(No Model.)

A. KANE.

VISE.

No. 488,315. Patented Dec. 20, 1892.

Fig.1

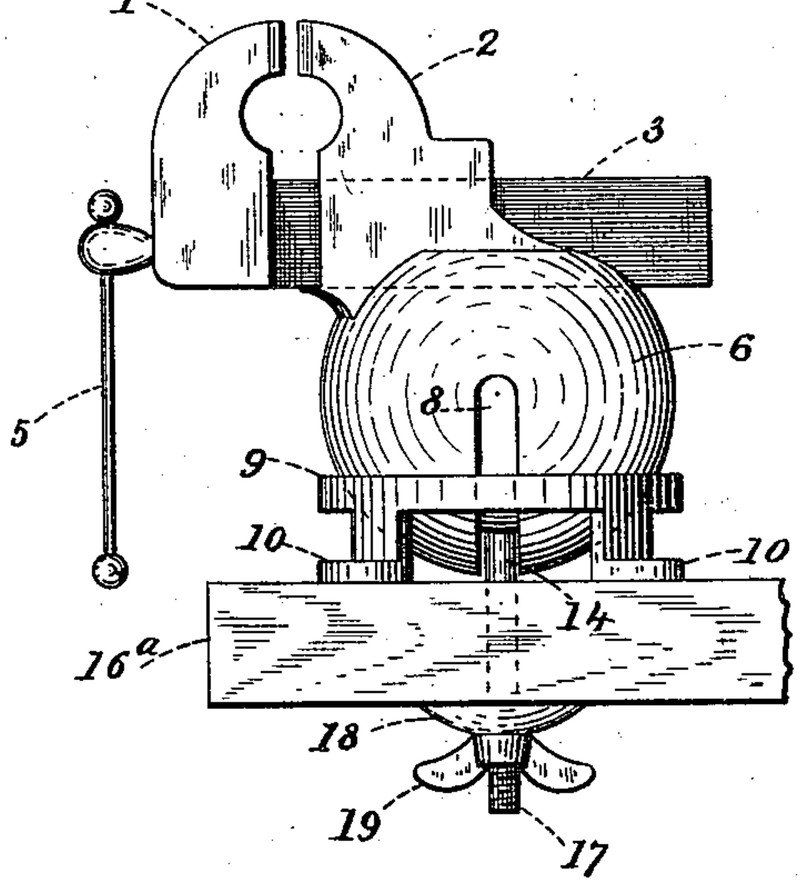


Fig.2

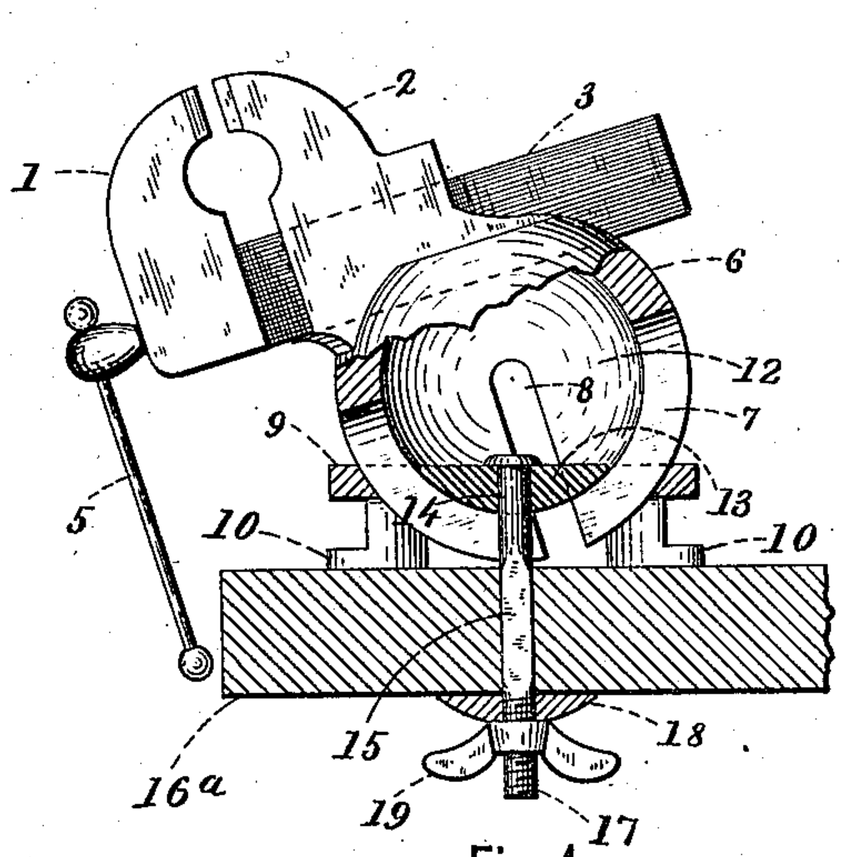


Fig.3

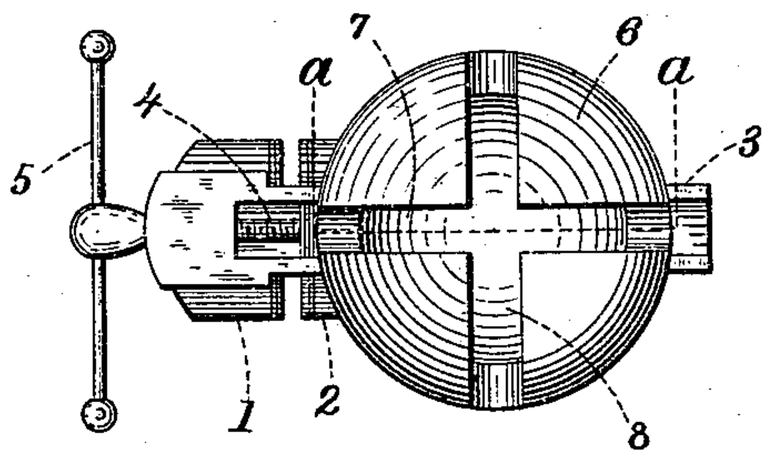
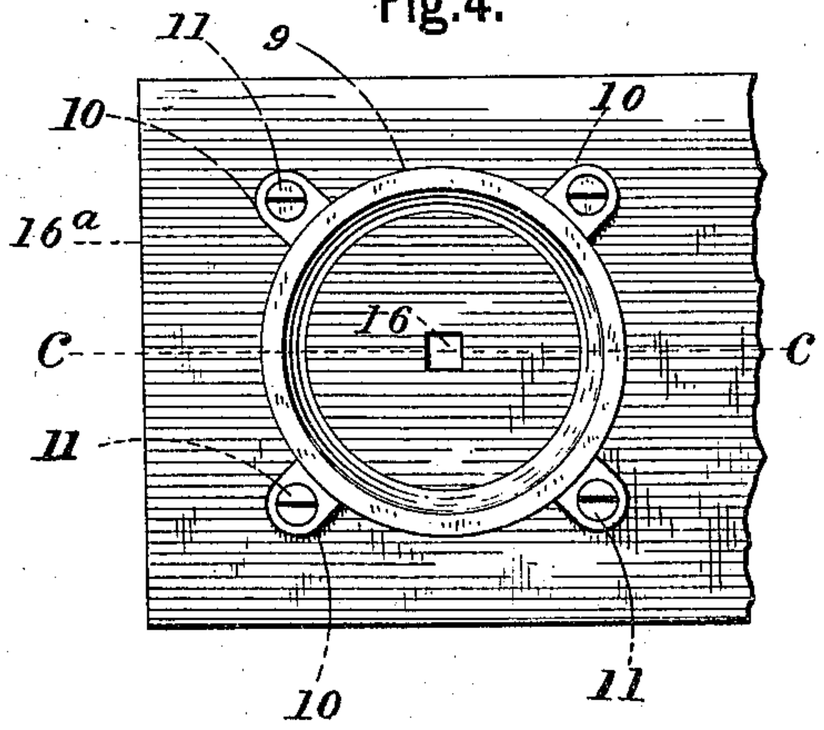


Fig.4.



Witnesses.

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UNITED STATES PATENT OFFICE.

ALBERT KANE, OF BUFFALO, NEW YORK.

VISE.

SPECIFICATION forming part of Letters Patent No. 488,315, dated December 20, 1892.

Application filed July 8, 1892. Serial No. 439,333. (No model.)

To all whom it may concern:

Be it known that I, ALBERT KANE, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Vises, of which the following is a specification.

My invention relates to certain improvements whereby a parallel vise is mounted upon a universal joint that can be securely fastened in any required position, so that the article held in it can be easily turned around or brought into any position or at any angle without removing it from the vise, or to bring that part of the article it is desired to work on, in the best possible position to receive the light and be advantageously operated upon, all of which will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which:—

Figure 1 is a side elevation of the vise complete, showing the vise in a horizontal position. Fig. 2 is a sectional elevation, cutting through the hollow ball in or about line *a a*, Fig. 3, also through the socketed holding frame and the bench to which it is attached, in or about line *c c*, Fig. 4, showing also, the vise in an angular position. Fig. 3 represents a bottom view of the ball portion and the vise connected with it, the fastening device, the socketed frame and the bench below it being omitted. Fig. 4 is a detached top view of the circular socketed frame and a portion of the bench to which it is attached.

The vise consists of the usual and well known jaws 1 and 2, the jaw 1, having the horizontal guiding piece 3. It is made in the usual way and is constructed to fit and slide in an opening through the lower portion of the jaw, 2, and is adapted to keep the two jaws 1 and 2, parallel and in a line with each other. The guiding piece 3 is made hollow on the under side so as to receive the screw, 4, which is provided with the ordinary vise handle, 5. The screw, 4, is constructed and connected with the vise in the same way that a similar screw vise handle is connected with any ordinary parallel vise and operates in exactly the same way for opening or closing the jaws of the vise, and not being a part of this invention and being of well known construction a further description here is not required.

The lower portion of the jaw, 2, is provided with a hollow spherical portion 6, having two narrow transverse openings, or slots 7 and 8, which cross each other through the lower half of the spherical portion, 6, substantially as shown in Figs. 2 and 3. This hollow spherical portion is preferably cast in one piece with the jaw portion, 2, of cast iron, or steel, and is made to fit in a socketed frame portion, 9. This socketed frame portion is preferably made of cast iron and is provided with feet, 10, so it can be secured to the bench by screws, 11, see Fig. 4.

Within the hollow spherical chamber 12 of the portion, 6, (see Fig. 2,) is a loose circular portion, 13, it is made flat on top and its under side is convex so as to fit the chamber, 12. In the center of this portion, 13, is rigidly secured in any well known way a bolt, 14, (the portion, 13, acting as an enlarged head to the bolt 14) which extends down and projects out through the slots or openings 7 or 8, and is preferably provided with a square portion, 15, (see Fig. 2) adapted to pass down through a square hole, 16, in the bench, 16ª, shown in Fig. 4, to keep it from turning therein. At the lower end of the bolt, 14, is a screw portion, 17, which projects down through the bench to receive a washer, 18, and a thumb-nut, 19, by which it is tightened when the vise is adjusted to any position or angle that may be required.

From the above description it will be seen that by loosening the thumb-screw 19, the vise may be turned around in its socket to any point required, or it may be made to incline either forward or back, the slot or opening, 7, allowing it to be thus inclined without disturbing the bolt, 14, or it may be made to incline sidewise either way, the opening, 8, in this instance, allowing it to be so moved without disturbing the bolt, 14.

When the vise is thus adjusted to the desired position, which is easily and quickly done, it can be instantly tightened and made rigid in that position by the thumb-screw, 19, the comparatively large size of the spherical portion, 6, allowing it to be quickly and strongly fastened by a comparatively easy

turning of the thumb-screw, 19. The washer, 18, is not always necessary and in some cases may be dispensed with. By this construction a much greater angular movement may be obtained than by the ordinary ball joint the cross slots or opening 7 and 8, leaving room to move the vise considerably farther than the circular opening in a ball joint.

I am aware that vises have heretofore been made and constructed so as to be capable of being moved and secured in various positions by means of a ball and socket joint. I therefore do not claim such construction broadly but

What I do claim is—

In a vise, the combination with the jaw, 2, which carries and supports the jaw, 1, its parallel guiding bar and operating parts, of a spherical portion having an interior spherical chamber provided with narrow cross-openings in its lower half, a socket frame in which the spherical portion rests and a bolt having an enlarged head located within the spherical chamber, the bolt extending down through the cross-openings and terminating in a screw portion adapted to pass through a bench and provided with a thumb nut for securing it in position and to a bench substantially as described.

ALBERT KANE.

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