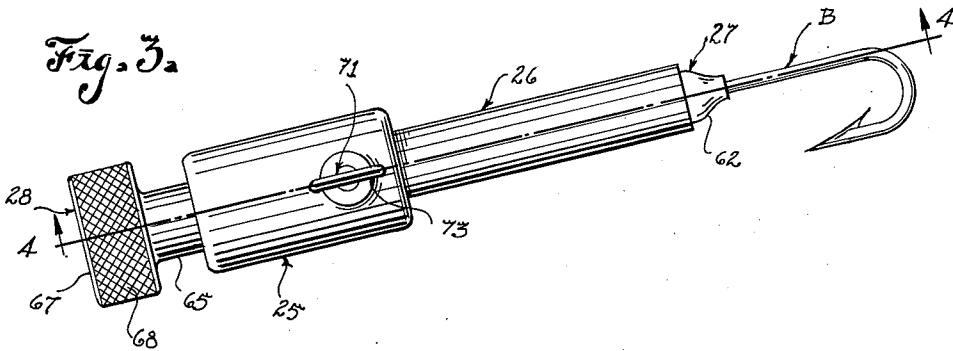
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FLY TIER'S VISE

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2 SHEETS—SHEET 2



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FLY TIER'S VISE

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1 Claim. (Cl. 81—25)

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This invention relates generally to vises and is particularly concerned with vises of a class incorporating a collet means for advantageously clamping and holding relatively small devices being worked upon such as, for example, fish hooks upon which flies may be tied, small models, tools and the like.

An object and accomplishment of the invention is to provide a vise head barrel that rotatably and axially removably supports a collet sleeve which, in turn, will selectively hold any one of a number of replaceable collets of various sizes.

Additional objects, features and advantages of the invention disclosed herein will be apparent to persons skilled in the art after the construction and operation are understood from the within description.

It is preferred to accomplish the various objects of this invention and to practice the same in substantially the manner hereinafter fully described and as more particularly pointed out in the appended claim, reference being had to the accompanying drawings which form a part of this specification, wherein:

Fig. 1 is a side elevational view of a vise embodying the principles of the present invention;

Fig. 2 is a fragmentary elevational view of the vise depicted in Fig. 1 and taken substantially on the plane of the line 2—2 in Fig. 1;

Fig. 3 is a top plan view of the vise depicted in Fig. 1 and being taken substantially on the plane of the line 3—3 in Fig. 1; and

Fig. 4 is a side sectional view of the head of the vise depicted in Fig. 1 and being taken substantially on the plane of the line 4—4 in Fig. 3.

The drawings are to be understood as being more or less of a schematic character for the purpose of illustrating and disclosing a typical or preferred form of the improvements contemplated herein, and in the drawings like reference characters identify the same parts in the several views.

Referring to the drawings, specifically Figs. 1 and 2, we have illustrated the vise with which the subject invention is particularly concerned and designated in its entirety by the numeral 20, as being employed adjunctively to a supporting member such as, for example, a conventional work bench, table or the like designated in its entirety by the letter A and comprising, in general, a horizontal bench table top 21 suitably supported in any approved fashion.

Suffice it to say, since the invention is not particularly concerned with the precise construction of the conventional work bench or table and

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its associated parts, they will not be further described in detail and it is deemed sufficient for all intents and purposes herein contained to show only portions thereof adjacent to and cooperating with said vise. It is to be understood that details of the work bench or table and its associated parts may be modified to suit particular conditions, and may in some instances be other types of supports convenient to the user, and we do not wish to be limited to details of construction of these elements as set forth.

In the exemplary embodiment of the invention depicted in Figs. 1, 2, 3, and 4, the vise 20, in general comprises a base mounting 22 adaptable for quick and convenient securement to the work bench or the like A, a bracket member 23 swivelingly carried by said mounting, a rod-like arm 24 removably and rotatably carried by said bracket member, a vise head 25 carried by said arm, a collet sleeve 26 removably and rotatably carried by said head, a collet member 27 received by said sleeve, and a collet actuator as at 28 related to said collet member 27 whereby the actuator may be rotated by the user to cause the collet member to advantageously clamp and hold relatively small devices being worked upon such as, for example, a fish hook as at B upon which a fly may be tied, or, models, tools and the like (not shown) and, in some instances, may be a tool (not shown) that is to be employed in working upon other objects.

The base mounting 22 may be cast, by any approved practice, of a preferably light metal such as, for example, light steel alloys, aluminum, aluminum alloys or the like, to define a substantially C-shape (Fig. 2) with an arm 29 having a bench or table engaging surface 30 and an arm 31 substantially parallel therewith, said arm 31 having a threaded through aperture 32 adaptable to receive a clamp bolt 33, on the inner end of which and forming an integral part thereof, is a bench engaging head 34, and on the other end of which is a wing 35 for convenience in firmly securing the mounting to the support A. If desired, the bench or table engaging arm 29 may be provided with one or more apertures 36 through which suitable securing members (not shown) such as, for example, wood screws, may be inserted to firmly fasten the mounting 22 to said support A independent of the bolt 33.

The mounting 22, as illustrated in Fig. 2, has integrally formed therewith, an upstanding arm 37 adaptable to swivelingly carrying the bracket member 23 which may be a casting defining a barrel-shape and having a boss 38 provided with

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suitable serrations 40 formed integral with the arm 37. In order to provide adjustability of the bracket member 23 relative to the base mounting 22, there is provided lock screw 41 having a wing 42 providing a convenient grip and an arm engaging stop 43, the shank of said lock screw 41 being adaptable to be received into a plain through aperture 44 in the upstanding arm 37 and having threaded portions 45 adaptable to be received into a suitably threaded aperture 46 in the bracket member 23, whereby the lock screw 41 may be tightened to draw the bracket member 23 and the upstanding arm 37 together and cause serrations 39 and 40 to mesh, thereby to hold and lock the bracket member 23 in a proper selected position. When it is desired that the bracket 23 assume a different position, the lock screw 41 may be loosened sufficiently to permit the serrations 39 and 40 to be separated and thereafter the bracket member 23 may be rotated 360° about the substantially horizontal axis established by the lock screw 41 in a plane substantially parallel to the upstanding arm 37.

The bracket member 23, as illustrated in Figs. 1 and 2 has a plain through aperture 50 adaptable to removably and adjustably receive the rod-like arm 24. In order to hold the arm 24 in a selected position, there is provided lock screw 51 having a wing 52 providing a convenient grip, the shank of said lock screw 51 being provided with threaded portions 53 adaptable to be received into suitably threaded aperture 54 in the bracket member 23, whereby the end portions of the shank of the lock screw will wedgingly contact the arm 24, thereby to hold it in a selected position. When it is desired that the arm 24 assume a different position, the lock screw 51 may be loosened sufficiently to permit freedom of movement of said arm 24, and thereafter, the arm 24 may be selectively removed from the bracket 23, moved in both directions radially of the axis of the bracket member 23 established by the lock screw 41, or, rotated 360° in a plane substantially at right angles to the plane in which the bracket member 23 may be rotated.

Referring to Figs. 1 and 4, the arm 24 adjacent its upper end is provided with a suitable bend 55 and a threaded portion 56 adaptable to be received into a suitably threaded aperture 57 in the vise head 25, thereby supporting the vise head as shown.

In combination with the aforementioned features of the vise 20 as contemplated herein, we have provided the vise head 25 as defining a barrel-shape and having a plain through aperture 60 adaptable to removably and rotatably receive the collet sleeve 26 having adjacent the outer end thereof, a tapered seat flared outwardly, as indicated at 61 in Fig. 4, and engageable by the jaws 62 of a collet member 27 housed within said sleeve, said collet member adjacent the jaws thereof being longitudinally divided so as to preferably form two or more jaws in conformity with conventional collets. It is notable that the present sleeve member 26 is designed to receive any one of a number of different collets, the jaws of which differ in size from each other, the particular size to be selected is to be determined by the characteristics of the device to be held.

At the end of the collet member opposite the jaws thereof there is provided a shank portion 63 normally extending outside the confines of the collet sleeve 26 and having external threaded formations adaptable to be received into a suit-

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ably threaded central aperture 64 in the collet actuator 28 which comprises a boss portion 65 normally abutting the collet sleeve as indicated at 66 in Fig. 4, whereby, upon manual rotation of the collet actuator 28, the collet member 27, by virtue of the threaded formations on shank 63, will be drawn toward the actuator, and whereby the jaws 62 of the collet member 27, by virtue of their engagement with the tapered seat, will be caused to close and grip and hold a device placed therebetween. The head portion 67 of the collet actuator 28 may be knurled as at 68 by any approved practice to facilitate convenient and easy turning of the same by the operator.

In addition to the aforementioned features of the vise, an important feature contemplated herein is the provision of means whereby, the assembly, which comprises the collet sleeve 26, the collet member 27 and the collet actuator 28, may be rotated 360°, thereby, facilitating efficient and expeditious work upon any device secured and held between the jaws of the vise without disturbance to or removal of the device from the vise. This is advantageously accomplished by the provision, in the collet sleeve 26, of an annular groove 70 adaptable to receive end portions of a lock screw 71 which is received into a suitably threaded aperture 72 in the vise head 25 and is provided with a wing 73 to provide a convenient grip for the operator, thereby restricting longitudinal movement of the collet sleeve 26 with respect to the vise head and, when the lock screw 71 is tightened sufficiently, it will prevent circular movement of the sleeve 26. Obviously, when it is desired to rotate the aforementioned assembly, it is only necessary to loosen the lock screw 71 slightly, rotate the sleeve to a desired position and then tighten the lock screw 71 to hold the sleeve in the selected position.

Accordingly, it can now be seen that there has been provided adjustability of the vise on at least three different axes, or any one of them, and including means whereby adjustments may be accomplished in both directions radially of the axis of one of said axes, all being accomplished for the purpose of facilitating universal accessibility to, and expeditious work on, articles and/or devices held between the jaws of the vise without disturbance to or removal of the articles and/or devices from the vise.

It is notable that replaceability of different collets, the jaws of which differ in size from each other, the particular size to be selected may be determined by the characteristics of the device to be held, may be advantageously accomplished by merely removing the collet actuator 28 whereby the collet member 27 may be removed from the sleeve 26 and, thereafter, a newly selected collet may be inserted into the sleeve and the actuator replaced.

It may be advantageous and desirable, in some instances, to cast the associated parts of the vise of metals other than aluminum or aluminum alloys, and in such instances, the vise may be enameled or otherwise painted in any desirable color scheme and character of ornamentation to impart a pleasing appearance.

From the foregoing disclosure it can be observed that we have provided a vise which efficiently fulfills the objects thereof as hereinbefore set forth and provides numerous advantages which may be summarized as follows:

- (1.) Structurally simple, efficient and durable;
- (2.) Economical to manufacture and readily

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adaptable to mass production manufacture; and
 (3.) Universal adjustment to permit the positioning of the collet jaws of the vise in any selected position convenient for efficient working upon a device secured therebetween without disturbance or removal of same from the vise.

While we have illustrated a preferred embodiment of our invention, many modifications may be made without departing from the spirit of the invention, and we do not wish to be limited to the precise details of construction set forth, but wish to avail ourselves of all changes within the scope of the appended claim.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent of the United States, is:

A fly tier's vise comprising a tubular sleeve handle having a constant external diameter and having one end formed with an outwardly flared internal seat, a holder slidably disposed in said sleeve and having one end enlarged and tapering inwardly to fit in said flared seat and having the opposite end formed with an externally screw-threaded shank, a knob having a screw-threaded bore engaging said shank and having an annular shoulder bearing against the adjacent end of the sleeve, said holder being slotted longitudinally from said enlarged end to a point near said shank end to provide clamping jaws operable by drawing the tapering portions thereof into said flared seat by manual operation of said knob, a vise head member having a smooth bore of constant diameter which corresponds to the constant ex-

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ternal diameter of said tubular sleeve, whereby said bore can removably and rotatably receive said tubular sleeve handle, and manually operable means carried by said head member and engageable with said sleeve handle during rotation of said sleeve handle so as to prevent axial movement of said sleeve handle, said means being withdrawable into said vise head before axially sliding said sleeve handle from said smooth bore, whereby the vise can be used independently of said vise head.

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 ORVILLE D. LITSCH.

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