

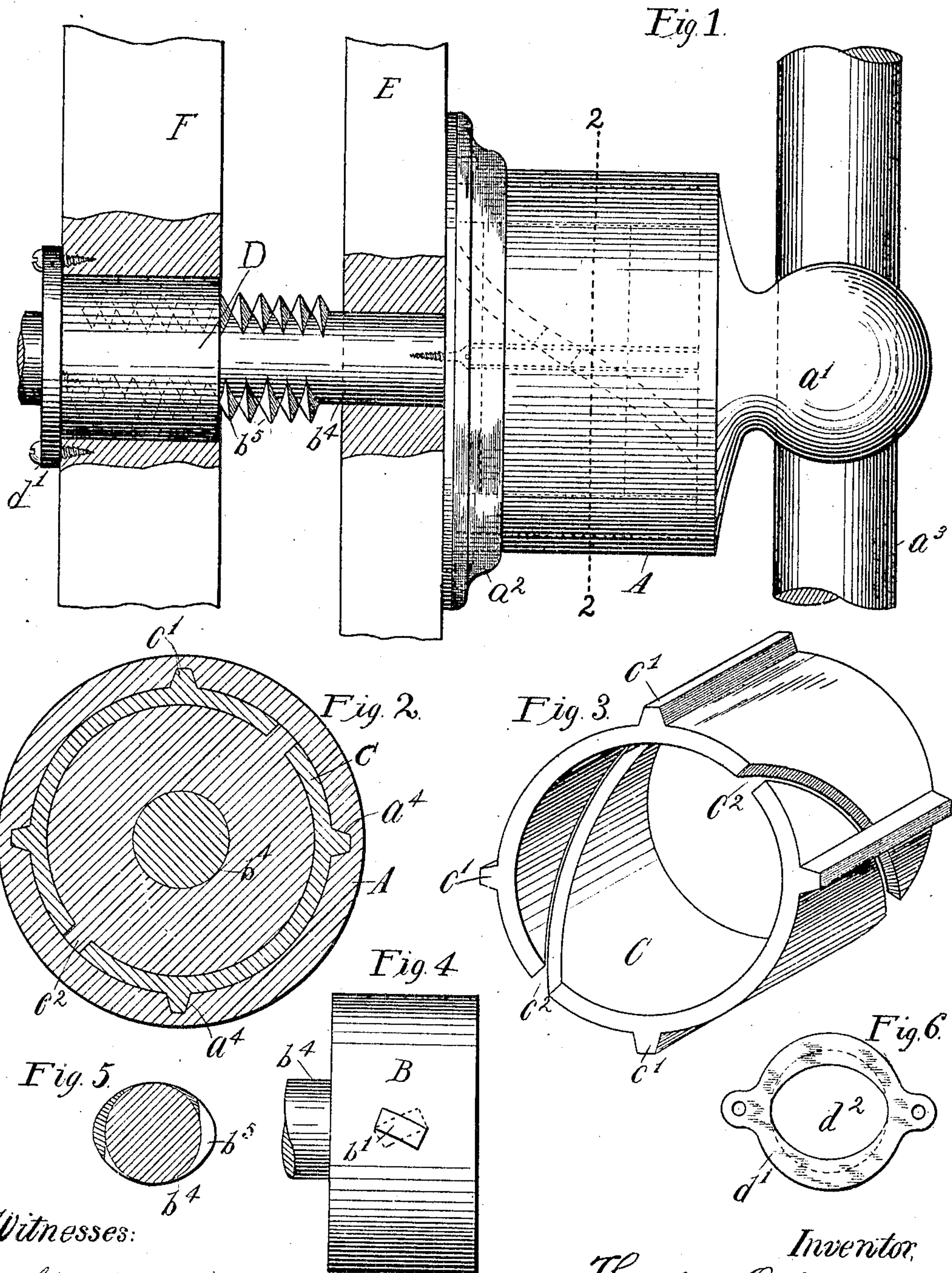
No. 843,295.

PATENTED FEB. 5, 1907.

T. OSTERBERG.

WISE.

APPLICATION FILED APR. 3, 1905.



Witnesses:

Chas. F. Bassett
M. A. Milord

Inventor,
Theodor Osterberg
By Frederick Benjamin
Atty.

UNITED STATES PATENT OFFICE.

THEODOR OSTERBERG, OF CHICAGO, ILLINOIS.

WISE.

No. 843,295.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Application filed April 3, 1905. Serial No. 253,470.

To all whom it may concern:

Be it known that I, THEODOR OSTERBERG, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Vises, of which the following is a specification.

My invention relates to improvements in vises or work-holders in which two jaws, plates, or other elements can be adjusted relatively to clamp or release the work-piece or object on which the vise is used.

The especial object of my improvements is to produce a quickly-acting vise and one in which the holding power will be firm and unyielding.

In carrying out the object stated I have invented the vise the principles of which are illustrated in a preferred form in the accompanying drawings, which form a part of this application, in which—

Figure 1 is a view in elevation of the assembled operative parts of my invention. Fig. 2 is a vertical section on line 2 2 of Fig. 1. Fig. 3 is a perspective view of a sleeve which forms an important element of my invention. Fig. 4 is an elevation of a shaft-block which is an element of my invention. Fig. 5 is a cross-section through the shaft. Fig. 6 is a face view of the shaft-engaging socket.

Referring to the details of the drawings, E represents what for convenience will be herein termed the "movable" member of a clamp, and F the "fixed" member, and same may be of any size, shape, or material. Secured to the outer face of the member E by a flanged ring a^2 and suitable screws passing therethrough into the member E is a flanged cylindrical shell A, formed with a knob extension a' , through which is arranged a lever-handle a^3 , adapted for use in the usual manner. Horizontal grooves a^4 are formed in the inner walls of the shell, which are adapted to receive the beveled ribs c' on the outer walls of a cylindrical sleeve C, so that when the shell is turned on its horizontal axis a like movement will be communicated to the sleeve. In addition to the longitudinal ribs c' the sleeve C is provided with spiral or helical grooves or slots c^2 , which are formed therein at opposite sides and incline in opposite directions, as shown in Fig. 3.

Loosely fitting within the sleeve C is a cylindrical block B, which is fixed on or made a part of the shaft b^4 . From opposite sides of

the block project lugs b' , which are adapted to loosely engage the respective grooves or slots c^2 in the shell and to cause a limited longitudinal movement of the block due to the turning of the shell.

The shaft b^4 has a major diameter and a minor diameter in cross-section, and on its major diameter are cut two diametrically-opposed longitudinal rows of male segmental threads b^5 , which when the operating-shaft is turned are adapted to engage or disengage corresponding female threads formed in the opposite walls of the socket D, said threads being indicated by dotted lines in Figs. 1 and 6.

The socket D is cylindrical, is formed with a face-plate or extension d , by which with suitable screws it is attached to the fixed element F. The bore of the socket has in cross-section major and minor diameters, the former being non-threaded and such as to permit the free longitudinal movement of the shaft when the latter is turned, so that its major diameter corresponds with the corresponding diameter of the socket; but when the shaft is turned so that its threads b^5 engage the female threads of the socket the shaft will be locked against further rotation, it being understood that the cross-diameter of the threaded portion of the socket is slightly less than the long diameter of the threaded portion of the shaft.

A vise constructed as above described will operate in the following manner: The object to be clamped will be placed between the holding elements E F in the desired position. The shaft will be turned by the operator in position so that it will slide freely through the socket until the element E abuts against the object to be clamped. Then the lever a^3 will be partially rotated or given a quarter-turn, which will effect a corresponding movement in the shell A, which in turn will be communicated to the sleeve C, and the latter, through the engagement between the grooves c^2 and lugs b' , will give a limited forward and rotatory movement to the block B and the shaft b^4 , which is integral with the block, and the shaft will be locked in the socket by the interengagement of the threads b^5 with the female threads of the socket, as we have seen, thus holding the movable element or jaw E firmly clamped against the object placed between it and the fixed jaw F.

It will be understood that the angle of inclination of the grooves relative to the lugs will be such that any back pressure in a longi-

tudinal plane will be insufficient to rotate the sleeve, and thus impair the clamping action.

It will also be understood that the back pressure resulting from the clamping action
5 being in a direct horizontal line, it will be insufficient to overcome the friction between the shell A, the sleeve C, and the head B, and the grip of the engaged teeth on the shaft and in the socket, all of which must be overcome before the clamping action can be released. The shell A being rotatably mounted on the jaw E and having its flange engaging the ring a^2 , the forward and backward movements of the shell resulting from turning the lever-handle a^3 will be communicated
15 to the jaw E.

It will also be apparent that except for convenience in manufacture the grooves c^2 could as well be cut in the inner walls of the
20 shell A, as in the sleeve C. While I have herein referred to the element F as "fixed," it will be apparent that in some adaptations of my invention both elements E and F may be relatively movable toward or away from each
25 other.

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

In a vise, two clamping-jaws, a socket non-rotatably secured to one of said jaws and
30 having a major diameter and a minor cross-diameter, the walls at its minor diameter being threaded, a shaft having threaded portions adapted when partially rotated to engage the threaded portions of said socket and
35 thereby lock the shaft against rotation, a shell rotatably mounted on the other jaw and adapted to move it longitudinally of the shaft, means for rotating said shell, and means substantially as described whereby
40 the rotation of the shell will simultaneously partially rotate said shaft and move it longitudinally.

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

THEODOR OSTERBERG.

Witnesses:

OSCAR W. LINDORFF,
WM. B. MOORE.