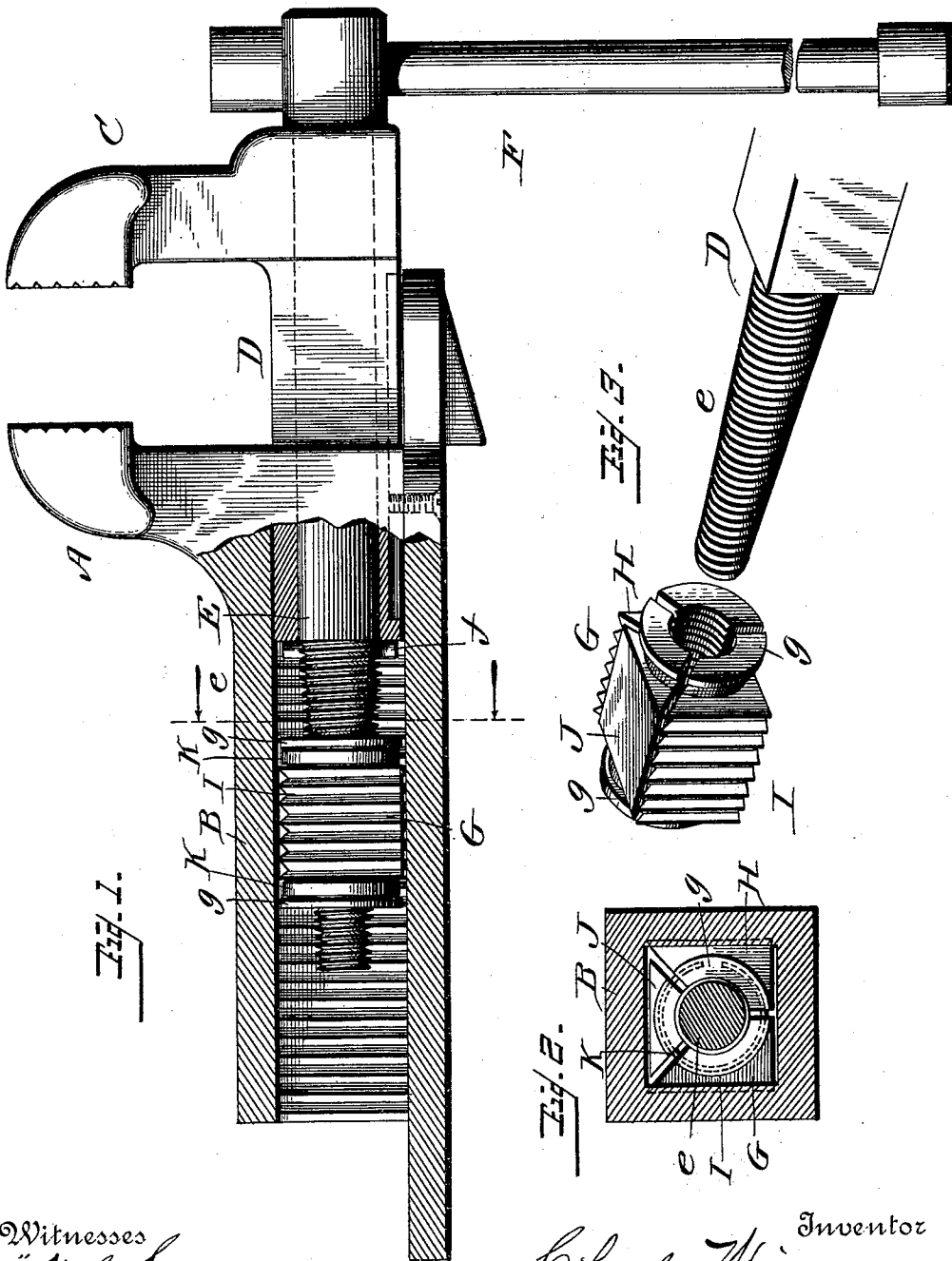


(No Model.)

C. WIES.  
VISE.

No. 460,613.

Patented Oct. 6, 1891.



Witnesses  
*W. L. Hough*  
A. L. Hough.

Inventor  
Charles Wies,  
By his Attorney  
*Franklin H. Hough*

# UNITED STATES PATENT OFFICE.

CHARLES WIES, OF FAULKTON, SOUTH DAKOTA, ASSIGNOR TO JAMES M. LOCKEY, OF SAME PLACE.

## WISE.

SPECIFICATION forming part of Letters Patent No. 460,613, dated October 6, 1891.

Application filed May 5, 1891. Serial No. 391,672. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES WIES, a citizen of the United States, residing at Faulkton, in the county of Faulk and State of South Dakota, have invented certain new and useful Improvements in Vises; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to smiths' vises; and it has for its object to provide a vise that can be quickly and readily adjusted to the size of the article to be held and that will at one operation of the handle fix the movable jaw in the located position and press it forward to grasp the article placed between the two jaws.

The improvement consists, essentially, of an expansible burr and an expanding shaft, the burr being movable on and carried by the shaft, which is connected with the movable jaw.

The improvement also consists in the details of construction and the combination of the parts, which will hereinafter be more fully described and claimed, and which are shown in the accompanying drawings, in which—

Figure 1 is a side view of a vise embodying my improvements, parts being broken away to show the structural arrangement of the parts. Fig. 2 is a cross-section of the guide and the shank, respectively, of the fixed and the movable jaws, showing the co-operative relation of the shaft and the expansible burr. Fig. 3 is a detail perspective view of the expanding or tapering end of the shaft and the expansible burr, the parts being shown as detached and separated, but arranged in their relative positions.

The vise is of usual construction so far as the fixed jaw A with its guide B and the movable jaw C with its shank D are concerned. The shaft E is journaled in the shank D in the ordinary manner, being held therein by the head at one end, through which the handle F passes, and the pin *f*. The shank D works in the guide B in the well-known man-

ner and supports and steadies the movable jaw C in its several movements. The expansible burr G is mounted on the inner end of the shaft E, and said end (the expanding end of the shaft) and the burr are mutually constructed, whereby a rotation of the said shaft will expand the burr to cause it to engage with the sides of the guide B and at the same time advance the shaft to bring the jaws A and C into closer relationship to firmly grasp the object placed between the said jaws. The expansible burr is constructed in sections, which are correspondingly threaded on their inner sides, and the expanding end *e* of the shaft is correspondingly threaded to coact with the threads on the said sections to effect the desired results. The coacting faces of the expansible burr and the expanding end of the shaft are mutually constructed to cause an expansion of the said burr the instant the shaft is rotated. In the drawings the expanding end of the shaft is shown as tapering and the opening in the burr of corresponding taper. Obviously, other forms of construction may be devised to effect the desired result, and I do not restrict myself to the particular construction shown, which, however, is preferred.

The burr may comprise as many sections as is found necessary, three being found to give the best results. The sections H and I are similarly constructed, being rights and lefts, and embrace the sides and the bottom of the shaft. The upper ends of the sections H and I are cut away and mitered, and the space thus formed is filled by the wedge-shaped section J. The several sections have projections at each end, which, when the sections are assembled, form an annular flange *g* at each end of the burr. The flange *g* is grooved, and a spring K is sprung in the groove to hold the sections together and compress them when the expanding end of the shaft is withdrawn or turned back. The sides of the burr are fluted or otherwise roughened and the sides of the inner walls of the guide B are correspondingly fluted or roughened to cause a positive engagement between the burr and the guide when the burr is expanded. The interlocking projections formed on the

opposing sides of the burr and the guide should be sufficiently deep to permit a continued expansion of the burr as the movable jaw is pressed forward.

5 The operation of the vise is as follows: The burr, after its several parts have been assembled and held together by the springs K, is mounted on the expanding end of the shaft  
10 and adjusted with reference to the said shaft and the guide, so that under normal conditions the movable jaw C can be readily and easily moved to and from the fixed jaw, and when adjusted to the required position a turn of the shaft will cause the burr to expand and engage with the sides of the guide  
15 and at the same time press the movable jaw forward and clamp the object placed between the two jaws. To release the object, the shaft is turned in the reverse direction, to move  
20 the jaw C away from the jaw A and withdraw the expanding end of the shaft sufficiently far to permit a disengagement of the burr from the guide when the jaw C is free to be moved either in or out.

25 Having thus described my invention, what I claim to be new, and desire to secure by Letters Patent, is—

1. In a vise, the combination, with the fixed and the movable jaws, of an expanding shaft  
30 and an expansible burr mutually constructed to effect an expansion of the said burr on operating the said shaft, substantially as and for the purpose described.

2. In a vise, the combination, with the fixed  
35 and the movable jaws, the sides of the guide of the fixed jaw having interlocking projections, of the expanding shaft and the expansible burr, the latter being correspondingly constructed to positively engage with the interlocking projections on the guide on being expanded by the said shaft, substantially as described, and for the purpose specified.  
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3. In a vise, the combination, with the fixed and the movable jaws, of the expansible burr

composed of sections and the expanding 45 shaft, substantially as set forth.

4. In a vise, the combination, with the fixed and the movable jaws, of the expanding shaft, the expansible burr, and a spring to effect a compression of the burr, substantially as and 50 for the purpose described.

5. In a vise, the combination, with the fixed and the movable jaws, of an expanding shaft, an expansible burr constructed in sections, each section having a projection at each end 55 to form end projections when the sections are assembled, and springs sprung around the said projections, substantially as and for the purpose set forth.

6. In a vise, the combination, with the fixed 60 and the movable jaws, of an expanding shaft, an expansible burr composed of sections, each section having end projections, which, when the sections are assembled, form annular projections, which are grooved, and springs 65 sprung in the said grooves, substantially as described, and for the purpose specified.

7. In a vise, the combination, with the fixed and the movable jaws, of the shaft having a tapering end and the expansible burr mounted 70 on the said tapering end and having a corresponding tapering opening, the opening in the burr being correspondingly threaded, substantially as described, and for the purpose specified. 75

8. In a vise, the combination, with the fixed and the movable jaws, of the expanding shaft and the expansible burr, the latter comprising side sections H and I, which are cut away and mitered at one end, and a wedge-shaped 80 section J, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES WIES.

Witnesses:

MARK PURDY,  
P. H. WILSON.