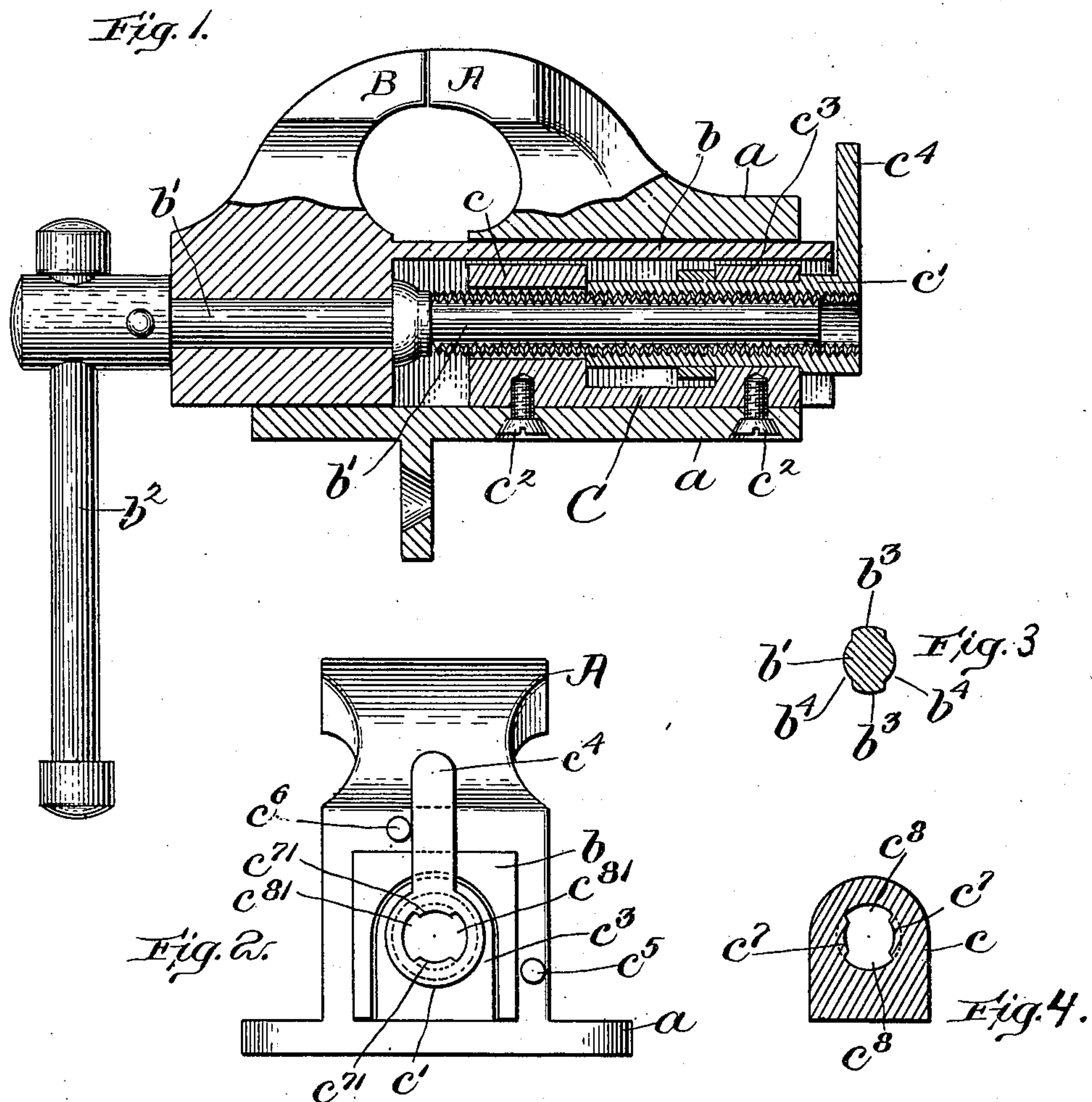


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F. E. WALDEN.
VISE OR THE LIKE.
APPLICATION FILED SEPT. 10, 1903.

NO MODEL.



Witnesses:

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UNITED STATES PATENT OFFICE.

FREDERICK E. WALDEN, OF WORCESTER, MASSACHUSETTS, ASSIGNOR OF
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VICE OR THE LIKE.

SPECIFICATION forming part of Letters Patent No. 763,226, dated June 21, 1904.

Application filed September 10, 1903. Serial No. 172,645. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK E. WALDEN, a citizen of the United States, and a resident of Worcester, in the county of Worcester and State of Massachusetts, have invented new and useful Improvements in Vises or the Like, of which the following is a specification.

My invention relates particularly to vises, but is applicable also to other work-holders.

The object of my invention is to provide a compact and strong vise whose two jaws can be adjusted relatively to engage or disengage the work with ease and rapidity. The ordinary bench-vise comprises a fixed jaw having a base adapted to be fixed to the bench and a movable jaw mounted to slide on the base of the fixed jaw. The movable jaw carries a screw engaging a socket in the fixed jaw, and by means of this screw the two jaws are moved relatively to engage or disengage the work. In order to secure the requisite power, the pitch to the screw was necessarily small, and therefore considerable time was required to open or close the jaws, and this has been an important objection to vises as heretofore constructed which it is the object of my invention to remove.

My improved vise comprises two relatively movable jaws, one carrying a screw engaging a threaded socket on the other jaw. The threads of the screw and socket, however, are segmental in form and arranged in one or more longitudinal rows, so that when the screw and socket occupy one relative angular position the thread-sections of the screw engage and cooperate with the thread-sections of the socket and the two jaws are locked together; but when the screw and socket occupy another relative angular position the thread-sections of the screw do not engage the thread-sections of the socket and the two jaws are not locked together, but are free to be adjusted toward and from each other without operating the screw.

In the best form of my invention the socket is made in two parts in line with each other

axially, each part being made with a row of segmental thread-sections. These two parts of the socket are relatively rotatable, so that the thread-sections of one may be brought into line with the thread-sections of the other, and by positioning the screw angularly on its axis its thread-sections may be disengaged from the thread-sections of both parts of the sockets, or the two parts may be turned relatively on their axes, so that the thread-sections of one part of the socket will not be in line with the thread-sections of the other, and when the screw is rotated it will always be in engagement with the thread-sections of one or the other of the two parts of the socket, and the rotation of the screw will therefore shift the jaws relatively.

In the accompanying drawings, Figure 1 is a side elevation, partly in section, of a bench-vise embodying one form of my invention. Fig. 2 is a rear elevation of the vise shown in Fig. 1. Fig. 3 is a cross-sectional view of the screw hereinafter described. Fig. 4 is a cross-sectional view of the fixed section of the socket hereinafter described.

Having reference to the drawings, A represents the fixed jaw of a bench-vise, which is made with a base *a*, adapted to be fastened to a bench or other support, and with a bearing to receive the stem *b* of a movable jaw B. The movable jaw B carries a screw *b'*, provided with the usual operating-handle *b''*. The screw *b'* is made with two diametrically opposed longitudinal rows of segmental threads or thread-sections *b³*, separated so as to leave between them two longitudinal passage-ways *b⁴*.

Within base *a* is arranged a socket C, herein shown as made in two parts *c* and *c'*. The part *c* of the socket is fastened rigidly to base *a* by screws *c²*, and the part *c'* is a sleeve journaled in a lug *c³* on the part *c* with its axis in line with the axis of the part *c*. The part *c'* is provided with a handle *c⁴*, by means of which it may be turned on its axis ninety degrees, its movement being limited to that

extent by two stops c^5 and c^6 , projecting from base a .

The part c , as shown in Fig. 4, is made with two diametrically opposed longitudinal rows of segmental threads or thread-sections c^7 , separated so as to leave between them two longitudinal passage-ways c^8 , while the part c' is made with two diametrically opposed longitudinal rows of segmental threads or thread-sections c^{71} , separated so as to leave between them two longitudinal passage-ways c^{81} .

When handle c^4 on part c' is against stop c^6 , the two rows of threads c^{71} on part c' are directly in line with the two rows of threads c^7 on part c , and, as will now be obvious, if screw b' be so positioned that its two rows of threads b^3 are in the two passage-ways c^8 of part c and c^{81} of section c' —that is, between the two rows of threads of both parts of the socket C—said screw will be wholly disengaged from both parts of socket C and jaw B will be free to be moved quickly toward and from jaw A. When, however, handle c^4 on section c' is against stop c^5 , the two rows of threads c^{71} on part c' are staggered with relation to the two rows of threads c^7 on part c —that is, the rows c^{71} of part c' are in line with the passage-ways c^8 of part c so that into whatever angular position screw b' may be turned its segmental threads are always in engagement with the threads of one part or the other of the socket. Therefore when handle c^4 is against stop c^5 and screw b' is rotated jaw B is moved by the screw toward and from the fixed jaw A.

To clamp a piece of work in the vise, handle c^4 is moved into position against stop c^6 , which frees jaw B, and then said jaw is shoved quickly up against the work. Handle c^4 is then moved from stop c^6 over against stop c^5 , after which screw b' is rotated in a direction to cause the jaws A and B to pinch onto the work. It will be observed that the friction between the threads of screw b' and the threads of sections c' during this operation tends to hold handle c^4 against stop c^6 . When the work is to be removed from the vise, handle c^4 is thrown down against stop c^6 , thereby instantly freeing the work if the thread-sections b^3 of screw c' are in the passage-ways c^8 of part c , or, if not, as soon as screw b' is turned far enough to bring its thread-sections b^4 into those passage-ways c^7 the work will be freed. In this way the work may be inserted in the vise or removed quickly and with ease.

While I have herein shown and described my invention as embodied in a bench-vise, it is to be understood that it is applicable also to other kinds of work-holders or the like comprising two or more relatively movable jaws.

What I claim is—

1. In a vise or the like, a pair of relatively movable jaws; a rotatable screw on one of said jaws made with a longitudinal row of segmental thread-sections, and a socket on the other jaw made in two relatively adjustable parts, each part being made with a longitudinal row of segmental thread-sections for engaging the thread-sections of the screw.

2. In a vise or the like, a pair of relatively movable jaws; a rotatable screw on one of said jaws made with a longitudinal row of segmental thread-sections; a socket on the other jaw made in two relatively adjustable parts, each part being made with a longitudinal row of segmental thread-sections for engaging the thread-sections of the screw, and a stop for limiting relative movement of the two parts of the socket in one direction.

3. In a vise or the like, a pair of relatively movable jaws; a rotatable screw on one of said jaws made with a longitudinal row of segmental thread-sections; a socket on the other jaw made in two relatively adjustable parts, each part being made with a longitudinal row of segmental thread-sections for engaging the thread-sections of the screw, and stops for limiting relative movement between the two parts of the socket in both directions.

4. In a vise or the like, a pair of relatively movable jaws; a rotatable screw on one of said jaws made with a longitudinal row of segmental thread-sections; a socket on the other jaw made in two parts one of which is rotatable, each of said parts being made with a longitudinal row of segmental thread-sections for engaging the thread-sections of the screw; and a handle connected with the rotatable part of the socket.

5. In a vise or the like, a pair of relatively movable jaws; a rotatable screw on one of said jaws made with two diametrically opposed rows of segmental thread-sections separated by longitudinal passage-ways; a socket on the other jaw made in two parts, one of which is rotatable, each of said parts being made with two longitudinal rows of segmental thread-sections separated by longitudinal passage-ways.

6. In a vise or the like, a pair of relatively movable jaws; a rotatable screw on one of said jaws made with two diametrically opposed rows of segmental thread-sections separated by longitudinal passage-ways; a socket on the other jaw made in two parts one of which is rotatable, each of said parts being made with two longitudinal rows of segmental thread-sections separated by longitudinal passage-ways, and stops for positioning the rotatable part of the socket relatively to the other part.

7. In a vise or the like, a pair of relatively movable jaws; a rotatable screw on one of said

jaws made with two diametrically opposed rows of segmental thread-sections separated by longitudinal passage-ways; a socket on the other jaw made in two parts one of which is 5 rotatable, each of said parts being made with two longitudinal rows of segmental thread-sections separated by longitudinal passage-ways; stops for positioning the rotatable part of the socket relatively to the other part, and a handle on the rotatable part of the socket. 10

Signed by me at Boston, Massachusetts, this 8th day of September, 1903.

FREDERICK E. WALDEN.

Witnesses:

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