

A. A. MCKENZIE.
 QUICK ACTING VISE.
 APPLICATION FILED DEC. 16, 1915.

Patented June 13, 1916.

2 SHEETS—SHEET 1.

1,186,671.

Fig. 5.

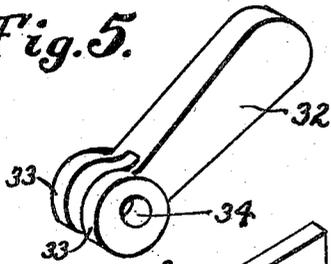


Fig. 2.

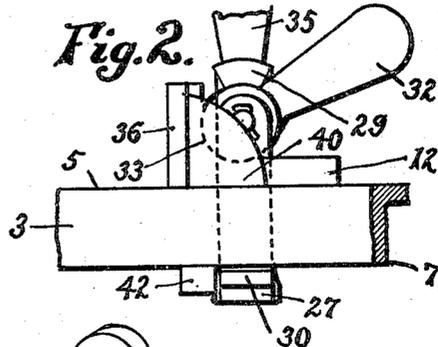


Fig. 1.

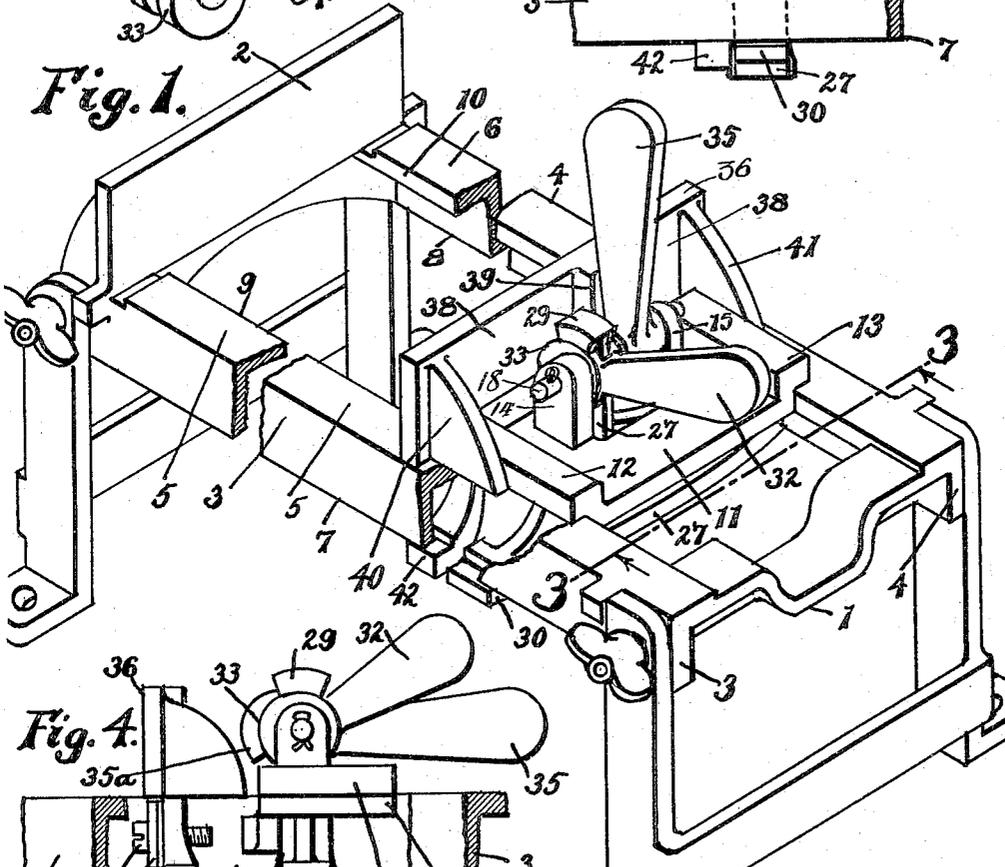


Fig. 4.

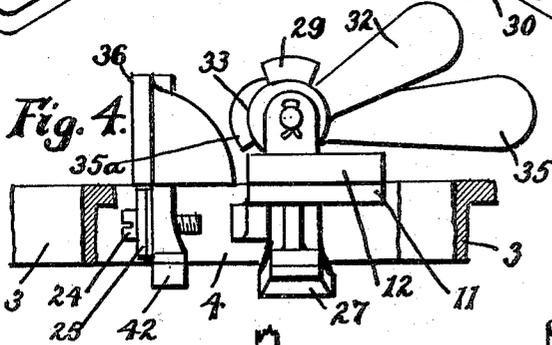
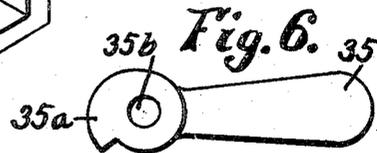
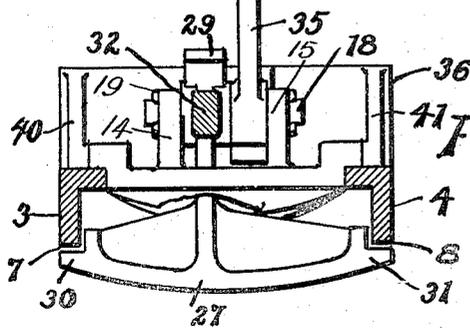
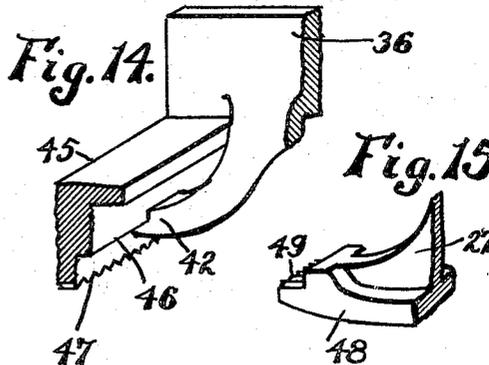
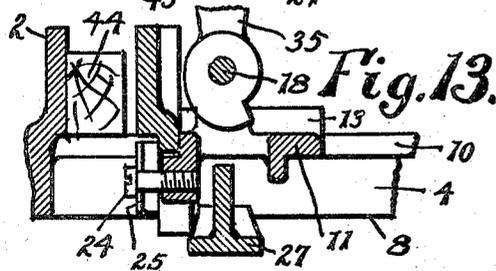
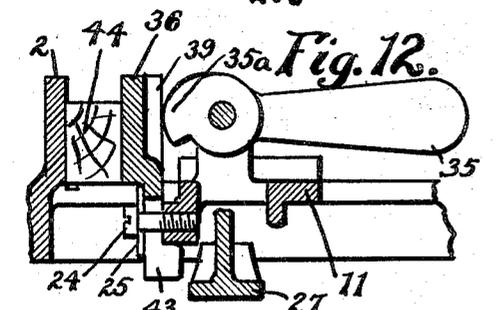
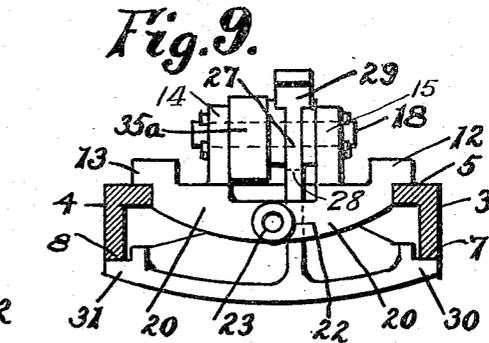
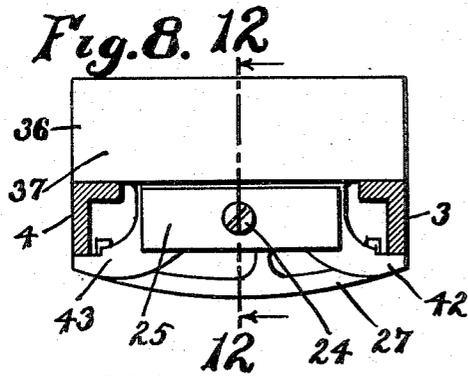
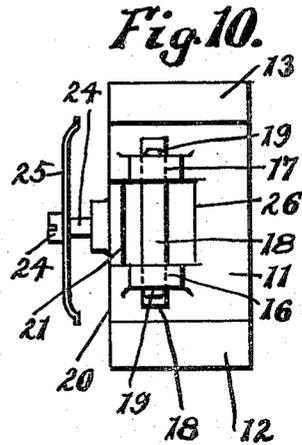
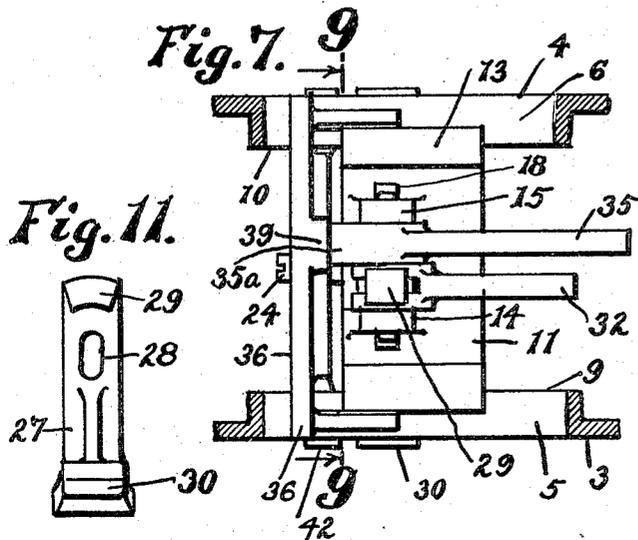


Fig. 3.



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QUICK-ACTING VISE.

1,186,671.

Specification of Letters Patent. Patented June 13, 1916.

Application filed December 16, 1915. Serial No. 67,257.

To all whom it may concern:

Be it known that I, ANGUS A. MCKENZIE, a citizen of the United States, and resident of Cambridge, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Quick-Acting Vises, of which the following is a specification, reference being had to the accompanying drawings.

This invention has for its object to provide a vise having one stationary and one movable jaw, the latter jaw being adapted to be quickly closed and opened and securely locked with said vise when closed,—said movable jaw being preferably adapted to be used with the type of folding vise shown in my patent issued August 31, 1915, and numbered 1,157,959, on a portable hand vise, and being specially adapted for the use of carpenters and other mechanics.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying two sheets of drawings, forming part of this specification—Figure 1, represents a perspective view of a vise embodying my invention, the same being shown open and ready to receive the material which is to be held in the vise.

Fig. 2, represents a side view of the movable jaw. Fig. 3, represents a view taken on line 3—3 in Fig. 1, looking in the direction of the arrows, showing the rear view of the movable jaw as applied to the vise.

Fig. 4, represents a diagrammatic view, similar to that shown in Fig. 2, with the parts of the jaw disassociated for showing the relative construction of the same. Fig. 5, represents a perspective view of the forked-locking lever, shown in Fig. 1, showing the cam-shaped peripheries of the hubs of the lever.

Fig. 6 represents a side view of the movable-jaw-plate operating lever. Fig. 7, represents a plan view of the movable jaw of the vise. Fig. 8, represents a left-hand view of Fig. 7. Fig. 9, represents a view taken on line 9—9 in Fig. 7, looking in the direction of the arrows, showing the anchoring member of the movable jaw.

Fig. 10, represents a plan view of the sliding and supporting plate of the anchoring member shown in Fig. 9, the levers and the locking hanger member being removed therefrom. Fig. 11, represents an end view of the locking hanger used on the anchoring member of the movable jaw. Fig. 12,

represents a sectional view taken on line 12—12 in Fig. 8, looking in the direction of the arrows, showing the movable jaw closed upon a piece of material. Fig. 13, represents the same view as Fig. 12, but shows the movable jaw open with the material freed therefrom. Fig. 14, represents a perspective view showing a modified construction for the frame member, the bottom edge of which is provided with teeth, or other serrations or roughening, as against the plain surface shown in the other views of the drawing, for affording the locking jaws of the anchoring member a means for preventing slipping along the frame of the vise when the jaw is in locked position therewith. Fig. 15, represents a perspective view of one of the ends of the locking hanger member shown in Fig. 11, which may also be provided with teeth, or other such serrations or roughening, for engaging either with the plain frame edge shown in the drawings, or with the type of locking edge shown in Fig. 14.

The same reference numbers indicate the same or similar parts in all the views, and the term "movable jaw" refers to the entire mechanism of the working jaw of the vise as a unit.

The numeral 1, in its entirety, represents a rigid frame member which is preferably provided with a stationary jaw 2 on one end and the parallel runs 3 and 4 upon which the movable jaw member rides, which runs 3 and 4 are provided with the top surfaces 5 and 6, the lower surfaces 7 and 8 and the inner guide surfaces 9 and 10, respectively. The movable jaw of the vise consists of the supporting guide-plate 11 which has the side guide-runs 12 and 13, and is adapted to rest upon the top surfaces 5 and 6 between the sides 9 and 10 of the runs 3 and 4. The guide-plate 11 is also provided with the supporting lugs 14 and 15 which project upwardly from the plate and are provided with the transverse drilled holes 16 and 17, within which is supported the supporting-shaft 18, which shaft is preferably provided with the cotter-pins 19 for holding the same secured in set position. The guide-plate 11 is also provided on the side 20 with the web 21 having the boss 22 which has the tapped hole 23 within which is secured the adjustable tension-spring-stud 24 which holds the tension spring 25 in working position. The guide-plate 11 is provided with

the opening 26 in the top of the same between the lugs 14 and 15, as shown in Fig. 10.

27 is the floating hanger locking member which is provided with the elongated hole 28 for floatably fitting over the supporting-shaft 18, the head 29, and the locking jaws 30 and 31 which engage with the undersides 7 and 8, of the runs 3 and 4, respectively.

32 is the anchoring lever which is provided with the forked and cam-shaped hub member 33 which is provided with the hole 34 for pivotally fitting on the shaft 18.

35 is the movable-jaw-plate operating lever which is also provided with the cam-shaped hub 35^a and the hole 35^b for pivotally fitting on the supporting-shaft 18.

36 is the movable-jaw-plate which has the working side 37 and is provided on the rear side 38 with the cam engaging lug 39 and the side supports 40 and 41 which engage on their bottom surfaces with the top surfaces 5 and 6 of the runs 3 and 4, respectively, and between which side supports the guide-plate 11 sets. The movable-jaw-plate 36 is also provided on the bottom of the same with the guide members 42 and 43, for engaging with the undersides of the runs 3 and 4, respectively, as shown in Fig. 8.

44 represents a piece of material shown supported in the vise.

45 is a modified type of run which may be used for the frame member of the vise, which run is provided with the underside 46 for the guide member 42 of the movable-jaw-plate 36 to engage with.

47 is a toothed, knurled, or otherwise roughened surface for engaging with the locking-jaws 30 and 31 of the locking hanger member 27.

48 is a modified type of locking-jaw for the locking hanger member 27, and is provided with the rough or toothed surface 49 for engaging with the surface 47 shown in Fig. 14, for overcoming any tendency of slipping on the part of the anchoring member when the same has once been locked in the anchoring position.

Having thus described the parts of my invention in detail, the manner in which the same is assembled and operated is as follows: The movable-jaw-plate 36 is first set upon the runs of the vise by being positioned diagonally across the same, which permits the guiding-lugs 42 and 43 to engage with the surfaces 7 and 8 of the runs of the vise as the movable-jaw-plate 36 is brought into the parallel position with the stationary jaw 2 of the vise. With the supporting-shaft 18 removed from the guide-plate 11, the plate is set into engaging position with the runs of the vise, as shown in Fig. 1. The floating locking member 27 is then associated with the guide-plate 11 and the runs of the vise by inserting the head

member 29 through the opening 26 of the guide-plate 11 form the underside thereof. The forked-anchoring-lever 32 is then engaged with the floating locking member 27, as shown in Figs. 7 and 9, the hub of said lever 32 being set adjacent to the supporting-lug 16 of the guide-plate 11 with the hole 34 in line with the hole 16 in the supporting-lug 14. The movable-jaw-plate-operating-lever 35 is then set adjacent to said forked lever, with the hole 37 in line with the hole 34 of the forked lever. The supporting-shaft 18 is then inserted through the holes in the supporting-lugs 14 and 15, the hole 34 of the forked lever, the hole 28 of the hanger locking member 27 and the hole 35^b of the movable-jaw-plate operating lever 35 for supporting said levers and said hanger member in operating position with said guide-plate. The supporting-shaft 18 is then preferably pinned in position by means of the cotter-pins 19 on the ends of the same. The tension coupling spring 25 is then set to engage with the movable-jaw-plate 36, as shown in Fig. 8, and is supported into set engaging position by means of the tension spring supporting and adjusting-stud 24 which is adjustably secured, as shown in Figs. 10, 12 and 13, to the guide-plate 11, by being screwed in the hole 23 which is specially provided therefor. It may be observed that the tension between the spring which engages the clamping movable-jaw-plate 36 with the anchoring member of the vise, may be varied to suit according as may be desired,—sufficient clearance between the spring and the boss 22, as shown in Fig. 10, being always required for permitting the play necessary between the anchoring member of the vise and the clamping and working jaw of the same. It may be observed that the cam member 35^a of the movable-jaw-plate operating lever 35 engages with the cam-lug 39 of the movable-jaw-plate 36, as shown in Figs. 7 and 12. To slide the movable jaw to any part of the vise, the same may be accomplished by raising the levers 32 and 35 into their upward positions, as shown in Figs. 1 and 2, which permits the locking jaws 30 and 31 of the hanger locking member 27 to drop downward and sufficiently away from the surfaces 7 and 8 of the runs 3 and 4, respectively, to permit the same to clear said runs, thus leaving the anchoring member of the vise free to slide along the runs of the same. To engage the movable-jaw-plate for clamping a piece of material 44 in the vise, the movable jaw member is preferably brought near to, but not engaging with, the material, as shown in Fig. 13, when the anchoring lever 32 may be lowered into the locking position, which lever, by virtue of the action of the cam-shaped hubs 33 engaging with the heads 29 of the hanger locking member 27, raises

the hanger locking member 27, and consequently brings the locking-jaws 30 and 31 of the same into gripping contact with the lower surfaces 7 and 8 of the runs 3 and 4, respectively, thereby gripping and locking the anchoring member therewith. The movable-plate-jaw operating lever 35 may then be lowered, as shown in Fig. 12, which results in bringing the cam 35^a into working contact with the cam-lug 39 of the movable-jaw-plate 36, and thus forces the same against the tension of the coupling spring 25 to engage with the material 44, and grips jaw 2 and the movable jaw of the vise; thus closing the working jaw of the vise on the material, as shown in Fig. 12. To open the jaw for releasing the material, the lever 35 is swung in the upward position, as shown in Fig. 13, which allows the movable-jaw-plate 36 to automatically free itself from the material by the action of the coupling spring forcing the movable-jaw-plate back to the original position with the anchoring member. The material is thus freed between the jaws of the vise and may then be removed from the same.

It may be observed that the anchoring member of the vise may be locked with the runs of the same by applying the proper pressure to the lever 32 downward, which brings the cam section of the same into working engagement with the supporting head 29 of the locking plate, and the farther the lever 32 is forced downward, the greater is the action of the cam and the greater is the gripping power between the locking jaws 30 and 31 and the guide-plate 11 upon the runs 3 and 4 between them,—the incline of the cam 33 increasing as the lever is advanced in the downward position. It may also be observed that as the movable-jaw-plate operating lever 35 is advanced in the lower position, that the incline of the cam member 35^a increases, and thus allows the proper gripping pressure on the movable-jaw-plate 36 necessary for holding the material in clamped position between the jaws of the vise. Thus it must be understood that the design and construction of the combination of the floating working jaw and the anchoring member of the movable jaw of the vise permits of the application of extra gripping power after the anchoring member has been locked into position with the frame of the vise, and also furnishes a quick acting vise, in that the operation of the same is very simple and effective, the movable jaw permitting of opening and closing rapidly and positioning readily in working relation, or otherwise on the vise.

It may be understood that where the vise is to be used by an operator for the handling of standard sizes of articles or material, that by once setting the anchoring

member of the vise in proper relationship with the particular dimensions of the article or material, that the operator may confine himself to the manipulation of the movable-jaw-plate operating lever 35, as shown in Figs. 12 and 13, without resetting the anchoring member. It may further be observed that the construction of the movable jaw permits of a powerful gripping feature which may be applied to the article or material held in the vise according as may be required by the operator. It may also be observed that by raising the movable-jaw-plate operating lever 35 into the upward position, where no great pressure is required to grip the material held in the vise, that by simply forcing the guide member 11 as far as it will go, toward the material to be gripped, and locking the anchoring member by lowering the anchoring lever 32, that the material will be sufficiently gripped for ordinary purposes between the jaws of the vise, since, as shown in Fig. 13, the movable-jaw-plate 36, when in the normal position with the operating lever upward, sets adjacent to the guide member 11; so that it will appear that it is not always necessary to manipulate the movable-jaw-plate operating lever 35 for completing the gripping operation of the movable jaw of the vise.

It may be understood that a vise, such as I have herein disclosed, is a very useful apparatus for carpenters, especially more particularly for use in their finishing work, and where it is required to provide greater gripping force upon the material held in the vise, the modified gripping runs, shown in Fig. 14, and the modified gripping jaw shown in Fig. 15, may be used to advantage for positively preventing slipping on the part of the anchoring member when the same has once become locked in the working position and further pressure is applied to the floating jaw of the vise by the manipulation of the movable-jaw-plate operating lever 35, in the downward direction.

While the preferred embodiments of my invention have been described in detail, it will be understood that I do not wish to be limited to the particular construction set forth, since various changes in the form, material, proportions, and arrangement of parts and in the details of construction may be resorted to without departing from the spirit and scope of the invention, or forfeiting any of the advantages contained in the same, heretofore described, and defined in the subjoined claims.

What I claim is—

1. In combination with a frame member having a stationary jaw and parallel runs associated therewith; a movable jaw member consisting of an anchoring member adapted to slidably engage with said runs and to become locked therewith; means for

locking said anchoring member with said runs; a movable-jaw-plate slidably coupled with said anchoring member and adapted to travel therewith upon said runs; and means, provided upon said anchoring member, for forcing said movable-jaw-plate to approach said stationary jaw and to grip, under pressure, the material held between the jaws of the vise.

2. In combination with a rigid frame member having a stationary jaw and parallel runs at right angles therewith; a movable jaw consisting of an anchoring member, provided with locking means, slidably engaging with said parallel runs, and adapted to be locked and anchored therewith; means provided on said anchoring member for operating said locking means of said anchoring member; a movable-jaw-plate slidably secured to said anchoring member and adapted to travel with the same on said runs; and means provided on said anchoring member for shifting and forcing said movable-jaw-plate away from said anchoring member and toward said stationary jaw for gripping the material set between said stationary jaw of the frame member and said movable jaw.

3. In combination with a frame member having a stationary jaw and parallel runs associated therewith; a movable working jaw, consisting of a guide-plate provided with guide runs on the ends thereof, adapted to slidably engage with the top of said parallel runs of said frame member, a recess within the top of said guide-plate, upwardly projecting bearing lugs on either side of said recess and provided with a bearing-shaft, and a tapped bearing boss on the

underside of said guide-plate; a floating anchoring hanger member provided with extension arms adapted to engage with the underside of said parallel runs at will and having a shouldered head member protruding through the recess of said guide-plate and adapted to floatably set over said supporting-shaft of said guide-plate; a forked anchoring lever adapted to engage and fork said head member and to pivotally set on said supporting-shaft of said guide-plate, and provided with a cam member engaging with said head member of said anchoring member, for floatably operating the same to clamp said parallel runs between the arms of said anchoring member and the guide-runs of said guide-plate; a movable-jaw-plate parallel to said stationary jaw of said frame member, provided with guide-runs for engaging with the tops and bottoms of said parallel runs and adapted to slide thereon; a yielding coupling member adapted to engage with said movable-jaw-plate; adjusting means adapted to slidably couple said movable-jaw-plate with said guide-plate; and a movable-jaw-plate operating lever, adapted to be pivotally supported upon the supporting-shaft of said guide-plate and provided with a cam member adapted to engage with said movable-jaw-plate for forcing the same away from said guide-plate against the tension of said yielding coupling member, substantially as shown.

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Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."