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PORTABLE SMALL HAND TOOL VISE
Kai Bagge, Sunland, Calif.

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1 Claim. (Cl. 279—51)

2. As shown in these drawings, the device comprises a hollow cap 10 internally threaded as at 11 and provided with a tubular portion 12 of smaller diameter than the main body portion of the cap. The end of the cap may be concave for the purpose of receiving the thumb of the user, whereby pressure may be applied to the tool held by the device.

Axially positioned within the tool is a split collet, generally indicated at 15. This collet preferably has an externally threaded end portion 16 in engagement with the internal threads 11 of the cap and is provided with a substantially cylindrical body 17 terminating at its lower end in a conical head. The head has conical, outwardly flaring surfaces 18 and may, if desired, be provided with an end portion having the oppositely inclined surfaces 19. The externally threaded end 16, as well as the main body portion 17, of the collet is preferably hollow, the internal bore being indicated at 20. The conical end of the collet, as well as the major portion of its tubular body, is split by means of slots, generally indicated at 21 and 22, at right angles to each other, thereby providing for resiliently held collet head portions. It is to be understood that instead of the two transversely arranged slots 21 and 22, three or more angularly related slots may be used, thereby increasing the number of collet arms cooperating to hold the shank of any tool inserted axially into the collet 15.

Sidewise mounted upon the tubular extension 12 of the cap and encircling the body 17 of the collet is a sleeve 24. This sleeve is axially bored and counterbored at 25 so as to form a shoulder 26 capable of engaging the end of the tubular section 12 of the cap 10. Since the tubular section 12 is of reduced diameter, the upper end of the sleeve 24 is also capable of abutting the shoulder 27.

Between the shoulder 26 and a shoulder 28 formed in the lower end of the tubular section 12 of the cap is a spring 28 which normally presses the lower end of the sleeve 24 against the inclined surface 18 of the collet head 15. The lower end of the sleeve 24 is provided with an inwardly tapering surface 30, the angle of such surface being preferably slightly less with respect to the axis than the angle of the conical surface 18.

Normally, therefore, as shown in Fig. 1, the sleeve 24 is urged downwardly against the surface 18 of the collet 15 so as to bring the various arms of the collet together. When it is desired
to introduce and hold a small hand tool, the sleeve 24 is moved upwardly against the cap so as to compress spring 29, thereby permitting the collet to open, whereupon a tool may be inserted into the axial opening between the arms. After being inserted in this manner, the sleeve 24 is released, causing the arms of the collet to firmly grasp the tool. The inward, central movement of the arms of the collet is attained by the cooperating action of the internal taper 30 against the external taper 18.

It will be evident, therefore, that the device of the present invention may be readily and easily manufactured and has tremendous utility and field of usefulness wherever hand tools need be employed.

All changes and modifications coming within the scope of the appended claims are embraced thereby.

I claim:

1. A portable, small, hand tool vise and handle comprising: a split collet having a cylindrical body portion, a substantially solid, externally threaded shank end and an enlarged conical head, said collet being split through the conical head and body portion; a hollow, internally threaded cap connected to the threaded shank end of the collet, said cap including a tubular portion surrounding the collet and spaced therefrom; a tubular release sleeve carried by the tubular portion of the cap and extending around the collet for cooperation with the conical head thereof; and spring means between the cap and sleeve for normally engaging the sleeve with the conical head to hold the collet in closed, tool-grasping position.

2. A small hand tool vise comprising: a split collet having a substantially solid, externally threaded shank end, a hollow body portion and an enlarged conical head, said head and body portion being longitudinally split to form resilient collet arms; a hollow, internally threaded cap connected to the threaded shank end of the collet, said cap including a tubular portion of reduced diameter surrounding the collet; a tubular release sleeve, one end thereof being provided with an enlarged bore slidable upon the tubular portion of the cap, the opposite end of said sleeve being provided with an inwardly tapering internal surface for cooperation with the conical head of the collet; and spring means between the cap and sleeve adjacent the body of the collet for normally engaging the sleeve with the conical head to hold the collet arms in closed, tool-grasping position.

KAJ BAGGE.