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VISE

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5 Claims. (Cl. 81—30)

This invention relates to new and useful improvements in vises, and it has for its main object to provide a vise, in which the jaws, through a sliding process, may be adjusted to the size of any object to be engaged, contrary to the now common use of screwing said jaws together.

As the construction of my device is comparatively simple, the cost of manufacturing the same should be proportionately low.

With the above and other objects in view, this invention consists of the novel features of construction, combination and arrangement of parts, hereinafter fully described, claimed and illustrated in the accompanying drawing forming part of this application, and in which similar characters of reference indicate corresponding parts in all views, and in which—

Figure 1 is a perspective view of my invention.

Figure 2 shows a transverse sectional view, taken on the line 2—2 in Figure 1, and illustrating clearly the relative arrangement of the parts constituting said invention.

Figure 3 is a detail view of parts of my invention, partly in section, and showing especially, what may be termed a vise-lock in a released position; while the dotted lines in said view, indicate said vise-lock in a locked position.

Figure 4 is a front elevational view of said vise-lock, showing the teeth thereon, and showing also an enlarged vertical opening.

Referring more particularly to the drawing, Figure 1 shows a drill press vise, comprising a base 10 suitable for attachment to any support; said base is upon its top provided with a track consisting of two members 11 and 11, made of case-hardened steel, said members are secured to the base by means of screws 12, as may be seen in Figure 2. The track members 11 and 11 are upon the inner half of their lower surface provided with teeth 13, as may especially be seen in the Figures 2 and 3.

The base of the vise is at one end thereof formed with a shoulder 14 to which is attached a jaw member 15, made of tool-steel, hardened and ground, while the other jaw member 15' is secured to a block 16, which in turn is adapted to slide upon the track members 11 and 11.

Said block 16 has a rod 17 mounted therein; upon the end of said rod 17 is secured a sleeve 19 by means of a pin 20; a handle 18 is in turn pivotally mounted in the end of said sleeve and secured thereto by means of a pin 21. The rod 17 enters the end of the block 16, as said rod is threaded in an opening 24 in a separate piece 22, which latter piece is hardened steel and in

turn positioned in the block 16. The piece 22 is secured to the block 16 by means of pins 23.

The end of the rod 17 terminates in a ball 25 adapted to fit a locking member 26, said locking member, which is mounted upon the rod 17 and the ball 25, has an opening 27 therein, through which opening the rod 17 passes, said opening 27 is made with a diameter slightly larger than the diameter of the rod in order to permit a certain play or wobbling of said locking member with respect to the rod 17. A part, or member 28, which has its inner surface made to fit the head of the ball 25, is secured to the locking member 26 by means of a screw 29. The lower part of the locking member 26 is formed with an opening 30 adapted to receive therein a rod 31, said latter rod is inserted into the block 16 through an opening 32, and the rod is upon one end thereof made with an enlarged portion 33 adapted to engage and fill out said opening 32 into which opening said enlarged portion is pressed or forced; the other end of the rod 31 is mounted in a recess 34 in the front of the block 16. Upon the rod 31 is mounted a spring member 35; one end of said spring member rests in an enlargement 36 of the opening 34, while the other end of the spring member rests against a washer 37, which washer covers the front of the elongated opening 30 in the lower portion of the locking member 26; the opening 30 being considerably larger than the diameter of the rod 31, which passes through said opening, thereby permitting a tilting movement of the said locking member with the ball 25 as the fulcrum.

The locking member 26 is upon both sides of its lower portion formed with shoulders 38 upon the upper surfaces of which are formed teeth 39, as may be seen in Figure 4.

The block 16 is upon its rear surface, and above the opening 32, formed with another opening 40 into which latter opening is inserted a block member 41, which is upon the front thereof formed with a beveled surface 42 adapted to engage the member 28 of the locking member 26 upon advancing the threaded rod 17 in an inward direction, thus returning the locking member 26 into a vertical or released position, as shown in Figure 3. The spring 35 is then, due to the swinging motion of the locking member 26 around the ball 25, being compressed, while the teeth 39 are disengaged, as shown, from the teeth 13. This will permit a free sliding movement of the block 16 upon the track members 11, 11 for quick adjustment from one object to another of varying dimensions.

Figure 2 shows the vise in a locked position and holding an object 43. It may in this connection be noted that when the threaded rod is retracted or turned in an outward direction, the locking member 26 will be disengaged from the block 41, while the lower end of the locking member, due to the expanding of the spring 35, is swung inwardly until the teeth 39 engage the teeth 13. When the upper edge of the opening 27 comes to rest against the rod 17, the block 16 is then forced forward, thus clamping the object 43.

As may be clearly understood from the foregoing description, only a few turns of the rod 17 are required to bring the vise from the locked position into the released position, or vice versa.

It is obvious that changes may be made in the construction, combination and arrangement of parts within the scope of the appended claims, without departing from the spirit of my invention, and I do not, therefore, wish to limit myself to the exact construction shown and described herein.

What I claim as new, and desire to secure by Letters Patent of the United States is:

1. A drill press vise comprising a base, the latter terminating at one end in a shoulder, a track consisting of two members formed with teeth thereon and being rigidly mounted upon said base, a block member adapted to slide upon said track, means arranged upon said block member and shoulder, respectively, whereby to securely engage an object, a rod terminating in a ball and being threadedly mounted in said block member, a locking member loosely mounted upon the rod and upon said ball, and an endpiece adapted to fit one end of the ball and being secured to said locking member, the latter being upon the lower portion thereof formed with teeth adapted to engage the teeth of the track, said lower part of the locking member being formed with an opening therein, the block member being in the lower front thereof formed with an opening terminating at its rear end in an enlarged recess, said block member being at its rear end formed with two openings therein, a rod mounted in the opening in the lower part of the locking member, and in the openings in the lower front of the block member and the rear thereof, said latter rod being formed with an enlarged end portion rigidly secured in the lower opening in the rear of the block member, a spring mounted upon said latter rod and adapted to actuate the locking member during operation, and a small block formed with a beveled surface and arranged in the upper opening in the rear end of the block member, substantially as and for the purpose set forth.

2. In a device, as claimed in claim 1, and wherein the spring has one end thereof disposed in the enlarged recess of the opening in the front of the block member, a washer arranged upon the lower rod and in front of the opening in the lower portion of the locking member, said washer being adapted to support the other end of said spring.

3. In a device, as claimed in claim 1, and wherein the two track members are formed with

teeth upon the inner half of their lower surfaces.

4. A drill press vise comprising a base, the latter terminating at one end in a shoulder, a track consisting of two members formed with teeth thereon and being rigidly mounted upon said base, a block member adapted to slide upon said track, means arranged upon said block member and shoulder, respectively, whereby to securely engage an object, said block member having a central cut-out portion therein, and being formed with an upper and lower opening in the front and rear part thereof, a locking member disposed in said cut-out portion and formed with an upper and lower opening therein, a rod terminating in a ball and being threadedly mounted in the upper opening of the front part of the block member, the locking member engaging said ball and being made to loosely engage the rod of the latter, an endpiece made to conform to the shape of the ball and being secured to said locking member, a small block rigidly disposed in the upper opening of the rear part of the first said block member, said small block being formed with a beveled surface and being adapted to cooperate with said locking member, a rod mounted in the lower openings of the front and rear parts of the block member, said rod extending through the lower opening in the locking member, and being rigidly secured in the lower opening in the rear part of the block member, a spring mounted upon said latter rod and made to actuate the locking member during operation, and teeth formed upon the lower portion of the locking member and adapted to engage the teeth of the track, substantially as shown and described.

5. A drill press vise comprising a base, the latter terminating at one end in a shoulder, a track consisting of two members formed with teeth thereon and being rigidly mounted upon said base, a block member adapted to slide upon said track, means arranged upon said block member and shoulder, respectively, whereby to securely engage an object, a rod terminating in a ball and being threadedly mounted in said block member, a locking member loosely mounted upon the rod and upon said ball, and an endpiece adapted to fit one end of the ball and being secured to said locking member, the latter being upon the lower portion thereof formed with teeth adapted to engage the teeth of the track, said lower part of the locking member being formed with an opening therein, the block member being in the lower front thereof formed with an opening terminating at its rear end in an enlarged recess, said block member being formed with two openings therein, a rod mounted in the opening in the lower part of the locking member, and in the openings in the lower front of the block member and the rear thereof, said latter rod being formed with an enlarged endportion rigidly secured in the lower opening in the rear of the block member, means for actuating the locking member during operation, and a small block arranged in the upper opening in the rear end of the block member.

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