E. CASWELL.

VISE.

No. 170,344. Patented Nov. 23, 1875.

Fig. 1.

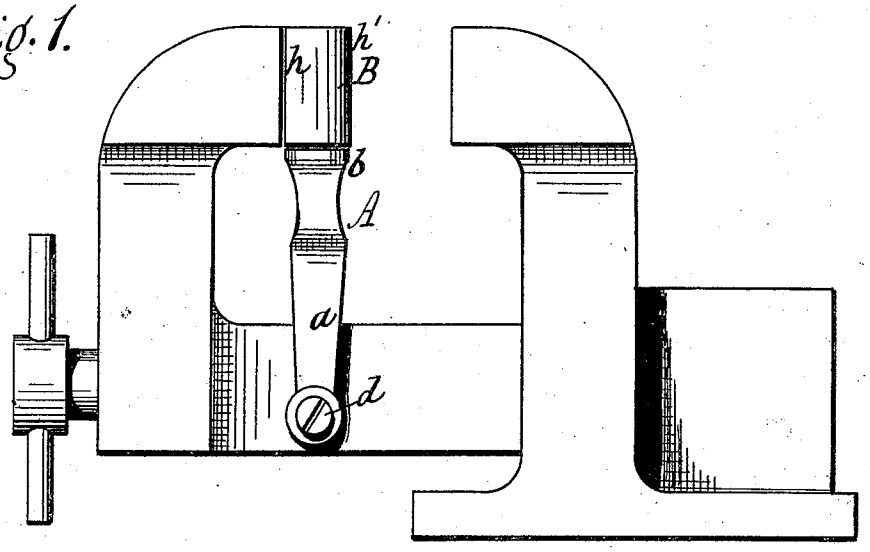


Fig. 2.

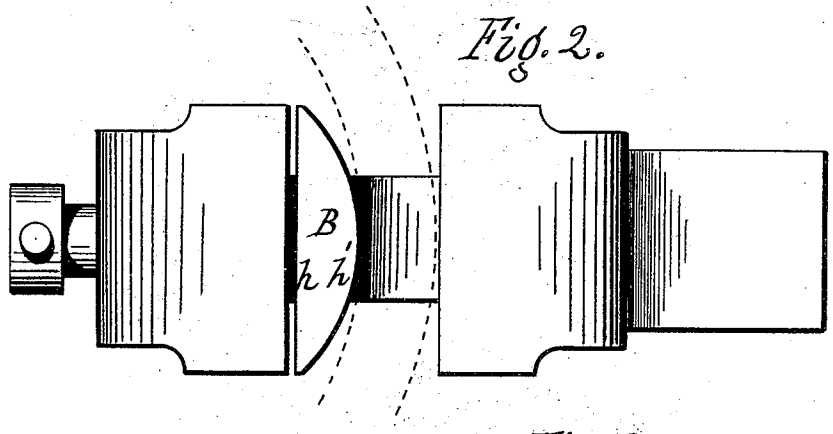
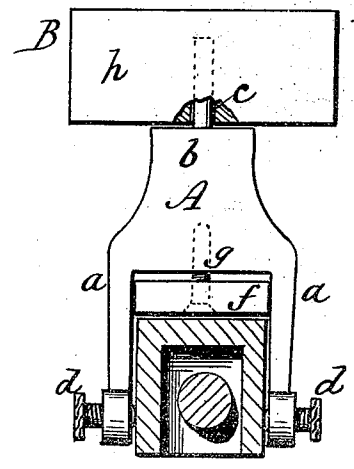


Fig. 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

EZRA CASWELL, OF LYONS, NEW YORK.

IMPROVEMENT IN VISES.

Specification forming part of Letters Patent No. **170,344**, dated November 23, 1875; application filed April 19, 1875.

To all whom it may concern:

Be it known that I, EZRA CASWELL, of Lyons, in the county of Wayne and State of New York, have invented a certain new and useful Improvement in Adjustable Clamping Attachments for Vises; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a vise, showing my improvement applied thereto. Fig. 2 is a plan of the same. Fig. 3 is a front elevation of the attachment on the sliding bar of the vise.

My improvement relates to those attachments which are connected with vises for the purpose of adjusting the clamping-surfaces to any irregular form of the article to be clamped.

Devices have already been attached to or connected with the sliding jaw for this purpose, such as a clamp with a pivoted block, or an intermediate jaw attachment to the sliding jaw by a ball-and-socket joint.

Such devices are complex and expensive, occupy much space between the jaws, and are not readily removable.

My invention consists of a separate attachment, which fits upon the sliding bar between the jaws, and has a pivoted head which is plane on one side and convex on the other, and is capable of reversal, as and for the purpose hereinafter described.

A represents the standard, and B the clamp-head, which parts constitute the attachment. The standard consists of a fork, *a a*, of square form, which strides the sliding bar of the vise between the jaws, and a bearing, *b*, in which is cast a pivot-pin, *c*, on which the clamp-head turns. In the ends of the arms *a a* are screws *d d*, which are used simply for adjusting the attachment to bars of different sizes, and not for clamping the attachment to the bar. By turning them up or letting them out they form bearings against the sides of the bar, whatever may be its size, leaving a free movement of the parts, whereby the clamp-head may adjust itself to position between the jaws when the clamping action takes place. *f* is an adjusting-block, resting in the fork above the sliding bar. It is adjusted up and down by a screw, *g*. Instead of the block, an adjusting-screw alone may be used. The object of this device is to adjust the swivel-head higher or lower, to fit accurately between jaws of different-sized vises.

The clamp-head has a free rotation on the pivot *c*, so that either face may be brought in coincidence with the sliding jaw. One face, *h*, is made plane, and the other one, *h'*, convex, as shown. The plane face will clamp any ordinary plane-sided article, and will adapt itself to any incline, to fit any article—for instance, a wedge. The convex side will fit a curve. It is of especial service in carriage-manufactories, where much bent work is made curved, and is also useful in machine and other shops.

This plane and curved form of the head and its free rotation upon the pivot are an essential feature in my invention, and it is rendered available by the connection of the attachment with the sliding bar of the device, instead of directly with the jaw, as has heretofore been done. If attached directly to the jaw, the clamp-head cannot be turned fully around. The dotted lines in Fig. 2 indicate a curved article fitted between the convex face and the stationary jaw. As ordinarily constructed, and attached directly to the jaw, the adjustable clamp-head can be used only on one side. By connecting it with the sliding bar, as in my invention, either side can be used indifferently, and when not in use the attachment can be at once removed without removing a nut or bolt, and the attachment is much cheaper than that ordinarily employed.

Having thus described my invention, I do not claim a self-adjusting clamp attached to the jaw of a vise; but

What I claim as new is—

A vise attachment, consisting of the standard A, having forks *a a*, adjusting-screws *d d*, block *f*, and screw *g*, in combination with the reversible head B, substantially as and for the purpose set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

EZRA CASWELL.

Witnesses:
R. F. OSGOOD,
E. B. SCOTT.