To all whom it may concern:

Be it known that I, ERNEST P. BRIDGES, a citizen of the United States, residing at Wewoka, in the county of Seminole and State of Oklahoma, have invented certain new and useful Improvements in Bench Clamps or Vises, of which the following is a specification, reference being had to the accompanying drawings.

My invention is an improved vise or clamp for use on carpenters' work benches and the like.

One object of the invention is to provide a simple and practical device of this character which will take the place of the ordinary screw vise and which may be quickly and conveniently operated by the foot.

Another object of the invention is to provide an improved cam device for actuating the movable jaw of the clamp or vise.

A further object of the invention is to provide an improved means for mounting the body of the clamp or vise, so that its jaws may be raised and lowered with respect to the top of the bench.

With the above and other objects in view, the invention consists of the novel features of construction and the combination and arrangement of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a portion of a work bench showing my improved vise or clamp applied thereto; Fig. 2 is a detail vertical section through the bench showing the arrangement of the invention therein; Figs. 3 and 4 are enlarged vertical longitudinal and transverse sectional views through the invention; and Fig. 5 is an enlarged perspective view of the grooved cam with its accompanying lever.

In the drawings 1 denotes a portion of the top of a carpenter's work bench or similar support in which is formed an opening or recess 2 to receive the body 3 of my improved vise or clamp. As shown, the recess 2 is arranged in the front edge of the bench top and extends transversely or from front to rear and the body 3 is in the form of a substantially rectangular frame having a bottom plate 4, upright sides plates 5 and inwardly projecting flanges 6 at the upper edges of said sides. This channeled body is adapted to receive the two jaw members 7, 8 which are slidably and adjustably mounted and have portions projecting above the upper face of the bench top 1 to provide clamping faces which receive the work between them.

In order to raise and lower the jaw members with respect to the upper face of the bench top, I make the body 3 vertically adjustable by securing to its bottom 4 a base plate 9 the edges of which project beyond the sides 5 to provide flanges which are apertured to receive vertical bolts 10 depending from the bench top 1. The plate 9 is vertically slideable upon the bolts 10 which serve as guides, and is supported by adjustable nuts 11 upon the lower threaded ends of said bolts. Coil springs 12 are arranged upon the bolts 10 between the plate 9 and the under face of the bench top 1 so as to hold said plate down upon the nuts 11.

The jaw member 8 is adapted to be quickly moved toward and from the other jaw member by depressing a foot lever 13 suitably pivoted at 14 in the lower portion of the frame of the work bench and connected by a link 15 to a lever 16 arranged upon the pivot 17 of a cam or eccentric 18. Said pivot 17 is preferably square in cross section and has concentric cylindrical portions 19 to enter vertical bearing grooves or slots 20 formed in the sides 5 of the body 3 adjacent to the front end of the latter. The cam 18 is substantially semi-circular in shape and in its curved face is a groove 21 having undercut side walls 22 to receive the head or enlargement 23 upon a pin 24 projecting from the body of the movable jaw member 8. The groove 21 is preferably of dove-tail shape in cross section and the pin or projection 24 is in the form of a screw, as clearly shown in Figs. 3 and 5. It will be seen that when said lever 13 is depressed, the cam or eccentric 18 will be thrown inwardly to force the jaw member 8 in the same direction or toward the relatively stationary jaw member 7 and thereby clamp a piece of work between the jaws of the vise. A retracting spring 25 may be used for returning the jaw member 8 to its normal position adjacent to the front end of the body 3, as shown in Fig. 3. The link 15 is preferably adjustable and detachably connected to the lever 13, as shown at 26, and its upper end passes through a slot in the plate 9 and it is detachably connected to the lever 16 by a screw or bolt.

By making these parts detachable and by constructing the pivot 17, as shown, and providing the bearing slots 20 in the body 3, it
will be seen that the parts may be readily separated for cleaning, repairing or other reasons.

The relatively stationary jaw member 7 is adapted to be adjusted longitudinally of the body 3 so as to permit the vise to receive either very large or very small pieces of work. This adjustment of the member 7 is preferably effected by providing upon the bottom plate 4 of the body 3 a ratchet plate 27 the teeth of which are adapted to be engaged by a vertically slideable pawl 28 arranged in the jaw member 7. The enlarged upper end of the pawl 28 serves as the finger piece and it is notched to receive a leaf spring 29 which serves to actuate it downwardly and cause it to engage the ratchet 27. The lower end of the pawl 28 is beveled so that the jaw member 7 may be quickly moved forwardly or toward the jaw member 8 but to move said member 7 rearwardly or away from the member 8 the pawl 28 must be lifted to disengage the ratchet. Each of said jaw members 7, 8 has an enlarged body portion which slides over the ratchet plate 27 between the sides 5 and beneath the flanges 6 of the body 3 and is provided with an upwardly projecting portion which extends above said body 3 and the top of the bench and may be formed with a recess 30 to receive a removable jaw plate 31. Pairs of jaw plates of different sizes and shapes may be provided so that they can be interchanged in the recesses 30 of the jaw members, as will be readily understood.

Having thus described my invention what I claim is:

1. A device of the character described comprising a body, two jaw members, one being movable toward and from the other, a cam or eccentric having a groove provided with an undercut wall, a projection upon the movable jaw member having a head arranged in said undercut groove, and means for actuating said cam or eccentric.

2. A device of the character described comprising a body, two jaw members, one being movable toward and from the other, a cam or eccentric having a groove provided with an undercut wall, a projection upon the movable jaw member having a head arranged in said undercut groove, a lever for actuating said cam or eccentric in one direction and means for retracting said movable jaw member.

3. In a device of the character described, the combination with a work bench or support having an opening, of guide bolts depending from the bench and having adjusting nuts at their lower ends, a body having apertured portions to receive and slide upon said bolts and adapted to be adjustably supported by said nuts, whereby said body may be vertically adjusted in the opening in the bench, springs upon said bolts between the bench and the body for retaining the latter in engagement with said nuts, jaw members arranged in the body, one member being movable toward and from the other and means for actuating said movable member.

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

Witnesses:

J. W. SMITH,
A. J. HANEY.