

Feb. 11, 1941.

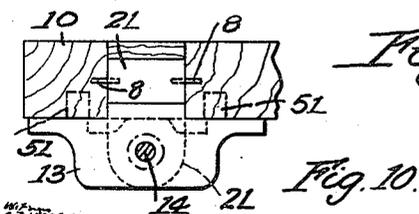
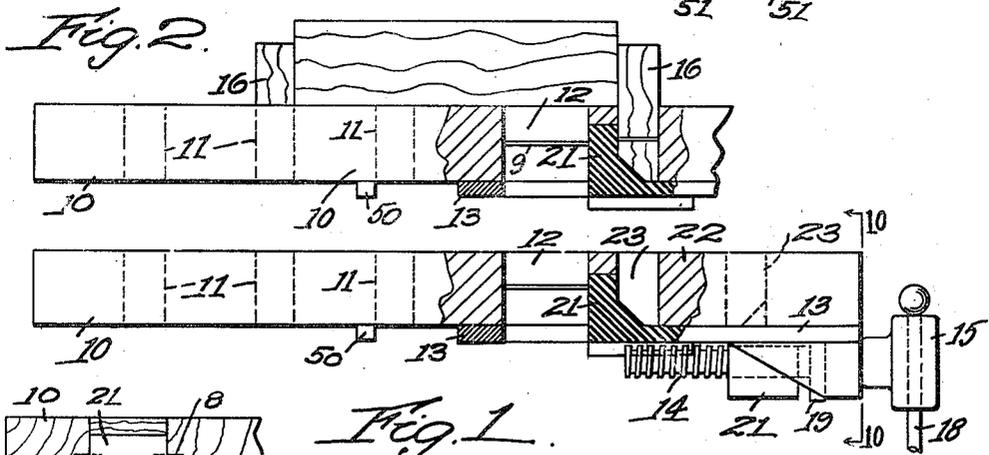
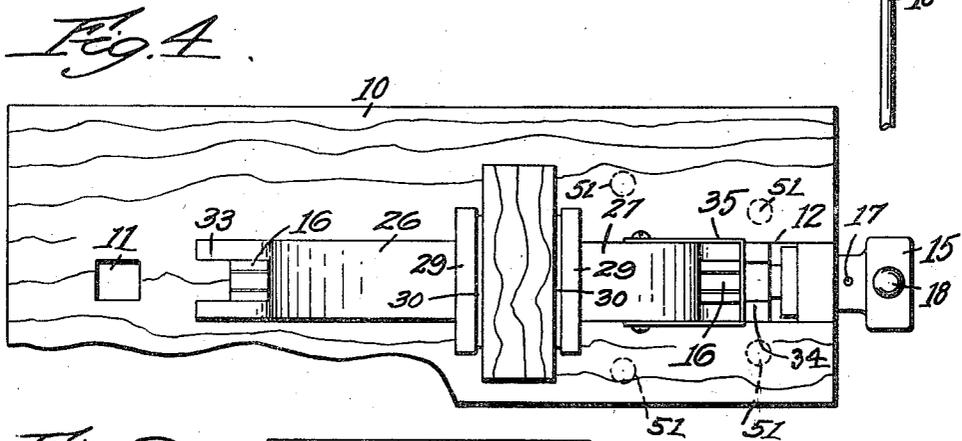
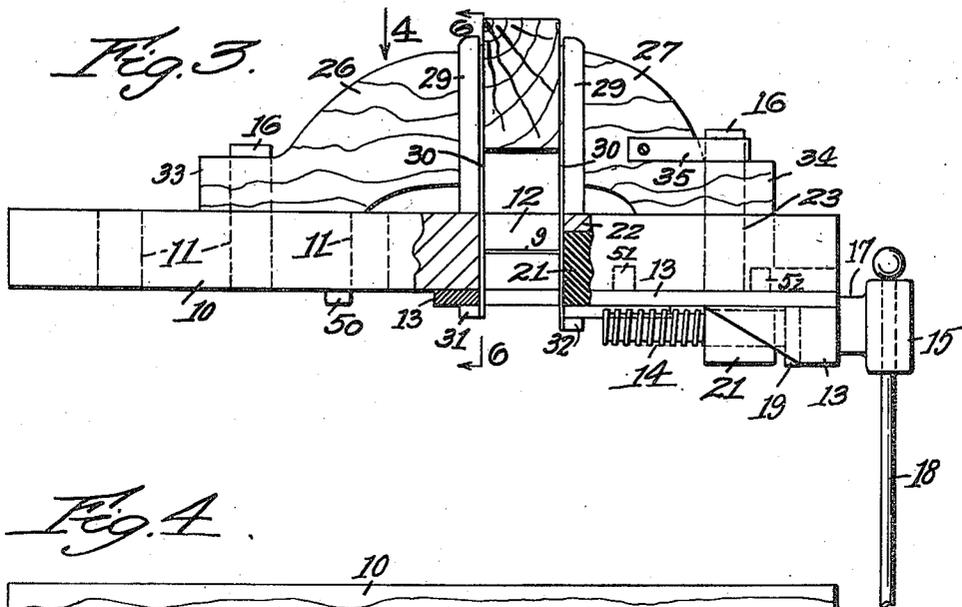
A. J. WAHLSTROM

2,231,646

WISE

Filed Dec. 3, 1938

2 Sheets-Sheet 1



Inventor  
Arvid J. Wahlstrom.  
By *[Signature]*

Feb. 11, 1941.

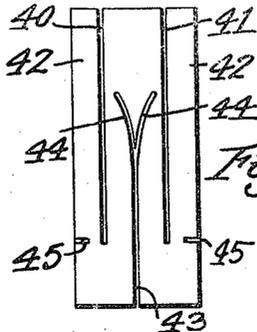
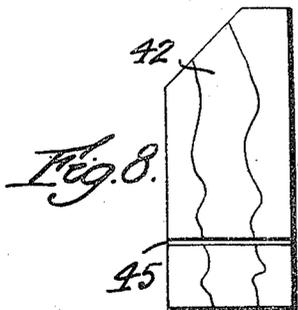
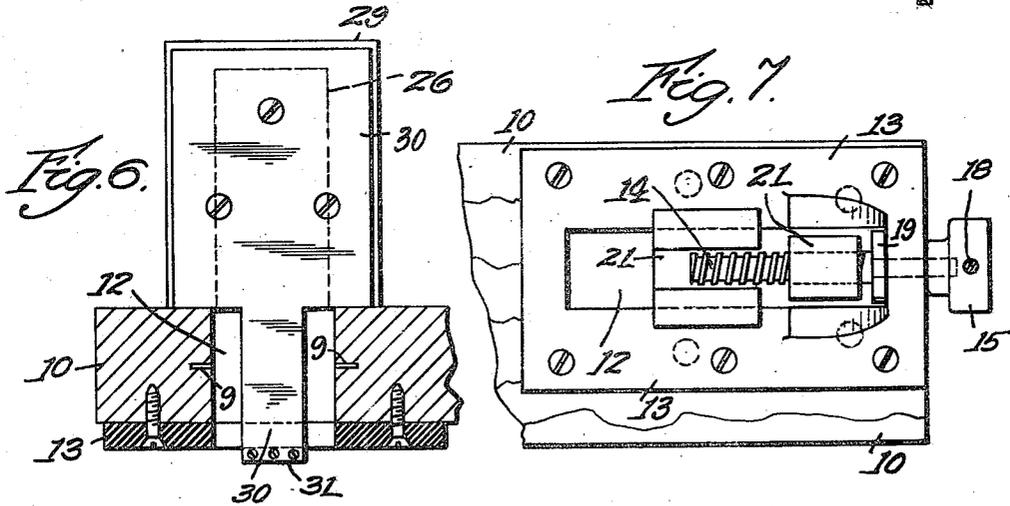
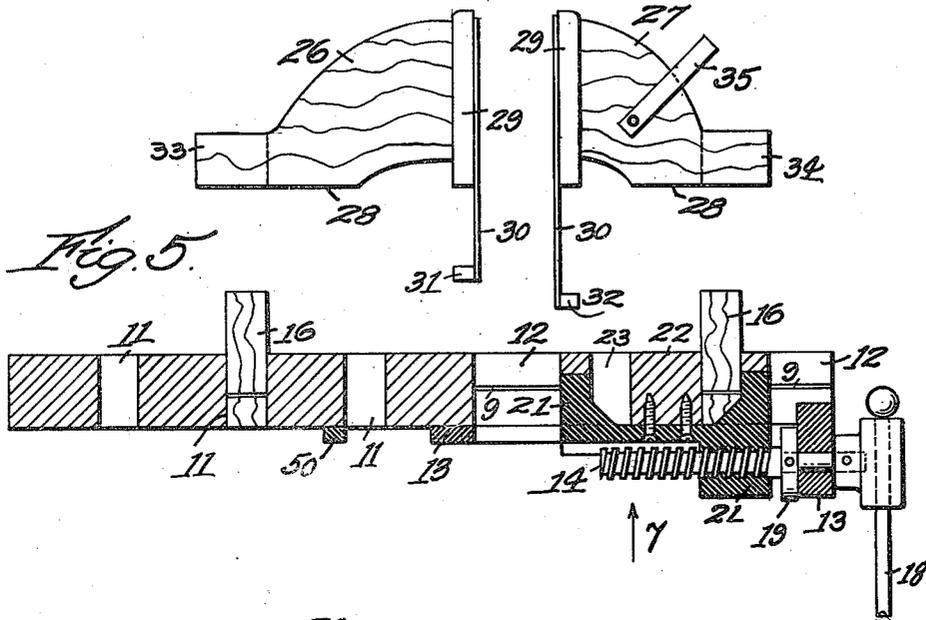
A. J. WAHLSTROM

2,231,646

WISE

Filed Dec. 3, 1938

2 Sheets-Sheet 2



Inventor  
Arvid J. Wahlstrom.  
By attorney  
C. E. Day

McGraw-Hill

# UNITED STATES PATENT OFFICE

2,231,646

VISE

Arvid J. Wahlstrom, Boston, Mass.

Application December 3, 1938, Serial No. 243,829

3 Claims. (Cl. 144—307)

This invention relates to a vise, particularly adapted for use as a wood working or carpenter's vise, and especially capable of use for manual training schools and similar purposes.

The principal objects of the invention are to provide a vise having three different ways of holding an article, such as a piece of wood, in position; to provide a pair of detachable jaws extending vertically upwardly through a work bench; to provide said jaws with means extending down through a slot in the bench by which one of them is connected with a screw for operating them; to provide the said jaws in removable form so that they can be entirely disconnected from the bench, in which case they leave the bench with a flat top and with openings therethrough for receiving pins located therein, which pins themselves can be employed as jaws for clamping an article on the top of the bench; to provide a support for these pins on one side adapted to be moved back and forth by the operating screw of the vise and acting as one of the jaws of a pair, while the other jaw consists of a stationary wall of the space in which the work is located; to provide the bench with a series of square holes extending entirely through it for receiving pins, the surfaces of which constitute jaws, and to provide said pins of wood, slitted so that the wood itself constitutes springs for holding said pins in the square holes in the table top, the pins being formed larger than the holes, but compressible by reason of the kerfs therein, to fit slidably in the holes, but to hold themselves in place by friction.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which

Fig. 1 is a longitudinal sectional view of a wood-working bench, showing one form in which a vise can be associated with it, entirely within the bench, according to this invention;

Fig. 2 is a similar view showing the same vise with the work clamped on the top surface of the bench and using pins as the jaws of the vise;

Fig. 3 is a similar view, partly in section, showing the use of the same elements as shown in Figs. 1 and 2 with additional jaws extending above and supported by the top of the bench, thus showing a third form in which the invention can be employed;

Fig. 4 is a plan of the same;

Fig. 5 is a view of the bench in section with the upwardly projecting jaws located above it to indicate how they are finally placed in position;

Fig. 6 is a sectional view on the line 6—6 of Fig. 3;

Fig. 7 is a bottom plan view as indicated by the arrow 7 in Fig. 5;

Fig. 8 is a side view of one of the spring pins;

Fig. 9 is another view of the same pin as indicated by the arrow 9 in Fig. 8, and

Fig. 10 is a sectional view on the line 10—10 of Fig. 1.

This invention relates to a woodworking vise having several means by which it can grasp a piece of wood, metal, or the like. The vise is mounted on an ordinary woodworking bench 10. The bench is provided with an opening 12 through it extending in from one end or side and having smooth sides and a smooth end. Beyond this opening are three square holes 11 extending through the bench to the lower surface. These holes are to receive square wooden spring pins 16.

At the side or end of this bench is fixed screws and studs 51 a casting 13 provided with an opening therethrough in which is located a screw 14 having a head 15 on the end outside the casting. This screw is adapted to rest up against the end of the casting and is held in position by a pin 17. This head has, preferably, a diametrical passage through it, in which is slidably located the usual sliding handle 18 by which it is manipulated.

Inside the casting is a collar 19 which sets up against the inside vertical surface of the casting. This collar is fixed firmly to the screw. The screw is provided with a square left handed thread which screws into a cast metal slide 21 just fitting in the opening 12 and guided by the casting 13. This slide 21 is provided with a wooden top 22 of rectangular shape fixed thereto, fitting within the opening. The slide 21 and its top have two rectangular holes 23 similar to the holes 11. These are in longitudinal alignment for receiving two compressible square wooden spring pins 16. They are adapted to cooperate with similar or identical pins in the holes 11 in the top of the bench itself. The two parts 21 and 22, one metal and one wood, are fixed together as one piece and constitute a slide directly operable by the screw. Articles can be gripped between the end of this slide and the opposite end surface of the opening 12 through the bench, so that it in itself constitutes a vise as shown in Fig. 1.

In the bench 10 on both sides of the opening are horizontal grooves 9 extending the length of the opening. In these grooves are guided band iron slide guides 8 fixed to the slide 22. This prevents lifting or tilting of the whole slide.

The pins 16 can be placed in the openings 11 and 23 respectively and then the slide can be moved back and forth and these pins themselves will constitute jaws for another vise, as shown in Fig. 2, acting on the top surface of the bench.

It will be seen that what has been described already is the combination of this bench with means by which two different vises of a simple character can be provided. These two vises are arranged practically entirely within the body of the bench, in the simple case, and on the top surface of the bench, in the other case.

The third form in which this vise can be used is to employ the same bench arranged in the same way as for the first two mentioned vises and add to it a pair of jaws resting on the top of the bench and one of them at least movable toward the other.

In this case, especially in Figs. 3, 4, 5 and 6, two jaws 26 and 27 of wood are arranged with their lower surfaces 28 in the same plane. Each of these jaws has a long horizontal bottom surface to rest on the bench top and each also has a widened jaw 29 arranged in vertical position. On this jaw in each case is fixed a vertical metallic plate 30. These metallic plates extend down below the bench through the passage 12 and terminate in two outwardly extending cleats 31 and 32 respectively. These two cleats 31 and 32, when in this position, engage two surfaces on the casting 13 which happen not to be at the same level and serve to prevent the lifting of the plates 30 and also, by the relationship of the surfaces of the cleats 31 and 32 to the surface 28, fix the jaws 29 in a solid position from which they can be removed only by first moving them along the bench. They can both be moved toward each other in the space 12 to enable the two jaws to be removed or applied. Each of these jaws has an open ended guide 33 and 34 respectively for receiving the wooden pins. One of them serves to allow sliding of the jaw, being entirely open, and the other is provided with a swinging metal loop 35 which is pivoted to the jaw, located horizontally but movable upwardly to release it. It is just long enough to allow it to engage over the edge of the pin 16, which holds that jaw against longitudinal motion. In this case, therefore, the clamping is done entirely by the motion of the jaw.

When it is desired the left hand plate 30 having the cleat 31 can be inserted through one of the holes 11. In that case the cleat 31 will cooperate with a cross piece 50. This provides an opportunity for wider open jaws 29.

The pins which have been mentioned are shown in Figs. 8 and 9. In this preferred form a piece of hard wood, square in cross section, made a little bigger than one of the holes 11 is provided with saw kerfs 40 and 41 parallel to each other, extending all the way through the pin in one direction and part way from one end to the other so that tongues 42 formed by these kerfs will be resilient. Also, extending from the opposite end of the pin is a central saw kerf 43 extending more than half way to the other end and in a plane parallel to the two kerfs 40 and 41 and preferably branched or bifurcated at 44. All this construction tends to form a resilient pin which can be pressed together to cause it to enter the holes 11, smaller than the pin itself. By this construction it is easy to introduce the pin into the hole and when that is done the pin will be held by spring pressure in itself without the use of any other pressure. Therefore, the pin can be inserted

easily and left at any altitude and completely serve its purpose and requires no fastening means whatever. In the pin as shown there are slight kerfs 45 on the tongues 42 at the base thereof to add to the resiliency of these tongues.

It will be seen that by the simple changes it can be employed as three kinds of a vise. In the first, the article to be gripped is held within the body of the bench itself with nothing projecting above the top of the bench. In the second form the work to be gripped can lie along the top of this bench. In the third form the work to be gripped can be located at a distance above the top of the bench. All three of these can be made available through the action of a single operating screw. The parts of the vise which project above the screw are made practically all of wood so that young boys, in a trade school for example, cannot blunt tools or injure other articles by placing or dropping them on the vise. The parts can be released from each other without the operation of screws, bolts or the like, or taking out of any fastening devices. The vise, therefore, with three different uses is made in a very simple form and involves no costly mechanism or elements that would be likely to be injured in the ordinary use of the vise. It is simple, light in weight, small, neat, strong, and efficient. It is accurate, durable and of low cost.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:

1. In a woodworking vise, the combination with a bench having an opening through it extending in from one side or edge, a slide mounted in said opening, a nut on said slide, a screw at the end of the bench extending under the slide and through said nut for operating the slide, means for supporting the screw, a series of square holes through the slides and a similar series of square holes through the bench for receiving pins, a pair of jaws adapted to rest on top of the bench and slide, each jaw having an open ended recess at the end for receiving a pin in one of said holes and having facing jaws for clamping the work, each one also having means to hold the jaws in parallel position on the bench and prevent tilting.

2. In a woodworking vise, the combination with a bench having an opening through it extending in from one side or edge, a slide mounted in said opening having its top surface in the plane of the top surface of the bench, a nut on the lower surface of said slide, a screw at the end of the bench extending under the slide and through said nut for operating the slide, a series of square holes through the slide and a similar series of square holes through the bench, beyond said opening, all in alignment, and a pair of jaws adapted to rest on top of the bench, each jaw having a vertical open ended recess at the end for receiving a pin in one of said holes in the bench and slide respectively, each jaw also having a metallic member fastened to it passing down through the space between the slide and the end of the opening and provided with a cleat projecting outwardly against surfaces on the bottom of the bench to hold the jaws in parallel position on the bench and prevent their moving to an angular position.

3. In a woodworking vise, the combination with a bench having an opening through it extending in from one side or edge, a slide mounted in said opening, a nut on said slide, a screw on the end of the bench extending under the slide and through

said nut for operating the slide, means for supporting the screw, a series of non-circular holes through the slide and a similar hole in the bench for receiving pins, a jaw adapted to rest on the slide and having a recess for the reception of a pin in one of the holes in the slide, a second jaw

adapted to rest on the bench and held thereto by means in the bench hole, said jaws facing each other for clamping work therebetween, and each jaw having means whereby they may be held in parallelism.

ARVID J. WAHLSTROM.

5

5